

## Petitions Committee

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Meeting Venue:  
**Committee Room 1 – Senedd**

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Meeting date:  
**4 December 2012**

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Meeting time:  
**09:00**

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Cynulliad  
Cenedlaethol  
Cymru

National  
Assembly for  
Wales



For further information please contact:

**Naomi Stocks**  
Committee Clerk  
029 2089 8421  
[Petition@wales.gov.uk](mailto:Petition@wales.gov.uk)

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### Agenda

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- 1. Introduction, apologies and substitutions 09:00**
- 2. P-03-150 National Cancer Standards – discussion of ministerial evidence 09:00 – 09:10**
- 3. New petitions 09:10 – 09:20**
  - 3.1 P-04-439 : Ancient veteran and heritage trees of Wales to be given greater protection (Page 1)
  - 3.2 P-04-440 : Say NO to Asset Stripping Bronllys Hospital (Page 2)
  - 3.3 P-04-441 : Gwaith i Gymru – Work for Wales (Page 3)
  - 3.4 P-04-442 : Guarantee good support close to home for disabled children and their families (Page 4)
- 4. Updates to previous petitions 09:20 – 11:00**

#### Health & Social Services

- 4.1 P-04-424: Retain services at Neath Port Talbot Hospital (Pages 5 – 20)

#### Education & Skills

- 4.2 P-04-346 Free Childcare for 3–4 Year Olds in Wales (Pages 21 – 22)

4.3 P-04-427: A New Welsh Language Law for Wales (Pages 23 – 25)

### **Environment & Sustainable Development**

4.4 P-04-383 Against NVZ Designation for Llangorse Lake (Pages 26 – 29)

4.5 P-04-417 Save Morfa Beach and Prevent the Closure of Public Footpaths 92 and 93 (Pages 30 – 35)

4.6 P-04-422: Fracking (Pages 36 – 83)

4.7 P-04-423: Brooklands Nursing Home (Pages 84 – 97)

### **Housing, Regeneration & Heritage**

4.8 P-03-263 List Stradey Park (Pages 98 – 101)

4.9 P-04-322 A Call to Revise Cadw's Hold upon Churches in Wales (Pages 102 – 103)

4.10 P-04-403 Saving Plas Cwrt yn Dre/Old Parliament (Pages 104 – 110)

4.11 P-04-420 Construct an Owain Glyndwr Monument (Pages 111 – 112)

### **Equality**

4.12 P-03-301 Equality for the Transgender Community (Page 113)

## **P-04-439 : Ancient veteran and heritage trees of Wales to be given greater protection**

### **Petition wording:**

We believe that the ancient, veteran and heritage trees of Wales are a vital and irreplaceable part of the nation's environment and heritage.

We call on the National Assembly for Wales to urge the Welsh Government to provide greater protection for them, for example by:

- Placing a duty on the new Single Environmental Body to promote the conservation of such trees by providing advice and support for their owners, including the grant aid where necessary;
- Amending current Tree Preservation Order legislation to make it fully fit for purpose in protecting ancient, veteran and heritage trees, in line with proposals by Coed Cadw (the Woodland Trust);
- Incorporating the database of trees recorded and verified through the Ancient Tree Hunt project as a dataset in any successor to the Wales Spatial Plan, recognising these as 'Trees of Special Interest' and providing this information to Local Planning Authorities in Wales so that it can be incorporated into their GIS system, for information.

**Petition raised by:** Coed Cadw Cymru

**Date petition first considered by Committee:** 4 December 2012

**Number of signatures:** 5,320

# Agenda Item 3.2

## **P-04-440 : Say NO to Asset Stripping Bronllys Hospital**

### **Petition wording:**

We call upon the National Assembly for Wales to urge the Welsh Government to reject any attempt by the Powys Teaching Health Board to asset-strip the Bronllys Community hospital by closing or moving its Stroke Unit, nor by placing new services or service facilities for the region elsewhere and rather to instruct the Health Board to devise a strategy to build or re-build, improve and/or extend this NHS Hospital's facilities, and services and resource expertise; and to retain and re-build this valuable community asset as a centre of excellence.

We further call upon the National Assembly for Wales to urge the Welsh Government to instruct the Health Board to place Bronllys Hospital at the centre of its strategy for the provision of adult and older people's health services in South East Powys for the next 50 years, and to release the necessary resources to make this happen.

**Petition raised by:** Michael Eccles

**Date petition first considered by Committee:** 4 December 2012

**Number of signatures:** 2,200

## **P-04-441 : Gwaith i Gymru – Work for Wales**

### **Petition wording:**

In light of the most recent Welsh youth unemployment figures, Plaid Cymru Youth calls on the National Assembly for Wales to urge the Welsh Government to put effective and positive steps in place to ensure a brighter future for this generation of young people.

Specifically, we call on the Welsh Government to (1) create a scheme to support 30,000 apprenticeships and to expand the Young Recruits programme; (2) develop a modern, high-value, in-work training programme to increase young people's employability; and (3) extend local authorities' borrowing powers to £350 million so that they can support small and medium enterprises with 'local loans funds'. In addition to these steps, we call on the Welsh Government to do everything in its power to reverse this worrying situation and to do everything it can, in spite of public sector cuts being imposed by the UK Government, to create work for Wales. These are difficult times and Plaid Cymru Youth believes that the cuts that the Westminster coalition government is imposing on us are utterly unreasonable. Those cuts, however, must not stop the Welsh Government from acting now to help the Welsh economy. Youth unemployment is at record levels and worryingly, is worse in Wales than other parts of the United Kingdom; we seem to be bucking the UK trend. There is a real risk that this generation of 16-24 year olds will become a lost generation. They are in danger of being faced with financial hardship for the rest of their lives because of the jobs crisis that they are facing today. Having a quarter of our young people out of work is not a sustainable situation, and it is the start of a dangerous path to economic difficulties for Wales for decades to come. Effective and positive steps must be put in place now to reverse this alarming trend and ensure that we are creating work for Wales.

**Petition raised by:** Cerith Rhys Jones

**Date petition first considered by Committee:** 4 December 2012

**Number of signatures:** TBC

# Agenda Item 3.4

## **P-04-442 : Guarantee good support close to home for disabled children and their families**

### **Petition wording:**

We, the undersigned, call on the Welsh Government to guarantee good support close to home for disabled children and their families.

In order to achieve this, we call on the National Assembly for Wales to urge the Welsh Government to make sure the new Educational (Wales) Bill includes a 'Provide Local' principle in the Bill that will:

- ensure inclusive and accessible services in the local area, and
- put a duty on local agencies to introduce new inclusive and accessible services if they don't exist, through better planning, partnership and the involvement of local parents.

**Petition raised by:** Scope Cymru

**Date petition first considered by Committee:** 4 December 2012

**Number of signatures:** 2,415

## **P-04-424 : Retain services at Neath Port Talbot Hospital**

### **Petition wording:**

We the undersigned call on the National Assembly for Wales to urge the Welsh Government to halt the decision to move all CT2 Doctors from Neath Port Talbot Hospital in the autumn, without prior consultation with the public. This decision will mean that acute medical services will not be provided at the Hospital, and patients will be forced to travel to Morriston in Swansea, or the Princess of Wales in Bridgend for such services. Neath Port Talbot hospital is a state of the art, PFI hospital, and the people of this area want such vital services to be retained at Neath Port Talbot hospital.

**Petition raised by:** Carolyn Edwards

**Date petition first considered by Committee:** 2 October 2012

**Number of signatures:** 193 signatures. Associated petitions collected over 5000 signatures



Cyngor Iechyd Cymuned Abertawe Bro Morgannwg  
Canolfan Fusnes Stryd y Dŵr  
Stryd y Dŵr  
Aberafan  
Castell-nedd Port Talbot SA12 6LF

Abertawe Bro Morgannwg Community Health Council  
Water Street Business Centre  
Water Street  
Aberafan  
Neath Port Talbot SA12 6LF

ffôn | tel: 01639 892271  
Email: [office@abmchc.org.uk](mailto:office@abmchc.org.uk)  
[www.communityhealthcouncils.org.uk/abm](http://www.communityhealthcouncils.org.uk/abm)

26 October 2012

Ms Naomi Stocks  
Clerk of the Petitions Committee  
National Assembly for Wales  
Cardiff Bay  
Cardiff  
CF99 1NA

Dear Naomi

I refer to the letter from your Committee Chair dated 10 October 2012 ref P-04-424.

The Community Health Council met with the Health Board in June this year to discuss the issues concerning Neath Port Talbot Hospital's doctor shortages. I attach an extract from the minutes of that meeting from which you will note that the CHC agreed that the issue was an urgent service change.

In these circumstances the guidance issued by Welsh Government in March 2011 is that there is no requirement for public consultation.

The CHC did attend most of the weekly planning meetings and press and staff briefings were issued following every meeting so the matter was openly communicated. The CHC was reassured that whilst this one aspect of services at NPT Hospital was being withdrawn on the grounds of safe patient care, there are several other moves of services in to the hospital that will ensure it continues to play a full role in the provision of healthcare to all residents of the ABM Health Board area.

I am sure the Health Board, in their response to you, will give you more information but should you require anything further from me please get in touch.

Yours sincerely,

**Phillip Williams**  
**Chief Officer**



**EXTRACT FROM THE MINUTES OF THE**  
**ABERTAWA BRO MORGANNWG COMMUNITY HEALTH COUNCIL [ABM CHC]**  
**EXECUTIVE COMMITTEE MEETING**  
**HELD IN THE BALLROOM, ABERAVON BEACH HOTEL**  
**ON TUESDAY 26 JUNE 2012 AT 9.00 AM**

**EC59/12    To consider an urgent service matter**

Senior representatives, Executives and Clinicians attended for this item. There had been a problem with provision of appropriate medical cover for acute medical provision at NPT Hospital for some time. Despite strenuous efforts to recruit, the lack of cover was becoming a serious safety issues. Wales Deanery, responsible for the education and training of CT1 and CT2 doctors, would no longer be allowing those grades to undertake acute medical placements at NPT Hospital.

It was **AGREED**:-

1. The EC acknowledges the considerable efforts made to date to obtain suitable cover and the difficulties the health board still faces in maintaining medical cover.
2. As the position has now become untenable the health board has no option but to withdraw acute medical services from NPT Hospital from September. The EC agrees that this move falls within the category of 'urgent service change' under the guidance for engagement and consultation issued in March 2011.
3. In accordance with paragraph 48 of that guidance the EC notes that the health board will commence work immediately to prepare contingency plans. A working group will be established to meet weekly with effect from Monday 2 July.
4. The CHC agrees to participate in the planning process and it nominates Mrs Sheila Rano, Chair of NPT Local Committee to sit on this working group.
5. The contingency plans should have a risk assessment undertaken for each of the options considered by the working group (para 48 of the guidance refers).
6. The report to the health board should set out the changes and their impact together with action plans to mitigate any potential adverse impact (para 49 of the guidance). We understand a paper is to be presented to the public part of the Board meeting on Thursday 5 July.

Mr William Powell AM  
Chair of Petitions Committee  
Welsh Assembly Government  
Cardiff Bay

Re: Removal of Emergency Services from Neath Port Talbot Hospital.

Dear Mr Powell

The hospital situation within ABM Trust remains the same with both the Trust and Community Health council refusing to acknowledge that the removal of emergency services from Neath Port Talbot Hospital is causing great difficulties for residents in Neath Port Talbot particularly those in the upper reaches of the valley areas. Discussions held yesterday with a Trust representative made it quite clear that the situation was not going to change and it would appear that no effort will be made to recruit doctors to the site and that despite holding so called information giving sessions they will be adhering to their "remodelling " programme.

Morrison Hospital remains a building site with poor access, very few disabled car parking facilities and poor signage.

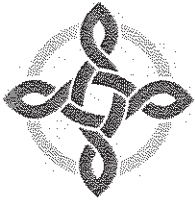
The situation is further exacerbated by the situation within the ambulance trust who within the last two months have had as many as 15 ambulances waiting outside the emergency department waiting to discharge patients.

There has been poor communication to the public as to what constitutes the minor injury department at NPT hospital and within the last month a mother was turned away with her child, forced to drive to Princess of Wales Hospital whereupon he had a fit and was found to have a ruptured spleen.

Thank you for your attention

Sincerely

Carolyn Edwards



GIG  
CYMRU  
NHS  
WALES

Bwrdd Iechyd Prifysgol  
Abertawe Bro Morgannwg  
University Health Board

Our Ref: PR/AH/cw

Date: 2<sup>nd</sup> November 2012

Mr William Powell AC/AM  
Chair, Petitions Committee  
National Assembly for Wales  
Cardiff Bay  
Cardiff  
CF99 1NA

ABM Headquarters  
One Talbot Gateway, Seaway Parade,  
Port Talbot  
SA12 7BR

01639 683302  
WHTN: 1787 3302

Dear Mr Powell,

I write in response to your letter dated 10 October 2012 referring a petition received with regard to Acute Medical Services at Neath Port Talbot Hospital.

You have requested our views on the subject of the petition which was as follows:

*"We the undersigned call on the National Assembly for Wales to urge the Welsh Government to halt the decision to move all CT2 Doctors from Neath Port Talbot Hospital in the autumn, without prior consultation with the public. This decision will mean that acute medical services will not be provided at the Hospital, and patients will be forced to travel to Morriston in Swansea, or the Princess of Wales in Bridgend for such services. Neath Port Talbot hospital is a state of the art, PFI hospital, and the people of this area want such vital services to be retained at Neath Port Talbot hospital."*

The Abertawe Bro Morgannwg University Health Board took the difficult decision to cease the acute medical intake in Neath Port Talbot Hospital on grounds of clinical safety in July 2012. The primary reason for this was a lack of available doctors with the right level of experience and competence to provide acute medical care.

The context to this was that the Wales Deanery alerted the Health Board during 2011/12 that it would not continue to support the placement of core training Year 2 Doctors (CT2) in Neath Port Talbot Hospital from August 2012. The two main reasons for this were the lack of senior supervision for these doctors particularly out of hours, and the limited range of services on site which affected the training experience.

As it was clear this would have major implications for the maintenance of an acute medical service at the Hospital the Health Board explored a number of options to

maintain the acute medical service without relying on these doctors in training as up to 10 doctors were needed to maintain the service. These options included redistribution of senior doctors from other sites, recruitment of specialist non-training Doctors from within the United Kingdom or European Union (EU), or from outside the EU. The Health Board recognised that any such options would not provide a sustainable service and would maintain the service whilst engagement with the public and stakeholders took place on longer term, sustainable proposals for services within ABM and across South Wales through the Health Board's Changing for the Better Programme and South Wales Programme.

The first option of redistributing the 30 Specialist Registrars in Medicine across the four acute hospital sites within ABM was not considered feasible as 24/7 cover requires a minimum of 10 doctors per acute hospital site and there are 30 such doctors in total within the Health Board. Clearly this would have meant all rotas would be unsustainable and this would not have been supported by the Wales Deanery. It was also not possible to substantially increase the number of training posts in Wales at this level.

As a result the Health Board pursued the option of seeking to recruit additional doctors with appropriate clinical experience at a Specialist Registrar grade. A recruitment campaign within the UK/EU was unsuccessful in securing suitable candidates and wider international recruitment was pursued. Initially the response was favourable and we offered 10 candidates posts. However, following pre-employment checks and decisions by individuals not to accept our offer of employment the Board was only able to recruit four suitable Doctors. The Health Board then sought to recruit to the other 6 posts by advertising for clinical fellows. These are research based doctors who provide out of hours medical cover. Unfortunately it was not possible to recruit sufficient doctors in this way to ensure we could continue to provide a safe and reliable emergency medical service at Neath Port Talbot Hospital. This was the clear view of the senior clinicians at the Hospital which led to the report to the meeting of the Health Board in July recommending the urgent transfer of emergency medicine from Neath Port Talbot Hospital. A copy of the report considered by the Board is attached. This report sets out the reasons for the transfer and the engagement with partner organisations that took place, including with the Community Health Council and Neath Port Talbot County Borough Council.

Following the approval of the Board to the proposed transfer a great deal of detailed planning was undertaken over a short timescale to ensure a smooth transition to the revised arrangements from September 2012.

As at the end of October 2012 it is pleasing to report that the revised arrangements are working effectively. Residents from Neath Port Talbot are now receiving acute medical care in other ABM hospital sites and , where appropriate are transferring back to Neath Port Talbot Hospital for onward care, one the most acute phase of their care has been completed. It is important to note that the Hospital has retained the nurse led minor Injuries service and therefore continues to provide urgent care to residents of Neath Port Talbot and further afield. In addition the Hospital continues to provide specialist care and surgical procedures as well as a comprehensive range of out patient services.

The Health Board is currently undertaking a 3 month engagement with the public and partners on our longer term proposals for health and health services locally through Changing for the Better. This is based on a proposal that services are provided to people either in their home or within community settings, recognising that people may need to travel to obtain more specialist care. This engagement is due to conclude in December, following which there will be detailed discussions with the Community Health Council on the need for formal consultation.

I trust this letter has provided you with sufficient information on this matter. Should you wish to be provided with any further details please contact me.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Paul Roberts', written in a cursive style.

**Paul Roberts**  
**Chief Executive**

Enc.

<b>SUMMARY REPORT</b>		ABM University Health Board
<b>Health Board</b>		<b>Date 5<sup>th</sup> July 2012</b> <b>Agenda item 2(ii)</b>
<b>Subject</b>	<b>Urgent Service Change – Acute Medicine at Neath Port Talbot Hospital</b>	
<b>Prepared by</b>	Neil Miles. Programme Manager, Unscheduled Care	
<b>Presented by</b>	Alexandra Howells, Director of Primary, Community and Mental Health Services	

<b>Purpose</b>						
To propose an urgent change to acute medicine at Neath Port Talbot Hospital as a result of a deterioration in medical staffing arrangements.					<b>Decision</b>	x
					<b>Approval</b>	
					<b>Information</b>	
					<b>Other</b>	
<b>Corporate Objectives</b>						
<b>Safety</b>	<b>Quality</b>	<b>Efficiency</b>	<b>Workforce</b>	<b>Health</b>	<b>Governance</b>	
X	X		X		X	
<b>Executive Summary</b>						

<b>MAIN REPORT</b>		ABM University Health Board
<b>Health Board</b>		<b>Date 5<sup>th</sup> July 2012</b> <b>Agenda item 2(ii)</b>
<b>Subject</b>	<b>Urgent Service Change – Acute Medicine at Neath Port Talbot Hospital</b>	
<b>Prepared by</b>	Neil Miles, Programme Manager, Unscheduled Care	
<b>Approved by</b>	Alexandra Howells, Director of Primary, Community and Mental Health Services	
<b>Presented by</b>	Alexandra Howells, Director of Primary, Community and Mental Health Services	

## PURPOSE

To propose an urgent change to acute medicine at Neath Port Talbot (NPT) Hospital as a result of a deterioration in medical staffing issues from August 2012.

## KEY ISSUES

### Medical Staffing Shortages

The Wales Deanery notified the Health Board in 2012 that they would be withdrawing CT2 Doctors in training from NPT Hospital from August 2012. The Deanery indicated that they did not consider NPT Hospital as being able to provide suitable training for this grade of doctor because of a lack of senior supervision from a Registrar grade doctor, and the lack of experience provided in a service which only dealt with a selected range of emergency patients.

The CT2 doctors are the most senior doctors present in NPT Hospital out of hours and are essential to the safe delivery of an acute medical service where emergency patients may arrive at the hospital any time of the day or night. They are responsible for patient care when Consultants are not present onsite, for example, at night.

Initially the Health Board tried to implement a short term solution to the medical staffing problem to ensure that plans for acute medicine in NPT Hospital could be fully considered as part of the Health Board's "Changing for the Better" programme. This is considering the future model of unscheduled care services across the Health Board. The short term plan was to attract a minimum number of non training grade doctors with the appropriate skills and competences to a number of fixed term posts in order to maintain a 24/7 acute medical service. Ideally this number would have been between 10 and 12 to provide full cover for sickness, study leave and annual leave, but the Health Board decided that a minimum of 8 would be sufficient to make the plan more realistic for the short term.

At this time the Health Board was already attempting to find locum doctors to fill existing gaps on the rota and this was not proving to be successful. Options to spread out doctors from other parts of the Health Board were considered but were not feasible in terms of shortages on the other sites and issues regarding training. Consequently an international recruitment visit was made to Dubai in Autumn 2011. Although this was successful in attracting 4 doctors to work in NPT Hospital from early 2012, only 1 of these doctors has been found to have the appropriate level of experience and competence to work safely on the acute medical rota.

In parallel with the above the Health Board developed opportunities for academic research doctors to provide an out of hours, on call service commitment to NPT Hospital and in partnership with Clinical Consultants (with Academic research responsibility) in Swansea Hospitals and Swansea University, to complete a research programme in their chosen specialty. Whilst this is not ideal in terms of day time cover, it helps with the 24/7 rota and was therefore considered acceptable as a short term option. However, despite expectations in May that this would deliver a substantial number of doctors the recruitment process has in fact only delivered 4 doctors, as 2 doctors withdrew at a late stage. The advert was reopened but there have been no suitable applicants.

This means that in early June the Health Board only had 5 out of the minimum 8 doctors required to deliver the acute medical service. Senior doctors advised that this would make the safe delivery of the service unsustainable and did not feel that there were any other options that could be explored.

This must also be considered in the context of ongoing consultant vacancies in NPT Hospital relating to Care of the Elderly (COTE), Gastroenterology and Cardiology. The COTE post has been vacant for two years, gastroenterology for 6 months and cardiology 3 months. Consequentially, instead of 11 Consultants covering the rota and other services there are 7.5 requiring Consultants to work over and above their usual commitments to fill these gaps.

### **Urgent Service Change**

This immediate need for service change in NPT Hospital is in advance of the *Changing for the Better* programme. Consequently this would fall into the remit of 'Urgent Service Change' as outlined in *Guidance for Engagement and Consultation on Changes to Health Services*, (Welsh Government, 2011 p. 15-16). (guidance appended). This applies when an NHS body believes that a decision has to be taken on an issue immediately in the interests of the health service or because of a risk to the safety or welfare of patients or staff. In such a case, the relevant NHS body may not be able either to engage or consult but has to notify the CHC immediately of the decision taken and the reason why no consultation has taken place

Health Board representatives (Director of Planning, Chief Operating Officer, NPT Locality Director, NPT Clinical Director, NPT Intermediate Care Lead and Service Manager



Medicine) briefed the Community Health Council (CHC) Executive Committee on 26<sup>th</sup> June 2012 on the current position and the need for urgent change. The CHC:

- Noted the case for Urgent Service Change as presented
- Agreed that a decision to implement Urgent Service Change could be considered by the Board
- Supported the need to nominate a CHC member or officer to form part of the Planning and Implementation Group
- Supported the need for wider engagement and consultation via *Changing for the Better* programme

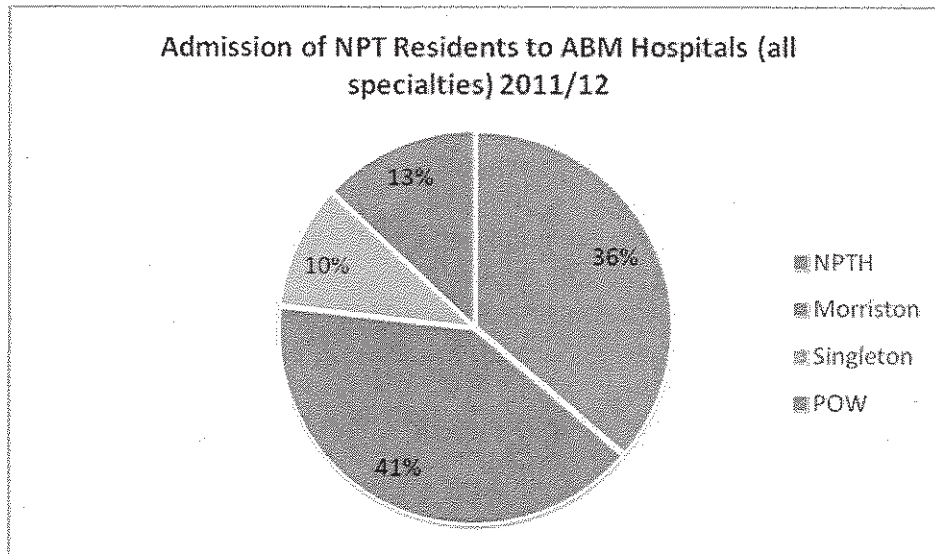
### **Proposed Changes to Acute Medicine at NPT Hospital**

The current acute medical service at NPT Hospital provides a “selected” medical intake which means that it already excludes some clinical conditions on the basis of the ability of the service/workforce to provide safe and effective care for their emergency conditions. The service does not deal with certain categories of patients for example, stroke, heart attacks and those who may require surgical intervention.

The service currently sees just over 9,000 patients each year. Approximately one third of these patients arrive by ambulance, just over a third following a visit to their General Practitioner (GP) and about one fifth arrive as ‘walk-in’s. The other attendees present following other contact e.g. referral from clinic or prison service.

The majority of patients attend the hospital between 10am and 8pm, 7 days a week. Approximately half of these patients are discharged by the Physician teams without requiring an inpatient stay. Of the patients admitted about one third are discharged within 24 hours.

86% of the patients who attend the acute medical service are NPT residents. However, significant numbers of NPT residents also use other acute medical services, in particular Morriston Hospital, as shown on the following chart.



The urgent service change plans that need to be developed and implemented over the next 2 months need to identify alternative pathways for the current number of people using the acute medical service at NPT Hospital. This is likely to involve flows to both the Princess of Wales Hospital, Morryston Hospital and Singleton Hospital, depending on geographical and clinical factors, as well as whether patients have called an ambulance or have been referred by their GP.

The impact on these other sites needs to be planned in detail in terms of Emergency Departments, Assessment Units, ward capacity, clinical support services, emergency transport and social services support. This will require significant changes in service models given recent pressures on Emergency Departments. It is anticipated that NPT Hospital will need to play a key role in repatriating patients from these other hospitals when they have finished their acute treatment, if they cannot go straight home. This will be critical in maintaining patient flow through in patient services at all sites.

Resources and workforce will need to be considered as an integrated part of these plans. Transport for patients, visitors and staff will also be a key issue.

A planning group has been established to progress the work, chaired by Paul Stauber, Director of Planning, with clinical and operational management input and representatives from the Local Authority, WAST, and the CHC. It is anticipated that a final plan will be developed by the end of July.

### **Future Role of Neath Port Talbot Hospital**

Despite these essential changes to the acute medical service at NPT Hospital the Health Board is committed to its future development as a vital part of *Changing for the Better* programme. This role will involve a combination of the development of specialist centres of

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 ABM University Health Board is the operational name of Abertawe Bro Morgannwg University Local Health Board  
 Pencadlys ABM / ABM Headquarters, 1 Talbot Gateway, Port Talbot, SA12 7BR. Ffon / Tel: (01639) 683344

excellence that will support patient pathways across the Health Board, as well as the acceleration of the integrated models of primary, community and hospital care for the local population.

Recent developments at the hospital include:

- state-of-the-art MRI and CT scanners providing high tech diagnostic imagery
- the Health Board's Neuro rehabilitation service
- the new Women's Health Unit which provides sexual health, advice and treatment
- the new laser clinic which transferred from Morriston Hospital

Services which will be opened in the near future include:

- work on the new NHS IVF facility is well underway and the service is scheduled to start in 2013
- work has also started on a purpose-built investigation, treatment and diagnostic unit for Urology patients, who suffer from illnesses like bladder cancer and urinary conditions
- the hospital is scheduled to become a centre of excellence for endoscopy services – where 'magic eyes' are used for patients with stomach or bowel conditions
- providing Breast Surgery services for the Health Board area from Summer 2012
- another centre of excellence: for short stay orthopaedic surgery. This will include foot, ankle, upper limb and specialist knee surgery
- consolidating Elderly Mentally Ill assessment services at NPT Hospital into a modern, purpose built facility with single en-suite rooms

Integrated models are already being developed in collaboration with social services colleagues. These models will be critical in targeting the specific areas of health need within the local population, particularly in terms of people with chronic conditions and frail older people.

It is important to note that the immediate change to the acute medical service does not affect the Minor Injuries service which currently sees approximately 25,000 people per annum or the GP Out of Hours service which has recently been changed to an "in house" model of provision, led by local GPs.

This change does not affect the availability of the Midwifery Led Maternity Unit.

The change does not affect the availability of outpatient services in NPTH. Additional opportunities will be explored to create capacity for rapid access to these clinics to avoid some of the emergency demand on other sites. This means there will continue to be Consultant presence on site from a variety of specialties.

In addition, consideration is underway through *Changing for the Better* of the development of single site solutions for the following services:

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[www.abm.wales.nhs.uk](http://www.abm.wales.nhs.uk)

- Intensive rehabilitation – NPT Hospital already accommodates the neuro rehabilitation unit and there may be opportunities to consider the centralisation of other specialist and intensive rehabilitation services to support the need for a 7 day service and development of specialist expertise e.g. orthogeriatric care
- Rheumatology – options are being considered to provide a single site therapy and infusion unit for the Health Board

Other ideas and suggestions will be considered as part of the “Changing for the Better” Programme.

## RECOMMENDATION

The Board is asked to:

- Note the deterioration in the medical staffing position for acute medicine at NPT Hospital.
- Note the agreement of the CHC to consider an urgent service change in accordance with the guidance, outside the Changing for the Better consultation process
- Note the requirement to implement an extensive communications plan to ensure there is a clear understanding of the service change plans.
- Note the important role of NPT Hospital in the future plans of the Health Board, with the final service models to be agreed through the Changing for the Better process.
- **Agree the urgent service change to acute medicine at NPT Hospital, noting that detailed planning is now underway with regard to the implications for patients, service delivery, workforce, finance, and transport.**

ABMU Health Board is progressing its *Changing for the Better* programme in order to establish sustainable models of care to meet the future needs of its population. This programme recognises that change will be needed to many clinical services across the Health Board, affecting all hospital sites, and the whole pathway of care. The main drivers for the change recognise the need to deliver better quality and outcomes for patients within the context of shortages of medical staff in a number of specialties and a challenging financial environment. The programme is expected to agree a final plan by 2013.

However, the Health Board is facing an immediate problem with regard to the acute medicine service at NPT Hospital because of medical staffing problems. Although there have been difficulties with medical recruitment over recent years the position will deteriorate significantly from August 2012 in spite of efforts over the last 12 months to recruit a variety of additional doctors. This makes the 24/7 provision of acute medical services unsustainable, and requires a service change in advance of the *Changing for the Better Programme* to be agreed by the Health Board.

Early discussions have taken place with the Community Health Council to alert them that an urgent service change could commence in September, outside the usual engagement and consultation processes, subject to Board approval. This is in line with the provision contained in *Guidance for Engagement and Consultation on Changes to Health Services*, (Welsh Government, 2011).

Subject to this decision the implications of the service change need to be planned in detail, both in terms of where patients will need to go for acute medical services from September, but also in terms of the future development of services at NPT Hospital. NPT Hospital provides many excellent facilities and services and it will continue to place a key role in the future clinical strategy of ABMU Health Board. Some of these plans are already under development, some of them will emerge from the *Changing for the Better* programme.

Communication and engagement with staff, GPs, patients, the public and key partners such as the Local Authority and WAST will be critical during the next few months, together with ongoing support from the Community Health Council. A comprehensive communications plan will be put in place.

**Key Recommendations**

The Board is asked to

- Agree the urgent service change to acute medicine at NPT Hospital, noting that detailed planning is now underway with regard to the implications for patients, service delivery, workforce, finance, and transport.
- Note the important role of Neath Port Talbot Hospital in the future plans of the Health Board, with the final service models to be agreed through the *Changing for the Better* process.

**Assurance Framework**

These changes are required to ensure safe services are provided

**Next Steps**

Detailed planning work to be undertaken alongside intensive engagement

<b>Corporate Impact Assessment</b>	
<b>Quality and Safety</b>	HCS 7
<b>Financial Implications</b>	To be confirmed
<b>Legal Implications</b>	N/A
<b>Equality &amp; Diversity</b>	Impact to be assessed

## **P-04-346 Free Childcare for 3-4 Year Olds in Wales**

### **Petition wording:**

We call on the National Assembly for Wales to urge the Welsh Government to ensure that free childcare for 3-4 year olds is delivered more flexibly across Wales allowing parents, and in particular working parents, to choose when and where they access the free childcare.

### **Supporting Information:**

All three and four year olds are entitled to 15 hours of free nursery until they reach compulsory school age however many parents living in certain local authority areas in Wales are unable to utilise this free childcare due to the restrictions in place.

For example, parents living in the Vale of Glamorgan are only able to redeem free childcare at nurseries attached to schools and this childcare is split into 2.5 hours a day from Monday to Friday. In Newport Council however parents are offered a wrap around service whereby 12.5 hours are available for parents to use against childcare provided in either a nursery school or private nursery setting of their choice. This essentially means that working parents in certain local authority areas who are unable to drop and collect their children for 2.5 hours of childcare a day are being discriminated against and losing out on free childcare whilst parents in other areas are receiving a disproportionate amount of money towards their childcare costs. I would urge the Welsh Government to standardise this system so that parents in all local authority areas can use a wrap around service thus making the free childcare accessible to all including working parents.

**Petition raised by:** Zelda Smith

**Date petition first considered by Committee:** 29 November 2011

**Number of signatures:** 67

Leighton Andrews AC / AM  
Y Gweinidog Addysg a Sgiliau  
Minister for Education and Skills



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-03-346  
Ein cyf/Our ref LA/07179/12

William Powell AM

[William.powell@wales.gov.uk](mailto:William.powell@wales.gov.uk)

7 November 2012

Dear William,

Thank you for your letter dated 22 October about free childcare for 3-4 year olds.

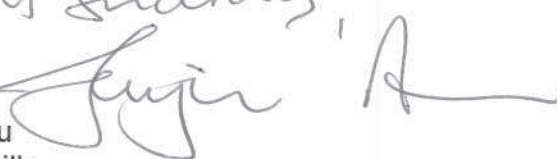
You will wish to be aware that the planning of such provision is a matter for the individual local authority. However, in planning the provision they are expected to take the needs of children and their parents/carers into consideration and put in place arrangements to ensure that as many families as possible are able to access the free provision.

My officials have carried out some initial work to look at the variation suggested and have found that there is less variation across Wales than initially perceived. All local authorities offer 10 hours with most local authorities providing 2 or 2.5 hours over or 4 or 5 days. Where there is variation it is due to local authorities offering additional support, which they are entitled to do, over and above the 10 hours.

With regard to issuing more direct guidance, we are aware that most local authorities already operate through a mixed approach for the provision of Foundation Phase places, with the vast majority offering provision through maintained and non-maintained settings.

Before deciding on changes to guidance, I have asked my officials to undertake further investigation with each local authority to clarify how they deliver their Foundation Phase provision for children below statutory school age in both maintained and non maintained settings.

I will write to you again when I have a full picture.

*Yours sincerely,*  


Leighton Andrews AC / AM  
Y Gweinidog Addysg a Sgiliau  
Minister for Education and Skills

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Wedi'i argraffu ar bapur wedi'i ailgylchu (100%)



## **P-04-427 : A new Welsh language law for Wales**

### **Petition wording:**

We call on the Welsh Assembly to create a new Welsh language law as we feel that the current laws regarding the Welsh language do not go far enough to protect the rights of Welsh speakers. Currently, the private sector is not required to have Welsh language plans or policies and does not have to treat the Welsh language as an equal to English. Whilst Welsh speakers have increased rights, they now need to have the right to be able to use Welsh in ALL aspects of their daily lives.

**Petition raised by:** Gethin Kurtis Sugar

**Date petition first considered by Committee:** 16 October 2012

**Number of signatures:** 93

Leighton Andrews AC / AM  
Y Gweinidog Addysg a Sgiliau  
Minister for Education and Skills



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-427  
Ein cyf/Our ref LA/07182/12

William Powell AM

committeebusiness@Wales.gsi.gov.uk

7 November 2012

*Dear William,*

Thank you for your letter dated 22 October about the petition submitted by Gethin Kurtis Sugar, calling for a new Welsh language law.

The Welsh Government has no plans to introduce primary legislation with regard to the Welsh language, in particular, legislation dealing with the use of Welsh by the private sector.

We are currently implementing the Welsh Language (Wales) Measure 2011 (the Measure) which confirms that the Welsh language has official status in Wales. The Measure strengthened the existing legal framework and will lead to greater clarity for Welsh speakers in terms of the service they can expect to receive in Welsh. By enabling duties to be placed on organisations to provide services in the Welsh language, the Measure leads to the establishment of rights for Welsh speakers in Wales.

The Measure created the role of the Welsh Language Commissioner as an advocate and regulator for the Welsh language. The Commissioner has powers to promote and facilitate the use of the Welsh language and impose duties on various organisations. The Commissioner's office was established on 1 April 2012 and, since then, the Commissioner has undertaken a non-statutory consultation with regard to developing Welsh language duties, known as standards.

Standards will replace Welsh language schemes. Once imposed they will place a duty on a wide range of organisations to provide services through the medium of Welsh, and the Commissioner has a range of enforcement powers to ensure that organisations comply with their standards. Certain standards may be imposed on private companies offering telecommunications, gas, water, electricity, postal, bus and railway services. Apart from these companies, however, the Government remains firmly of the view that a more appropriate approach for the majority of private sector companies will be to encourage and support their use of Welsh on a voluntary basis.

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Wedi'i argraffu ar bapur wedi'i ailgylchu (100%)

The Welsh Government wishes to see the Welsh language thrive, and to see more opportunities for people to use Welsh in their day to day life. I believe that the Measure, alongside the Government's Welsh language strategy and Welsh medium education strategy will help us achieve that aim.

*Yours sincerely,  
Leighton Andrews*

**Leighton Andrews AC / AM**  
Y Gweinidog Addysg a Sgiliau  
Minister for Education and Skills

# Agenda Item 4.4

## **P-04-383 Against NVZ Designation for Llangorse Lake**

### **Petition wording:**

'We call on the Welsh Assembly Government to overturn the proposed Nitrate Vulnerable Zone designation on the basin of Llangorse Lake, which is likely to affect approximately 25 farm businesses.

**Petition raised by:** Kaye Davies

**Date petition first considered by Committee:** 27 March 2012

**Number of signatures:** 43

John Griffiths AC /AM  
Gweinidog yr Amgylchedd a Datblygu Cynaliadwy  
Minister for Environment and Sustainable Development



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-383  
Ein cyf/Our ref JG/07208/12

William Powell AM

Chair Petition's committee  
Ty Hywel  
Cardiff Bay  
Cardiff  
CF99 1NA

2 November 2012

*Dear William,*

Thank you for your letter dated 10 October about the petition you have received regarding the proposal to designate Llangorse Lake as a Nitrate Vulnerable Zone (NVZ). I have noted the accompanying documents which you provided with your letter.

I have set out below the background which led to Llangorse Lake being identified as a proposed Nitrate Vulnerable Zone.

Member States are required to review their implementation of the EC Nitrates Directive every four years. The outcome of the review is used to propose new or amend NVZ's and/or the measures in the Action Programme.

Following consideration of the consultation responses to the latest Review of the Nitrate Directive in Wales, issued in December 2011 and recommendations made to us by the Environment Agency, the Welsh Government issued letters to identified owners or occupiers of land which falls within a proposed NVZ area. The letter set out that the Welsh Government was minded to designate identified NVZ areas in Wales.

Within this process of reviewing and proposing NVZ's in line with the requirements of the EC Nitrates Directive there is an opportunity for those land owners/occupiers to appeal against the proposals. The grounds for appeal are clearly set out in Part 2 of the Nitrates Pollution Prevention (Wales) Regulations 2008. All appeals received in relation to the current NVZ proposals are being considered by Planning Inspectors as appointed by Welsh Ministers.

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Wedi'i argraffu ar bapur wedi'i ailgylchu (100%)

In relation to the appeal raised by owners/occupiers of land within the proposed NVZ around Llangorse Lake, a public hearing was held on 16 October and the Planning Inspector will make a final decision by the end of November. Appeals decisions are binding on the Welsh Government.

In response to your question about possible financial assistance for those whose farms are within a designated NVZ, I can advise you that financial assistance will be available to farmers within newly designated Nitrate Vulnerable Zones. This will be through a combination of advice and grant aid aimed at tackling pollution at source and intercepting/mitigating pollution pathways.

Advice regarding compliance with Nitrate Regulations is available through Farming Connect's Farm Advisory Service. Farm advisory visits, together with specialist support from an approved adviser will provide on-farm advice and training. All eligible businesses can apply for up to 80% funding towards this service.

Capital investment aimed at tackling pollution at source and intercepting and mitigating pollution pathways will be available through Glastir Efficiency Grants. This scheme will be prioritised for farms in NVZs through a revision of Priority Water Catchments. Eligible technologies include:

- Rainwater separation – rainwater goods and protection, pipe work and associated yard reinstatement, roofing over livestock gathering areas, diversion kerbing;
- Slurry separators and associated equipment;
- Roofs/ covers and floating covers over slurry stores;
- Roofs over manure stores;
- Slurry, manure and dirty water stores – new, extensions and modifications, with associated reception pit, slurry channels and fixed equipment;
- Low trajectory slurry spreading equipment (e.g. trailing shoe spreaders, shallow injectors) – *not applicable to Glastir Entry Option 14* ;
- Recycling – pipe work, storage tanks, water troughs; and
- Rainwater collection – guttering, pipes, filters, storage tanks, 1<sup>st</sup> flush diverters, pumps, associated controls and electrics.

A Nutrient Management Plan including soil analysis will be needed for Glastir Efficiency Grants, which can be part funded through Farming Connect. The plan will recommend slurry/manure applications and any inorganic fertiliser use and will provide a Storage Report. This will illustrate the current situation and improvements required to reach the five month storage requirement. The report will include actions to reduce the quantity of material to be stored such as clean/dirty water separation and may also include recommendations on storage.

Grants can be awarded for a proportion of the costs of the eligible items which improves manure /slurry storing facilities for the purpose of increasing the storage period allowing farmers to make best use of their manure and slurry. Matching slurry/manure application to

crop needs will reduce nutrient leaching to water courses addressing diffuse pollution. Up to 40% of eligible costs, subject to a maximum grant per holding of £50,000 will be available.

For Young Farmers, 50% of eligible costs is available. Grants will be made subject to a minimum grant contribution of £2,000. The amounts available through Glastir Efficiency Grants exceed those of the previous Catchment Sensitive Farming Scheme.

Yan,



**John Griffiths AC / AM**

Gweinidog yr Amgylchedd a Datblygu Cynaliadwy  
Minister for Environment and Sustainable Development

# Agenda Item 4.5

## **P-04-417: Save Morfa Beach and Prevent the Closure of Public Footpaths 92 and 93**

### **Petition wording:**

Morfa Beach is a stretch of coastline lying between Port Talbot Steelworks and Sker Beach, adjacent to Kenfig Nature Reserve. Access to the beach is only possible on foot or bicycle, so it has become a precious place of peace and solitude. In 2011 the community group, Save Morfa Beach (Friends of Morfa), was formed in response to a threat via TATA Steelworks seeking to discontinue access to the beach. This includes the closure of two historically significant & well used public footpaths that lead to the beach: Footpath 92 from Longland's Lane in Margam & Footpath 93 from Kenfig Nature reserve.

Support the campaign of the Save Morfa Beach (Friends of Morfa) organisation to preserve the rights of way along footpaths 92 and 93 & maintain access to Morfa Beach. We ask the Welsh Assembly & Neath Port Talbot Council to preserve and maintain all rights of way on Margam Burrows, & to liaise with Tata Steel to ensure that public access to the beach is continued.

Supporting information: Whether rights of way cross private or public land, Neath & Port Talbot County Borough Council and the Welsh Assembly are ultimately responsible for ensuring they are protected, available and fit for purpose. We are therefore involved in lobbying, but as an organisation we are not party-political. A Facebook Group ([www.facebook.com/groups/SaveMorfaBeach/](http://www.facebook.com/groups/SaveMorfaBeach/)) has been created as the public profile of the organisation.

**Petition raised by:** Save Morfa Beach (Friends of Morfa)

**Date petition first considered by Committee:** 2 October 2012

**Number of signatures:** 1191





Mr William Powell AC/AM  
Chair  
Petitions Committee  
National Assembly for Wales  
Cardiff Bay  
CF99 1NA

*Dear Mr Powell,*

## MORFA BEACH

Thank you for your letter of 10 October 2012.

The Council has published 3 legal orders in connection with Footpaths 92 and 93 Port Talbot as follows:

- An extinguishment Order that effectively extinguishes part of Footpath 92;
- A Diversion order that re-routes Footpath 93;
- A Creation Order that continues a route to cross the River Kenfig and travels onto Bridgend.

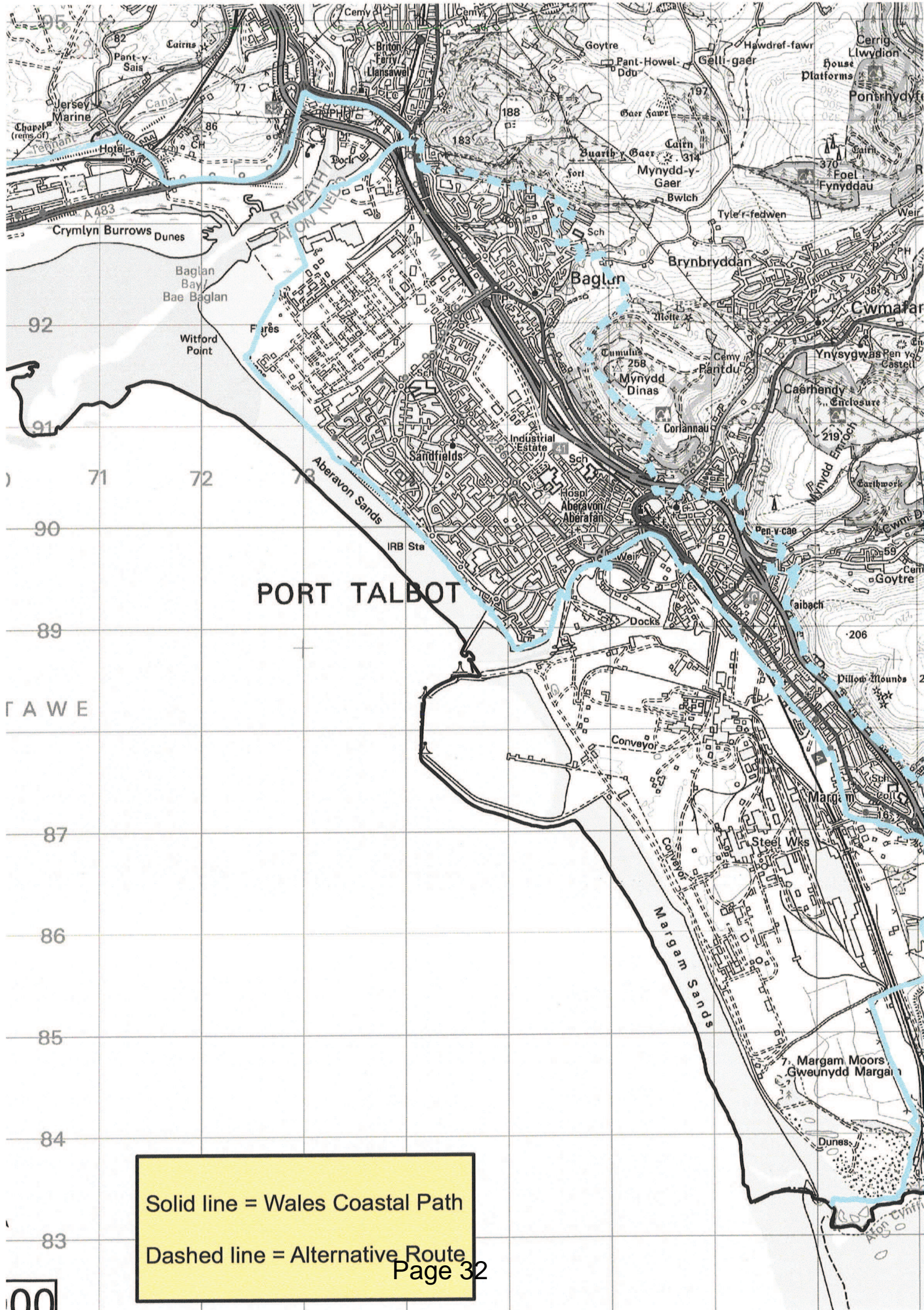
I attach a plan that clearly shows the relationship between the 3 orders.

There are objections to these proposals, including those by the Friends of Morfa. As such, a Public Inquiry will be held and an independent Planning Inspector will make a decision on the Orders. This is the correct forum for these objections to be heard in the view of the Council.

*Yours sincerely,*

**STEVEN PHILLIPS**  
**Chief Executive**





PORT TALBOT

Solid line = Wales Coastal Path  
Dashed line = Alternative Route



Mr William Powell AM  
Chair, Petitions Committee  
National Assembly for Wales  
Cardiff Bay  
CF99 1NA

8<sup>th</sup> November 2012

Your ref: P-04-417

cc: Richard Leonard, Environment Manager, Tata Steel

Dear Mr Powell,

**Petition with respect to Public Access to Morfa Beach**

I am writing in acknowledgement of your notice to us that the Petitions Committee has received a petition concerning access to Morfa Beach. We will be very pleased to offer the clarity you require and would be willing to meet members of the Committee to answer your questions.

You will be aware that Morfa Beach, between the mouth of the River Kenfig and the Port Talbot deep-water harbour, is private land. It forms part of Tata Steel's Port Talbot steelworks. While a public beach exists south of the Kenfig, the area in question is privately owned and there are no public rights of way of any kind on this beach. Visitors to the beach have entered with the tacit permission of the Company (in its existing or previous forms) and this does not affect our rights and obligations as private landowners.

The issues of the potential closure of Footpaths 92/93 and the request for access to the private Morfa Beach are not connected. The first has been mooted in order to provide a suitable new section (Footpath 94) to meet the needs of the Wales National Coastal Path (WNCP). This process has been led by the Welsh Government and Neath Port Talbot County Borough Council, and, as you may be aware, is subject to the deliberations of the Planning Inspectorate (PI). It is important to note that should the PI uphold objections to the closure of 92/93, it does not affect the matter of access to the private Morfa Beach.

Consequently, by arrangement with the local authority, the footpaths mentioned in the petition do not enter Morfa Beach area. Walkers are directed from the end of Longlands Lane on Footpath 92 to a point that takes them parallel to the beach on Footpath 93. This takes them to the public beach. The proposed Footpath 94 minimises the hazard of the existing footpaths' route over land that is part of a hazardous industrial landfill site. In addition it has the potential for further development as an amenity if the community wishes it.

Port Talbot steelworks is a major industrial site. This includes complex and hazardous operations and movement of materials using large and hazardous vehicles and conveyors. Health and safety is our priority and Morfa Beach is subject to the same standards as any other part of the steelworks site. We

**TATA STEEL**

**Port Talbot Business Headquarters**

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Page 2 of 2

are supervised under the statutory Control of Major Accident Hazard (COMAH) Tier 1 Regulations, which have been in existence since 1999. To comply with these, we have to ensure that all visitors to the steelworks site are formally recorded, they are appropriately inducted and supervised, and finally, their exit is also recorded. The Welsh Government's former Deputy First Minister, Ieuan Wynn Jones opened the COMAH compliant visitor centre in 2008, and, owing to the Perimeter Distributor Road (PDR) development, you may be aware that a new £4 million visitor/training centre is currently being completed. It is essential to invest so many resources into the site in order to ensure the health, safety and security of all visitors to the site, however there would be significant flaws in our system if any parts of the steelworks affected by the COMAH regulations are not subject to these arrangements.

We are most conscientious about meeting our obligations to the local community with respect to health, safety and environmental care, and we have worked in partnership with the Welsh Government and the local authority with respect to finding positive solutions for the PDR and the WNC. With respect to the matter of public access to private land on which hazardous industrial operations are managed, we feel that we must place our responsibilities regarding health and safety first.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'R. Dangerfield', with a large, sweeping flourish extending to the left.

**Robert Dangerfield**  
**External Communications for Tata Steel in Wales**

John Griffiths AC /AM  
Gweinidog yr Amgylchedd a Datblygu Cynaliadwy  
Minister for Environment and Sustainable Development



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-417  
Ein cyf/Our ref JG/07204/12

William Powell AM

Chair Petition's committee  
Ty Hywel  
Cardiff Bay  
Cardiff  
CF99 1NA  
committeebusiness@Wales.gsi.gov.uk

2 November 2012

*Dear William*

Thank you for your correspondence of 10 October concerning access to Morfa beach, Port Talbot.

I am aware that this matter has generated strong local feelings and that there have been discussions in the past regards these paths between officials from Neath Port Talbot County Borough Council, the Countryside Council for Wales, and Tata Steel.

I understand that Neath Port Talbot County Borough Council officials are in the process of preparing final submissions to Planning Inspectorate Wales, who deal with case work on behalf of Welsh Ministers. It would be inappropriate for me to pass opinion at this stage as it would undermine the proper consideration given by the independent planning inspector.

*Best wishes,*

**John Griffiths AC / AM**  
Gweinidog yr Amgylchedd a Datblygu Cynaliadwy  
Minister for Environment and Sustainable Development

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*Wedi'i argraffu ar bapur wedi'i ailgylchu (100%)  
paper*

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# Agenda Item 4.6

## **P-04-422 : Fracking**

### **Petition wording:**

We call upon the National Assembly for Wales to urge the Minister for Environment and Sustainable Development to produce a Ministerial Interim Minerals Planning Policy Statement as well as a new technical advice note to strengthen the precautionary principle with regard to planning applications for onshore oil and gas, including fracking. All reasonable scientific doubt that there is any risk of adverse impacts must be eliminated, and strongest consideration must be given to the urgent need to mitigate climate change.

**Petition raised by:** Friends of the Earth Cymru

**Date petition first considered by Committee:** 2 October 2012

**Number of signatures:** Approximately 1000

John Griffiths AC /AM  
Gweinidog yr Amgylchedd a Datblygu Cynaliadwy  
Minister for Environment and Sustainable Development



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-422  
Ein cyf/Our ref JG/07205/12

William Powell AM  
Chair Petition's committee

committeebusiness@Wales.gsi.gov.uk

8 November 2012

*Dear William,*

Thank you for your letter of 10 October regarding the petition on Ministerial Planning Policy. Planning policy advice is contained in both Planning Policy Wales (PPW) and Minerals Planning Policy Wales (MPPW), and together these provide the context for applications relating to onshore oil or gas development in Wales. National policy identifies the essential role that mineral planning authorities play in ensuring a proper balance between the prudent use of resources, amenity and the environment; it provides advice on how they should fulfil that role through respecting environmental limits, applying the precautionary principle, and using scientific knowledge to aid decision making.

As we made clear in our response published last month to the Environment and Sustainable Development Committee's report into Energy Policy and Planning, we are not convinced that the issues are sufficiently distinct to justify a new Technical Advice Note.

We consider that the precautionary approach advocated in national planning policy is sufficiently robust. However we will continue to work closely with the UK Government and the respective agencies to develop our understanding of the impacts of shale gas and will keep under review the appropriateness of the regulatory frameworks as this evidence comes forward.

*Yours,  
John*

**John Griffiths AC / AM**  
Gweinidog yr Amgylchedd a Datblygu Cynaliadwy  
Minister for Environment and Sustainable Development

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*Wedi'i argraffu ar bapur wedi'i ailgylchu (100%)*

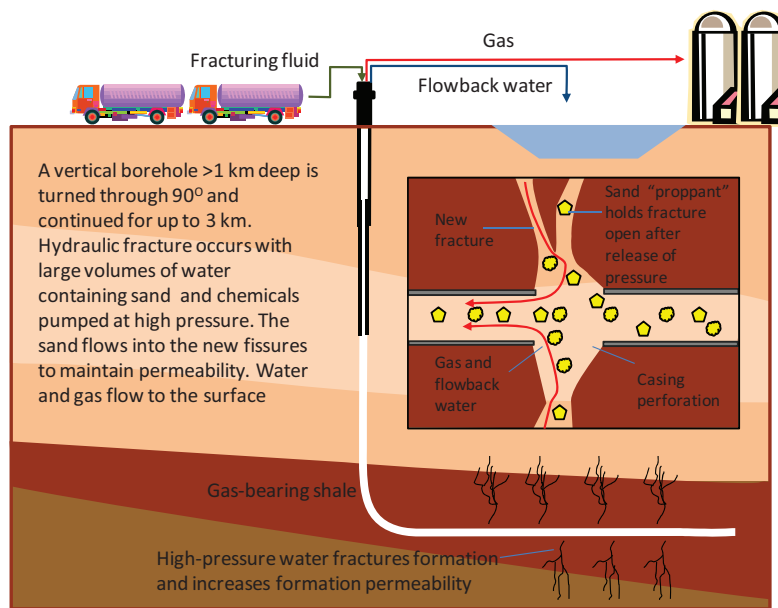
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Correspondence: John.Griffiths@wales.gsi.gov.uk  
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# Potential groundwater impact from exploitation of shale gas in the UK

Groundwater Science Programme

Open Report OR/12/001







BRITISH GEOLOGICAL SURVEY

GROUNDWATER SCIENCE PROGRAMME

OPEN REPORT OR/12/001

# Potential groundwater impact from exploitation of shale gas in the UK

M E Stuart

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#### *Keywords*

Report; shale gas; fracking; flowback water; aquifers; pollution.

#### *Front cover*

Hydraulic fracturing overview (adapted from Gregory et al., 2011)

#### *Bibliographical reference*

STUART M E. 2011. Potential groundwater impact from exploitation of shale gas in the UK. *British Geological Survey Open Report*, OR/12/001. 33pp.

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### *Parent Body*

### **Natural Environment Research Council, Polaris House, North Star Avenue, Swindon SN2 1EU**

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# Contents

<b>Contents.....</b>	<b>i</b>
<b>Summary .....</b>	<b>iii</b>
<b>1 Introduction .....</b>	<b>1</b>
1.1 Aim of report .....	1
1.2 Shale gas .....	1
1.3 Extraction methods .....	2
1.4 USA .....	3
1.5 Potential in the UK .....	5
1.6 Concerns .....	6
<b>2 Water resources issues .....</b>	<b>8</b>
<b>3 Contamination issues .....</b>	<b>9</b>
3.1 Sources.....	9
3.2 Routes to groundwater.....	11
<b>4 Evidence of groundwater contamination .....</b>	<b>17</b>
<b>5 Standards and regulation .....</b>	<b>18</b>
5.1 UK .....	18
5.2 USA .....	19
<b>6 Conclusions .....</b>	<b>19</b>
6.1 Summary.....	19
6.2 Unknowns .....	20
<b>References .....</b>	<b>21</b>
<b>Appendix 1 Chemical constituents of fracturing fluid and flowback water .....</b>	<b>23</b>

**FIGURES**

Figure 1.1 Map of world shale gas resources assessed by the US Energy Information Administration (EIA, 2011a)..... 2

Figure 1.2 Hydraulic fracturing overview (adapted from Gregory et al., 2011)..... 3

Figure 1.3 Locations of shale gas plays, USA (EIA, 2011b)..... 4

Figure 1.4 Main black shale formations in the UK with US classifications in left column (Smith et al., 2010) ..... 6

Figure 1.5 Outcrop of main black shale formations in UK and selected oil and gas wells and gas fields. 7

Figure 3.1 Schematic of casing and grouting to protect groundwater resources (from (Ground Water Protection Council and ALL Consulting, 2009) ..... 13

Figure 4.1 Methane concentrations as function of distance to nearest gas well (from (Osborn et al., 2011) ..... 17

Figure 6.1 Comparative depths of shale gas formations and groundwater for the U.S. (Ground Water Protection Council and ALL Consulting, 2009) ..... 20

**TABLES**

Table 2.1 Summary of water resources required to meet 10% of UK annual requirement for gas (Wood et al., 2011)..... 8

Table 3.1 Typical composition of gas (from Natural Gas Supply Association, 2010) ..... 9

Table 3.2 Composition and purposes of typical constituents of hydraulic fracturing fluid (after Gregory, 2011 and Ground Water Protection Council and ALL Consulting, 2009)..... 10

Table 3.3 Range of constituents in flowback water from development in the Marcellus Shale, USA (after Gregory et al, 2011) ..... 14

## Summary

This report is a desk study to evaluate the potential risks to groundwater in the UK from exploitation of shale gas. As yet there is little information for UK so we need to look to the USA experience for transferable information.

The UK may possess considerable reserves of shale gas. Significant areas include the Widmerpool Gulf, near Nottingham, and the Elsewrick field near Blackpool. Work has begun near Blackpool.

Hydraulic fracturing (“fracking”) in combination with horizontal drilling is an essential part of the shale gas production process and has been in use in the USA since about 1948. Extraction involved drilling of deep horizontal wells and enhancing the natural permeability of the shale by hydraulic fracturing. Fluid is introduced at a rate sufficient to raise the downhole pressure above the fracture pressure of the formation rock. The stress induced by the pressure creates fissures and interconnected cracks that increase the permeability of the formation and enable greater flow rates of gas into the well.

Groundwater may be potentially contaminated by extraction of shale gas both from the constituents of shale gas itself, from the formulation and deep injection of water containing a cocktail of additives used for hydraulic fracturing and from flowback water released during gas extraction which may have a high content of saline formation water. Shale gas is predominantly methane of thermogenic origin with low percentages of C<sub>2</sub> (ethane) and C<sub>3</sub> (propane) hydrocarbons. Its <sup>13</sup>C isotopic signature allows it to be distinguished from shallow biogenic methane in the subsurface. Documented instances of groundwater contamination from the USA are all related to the leakage of methane into groundwater.

Fracking chemicals include hydrochloric acid, polyacrylamide, mineral oil, isopropanol, potassium chloride and ethylene glycol and low concentrations of pH buffers, corrosion inhibitors, biocides and gelling agents.

The large volumes of water required may also put pressure on groundwater resources with impacts on other uses and groundwater dependent ecosystems. Reuse of flowback water involves treatment to remove high TDS.

For UK we need to determine whether fields likely to be exploited for shale gas are overlain by significant aquifers. For aquifers at outcrop the vulnerability of groundwater to surface pollution from operations and flowback water can be informed by existing vulnerability mapping and other information. The vulnerability of groundwater to pollution from fracking operations and shale gas requires the determination of the relative depths of groundwater and shale gas reservoirs and the nature of the intervening strata.



# 1 Introduction

## 1.1 AIM OF REPORT

Demand for gas in the UK is steadily increasing, North Sea gas reserves are declining and the UK has become a net importer of gas. Shale gas drilling in the UK has been given the go-ahead by MPs in a report looking at the impact it could have on water supplies, energy security and greenhouse gas emissions (Energy and Climate Change Select Committee, 2011). In order to meet demand in the future, energy exploration may be focused on our 'unconventional' reservoirs, including shales (mudstones, claystones, and other fine-grained rocks).

Work towards extraction of shale gas began in the UK in August 2010 with the drilling of a 2700 m deep exploratory well to the Bowland Shale at Preese Hall, near Blackpool, NW England. The second phase involving hydraulic fracturing began in March 2011. Work was temporarily suspended on 1 June 2011 after a 1.5 magnitude earth quake was detected. Work began at a second site at Banks, near Southport on 22 August 2011 and at Grange Hill Farm.

The aim of this desk study is to evaluate what the potential risks to groundwater from exploitation of shale gas could be for the UK. As yet there is little information for UK so we need to look to the USA where this is a long-established technique, for transferable information.

In an assessment from the Tyndall Centre, Broderick et al. (2011) state that the potential for groundwater contamination is a key risk associated with shale gas extraction, although there is limited evidence. They cite that the US EPA has instigated a comprehensive research study into this issue and New York State has introduced a moratorium on any new wells.

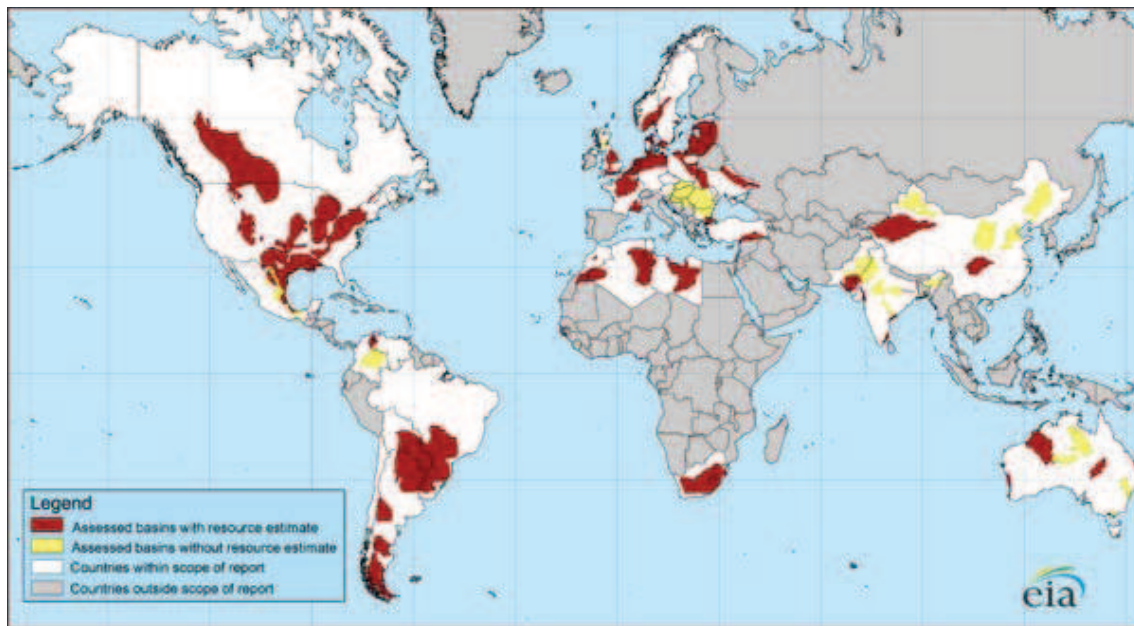
## 1.2 SHALE GAS

Shale gas is natural gas entrapped in shale and is distinct from gas in other low-permeability reservoirs and from "conventional" gas (Gregory et al., 2011). Shales are fine-grained, clastic sedimentary rocks predominantly comprised of consolidated clay sized particles that were deposited as muds in low-energy depositional environments and may contain other minerals such as quartz, calcite, and pyrite. Deposited with these very fine-grained sediments is organic matter in the form of algae, plant, and animal derived organic debris (Arthur et al., 2009).

The shale formation is both the source and the reservoir for the natural gas, which is predominantly methane (~90%) but may also contain other hydrocarbons, carbon dioxide, nitrogen, hydrogen sulphide, and rare gases (Lapidus et al., 2000). The gas is held in natural fractures and pore spaces or adsorbed onto the organic material and minerals in the formation (Jenkins and Boyer, 2008).

Gas embedded in shale rock formations deep below the Earth's surface has long been considered inaccessible, due to high drilling costs and because shales lack sufficient natural permeability for the recovery of gas at rates suitable for large-scale production. Deep borings must be used and fractures must be engineered to enable commercial viability (Jenkins and Boyer, 2008). New horizontal drilling methods, combined with techniques to fracture the rock, have for the first time made shale gas production practical. New technology for gas production from shale formations evolved in the Barnett Shale in Texas, and its economic success has led to the rapid exploration of shale formations in many countries and has greatly increased the estimates of global natural gas reserves in the world. The areas of the world assessed for potential shale gas resources are shown in Figure 1.1.





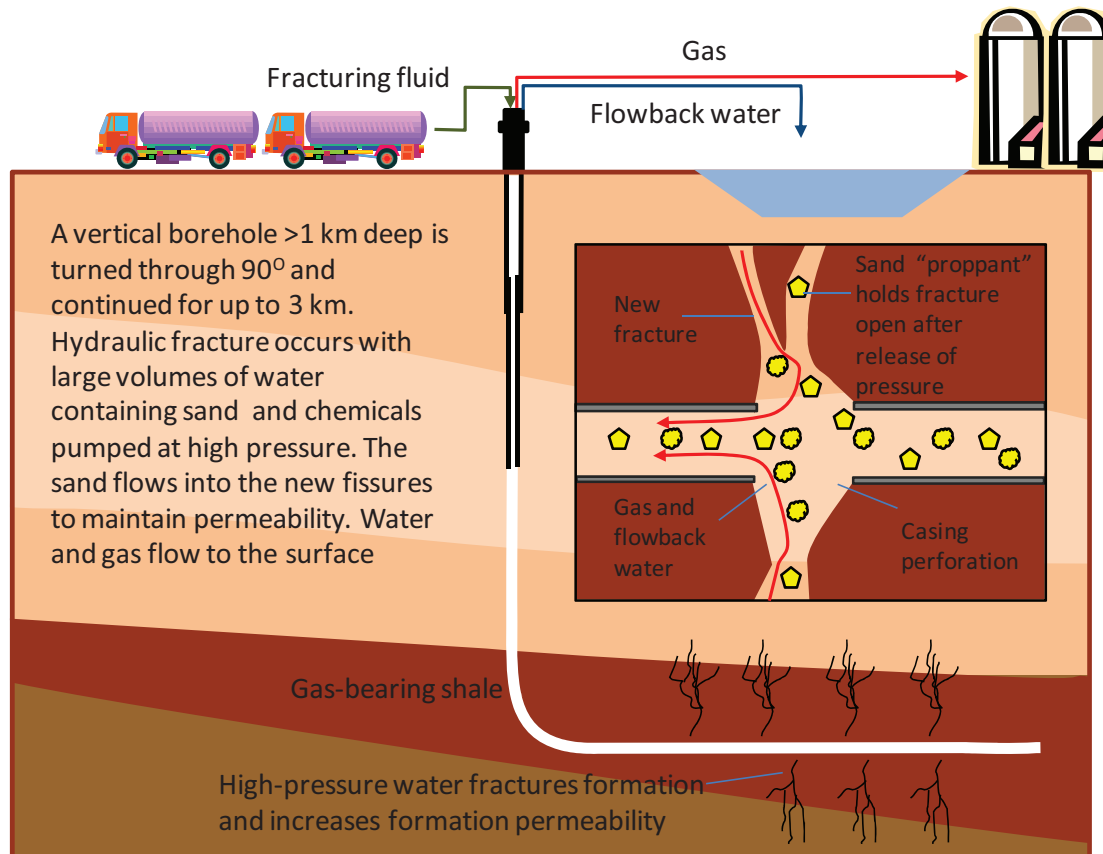
**Figure 1.1 Map of world shale gas resources assessed by the US Energy Information Administration (EIA, 2011a)**

### 1.3 EXTRACTION METHODS

Hydraulic fracturing (“fracking”) in combination with horizontal drilling is an essential part of the shale gas production process and has been in use since about 1948. Horizontal drilling greatly increases the length of contact between the shale gas formation and the wellbore relative to a conventional vertical well, and a single horizontal well may replace 3 or 4 vertical wells (Arthur et al., 2009; Gjelten, 2009). Decreasing the number of wells decreases production costs and environmental risks associated with site construction, drilling, and well development, and contributes to the economic feasibility of shale gas production.

Hydraulic fracturing is a formation stimulation practice used to create additional permeability in a producing formation (Arthur et al., 2009). By creating additional permeability the migration of fluids to the wellbore is facilitated. Hydraulic fracturing can be used to overcome barriers to the flow of fluids, one of the primary reasons development of gas shales has traditionally been limited. Barriers may include naturally low permeability common in shale formations or reduced permeability resulting from near wellbore permeability impairment caused during drilling activities.

Hydraulic fracturing involves the introduction of fluid at a rate sufficient to raise the downhole pressure above the fracture pressure of the formation rock. The stress induced by the pressure creates fissures and interconnected cracks that increase the permeability of the formation and enable greater flow rates of gas into the well. The process as typically used for shale gas development involves the pumping of sand-laden water into the target shale zone. Fluids pumped into the shale creates fractures or openings through which the sand flows, at the same time the sand acts to prop open the fractures that have been created. Once the pumping of fluids has stopped the sand remains in-place allowing fluids (both gas and water) to flow back to the wellbore. After hydraulic fracturing is performed, the pumping pressure is relieved and the fracture fluid returns to the surface through the well casing. This water is referred to as “flowback” (Figure 1.2).

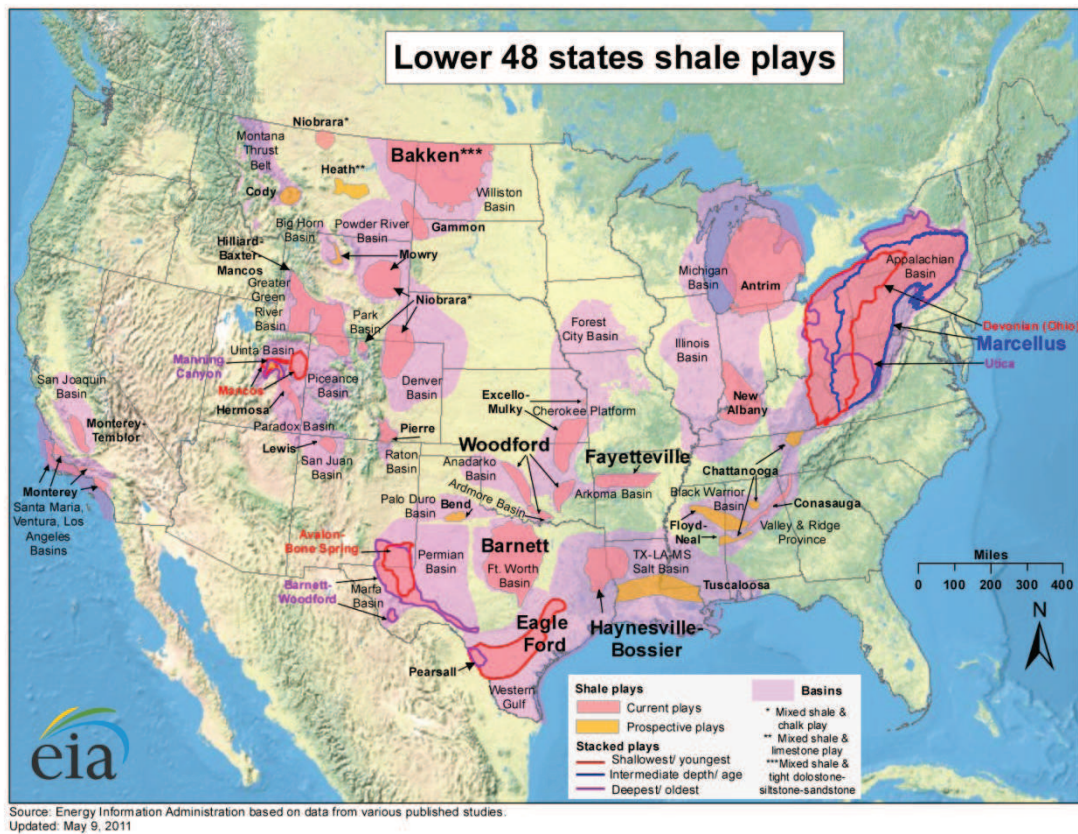


**Figure 1.2 Hydraulic fracturing overview (adapted from Gregory et al., 2011)**

Hydraulic fracturing of the horizontal shale gas wells is performed in stages (Arthur et al., 2009). Lateral lengths in typical shale gas development wells are from 300 m to more than 1500 m in length. Because of the length of exposed wellbore, it is usually not possible to maintain a downhole pressure sufficient to stimulate the entire length of a lateral in a single stimulation hydraulic fracture treatments of shale gas wells are performed by isolating portions of the lateral and performing multiple treatments to stimulate the entire length of the lateral portion of the well. The lifetime of an individual well may be only about 7 years (Wood et al., 2011).

#### 1.4 USA

In the USA gas has been produced from shale in commercial quantities for nearly two centuries (Selley, 2005). The first commercial United States natural gas production (1821) came from an organic-rich Devonian shale in the Appalachian basin; wells were located and drilled with little appliance of science. (Curtis, 2002). Understanding the geological and geochemical nature of organic shale formations and improving their gas producibility have subsequently been the challenge of millions of dollars worth of research since the 1970s (Johnson and Doré, 2010). Harnessing this resource has become a multi-billion dollar international business, and has helped transform the North American market from gas starvation to guaranteed supply for 20 years or more. As with shale oil, shale gas systems are considered discrete, self enclosed systems in which the source, seal and reservoir are one and the same.



**Figure 1.3 Locations of shale gas plays, USA (EIA, 2011b)**

Production has been established in a range of major shale-gas systems or various geological ages (Figure 1.3), including:

- Antrim Shale, Michigan Basin (Devonian)
- Barnett Shale, Fort Worth Basin, Texas (Mississippian-Upper Carboniferous)
- Fayetteville Shale, Arkansas (Mississippian-Upper Carboniferous)
- Haynesville/Bossier Shale, Texas-Louisiana (Upper Jurassic)
- Lewis / Mancos Shale, San Juan Basin, New Mexico (Cretaceous)
- Marcellus Shale, Pennsylvania (Devonian)
- New Albany Shale, Illinois Basin, (Devonian/Mississippian)
- Ohio Shale, Appalachian Basin, (Devonian)
- Woodford Shale, Oklahoma (Devonian/Mississippian)

Technically recoverable natural gas from these shales is considered to be more than 1,744 trillion cubic feet (Tcf) (50 km<sup>3</sup>), which includes 211 Tcf of proven reserves (Kargbo et al., 2010). At an annual production rate of about 19.3 Tcf, there is enough natural gas to supply the USA for the next 90 years with some estimates extending the supply to 116 years. The total number of natural gas and condensate wells in the USA rose 5.7% in 2008 to a record 478,562 (Kargbo et al., 2010).

The resource falls into two distinct types: biogenic and thermogenic, although there can also be mixtures of the two gas types (Johnson and Doré, 2010). Shale formations that presently produce gas commercially exhibit an unexpectedly wide variation in the values of five key parameters: thermal maturity (expressed as vitrinite reflectance), sorbed-gas fraction, reservoir thickness, total organic carbon content, and volume of gas in place. The degree of natural fracture development in an otherwise low-matrix-permeability shale reservoir is a controlling factor in gas producibility. To date, unstimulated commercial production has been achievable in only a small proportion of shale wells, those that intercept natural fracture networks. In most

other cases, a successful shale-gas well requires hydraulic stimulation. The current parameters used to assess shale gas prospectivity vary greatly and may not provide a strong predictive model. Consequently, additional criteria, such as the clay and mineral content of the shales, the burial history and the precise nature of the gas storage and retention systems are fertile grounds for further research.

## 1.5 POTENTIAL IN THE UK

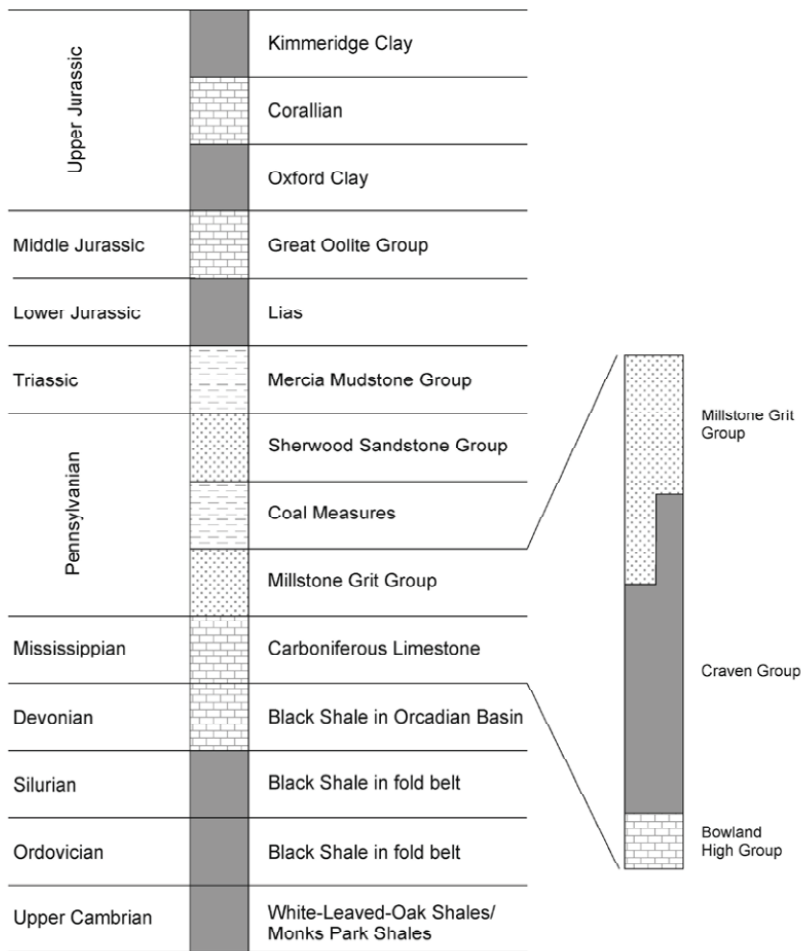
Some 20 years ago it was suggested that, by analogy with the USA, the UK may possess considerable reserves of shale-gas. This was predicated on the assumption that shale-gas only resulted from the thermal maturation of organic-rich shales. Subsequently, it has been realized that shale-gas can be formed by methanogenic bacteria acting on organic-rich rocks, irrespective of age and thermal history, and especially as a result of post-glacial flushing of aquifers. This realization enhances British shale gas resources dramatically, making any fractured organic-rich shale prospective (Selley, 2005). Gas shows are commonly observed while drilling through shale stratigraphy, but there have been no Drill Stem Tests (DSTs) in the UK.

Potential British shale-gas petroleum systems include the thermally overmature Caledonide fold belt, the Lower Carboniferous thermally mature basinal shales of northern England and the Midland Valley of Scotland. The Jurassic (Lias, Oxford and Kimmeridge) clays may have considerable potential for thermogenic and biogenic shale-gas. The leaner Lower Cretaceous (Wealden) and Eocene (London Clay) formations of southern England may have minor potential for biogenic shale-gas (Selley, 2005).

Smith et al. (2010) assessed the potential targets as ranging in age from Cambrian to the late Jurassic, within the main UK organic-rich black shales: younger shales have been excluded because they have not reached the gas window, but they may possess a biogenic gas play (Figure 1.4 and Figure 1.5). A geographic information system, showing the distribution of potential reservoir units, has been created combining information on hydrocarbon shows, thermal maturity, fracture orientation, gas composition, and isotope data to identify potentially prospective areas for shale gas. The prospects include Lower Palaeozoic shale basins on the Midland Microcraton (a high risk because no conventional gas has been proved in this play), Lower Carboniferous shales in the Pennine Basin (the best prospect associated with conventional fields and high maturity), Carboniferous shales in the Stainmore and Northumberland Basin system (high risk because no conventional gas discoveries exist) and Jurassic shales in Wessex and Weald basins (small conventional fields signify potential here).

The UK has abundant shales at depth, although their distribution is not well known. The 2010 BGS/DECC Shale Gas report identified significant potential areas in northern England, including the Widmerpool Gulf near Nottingham and a large area centred on the Elsewick Gas field, near Blackpool. The recently published UK data and analysis for shale gas prospectivity covers work up to March 2009 and identifies high prospect areas.

The UK shale gas industry is in its infancy and there are no reliable indicators of potential productivity. However, by analogy with similar producing shale gas plays in America, the UK shale gas reserve potential could be as large as 150 billion cubic metres (bcm) — very large compared with the 2–6 bcm estimate of undiscovered gas resources for onshore conventional petroleum (see BGS/DECC Shale Gas report)



**Figure 1.4 Main black shale formations in the UK with US classifications in left column (Smith et al., 2010)**

**1.6 CONCERNS**

There are a range of web-based current affairs articles which detail popular concern on groundwater issues related to shale gas exploitation. These primarily address two areas:

- Contamination of water by chemicals added during the hydraulic fracturing process, such as benzene (Gjelten, 2009)
- Contamination of water by upwards leakage of shale gas components, such as methane (Kerr, 2011; Krupnick et al., 2011).
- Both of these (Lustgarten, 2009)

(Wood et al., 2011) state that the potential for groundwater contamination is a key risk associated with shale gas extraction. This could occur if there is a catastrophic failure or loss of integrity of the wellbore, or if contaminants can travel from the target fracture through subsurface pathways. This review draws on a number of other articles, including (Energy and Climate Change Select Committee, 2011; McNutt, 2011; Ridley, 2011; Zoback et al., 2010) to set out the potential concerns in the following chapters.

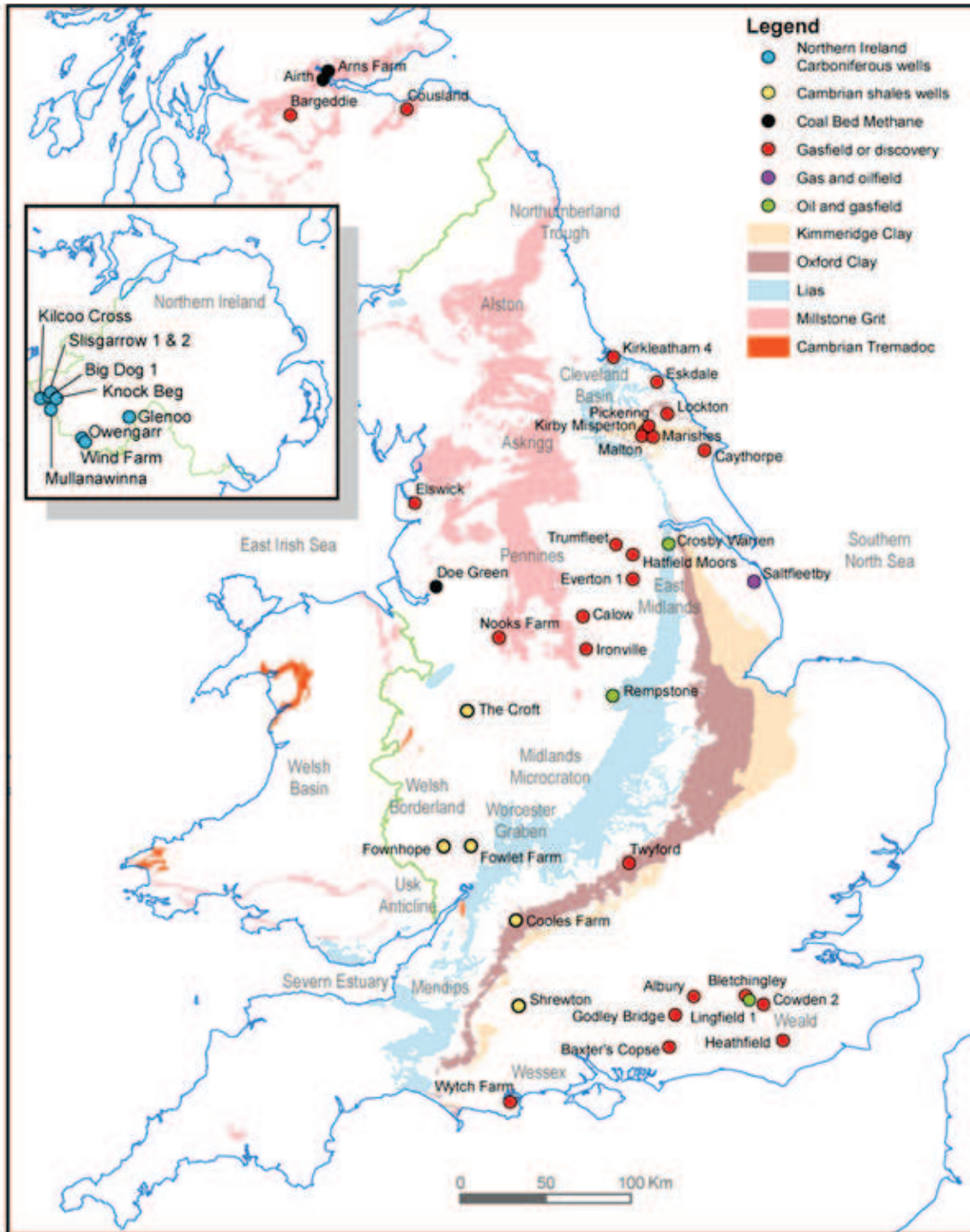


Figure 1.5 Outcrop of main black shale formations in UK and selected oil and gas wells and gas fields.

## 2 Water resources issues

The sheer volume of water consumed during hydraulic fracturing could make unconventional gas production costly and unsustainable in many areas of the world that are water-constrained (Flavin and Kitasei, 2010). The drilling and completion of wells require large quantities of water (Gregory et al., 2011). Drilling of the vertical and horizontal components of a well may require 400–4000 m<sup>3</sup> of water for drilling fluids to maintain downhole hydrostatic pressure, cool the drill head, and remove drill cuttings. Then, 7000–18,000 m<sup>3</sup> of water are needed for hydraulic fracturing of each well. These large volumes of water are typically obtained from nearby surface waters or pumped from a municipal source. Such water is not generally returned to surface or groundwater.

Wood et al. (2011) give an estimate for the UK of the range of water resources potentially required per year to deliver sustained annual production (over a period of 20 years) equivalent to 10% of the UK's annual consumption (annual gas consumption in the UK in 2008 was around 90bcm). This was for six well pads drilled vertically to 2000 m and laterally to 1200 m and for 50% of these to require refracturing once (Table 2.1).

Potential impacts, where no controls are in place, are listed in New York State (2011) as modifications to groundwater levels, surface water levels and stream flow. Operators need this water when drilling activity is occurring, requiring that the water be procured over a relatively short period of time. Water withdrawals during periods of low stream flow could affect fish and other aquatic life, fishing and other recreational activities, municipal water supplies, and other industries such as power plants (Ground Water Protection Council and ALL Consulting, 2009). This can impact ecology, for example due to unsuitable water temperatures and dissolved oxygen concentrations during periods of low flow (New York State, 2011). In regions where local, natural water sources are scarce or dedicated to other uses, the limited availability of water may be a significant impediment to gas resource development (Ground Water Protection Council and ALL Consulting, 2009).

**Table 2.1 Summary of water resources required to meet 10% of UK annual requirement for gas (Wood et al., 2011)**

	Activity	Volume (m <sup>3</sup> )	
		Min	Max
Initial fracturing	Water volume	54,000	174,000
	Fracturing chemicals volume (@2% )	1,080	3,480
	Flowback water	7,920	137,280
	Flowback water waste content (@2% )	158	2,746
Refracturing	Water volume	27,000	87,000
	Fracturing chemicals volume (@2% )	540	1,740
	Flowback water	3,960	68,640
	Flowback water waste content (@2% )	79	1,373

## 3 Contamination issues

### 3.1 SOURCES

#### 3.1.1 Constituents of shale gas

Shale-gas systems essentially are continuous-type biogenic (predominant), thermogenic, or combined biogenic-thermogenic gas accumulations characterized by widespread gas saturation, subtle trapping mechanisms, seals of variable lithology, and relatively short hydrocarbon migration distances. Shale gas may be stored as free gas in natural fractures and intergranular porosity, as gas sorbed onto kerogen and clay-particle surfaces, or as gas dissolved in kerogen and bitumen (Jenkins and Boyer, 2008). Shale gas has calorific values at the high end of the range for natural gas (c.1200 btu)(Selley, 2005).

Natural gas is considered 'dry' when it is almost pure methane; when other hydrocarbons are present, the natural gas is 'wet.' (Natural Gas Supply Association, 2010) In general thermogenic gas has a high methane content with low but significant concentrations of higher hydrocarbons such as ethane (C<sub>2</sub>) and propane (C<sub>3</sub>), with C<sub>1</sub>/(C<sub>2</sub>+C<sub>3</sub>) <100, and enriched <sup>13</sup>C with δ<sup>13</sup>C methane in the range -110 to -55‰. In contrast biogenic gas has C<sub>1</sub>/(C<sub>2</sub>+C<sub>3</sub>) between 1000 to 10,000 and δ<sup>13</sup>C methane in the range -55 to -20‰ (Révész et al., 2010). Typical values for natural gas are shown in Table 3.1.

**Table 3.1 Typical composition of gas (from Natural Gas Supply Association, 2010)**

Name	Formula	Typical content (%)
Methane	CH <sub>4</sub>	70–90
Ethane	C <sub>2</sub> H <sub>6</sub>	0–20
Propane	C <sub>3</sub> H <sub>8</sub>	
Butane	C <sub>4</sub> H <sub>10</sub>	
Carbon dioxide	CO <sub>2</sub>	0–8
Oxygen	O <sub>2</sub>	0–0.2
Nitrogen	N <sub>2</sub>	0–5
Hydrogen sulphide	H <sub>2</sub> S	0–5
Rare gases	Ar, He, Ne, Xe	Trace

For the Fort Worth Shale methane varies in concentration from 75% in the northwest to 96% in the southeast part of the study area (Rodriguez and Philp, 2010). A general increase in the methane concentration can be observed from west to east in the study area, which has been interpreted as the consequence of an increase in maturity in the same direction. It was all assumed to be derived from kerogen cracking and secondary cracking of non-migrated hydrocarbons.

The molecular composition of the Antrim Shale, USA varies from almost pure methane to 5% by volume of ethane and higher hydrocarbons, nitrogen and carbon dioxide (Martini, A M et al., 1996). Gas at margins of the basin was considered to have a microbial origin on the basis of high methane content and shallow depth of production. The δ<sup>13</sup>C isotopic signature of gas and co-produced water suggested microbial methanogenesis. There was also correlation of δD of methane and formation water. Along the basin margins systematic enrichment of C<sub>2</sub> and C<sub>3</sub> with depletion of concentration suggesting oxidation of higher alkanes (Martini, Anna M. et al., 2003). These isotopic signatures allow potential contamination by shale gas to be identified.



### 3.1.2 Fracking chemicals

The following details are summarised from Gregory et al. (2011) and set out in Table 3.2. After water, the largest compound of a fracture fluid utilized to treat a shale gas wells is proppant. Proppant is a granular material, usually sand, which is mixed with the fracture fluids to hold or prop open the created fractures that allow gas to flow to the well. Other commonly used proppants include resin- coated sand, intermediate strength proppant ceramics, and high strength proppants such as sintered bauxite and zirconium oxide. Resin coated sands are utilized regularly in the shale gas plays during the final stages of a fracture. Resin coating may be applied to improve proppant strength or may be design to react and act as a glue to hold some of the coated grains together.

**Table 3.2 Composition and purposes of typical constituents of hydraulic fracturing fluid (after Gregory, 2011 and Ground Water Protection Council and ALL Consulting, 2009)**

Constituent	Composition (% by volume)	Example	Purpose
Water and sand	99.50	Sand suspension	“Proppant” sand grains hold microfractures open
Acid	0.123	Hydrochloric or muriatic acid	Dissolves minerals and initiates cracks in the rock
Friction reducer	0.088	Polyacrylamide or mineral oil	Minimizes friction between the fluid and the pipe
Surfactant	0.085	Isopropanol	Increases the viscosity of the fracture fluid
Salt	0.06	Potassium chloride	Creates a brine carrier fluid
Scale inhibitor	0.043	Ethylene glycol	Prevents scale deposits in pipes
pH-adjusting agent	0.011	Sodium or potassium carbonate	Maintains effectiveness of chemical additives
Iron control	0.004	Citric acid	Prevents precipitation of metal oxides
Corrosion inhibitor	0.002	n,n-dimethyl formamide	Prevents pipe corrosion
Biocide	0.001	Glutaraldehyde	Minimizes growth of bacteria that produce corrosive and toxic by-products
Breaker	0.01	Ammonium persulphate	Allows a delayed breakdown of gel polymer chains
Crosslinker	0.007	Borate salts	Maintains fluid viscosity as temperature increases
Gelling agent	0.056	Guar gum or hydroxyethyl cellulose	Thickens water to suspend the sand
Oxygen scavenger	-	Ammonium bisulphite	Removes oxygen from the water to prevent corrosion

The viscosity of fresh water tends to be low, which limits waters ability to transport the proppant necessary for a successful fracture stimulation treatment. As a result, some hydraulic fracturing fluids have a gel additive to increase the viscosity of fracture fluids, typically, either a linear or a cross-linked gel. Gellant selection is based on reservoir formation characteristics, such as thickness, porosity, permeability, temperature, and pressure. As temperatures increase, these gels tend to thin dramatically. In order to prevent the loss of viscosity, polymer concentration can be

increased (polymer loading) or instead, cross-linking agents can be added to increase the molecular weight, thus increasing the viscosity of the solution.

In addition to water and proppant, many other additives are essential to successful shale gas reservoir fracture stimulation. Acid is utilized in the beginning of the fracture process to clean up cement that is lodged in the perforations and provide an accessible path to the formation once fracturing fluid is pumped. Hydrochloric acid is most commonly used at a concentration of 15% HCl although it can effectively be utilized in concentrations ranging from 3% to 28%. Acids are typically diluted to desired concentrations prior to transporting to the job location. Once it is added to the fluids, it is further diluted by a factor of 1,000 or more prior to subsurface injection. In stimulations that utilize an acid breakdown, a corrosion inhibitor is used to hinder the corrosion of steel tubing, well casing, tools and tanks. The addition of 0.1% to 2% of a corrosion inhibitor can decrease corrosion by up to 95%. Concentrations of corrosion inhibitor depend on downhole temperatures and casing and tubing types. At temperatures exceeding 250 degrees Fahrenheit, higher concentrations of corrosion inhibitor, a booster, or an intensifier may also be necessary. A typical corrosion inhibitor utilized in shale gas plays is n,n-dimethyl formamide.

Biocides are additives that are used to minimize the danger of bacterial corrosion in the wellbore. Fracture fluids typically contain gels that are organic, which provides an ideal medium for bacterial growth, reducing viscosity and the ability of the fluid to effectively carry proppant. Biocides, such as glutaraldehyde are diluted in the fluid in a mannerism similar to the addition of the corrosion inhibitor. In addition to glutaraldehyde, biocides can also contain bleach, DAZOMET, or 2,2-dibromo3-nitrilopropionamide. When a formation contains clay, permeability can be significantly reduced when exposed to water that is less saline than the formation water. As a result, treatment with solutions containing 1% to 3% salt is generally utilized as a base liquid when clay swelling is probable. Potassium chloride (KCl) is the most common chemical utilized as a clay stabilizer due to its ability to stabilize clay against the invasion of water to prevent swelling.

However, in wells that have lower temperatures, such as the shale gas wells in the Barnett and Fayetteville plays, a breaker is added to the fluid in later stages of the process to break down the viscosity of the gelling agent to aid in releasing the proppant and enhance the volume of flowback water received after the completion. The most common type of breaker is peroxydisulphate. Breakers are typically added as the gel is being pumped because if given enough time, it could reduce the viscosity prior to pumping.

### **3.1.3 Naturally occurring radioactive material**

Naturally occurring radioactive material can be brought to the surface in the natural gas production process. When such material is associated with oil and natural gas production, it begins as small amounts of uranium and thorium within the rock. These elements, along with some of their decay elements, notably Ra<sup>226</sup> and Ra<sup>228</sup>, can be brought to the surface in drill cuttings and produced water. Radon<sup>222</sup>, a gaseous decay element of radium, can come to the surface along with shale gas (Ground Water Protection Council and ALL Consulting, 2009). The principal concerns are with accumulation in field equipment or in sludge or sediment within settling tanks.

## **3.2 ROUTES TO GROUNDWATER**

### **3.2.1 Fracking process**

A frequently expressed concern about shale gas development is that subsurface hydraulic fracturing operations in deep shale formations might create fractures that extend well beyond the target formation to water aquifers, allowing methane, contaminants naturally occurring in formation water, and fracturing fluids to migrate from the target formation into drinking water supplies (Zoback et al., 2010). Because the direct contamination of underground sources of

drinking water from fractures created by hydraulic fracturing would require hydrofractures to propagate several thousand feet beyond the upward boundary of the target formation through many layers of rock, such contamination is highly unlikely to occur in deep shale formations during well-designed fracture jobs. A report for New York State (2011) concludes that fracking is unlikely to create a pathway beyond the fractured zone and the post fracking reversal of pressure means that fluids migrate back to the well.

The successful injection of hydraulic fracturing fluid is intended to result in gas production without the contamination of groundwater. This depends on the integrity of the well and the correct fluid design (Arthur et al., 2009).

Zoback et al. (2010) state that seismic monitoring is an essential tool for assuring that hydraulic fracturing is inducing microseismic activity only within the shale gas reservoir. Yet only about three percent of the ~75,000 hydraulic fracturing stages conducted in the United States in 2009 were seismically monitored. These authors suggested that public confidence in the safety of hydraulic fracturing would be greatly improved by more frequent microseismic monitoring and public dissemination of the results.

Another subsurface risk that has received attention recently is the possibility that drilling and hydraulically fracturing shale gas wells might cause low-magnitude earthquakes. While the hydraulic fracturing process does create a large number of microseismic events, or micro-earthquakes, the magnitudes of these are generally too small to be detected at the surface (Zoback et al., 2010).

Underground fluid injection is an integral part not only of hydraulic fracturing, but of waste water disposal in injection wells, some geothermal energy projects, and carbon dioxide sequestration. The seismic monitoring of hydraulic fracture jobs discussed earlier is critical to improving understanding of how underground injection might spark unexpectedly high magnitude seismic activity.

### **3.2.2 Accidental releases during preparation of fracturing fluids**

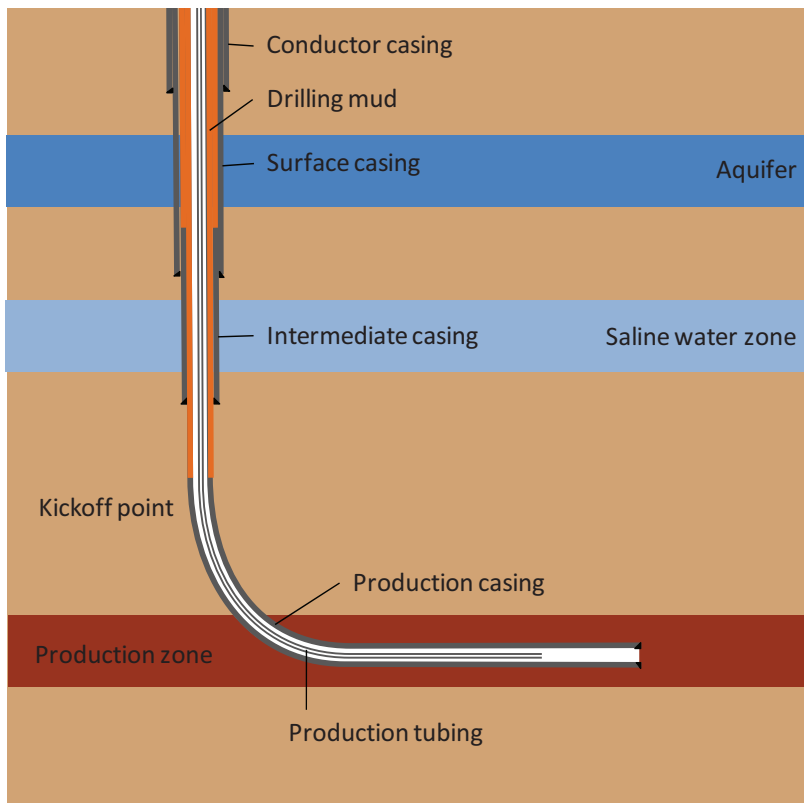
New York State (2011) list potentially polluting activities as fuelling and tank refilling, bulk chemical or fluid storage, equipment cleaning, vehicle maintenance, pipe work, cement mixing areas and piping. On-site spills or leaks could potentially occur during transport to site and mixing and preparation. (Zoback et al., 2010) report that up to 200 additives could be used in fracturing fluids. Chemicals to be used in fracturing fluids are commonly transported by road and are generally stored at drilling sites in tanks before they are mixed with water in preparation for a fracturing job. These could therefore be released by pipe work or regulator failures or by operator error (Wood et al., 2011). These fluids have the potential to contaminate surface water and groundwater in the same way as any other surface activity.

### **3.2.3 Fluid leak-offs, blowouts and casing failures**

All natural gas wells are subject to accidents such as blowouts, improper well construction and abandonment and associated contamination. Any structure that penetrates water aquifers, such as a well, has the potential to contaminate these water sources (Grubert and Kitasei, 2010).

The loss of fracturing fluid through the artificially created fractures to other areas within the shale gas formation is termed fluid leak off. This can constitute 70% of the injected volume if not controlled properly which could result in fluid migrating into drinking water aquifers (Energy and Climate Change Select Committee, 2011).

Failure of the cement or casing surrounding the wellbore poses a risk to water supplies. If the annulus is improperly sealed, natural gas, fracturing fluids, and formation water containing high concentrations of dissolved solids may be communicated directly along the outside of the wellbore among the target formation, drinking water aquifers, and layers of rock in between.



**Figure 3.1 Schematic of casing and grouting to protect groundwater resources (from (Ground Water Protection Council and ALL Consulting, 2009))**

As a further protection of the fresh water zones, air-rotary drilling is often used when drilling through this portion of the wellbore interval to ensure that no drilling mud comes in contact with the fresh water zone. Intermediate casings, when installed, are used to isolate non freshwater-bearing zones from the producing wellbore. Intermediate casing may be necessary because of a naturally over-pressured zone or because of a saltwater zone located at depth. The borehole area below an intermediate casing may be uncemented until just above the kickoff point for the horizontal leg. This area of wellbore is typically filled with drilling muds.

Analysis of the redundant protections provided by casings and cements was presented in a series of reports and papers prepared for the American Petroleum Institute (API) in the 1980s. These investigations evaluated the level of corrosion that occurred in Class II injection wells. Class II injection wells are used for the routine injection of water associated with oil and gas production. The research resulted in the development of a method of calculating the probability (or risk) that fluids injected into injection wells could result in an impact to a drinking water source.

Detailed analysis was performed for those basins in which there was a possibility of casing corrosion (Michie & Associates, 1988). Risk probability analysis provided an upper bound for the probability of the fracturing fluids reaching an underground source of drinking water. Based on the values calculated, a modern horizontal well completion in which 100% of the USDWs are protected by properly installed surface casings (and for geologic basins with a reasonable likelihood of corrosion), the probability that fluids injected at depth could impact a USDW would be between  $2 \times 10^{-5}$  (one well in 200,000) and  $2 \times 10^{-8}$  (one well in 200,000,000) if these wells were operated as injection wells. Other studies in the Williston basin found that the upper bound probability of injection water escaping the wellbore and reaching an underground source of drinking water is seven changes in one million well-years where surface casings cover the drinking water aquifers (Michie and Koch, 1991).

### 3.2.4 Flowback and produced water

Most of the concerns of water transport and disposal arise from flowback water which is produced by the fracturing process or produced water which comes from the formation during gas production, or the partial recovery of the fluids that are utilized to fracture stimulation a well.

Flowback of the fracturing fluid occurs over a few days to a few weeks following hydraulic fracturing, depending on the geology and geomechanics of the formation. The highest rate of flowback occurs on the first day, and the rate diminishes over time; the typical initial rate may be as high as 1000 m<sup>3</sup>/d (Arthur et al., 2008). The majority of fracturing fluid is recovered in a matter of several hours to a couple of weeks. In various basins and shale gas plays, the volume of produced water may account for less than 30% to more than 70% of the original fracture fluid volume. In some cases, flow back of fracturing fluid in produced water can continue for several months after gas production has begun (Ground Water Protection Council and ALL Consulting, 2009).

The dissolved constituents are naturally occurring compounds and may vary from one area to the next or even by area within the same shale. Initial produced water can vary from fresh (<5,000 mg/L TDS to varying degrees of saline (5,000 mg/L to 100,000 mg/L TDS or higher). Typical ranges of composition are shown in Table 3.3. The composition of the flowback water changes as a function of the time the water flowing out of the shale formation. A comprehensive list of constituents including priority pollutants is provided in Appendix 1 of this report.

There is growing public concern about management of this water because of the potential for human health and environmental impacts associated with an accidental release of flowback water into the environment (Kargbo et al. 2010). Past experience with produced and flowback waters is used to guide developers towards treatment and management options in regions of new production (Kargbo et al. 2010). Flowback water management options for some shale plays, such as the Marcellus, are confounded by high concentrations of total dissolved solids in the flowback water, geography, geology, and a lack of physical infrastructure (Arthur et al. 2008; Kargbo et al. 2010).

**Table 3.3 Range of constituents in flowback water from development in the Marcellus Shale, USA (after Gregory et al, 2011)**

Constituent	Low( mg/L)	Medium (mg/L)	High (mg/L)
Total dissolved solids	66,000	150,000	261,000
Total suspended solids	27	380	3200
Hardness (as CaCO <sub>3</sub> )	9100	29,000	55,000
Alkalinity (as CaCO <sub>3</sub> )	200	200	1100
Chloride	32,000	76,000	148,00
Sulphate	-	7	500
Sodium	18,000	33,000	44,000
Calcium	3000	9800	31,000
Strontium	1400	2100	6800
Barium	2300	3300	4700
Bromide	720	1200	1600
Oil and grease	10	18	260

### 3.2.5 Retention pits

In rural areas, storage pits may be used to hold fresh water for drilling and hydraulic fracturing (Ground Water Protection Council and ALL Consulting, 2009). They are typically excavated containment ponds that, based on the local conditions and regulatory requirements, may be lined. Water storage pits are becoming an important tool in the shale gas industry because the drilling and hydraulic fracturing of these wells often requires significant volumes of water as the base fluid for both purposes. Pits can also be used to store additional make-up water for drilling fluids or to store water used in the hydraulic fracturing of wells.

In an urban setting, due to space limitations, steel storage tanks may be used. Tanks can also be used in a closed-loop drilling system. Closed-loop drilling allows for the re-use of drilling fluids and the use of lesser amounts of drilling fluids. Closed-loop drilling systems have also been used with water-based fluids in environmentally sensitive environments in combination with air-rotary drilling techniques. While closed-loop drilling has been used to address specific situations, the practice is not necessary for every well drilled. As discussed in the previous section, drilling is a regulated practice managed at the state level, and while state oil and gas agencies have the ability to require operators to vary standard practices, the agencies typically do so only when it is necessary to protect the gas resources and the environment.

### 3.2.6 Disposal of flowback liquid

#### 3.2.6.1 INJECTION UNDERGROUND THROUGH AN ONSITE OR OFFSITE WELL

Most produced water from oil and gas production in the United States is disposed of through deep underground injection. However, the availability of adequate deep-well disposal capacity can be an important constraining factor for shale gas development. As a result, other solutions for flowback water management are necessary (Gregory et al., 2011).

#### 3.2.6.2 DISCHARGE TO NEARBY SURFACE WATER

This option is generally infeasible due to the quality of the water to be disposed.

#### 3.2.6.3 TRANSPORT TO TREATMENT WORKS EITHER MUNICIPAL OR INDUSTRIAL

Although discharge and dilution of flowback water into publicly owned municipal wastewater treatment plants (WWTWs) has been utilized in the USA, (Gregory et al., 2011) state that this is not an adequate or sustainable approach for managing flowback water. The amount of high-TDS flowback water that can be accepted by WWTWs is usually limited by regulation. In general, the volume of flowback water that can be sent to WWTWs is small compared to the volume of flowback water generated during rapid well drilling and well development. New York State (2011) state that purpose-built private treatment systems are more likely to be effective in treating flowback water than municipal WWTWs.

Even with favourable energy prices, the treatment of flowback water using RO is considered to be economically infeasible for waters containing more than 40,000 mg/L TDS. For high-TDS waters, vibratory shear-enhanced processing (VSEP) has been applied to membrane technologies. However, the salt concentrations in offshore produced waters are far lower than those expected during shale gas extraction.

The high concentrations of TDS in flowback water may limit the use of membrane technology, but such water is well suited to treatment by distillation and crystallization. Distillation and crystallization are mature technologies that rely on evaporating the wastewater to separate the water from its dissolved constituents. The vapour stream is passed through a heat exchanger to condense the gas and produce purified water. Distillation removes up to 99.5% of dissolved solids and has been estimated to reduce treatment and disposal costs by as much as 75% for produced water from shale oil development. However, as with RO, distillation is an energy-intensive process. Thermal distillation may treat flowback water containing up to, and in some

cases even exceeding, 125,000 mg/L of TDS, but even the most modern technology is limited to low flow rates (300 m<sup>3</sup>/d), necessitating the construction of large storage impoundments. Crystallization is a feasible approach for treating flowback water with TDS concentrations as high as 300,000 mg/L, but it has high energy requirements and large capital costs.

Several other technologies have been or are being developed for treating flowback water, but each has its limitations. Ion exchange and capacitive deionization are limited to the treatment of low-TDS water; freeze–thaw evaporation is restricted to cold climates; evaporation ponds are restricted to arid climates; and artificial wetlands and agricultural reuse are greatly limited by the alkalinity tolerance of plant and animal life.

#### 3.2.6.4 REUSE

One of the most promising technologies for management of flowback water is its reuse in subsequent hydraulic fracturing operations. Flowback water is impounded at the surface and reused either directly or following dilution or pre-treatment. Reuse is particularly attractive in regions where deep-well disposal options are limited or where the availability of make-up water for hydraulic fracturing is limited. The reuse of flowback water has the benefit of minimizing the volume of such water that must be treated or disposed of and greatly reduces environmental risks while enhancing the economics of shale gas extraction. Potentially limiting factors for reuse are the chemical stability of the viscosity modifiers and other constituents of hydraulic fracture water in the brine solution and the potential for precipitation of divalent cations in the wellbore.

The effectiveness of friction reducers may be decreased at high TDS concentrations. The development of additives that retain their effectiveness in brine solutions are likely to expand the opportunity for reuse of flowback water for subsequent hydraulic fracturing.

However, the major problem with use of flowback water for makeup of hydrofracking water is the very high concentration of scale forming constituents including barium, calcium, iron, magnesium, manganese, and strontium (Ba, Ca, Fe, Mg, Mn, and Sr). The divalent cations in the flowback water are solubilised from formation minerals and can form stable carbonate and sulphate precipitates in the wellbore if the flowback water is reinjected. This may potentially reduce gas production from the well. In particular, barium and strontium form very low-solubility solids with sulphate, while high calcium concentrations may lead to calcite formation. These constituents readily form precipitates which rapidly block the fractures in gas bearing formations required for economic gas production. Reusable flowback water should have a maximum total hardness of 2,500 mg/L measured as CaCO<sub>3</sub> (Kargbo et al., 2010). Depending on the quality of the flowback water, pre-treatment to reduce the divalent cation concentration by precipitation may be necessary.

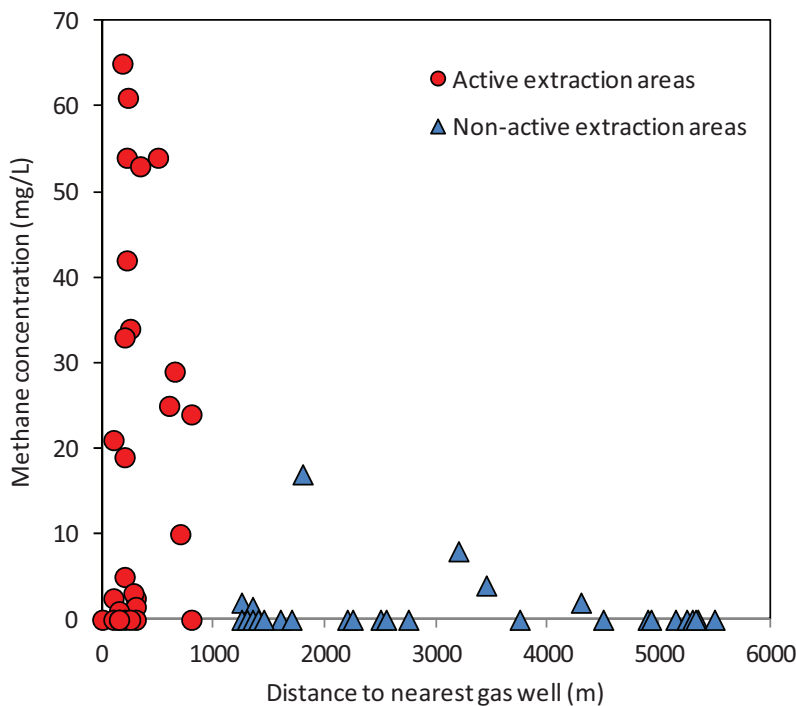
## 4 Evidence of groundwater contamination

There is evidence of surface water contamination from shale gas production. A number of incidents are documented in New York State (2011) related to fracturing fluid releases and uncontrolled release of flowback water. Fracturing fluid releases occurred during mixing and pumping of fluid and resulted in surface water pollution by mixed fluid rather than the concentrated components. Flowback water was released together with gas and brine during post fracturing cleanout of a borehole due to inadequate blowback prevention equipment.

There are very few scientific studies that have assessed the impact of shale gas extraction on groundwater. The examples below all relate to the detection of shale gas constituents in groundwater.

In 2007, a well that had been drilled almost 1200 m into a tight sand formation in Bainbridge, Ohio was not properly sealed with cement, allowing gas from a shale layer above the target tight sand formation to travel through the annulus into an underground source of drinking water. The methane eventually built up until an explosion in a resident's basement alerted state officials to the problem (Ohio Dept of Natural Resources, 2008).

In aquifers overlying the Marcellus and Utica shale formations of north-eastern Pennsylvania and upstate New York, (Osborn et al., 2011) document systematic evidence for methane contamination of drinking water associated with shale gas extraction. In active gas-extraction areas (one or more gas wells within 1 km), average and maximum methane concentrations in drinking-water wells increased with proximity to the nearest gas well and were 19.2 and 64 mg CH<sub>4</sub> L<sup>-1</sup> (n=26), a potential explosion hazard; in contrast, dissolved methane samples in neighbouring non-extraction sites (no gas wells within 1 km) within similar geologic formations and hydrogeological regimes averaged only 1.1 mgL<sup>-1</sup> (P < 0.05; n=34) (Figure 4.1).



**Figure 4.1 Methane concentrations as function of distance to nearest gas well (from (Osborn et al., 2011))**



Average  $\delta^{13}\text{C-CH}_4$  values of dissolved methane in shallow groundwater were significantly less negative for active than for non-active sites ( $-37\text{‰}$  and  $-54\text{‰}$ , respectively;  $P < 0.0001$ ). These  $\delta^{13}\text{C-CH}_4$  data, coupled with the ratios of methane-to-higher-chain hydrocarbons, and  $\delta^2\text{H-CH}_4$  values, are consistent with deeper thermogenic methane sources such as the Marcellus and Utica shales at the active sites and matched gas geochemistry from gas wells nearby. In contrast, lower-concentration samples from shallow groundwater at non-active sites had isotopic signatures reflecting a more biogenic or mixed biogenic/thermogenic methane source. They found no evidence for contamination of drinking-water samples with deep saline brines or fracturing fluids.

Révész et al. (2010) investigated the origin of the combustible gases in groundwater from glacial-outwash and fractured-bedrock aquifers in northern Tioga County, Pennsylvania. Thermogenic methane ( $\text{CH}_4$ ) and ethane ( $\text{C}_2\text{H}_6$ ) and microbial  $\text{CH}_4$  were found. Microbial  $\text{CH}_4$  is from natural in situ processes in the shale bedrock and occurs chiefly in the bedrock aquifer. The  $\delta^{13}\text{C}$  values of  $\text{CH}_4$  and  $\text{C}_2\text{H}_6$  for the majority of thermogenic gases from water wells either matched or were between values for the samples of non-native storage-field gas from injection wells and the samples of gas from storage-field observation wells. Traces of  $\text{C}_2\text{H}_6$  with microbial  $\text{CH}_4$  and a range of C and H isotopic compositions of  $\text{CH}_4$  indicate gases of different origins are mixing in sub-surface pathways; gas mixtures are present in groundwater. Pathways for gas migration and a specific source of the gases were not identified. Processes responsible for the presence of microbial gases in groundwater could be elucidated with further geochemical study.

## 5 Standards and regulation

### 5.1 UK

Broderick et al. (2011) reviewed the key regulatory instruments in place in the UK and the EU in the context of control of risks and impacts of shale gas exploration and commercial development.

Control and oversight of chemicals used in fracturing fluid is in theory provided by the European REACH Regulations (HSE, 2008), but as yet none of the substances examined by the European Chemicals and Health Agency has yet been registered for use in fracturing fluids.

Environmental impacts come under the scope of the Environmental Impact Assessment Directive (EC, 2009), but the volume of gas from individual production units are lower than the minimum to require their classification as Annex I and the assessment of Annex II projects is not consistently applied across the EU. No EIAs have been undertaken at existing UK sites as these are being below the minimum area.

Drilling standards have been recently summarised in Pereira (2011). Unconventional resources were not a consideration when the current regulations were made in the 1990s; for this reason, no specific mention of horizontal directional drilling and hydraulic fracturing is made in the regulations used in shale gas production, the Borehole Sites and Operations Regulations 1995 and the Well aspects of the Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996.

For shale gas production, the technologies of hydraulic fracturing and horizontal directional drilling are the same as those of conventional drilling and have been in use for a long time but there are a lack of standards for these processes. There are British Standards covering hydraulic fracturing proppants and hydraulic fluid power, however, there are none covering chemicals used or the fracking procedure itself (BSI, 2009). A standard on directional drilling is under development (BSI, under development). Pereira (2011) therefore states that the unique element of hydraulic fracturing to unconventional gas exploration introduces dangers from pressurised water as well as chemical and water spillages and that it is clear that British and ISO standards are lacking in this area. They recommend that “standards are needed in the UK and

internationally to ensure the consistency of safety measures and to guarantee that damaging or dangerous practices such as those that have been recorded in the UK do not occur within the UK.

In England and Wales, the Environment Agency is responsible for managing the environmental risks of gas drilling onshore and up to one nautical mile offshore, which directly relate to potential pollution of water and large-scale refinement combustion. They would require information about the chemicals used in the fluid if the site is assessed as posing a risk to groundwater could require the operator to apply for a permit. All risks, including seismic activity are included. Of the 5 site permit and two are as yet unassessed. Measures that are currently mandatory for all fracking sites are an impermeable membrane to prevent spills entering the soil, and bunding to contain leakages. Currently flowback water is monitored for pollutants and radioactive material, but would not normally be tested from the site where a permit is not required.

US

## 5.2 USA

Where shale gas exploitation is established regulations are in place to minimise environmental impact. For example, regulations to minimise the risk of water impact are set out by New York State (2011) as:

- Any proposed high-volume hydraulic fracturing where the top of the target fracture zone is shallower than 2,000 feet (~600 m) along a part of the proposed length of the wellbore;
- Any proposed high-volume hydraulic fracturing where the top of the target fracture zone at any point along the entire proposed length of the wellbore is less than 1,000 feet (~300 m) below the base of a known fresh water supply;
- Any proposed well pad within the boundaries of a principal aquifer, or outside but within 500 feet (~150 m) of the boundaries of a principal aquifer;
- Any proposed well pad within 150 feet (~45 m) of a perennial or intermittent stream, storm drain, lake or pond;
- A proposed surface water withdrawal that is found not to be consistent with the Department's preferred passby flow methodology;
- Any proposed well location determined by the New York City Department of Environmental Protection to be within 1,000 feet (~300 m) of its subsurface water supply infrastructure.

# 6 Conclusions

## 6.1 SUMMARY

- The UK may possess considerable reserves of shale gas. Significant areas include the carboniferous strata of the Widmerpool Gulf, near Nottingham, and the Elsewick field near Blackpool. Work to extract shale gas has begun near Blackpool.
- Shale gas is predominantly methane of thermogenic origin with low percentages of C<sub>2</sub> and C<sub>3</sub> hydrocarbons. Its <sup>13</sup>C isotopic signature allows it to be distinguished from shallow biogenic methane in the subsurface
- Extraction involved drilling of deep horizontal wells and enhancing the natural permeability of the shale by hydraulic fracturing.
- Groundwater may be potentially contaminated by extraction of shale gas both from the constituents of shale gas itself, from the formulation and deep injection of water containing a cocktail of additives used for hydraulic fracturing and from flowback water which may have a high content of saline formation water.

- Fracking chemicals include hydrochloric acid, polyacrylamide, mineral oil, isopropanol, potassium chloride and ethylene glycol and low concentrations of pH buffers, corrosion inhibitors, biocides and gelling agents.
- A wide range of pollutants, including priority substances has been detected in flowback water
- The large volumes of water required may also put pressure on groundwater resources with impacts on other uses and groundwater dependent ecosystems. Reuse of flowback water involves treatment to remove high TDS.
- There are examples of surface water contamination from releases of fracturing water or flowback water. Documented instances of groundwater contamination from the U.S. are all related to the leakage of methane into groundwater.

## 6.2 UNKNOWNNS

- For UK whether fields likely to be exploited for shale gas are overlain by significant aquifers.
- Vulnerability of groundwater to surface pollution from operations and flowback water. For aquifers at outcrop this can be informed by existing vulnerability mapping and other information
- Vulnerability of groundwater to pollution from fracking operations and shale gas. Relative depths of groundwater and shale gas reservoirs and the nature of the intervening strata. As an example a schematic for the U.S. shale gas plays is shown in Figure 6.1.

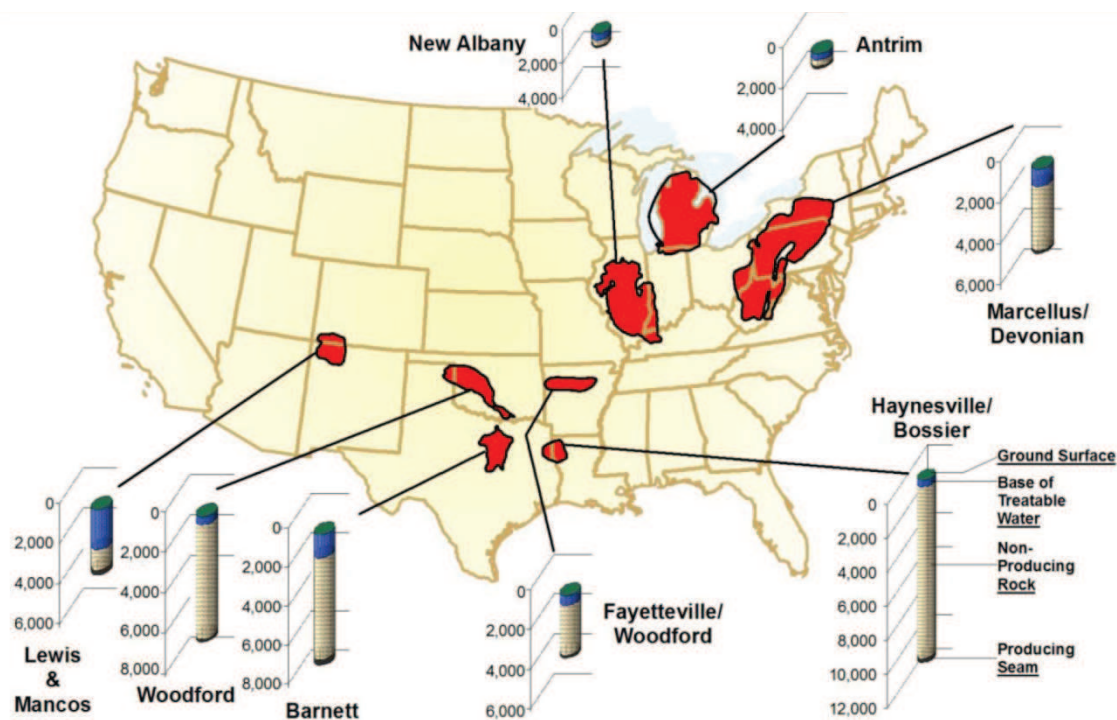


Figure 6.1 Comparative depths of shale gas formations and groundwater for the U.S. (Ground Water Protection Council and ALL Consulting, 2009)

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## Appendix 1 Chemical constituents of fracturing fluid and flowback water

**Table A1 Chemical constituents of products used in fracturing fluid (Wood et al 2010 taken from (New York State, 2009))**

Substance	Controlled Substance*	Substance	Controlled Substance*
1,2 Benzisothiazolin-2- one / 1,2-benzisothiazolin-3-one		Hydroxylamine hydrochloride	
1,2,4 Trimethylbenzene	HS	Isopropylbenzene (cumene)	
1,4 Dioxane		Light aromatic solvent naphtha	
2-Bromo-2-nitro-1,3- propanediol		Methanol	
2-Butoxy ethanol		Mineral spirits / Stoddard Solvent	
2-Propyn-1-ol		Monoethanolamine	
3,5,7-Triaza-1- azoniatricyclo [3.3.1.1 <sup>3,7</sup> ]decane, 1-(3-chloro-2-propenyl)-		Naphtha (petroleum), hydrotreated heavy	HS
Acetic anhydride		Naphthalene	HS/PS
Acrylamide		Naphthalene bis(1- methylethyl)	
Ammonia	NHP	Petroleum base oil	
Ammonium hydrogendifluoride		Petroleum naphtha	
Ammonium persulfate		Potassium hydroxide	
Aqueous ammonia	NHP	Propylene glycol monomethyl ether	
Benzene	HS/PS	Sodium bisulphate	
Boric acid		Sodium chloroacetate	
Butan-1-ol		Sodium hydroxide	
Chlorine dioxide		Sodium hypochlorite	NHP
Copper (II) sulphate	NHP	Sodium tetraborate decahydrate	NHP
Diethylene glycol		Sulfamic acid	
Ethyl benzene		Tetrahydro-3,5- dimethyl-2H-1,3,5-thiadiazine-2-thione (a.k.a. Dazomet)	NHP
Ethylene glycol		Tetrasodium ethylenediamine tetraacetate	
Ethylene oxide		Thioglycolic acid	
Formaldehyde	NHP	Thiourea	
Glutaraldehyde		Toluene	HS
Hydrochloric acid		Trisodium nitrilotriacetate	
Hydrogen peroxide		Xylene	HS

\*Note see Table A2

A more-comprehensive list is provided in an updated report (New York State, 2011), which is too long to reproduce.

**Table A2 Measured flowback water composition (reproduced in Woods et al. 2010)**

Parameter	No of samples	No of detects	Min	Median	Max	Controlled substance*
1,4-dichlorobutane (%REC)	1	1		198		
2,4,6-tribromophenol (%REC)	1	1		101		
2,4-fluorobiphenyl (%REC)	1	1		71		
2-fluorophenol (%REC)	1	1		72.3		
4-nitroquinolone-1-oxide (mg/L)	24	24	1422	13908	48336	
4-terphenyl-d14 (%REC)	1	1		44.8		
Acetone (µg/L)	3	1		681		
Alkalinity (mg/L)	31	9	4.9	91	117	
Aluminium (mg/L)	29	3	0.08	0.09	1.2	
Antimony (mg/L)	29	1		0.26		
Aqueous ammonia (mg/L)	28	25	12.4	58.1	382	NHP
Arsenic (mg/L)	29	2	0.09	0.107	0.123	
Barium (mg/L)	34	34	0.553	661.5	15700	
Benzene (µg/L)	29	14	15.7	479.5	1950	HS/PS
BOD (mg/L)	29	28	3	274.5	4450	
Bis(2-ethylhexyl)phthalate (µg/L)	23	2	10.3	15.9	21.5	PS
Boron (mg/L)	26	2	0.539	2.06	26.8	
Bromide (mg/L)	6	9	11.3	616	3070	
Bromoform (µg/L)	29	6	34.8	36.7	38.5	
Cadmium (mg/L)	29	5	0.009	0.032	1.2	HS/PHS
Calcium (mg/L)	55	52	29.9	5198	34000	
COD (mg/L)	29	29	1480	5500	31900	
Chloride (mg/L)	58	58	287	56900	228000	
Chlorodibromomethane (µg/L)	29	2	3.28	3.67	4.06	
Chromium (mg/L)	29	3	0.122	5	5.9	
Cobalt (mg/L)	25	4	0.03	0.40	0.58	NHP
Copper (mg/L)	29	4	0.01	0.035	0.157	
Cyanide (mg/L)	7	2	0.006	0.013	0.019	
Dichlorobromomethane (µg/L)	29	1		2.24		
Ethyl benzene (µg/L)	29	14	3.3	53.6	164	
Fluoride (mg/L)	4	2	5.23	393	780	
Iron (mg/L)	58	34	0	47.9	810	
Lead (mg/L)	29	2	0.02	0.24	0.46	PS
Lithium (mg/L)	25	4	34.4	55.8	161	
Magnesium (mg/L)	58	46	9	563	3190	
Manganese (mg/L)	29	15	0.0292	2.18	14.5	
Methyl bromide (µg/L)	29	1		2.04		
Methyl chloride (µg/L)	29	1		15.6		
Molybdenum (mg/L)	25	3	0.16	0.72	1.08	
Naphthalene (µg/L)	26	1		11.3		HS/PS

Parameter	No of samples	No of detects	Min	Median	Max	Controlled substance*
Nickel (mg/L)	29	6	0.01	0.047	0.137	PS
Nitrogen (total as N) (mg/L)	1	1		13.4		
Oil and grease (mg/L)	25	9	5	17	1470	HS
o-terphenyl	1	1		91.9		
pH	56	56	1	6.2	8.0	
Phenol (µg/L)	23	1		459		NHS
Phenols (µg/L)	25	5	0.05	0.191	0.44	NHS
Phosphorus (as P) (mg/L)	3	3	0.89	1.85	4.46	
Potassium (mg/L)	31	13	59	206	7810	
Selenium (mg/L)	29	1		0.058		
Silver (mg/L)	29	3	0.129	0.204	6.3	
Sodium (mg/L)	31	28	83.1	19650	96700	
Strontium (mg/L)	30	27	0.501	821	5841	
Sulphate (as SO <sub>4</sub> ) (mg/L)	58	45	0	3	1270	
Sulphide (as S) (mg/L)	3	1		29.5		
Sulphite (as SO <sub>3</sub> ) (mg/L)	3	3	2.56	64	64	
Surfactants (mg/L)	3	3	0.2	0.22	0.61	
Tetrachloroethene (µg/L)	29	1		5.01		HS/Other
Thallium (mg/L)	29	1		0.1		
Titanium (mg/L)	25	1		0.06		
Toluene (µg/L)	29	15	2.3	833	3190	HS
Total dissolved solids (mg/L)	58	58	1530	93200	337000	
Total Kjeldahl nitrogen (mg/L)	25	25	37.5	122	585	
Total organic carbon (mg/L)	23	23	69.2	449	1080	
Total suspended solids (mg/L)	29	29	30.6	146	1910	
Xylenes (µg/L)	22	14	16	487	2670	HS
Zinc (mg/L)	29	6	0.028	0.048	0.09	
Gross alpha (pCi/L)	8	8	22.4		18950	
Gross beta (pCi/L)	8	8	62		7445	
Total alpha radium (pCi/L)	6	6	3.8		1810	
Radium-226 (pCi/L)	3	3	2.58		33	
Radium-228 (pCi/L)	3	3	1.15		18.41	

**\*Note**

*Groundwater (under GWDD)(JAGDAG, 2011)*

Hazardous substance (HS)

Non-hazardous pollutant (NHP)

*Surface water (under Priority Substances Directive)(EC, 2008)*

Priority Hazardous Substance (PHS)

Priority Substance (PS)



November 2012

**Submission to the  
Petitions Committee of the  
National Assembly for Wales**

in response to

**the Welsh Government's  
Response to  
the Fracking Petition**



**cyfeillion  
y ddaear  
cymru  
friends of  
the earth  
cymru**

## Summary

1. Friends of the Earth Cymru considers the Welsh Government's response to be deficient and urges the Committee to call for further evidence on this matter.
2. Current planning policy encompasses fracking within a generic minerals planning policy which has been based on the experience of processes for conventional gas extraction. It consequently fails to acknowledge the need for a more cautionary approach to the issues raised by the new processes involved in fracking. The major issues associated with fracking are the current scientific uncertainty as to its impacts; known impacts in relation to climate change; and potential impacts on groundwater. Current policy makes no provision for addressing or considering those issues.
3. Welsh planning policy demands that sound science be used responsibly, which in this context entails a precautionary approach. Policy also demands that fracking be specifically acknowledged as a source of greenhouse gas production (and is a process which therefore runs counter to policy seeking to mitigate climate change). A new policy, or an addendum to Planning Policy Wales (PPW), is the appropriate means of dealing with the specific issues arising from fracking.
4. In view of the urgent need to mitigate climate change, Friends of the Earth Cymru has proposed an additional planning policy that provides for a sound precautionary approach to decision-making:
 

*Planning permission for fracking or shale gas operations (including test drilling and extraction) will not be granted unless*

  - a) *the planning authority is satisfied that all reasonable scientific doubt that there is any risk of adverse impacts including groundwater contamination has been eliminated*
  - b) *the proposal will not compromise the planning authority's duties in relation to climate change mitigation and adaptation; and*
  - c) *the proposal is environmentally acceptable, or it can be made so by planning conditions or obligations.*
5. In the short term we recommend the Welsh Government adopt a moratorium on fracking until sufficient information is available to determine with a high degree of certainty the likely impacts of fracking on the environment.
6. In addition, the Environmental Impact Assessment Regulations (England and Wales) 1999 should be amended to include the requirement for a full EIA to be conducted for each fracking application. Fracking operations exempt themselves by ensuring they have a surface operation smaller than the 1 ha limit (ordinarily they are 0.99 ha) that would make them subject to these Regulations.

## Welsh planning policy

7. Section 39(2) of the *Planning and Compulsory Purchase Act 2004* makes it a statutory duty to act with the objective of achieving sustainable development. Section 1(1) of the Climate Change Act 2008 provides that it is the duty of the Secretary of State to ensure that the net UK carbon account for the year 2050 is at least 80% lower than the 1990 baseline<sup>1</sup>.

8. Section 1.2.2 of PPW states that:

“The planning system must provide for an adequate and continuous supply of land, available and suitable for development to meet society’s needs. It must do this in a way that pays regard to overall sustainability principles, outcomes and objectives, paying particular attention to climate change as a key sustainability concern”.

9. One of the main outcomes that PPW is intended to deliver under sustainable development is:

“A resilient and sustainable economy for Wales that is able to develop whilst reducing its use of natural resources and reducing its contribution to climate change” (Section 4.1.5).

10. The principles of planning for sustainable development (Section 4.3.1) include:

- “Respect for environmental limits, so that resources are not irrecoverably depleted or the environment irreversibly damaged. This means, for example, mitigating climate change, protecting and enhancing biodiversity, minimising harmful emissions, and promoting sustainable use of natural resources;
- Tackling climate change by reducing the greenhouse gas emissions that cause climate change and ensuring that places are resilient to the consequences of climate change;
- Applying the precautionary principle. Cost-effective measures to prevent possibly serious environmental damage should not be postponed just because of scientific uncertainty about how serious the risk is;
- Using scientific knowledge to aid decision-making, and trying to work out in advance what knowledge will be needed so that appropriate research can be undertaken”.

11. Planning for Climate Change (Section 4.5.2) states:

“The Welsh Government has set out to achieve annual carbon reduction-equivalent emissions reductions of 3 per cent per year from 2011 in areas of devolved competence, which include land use planning”.

12. Friends of the Earth Cymru has serious concerns that as a result of areas outwith devolved competence being specifically excluded from the 3% greenhouse gas emissions reduction target, due consideration to reducing greenhouse gas emissions resulting from shale gas/fracking

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<sup>1</sup> In order to achieve this, the Committee on Climate Change has recommended a 60% cut by 2030, with average emissions in the power sector falling to 50gCO<sub>2</sub>e/kWh by that date. In May 2011 the Government accepted the Committee’s recommendation for the level of the 4th budget - a limit of 1950 MtCO<sub>2</sub>e over the years 2023-2027, amounting to an emissions cut of 50% on 1990. The Government has accepted that the aim should be to deliver this through domestic action, though the use of credits has not been ruled out.

operations will not be subject to the same rigour in testing for the precautionary principle, nor for assessing the climate change impacts.

13. Furthermore, while PPW includes an extensive section (12.8) entitled “Renewable and low carbon energy”, there is no equivalent section explaining planning policy on fossil fuel energy developments.
14. No Minerals Technical Advice Note for shale gas or unconventional gas exists. Thus the only specific minerals planning policy in relation to “all substances in, on or under land” that applies is Minerals Planning Policy Wales (MPPW)<sup>2</sup>, published in 2000.
15. This policy document pre-dates commercial fracking anywhere in the world. Thus there is no policy specifically covering unconventional gas extraction in Wales. No mention is made at any point in this document of climate change. It is worth quoting the entirety of the document as it extends to onshore oil and gas extraction (excluding coal bed methane) in order to demonstrate the paucity of consideration given over to this matter:

“Where oil and gas operations can be carried out in an environmentally acceptable way and consistent with the principles of sustainable development, there is no case in land use planning terms for placing more restrictions on the development than are necessary to ensure the protection of the environment. Development plans should indicate those areas where oil and gas operations are likely to be acceptable in principle subject to development control criteria being met in a particular case, as well as those areas where operations are unlikely to be acceptable. Policies should distinguish clearly between the three stages of exploration, appraisal and development.

Mineral planning authorities should establish with the Department of Trade and Industry the areas which are licensed, and identify any environmental and other constraints on production and processing in those areas. The industry has an important role to play in making available to authorities information on their forward plans and the extent of known resources. The licence system brought into effect in 1995 introduced a single licence, the Petroleum Exploration and Development Licence (PEDL) covering exploration, appraisal and developmental activity. Activities under such licences must be carried out in accordance with the requirements for planning permission”.

16. Friends of the Earth Cymru would like to highlight that no mention is made of the precautionary principle, of climate change nor of pollution, other than “ensure protection of the environment”. This term is non-specific and open to wide interpretation by planning officials, committees and inspectors.
17. PPW (section 13) also notes:

“LDPs should establish land-use planning policies which contribute to minimising and managing environmental risks and pollution. They should formulate policies relating to flood risk and climate change, contaminated and unstable land, air and water quality, noise and light pollution”.

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<sup>2</sup> National Assembly for Wales, December 2000, [Minerals planning policy Wales](#)

This suggests that Local Planning Authorities' Development Plans may not currently include land use policies relating to climate change, leaving local authorities vulnerable to fracking applications that could pre-date new plans with an explicit reference to mitigating climate change.

## The precautionary principle

18. The precautionary principle is a principle at the heart of environmental law to which the UK Government has committed since the UK signed the *Rio Declaration on Environment and Development* in 1992. This states (at Principle 15) that:

“where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.

19. Article 191(2) of the Treaty on the Functioning of the European Union declares that EU policy on the environment “shall be based on the precautionary principle”.

20. The precautionary principle is now one element of the requirement in the PPW to use sound science responsibly. The Interdepartmental Liaison Group on Risk Assessment (ILGRA), in its 2002 paper *The Precautionary Principle: Policy and Application*, made a number of important points including noting that the precautionary principle should be invoked when:

- There is good reason to believe that harmful effects may occur to human, animal or plant health, or to the environment; and
- The level of scientific uncertainty about the consequences or likelihood of the risk is such that best available scientific advice cannot assess the risk with sufficient confidence to inform decision-making<sup>3</sup>.

21. The precautionary principle finds specific expression through international instruments to which the UK is a signatory including the Water Framework Directive and the Habitats Directive. The Water Framework Directive applies strict standards and controls in relation in particular to groundwater. Its approach to groundwater has been summarised as follows<sup>4</sup>:

“The case of groundwater is somewhat different. The presumption in relation to groundwater should broadly be that it should not be polluted at all. For this reason, setting chemical quality standards may not be the best approach, as it gives the impression of an allowed level of pollution to which Member States can fill up. A very few such standards have been established at European level for particular issues (nitrates, pesticides and biocides), and these must always be adhered to. But for general protection, we have taken another approach. It is essentially a precautionary one. It comprises a prohibition on direct discharges to groundwater, and (to cover indirect discharges) a requirement to monitor groundwater bodies so as to detect changes in chemical composition, and to reverse any anthropogenically induced upward pollution trend. Taken together, these should ensure the protection of groundwater from all contamination, according to the principle of minimum anthropogenic impact”.

<sup>3</sup> The Interdepartmental Liaison Group on Risk Assessment (ILGRA), in its 2002 paper *The Precautionary Principle: Policy and Application*

<sup>4</sup> [http://ec.europa.eu/environment/water/water-framework/info/intro\\_en.htm](http://ec.europa.eu/environment/water/water-framework/info/intro_en.htm)

## Evidence relating to climate change impacts

22. A recent Friends of the Earth Europe report<sup>5</sup> (Unconventional and unwanted: the case against shale gas, September 2012, p10) sums up the situation as follows:

- “Some studies have suggested that between 3.6 and 7.9 per cent of the total gas output of a shale gas well is lost through fugitive methane emissions<sup>6</sup>. This would mean that “compared to coal, the footprint of shale gas is at least 20 per cent greater and perhaps more than twice as great on the 20-year horizon”<sup>7</sup>.
- In February 2012, one study that monitored emissions in air samples from a natural gas field near Denver found that about four per cent of the gas was lost to the atmosphere<sup>8</sup>, suggesting climate impacts have been underestimated<sup>9</sup>.
- According to the US National Academy of Sciences, “Given limited current evidence, it is likely that leakage at individual natural gas well sites is high enough, when combined with leakage from downstream operations, to make the total leakage exceed the 3.2 per cent threshold beyond which gas becomes at least comparably worse for the climate than coal for at least some period of time”<sup>10</sup>.

23. The report ‘Climate impact of potential shale gas production in the EU’ (published September 2012) written by AEA Technology for DG CLIMA at the European Commission concluded:

“Drawing upon these studies, and their underlying data sources, a hypothetical analysis has been carried out of the potential lifecycle GHG emissions that may arise from shale gas exploitation within Europe. In our base case, which does not represent a preferred scenario, we have estimated the GHG emissions per unit of electricity generated from shale gas to be around 4% to 8% higher than for electricity generated by conventional pipeline gas from within Europe. These additional emissions arise in the pre-combustion stage, predominantly in the well completion phase when the fracturing fluid is brought back to the surface together with released methane. If emissions from well completion are mitigated, through flaring or capture, and utilised then this difference is reduced to 1% to 5%. This finding is broadly in line with those of other U.S. studies which found that generation from shale gas had emissions about 2% to 3% higher than conventional pipeline gas generation.” (page iv).

<sup>5</sup> Friends of the Earth Europe, September 2012, [Unconventional and unwanted: The case against shale gas](#)

<sup>6</sup> Details about these climate figures can be found in the most recent US peer-reviewed science, Howarth et al, “Methane Emissions from Natural Gas Systems”, Background Paper Prepared for the National Climate Assessment, February 2012 (<http://www.eeb.cornell.edu/howarth/Howarth%20et%20al.%20-%20National%20Climate%20Assessment.pdf>)

Shindell et al “Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security”, Science 335, 183 (2012)

Alvarez, R. Pacala, S. Winebrake, J. and al, “Greater Focus Needed on Methane Leakage from Natural Gas Infrastructure”, 13/02/2012 (<http://www.pnas.org/content/early/2012/04/02/1202407109.full.pdf+html>)

<sup>7</sup> Howarth, R. Ingraffea, A. Santoro, R. “Methane and the Greenhouse Gas Footprint of Natural Gas from Shale Formations”, March 2011 (<http://www.sustainablefuture.cornell.edu/news/attachments/Howarth-EtAl-2011.pdf>)

<sup>8</sup> <http://thinkprogress.org/climate/2012/02/08/421588/high-methane-emissions-measured-over-gas-field-offset-climate-benefits-of-natural-gasquot/>

<sup>9</sup> <http://www.nature.com/news/air-sampling-reveals-high-emissions-from-gas-field-1.9982>

<sup>10</sup> Alvarez et al ‘Greater focus needed on methane leakage from natural gas infrastructure’ <http://www.pnas.org/content/early/2012/04/02/1202407109.full.pdf+html>

Given the varying results depending on the technology used, the authors conclude:

“In fact, for some pipeline sources emissions from shale gas may exceed emissions from importing conventional gas.” (page iv).

24. Moreover, arguments relating to *relative* carbon intensity miss the point about urgent absolute decarbonisation.

25. The view of the Department of Energy and Climate Change is partly set out in their written evidence to the Energy and Climate Change Select Committee inquiry into ‘The impact of shale gas on energy markets’<sup>11</sup>. In this, DECC quotes the International Energy Agency (IEA) conclusion in its 2011 report ‘Are we entering a Golden Age of Gas?’<sup>12</sup> that emissions from shale gas extraction are higher than those for conventional gas extraction:

“The IEA estimates that, provided methane emissions from shale wells are minimised by using appropriate technology, shale gas will have well-to-burner emissions that are 3.5% to 12% higher than the equivalent for conventional gas.” (page 64)

26. The IEA’s 2011 report ‘Are we entering a Golden Age of Gas?’ contained a GAS scenario in which, by 2035, global demand for gas increases by over 50% from today’s levels; and to help meet this, unconventional gas production more than triples to 2035, representing a third of total gas production by that date. IEA concluded:

“this emissions trajectory is consistent with stabilising the atmospheric concentration of greenhouse gases at around 650ppm, resulting in an average global temperature rise of over 3.5°C.”(page 8)

This is clearly well above the 2°C maximum rise that the UK and other developed countries have said we must keep to. IEA has admitted:

“we are not saying that it will be a golden age for humanity - we are saying it will be a golden age for gas”<sup>13</sup>.

27. In its 2011 report ‘Shale gas: An updated assessment of environmental and climate change impacts’<sup>14</sup> the Tyndall Centre for Climate Change Research published calculations looking at the impact on climate change of burning the known global resources of shale gas. This concluded:

“the CO2 emissions from burning shale gas are estimated to occupy a substantial proportion, over a quarter, of a budget associated with a better than 50:50 chance of avoiding 2°C warming”. (page 69)

The authors add that this figure is likely to be a conservative estimate as firstly, it only calculates carbon dioxide emissions from combustion (and so does not include for example the impact of

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<sup>11</sup> <http://www.publications.parliament.uk/pa/cm201213/cmselect/cmenergy/writev/isg/m01.htm>

<sup>12</sup> [http://www.worldenergyoutlook.org/media/weowebiste/2011/WEO2011\\_GoldenAgeofGasReport.pdf](http://www.worldenergyoutlook.org/media/weowebiste/2011/WEO2011_GoldenAgeofGasReport.pdf)

<sup>13</sup> <http://www.bbc.co.uk/news/science-environment-18236535>

<sup>14</sup> [http://www.tyndall.ac.uk/sites/default/files/coop\\_shale\\_gas\\_report\\_update\\_v3.10.pdf](http://www.tyndall.ac.uk/sites/default/files/coop_shale_gas_report_update_v3.10.pdf)

fugitive methane emissions); and secondly it uses estimates of global shale gas reserves from the US Energy Information Administration which do not include figures for Russia and Central Asia, the Middle East, South East Asia and Central Africa (page 68).

28. In the same report, the authors assess the potential impact of shale gas on meeting the UK's legally-binding climate change targets. They conclude that emissions from using the UK's potential shale gas reserves could represent up 14.5% of the total UK greenhouse gas budget for the period 2010 to 2050 (page 67). Again, this only includes carbon dioxide emissions from combustion, and so does not include the impact of fugitive methane emissions.

29. Professor Kevin Anderson of the Tyndall Centre, in evidence to a House of Commons Committee Inquiry into shale gas<sup>15</sup>, noted that "there simply is not the emission space available in the timeframe that we have to utilize shale gas".

30. The potential for UK shale gas is underpinning Government plans to build more gas-fired electricity generation. Friends of the Earth analysis of Government figures, reported in *The Observer* on 4 November 2012 'Huge scale of UK's 'dash for gas' revealed'<sup>16</sup>, shows that in the last year the Government has quadrupled the amount of electricity it expects to be generated from gas in 2030. According to the Committee for Climate Change (Letter to Ed Davey, 12 Sept)

"extensive use of unabated gas-fired capacity ... in 2030 and beyond would be incompatible with meeting legislated carbon budgets"<sup>17</sup>.

31. Shale gas advocates claim that its use has cut emissions in the US by replacing coal, and that we could replicate this in the UK. However analysis by Greenpeace in their report 'How the IEA and Harvard got it wrong on impact of shale on US emissions' (September 2012)<sup>18</sup> finds that renewables played a greater role than gas in emissions reductions in the US in recent years.

32. Analysis by the Tyndall Centre in 'Has US shale gas reduced CO2 emissions?' (October 2012)<sup>19</sup> shows that even if the US is using less coal because of more shale gas, millions of tonnes of unused coal are being exported to Europe and Asia, meaning the overall emissions benefits are overstated. The report finds that

"more than half of the emissions avoided in the US power sector may have been exported as coal. In total, this export is equivalent to 340 MtCO2 emissions elsewhere in the world, i.e. 52% of the 650 MtCO2 of potential emissions avoided within the US" (page 2).

<sup>15</sup> House of Commons, 10 May 2011, [Energy and Climate Change Committee: Shale gas](#)

<sup>16</sup> <http://www.guardian.co.uk/environment/2012/nov/03/uk-dash-gas>

<sup>17</sup> <http://www.theccc.org.uk/news/latest-news/1215-ccc-writes-to-ed-davey-over-government-stance-on-unabated-gas-fired-generation>

<sup>18</sup> <http://www.greenpeace.org.uk/newsdesk/energy/investigations/how-iea-and-harvard-got-it-wrong-impact-shale-us-emissions>

<sup>19</sup> [http://tyndall.ac.uk/sites/default/files/broderick\\_and\\_anderson\\_2012\\_impact\\_of\\_shale\\_gas\\_on\\_us\\_energy\\_and\\_emissions.pdf](http://tyndall.ac.uk/sites/default/files/broderick_and_anderson_2012_impact_of_shale_gas_on_us_energy_and_emissions.pdf)



33. An additional problem with shale gas is not just its own direct climate impact, but also the potential negative impact on investment in renewables. Professor Paul Stevens of Chatham House sums this up in the report ‘The Shale Gas Revolution: Developments and Changes’ (2012)<sup>20</sup>:

“There is a growing fear that shale gas may substitute not for coal as many originally hoped, but for renewables” (page 1).

34. PriceWaterhouseCoopers issue a similar warning at the global scale in their ‘PwC Low Carbon Economy Index’ (5 November 2012), warning that while shale gas may ‘buy some time’,

“it reduces the incentive for investment in lower carbon technologies such as nuclear and renewables, and could lock in emerging economies with high energy demand to a dependence on fossil fuels”<sup>21</sup>.

35. Researchers from the Massachusetts Institute of Technology, reported in ‘The influence of shale gas on US energy and environmental policy’<sup>22</sup>, modelled different scenarios for the development of US energy policy. They found that the use of shale gas suppresses the development of renewables. In one scenario a renewable fuel mandate is imposed and when shale gas is used, use of renewables does not go above the 25 percent minimum standard set in the scenario but when shale is removed from the market, renewables gain more ground. They conclude:

“in treating the shale as a “bridge” to a low carbon future there are risks to the development of technologies, like [carbon] capture and storage, needed to complete the task” (page 1)

36. The Committee on Climate Change has expressed its concerns about the impact of a ‘dash for gas’ on the development of renewable energy in a letter to Ed Davey<sup>23</sup>:

“The apparent ambivalence of the Government about whether it is trying to build a low-carbon or a gas-based power system weakens the signal provided by carbon budgets to investors... damaging prospects for required low-carbon investments. This has been made clear to us in our extensive discussions with the energy and supply chain companies who it is hoped will fund the very significant investments needed in power generation over the next two decades, and who have suggested to us that the sector investment climate is currently very poor”.

37. The context for the development of shale gas reserves in the UK in relation to climate change is that the Climate Change Act and the Committee on Climate Change have set out how the UK needs to meet its budgets. The purpose of the Act is for the UK to play its part in preventing dangerous climate change – and to do this it is cumulative emissions from now to 2050 that matter, not simply the end point in 2050. As part of this budget setting process, the CCC have set budgets to 2027 (which the Government has accepted) so that the UK makes a 60% cut on 1990 levels by 2030. The

<sup>20</sup>

[http://www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/bp0812\\_s-tevens.pdf](http://www.chathamhouse.org/sites/default/files/public/Research/Energy,%20Environment%20and%20Development/bp0812_s-tevens.pdf)

<sup>21</sup> <http://press.pwc.com/GLOBAL/News-releases/current-rates-of-decarbonisation-pointing-to-6oc-of-warming/s/47302a6d-efb5-478f-b0e4-19d8801da855>

<sup>22</sup> [http://globalchange.mit.edu/files/document/MITJPSPGC\\_Reprint\\_12-1.pdf](http://globalchange.mit.edu/files/document/MITJPSPGC_Reprint_12-1.pdf)

<sup>23</sup> <http://hmccc.s3.amazonaws.com/EMR%20letter%20-%20September%2012.pdf>

CCC say this target is the “absolute minimum” compatible with its climate goals (which in themselves are compatible with a 60% chance of exceeding two degrees – a high level of risk to accept for something Government has said it must avoid). Within this the CCC says that decarbonisation of the electricity sector is an essential part of the most cost-effective path. They say this means cutting average emissions from around 500gCO<sub>2</sub>e/kWh now, to 50gCO<sub>2</sub>e/kWh in 2030. The CCC say that this means that unabated gas should account for no more than 10% of power generation in 2030, compared to over 40% today.

38. Friends of the Earth Cymru believes that this decarbonisation target can be met without the need for new nuclear power. As explained in a Friends of the Earth report ‘A plan for Clean British Energy’<sup>24</sup>, by 2030 renewables could account for around 2/3 of power generation, over half of this being offshore wind.

### Scientific uncertainty about fracking

39. Friends of the Earth Cymru submits that emerging evidence indicates that there is risk of harmful effects to the environment from fracking. In particular, Friends of the Earth Cymru is concerned by well documented risks of groundwater contamination and from greenhouse gas (GHG) emissions.

40. In relation to groundwater contamination<sup>25</sup>, The British Geological Survey (see attached document “Potential groundwater impact from exploitation of shale gas in the UK” (Stuart, 2012)) concludes that:

“Groundwater may be potentially contaminated by extraction of shale gas both from the constituents of shale gas itself, from the formulation and deep injection of water containing a cocktail of additives used for hydraulic fracturing and from flowback water which may have a high content of saline formation water” (page 19).

The British Geological Survey report goes on to state that:

“There are examples of surface water contamination from releases of fracturing water or flowback water. Documented instances of groundwater contamination from the US are all related to the leakage of methane into groundwater.” (page 20).

41. Concerns in the US where fracking is widespread has led the US Environmental Protection Agency to produce a major study of the environmental and human health impacts which is due to be published in 2014. There is nevertheless already considerable evidence from the US of fracking leading to contaminated water supplies.
42. In relation to GHG emissions, it remains a matter of debate whether fracking is worse than conventional gas because although the emissions caused in using the gas are equivalent, the

<sup>24</sup> [http://www.foe.co.uk/resource/briefings/plan\\_cbe\\_report.pdf](http://www.foe.co.uk/resource/briefings/plan_cbe_report.pdf)

<sup>25</sup> European Commission report (August 2012) lists groundwater contamination as one of the ‘high risk’ concerns for the environment and human health from fracking - <http://ec.europa.eu/environment/integration/energy/pdf/fracking%20study.pdf>

production methods themselves contribute considerably to GHG emissions. Different studies have produced divergent results.

43. In a letter to Friends of the Earth, dated 29 October 2012, Secretary of State Ed Davey stated:

“I agree that the climate impact of shale gas is as yet poorly characterised, that more research is needed, and that any reliance on shale gas must not be at the expense of our climate change targets”

44. It is these concerns and uncertainties which lead Friends of the Earth Cymru to remind the Welsh Government of the need to use sound science responsibly and to adopt a precautionary approach to fracking development.

45. Friends of the Earth Cymru is therefore concerned that current planning policy as laid out in PPW and insofar as it relates to the consideration of climate change and the major scientific concerns on fracking. Nor is the broad sweeping application of a single policy to all technologies irrespective of the state of scientific knowledge about their implications (as laid out in Minerals Planning Policy Wales) consistent with national policy.

46. In the light of this uncertainty, Friends of the Earth Cymru calls on the Welsh Government to apply a moratorium on fracking until such time as sufficient information is available to determine with a high degree of certainty the likely impacts of fracking on the environment.

### **Need for a new policy**

47. Friends of the Earth Cymru submits that the issues arising from the untested nature of fracking are specific enough to merit a specific policy. Friends of the Earth Cymru’s concern is particularly with the climate change and water quality implications of fracking. The following policy is proposed:

*Planning permission for fracking or shale gas operations (including test drilling and extraction) will not be granted unless*

- a) the planning authority is satisfied that all reasonable scientific doubt that there is any risk of adverse impacts including groundwater contamination has been eliminated*
- b) the proposal will not compromise the planning authority’s duties in relation to climate change mitigation and adaptation; and*
- c) the proposal is environmentally acceptable, or it can be made so by planning conditions or obligations.*

### **The mechanics of the policy**

48. The policy suggested by Friends of the Earth Cymru is designed to incorporate the principles of using sound science responsibly as derived from kindred spheres where the precautionary principle is applicable.

49. The application of a precautionary approach has been successfully led by the Habitats Directive. The practices required by that Directive can provide a model or an analogy from which a precautionary policy can draw. Where development likely to have a significant effect on a site protected by the Habitats Directive is anticipated, the approach which is taken is that a developer is required to provide the information necessary to allow a planning authority to undertake an “appropriate assessment”. In *Commission v Spain* [2011] EUECJ C-404/09 at §100 the European Court held:

“An assessment made under Article 6(3) of the Habitats Directive cannot be regarded as appropriate if it contains gaps and lacks complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the SPA concerned (see, to that effect, Case C-304/05 *Commission v Italy* [2007] ECR I-7495, paragraph 69)”.

50. Article 6(3) of the Directive prohibits development until all reasonable scientific doubt as to any adverse effects of a development have been eliminated. In the leading case on the Habitats Directive, *Waddenzee* [2005] 2 CMLR 31 the ECJ has specifically held that its interpretation of the Habitats Directive is an application of the precautionary principle (See paragraphs § 43-4).

51. Thus in other spheres where a precautionary approach applies, what is required is that:

- (a) The onus is on the developer to supply the information necessary to make an assessment of the risks and impacts of a proposal- this would include informing the local authority of the most up to date studies of the practice across the globe in the fair and balanced manner to be expected of any expert scientific report.
- (b) In the light of that information the local authority takes a decision on whether to consent to the proposal. Where impacts or risks are uncertain, it should refuse permission. That is the precautionary principle. To do otherwise is to gamble with the environment and to be scientifically irresponsible. There can be no objection to such an approach under Welsh planning law. Indeed the approach commended is consistent with national policy and any less stringent approach would be inconsistent with national policy.

52. Friends of the Earth Cymru’s proposed planning policy requires a sound precautionary approach to decision-making. The amendments proposed by Friends of the Earth Cymru enshrine the Welsh Government’s policy to use sound science responsibly. In adopting such an approach the public can have confidence that decisions are being taken responsibly and concerns about risks to the environment and indeed risks to human health are effectively eliminated.

53. The policy proposed by Friends of the Earth Cymru in this instance falls well short of far more precautionary approaches taken across Europe, for example:

- Fracking is banned in France and Bulgaria.
- There is a moratorium (ie temporary ban) in the Netherlands pending further research into the environmental impacts, with a study due to start next year
- Draft legislation to enforce a two year moratorium in the Czech Republic is working its way through Parliament

- In Austria, plans by oil and gas company OMV to explore possible shale gas reserves in Lower Austria were stalled in summer 2012 following strong opposition, and the subsequent introduction in September 2012 of tougher environmental legislation led OMV to abandon drilling in Austria
- Fracking was stopped in North Rhine-Westphalia in Germany in November 2011, pending a study into the risks involved. The study, published in August 2012, concluded that there were numerous risks and uncertainties, and recommended no further drilling until further investigation. There is also a moratorium in the state of Thuringia.
- Switzerland: in April 2011 the Swiss Canton of Fribourg suspended all licenses for exploration of shale gas for an indefinite period.

### **The Environmental Impact Assessment (England and Wales) Regulations 1999**

54. The Environmental Impact Assessment (England and Wales) Regulations 1999 require an Environmental Impact Assessment (EIA) for certain categories of development. However, currently only activities on sites covering an area of one hectare or more have to be screened to see whether an EIA is needed. Fracking operations have avoided this requirement by having sites covering an area of 0.99 hectares.

55. Friends of the Earth Cymru would like this loophole removed so that all developments that relate to the extraction of gas from subterranean sources are required to undergo an EIA – or as a minimum that they must go through the screening exercise to determine whether or not an EIA should be required.

# Agenda Item 4.7

## **P-04-423 : Brooklands Nursing Home**

### **Petition wording:**

We call on the National Assembly of Wales to urge the Welsh Government to consider if residents of Brooklands Nursing Home would have their human rights infringed by the siting of the civic amenity site 30 metres from the home.

**Supporting Information :** Staff and relatives of clients at Brooklands are very unhappy. The council are proposing to put the Civic amenities from Tenby adjacent to Brooklands Nursing Home. We strongly feel that their last days should be spent enjoying peace and tranquillity and not be disrupted with noise, pollution, traffic disruption, disruption from seagulls etc. Our clients are vulnerable adults who are unable to voice their opinion and so they need your help. Would you like to spend the rest of your days with the tip as your neighbour? We wouldn't. Please help with our petition and sign below.

**Petition raised by:** Darren Umanee

**Date petition first considered by Committee:** 2 October 2012

**Number of signatures:** 115. Associated petitions collected over 4484 signatures

John Griffiths AC /AM  
Gweinidog yr Amgylchedd a Datblygu Cynaliadwy  
Minister for Environment and Sustainable Development



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-423  
Ein cyf/Our ref JG/07202/12

William Powell AM

Chair Petition's committee

committeebusiness@Wales.gsi.gov.uk

6 November 2012

*Dear William*

Thank you for your letter regarding the potential siting of a civic amenity site adjacent to Brooklands Nursing Home. I understand this matter is under consideration by the Petitions Committee and you are requesting a view on the planning aspects of the petition.

Discussion is currently taking place between Pembrokeshire County Council and the National Park Authority in relation to this matter but to date no planning application has been submitted. Given the statutory role of the Welsh Ministers in the planning process and that any subsequent planning application may come before me at some point in the future, it would not be appropriate for me to comment on the merits of this, or any specific, case. However, I am able to provide some general advice on national planning policy.

National Planning policy in relation to waste management is contained in Planning Policy Wales (PPW) and Technical Advice Note 21: Waste (TAN 21). National planning policy should be taken into account by local planning authorities and may be material to decisions on individual planning applications. The website links are:

Planning Policy Wales: <http://wales.gov.uk/topics/planning/policy/ppw/?lang=en>  
Technical Advice Notes: <http://wales.gov.uk/topics/planning/policy/tans/?lang=en>

TAN 21 sets out specific planning considerations which local planning authorities should take into account as part of making a planning decision. These considerations include, amongst other things, the impacts associated with transport and access, noise, dust, visual impact and any measures which may be appropriate in mitigating environmental and amenity impacts.

TAN 21 states that in making a decision on a planning application local authorities would be expected to consider the amenity of local communities. In addition, the environmental impact of any proposed facility must be adequately assessed in determining whether a planning application is acceptable. Where a proposal is environmentally unacceptable or would cause adverse impacts on amenity and the problems cannot be mitigated to an acceptable standard by conditions, planning permission should be refused.

Yours,

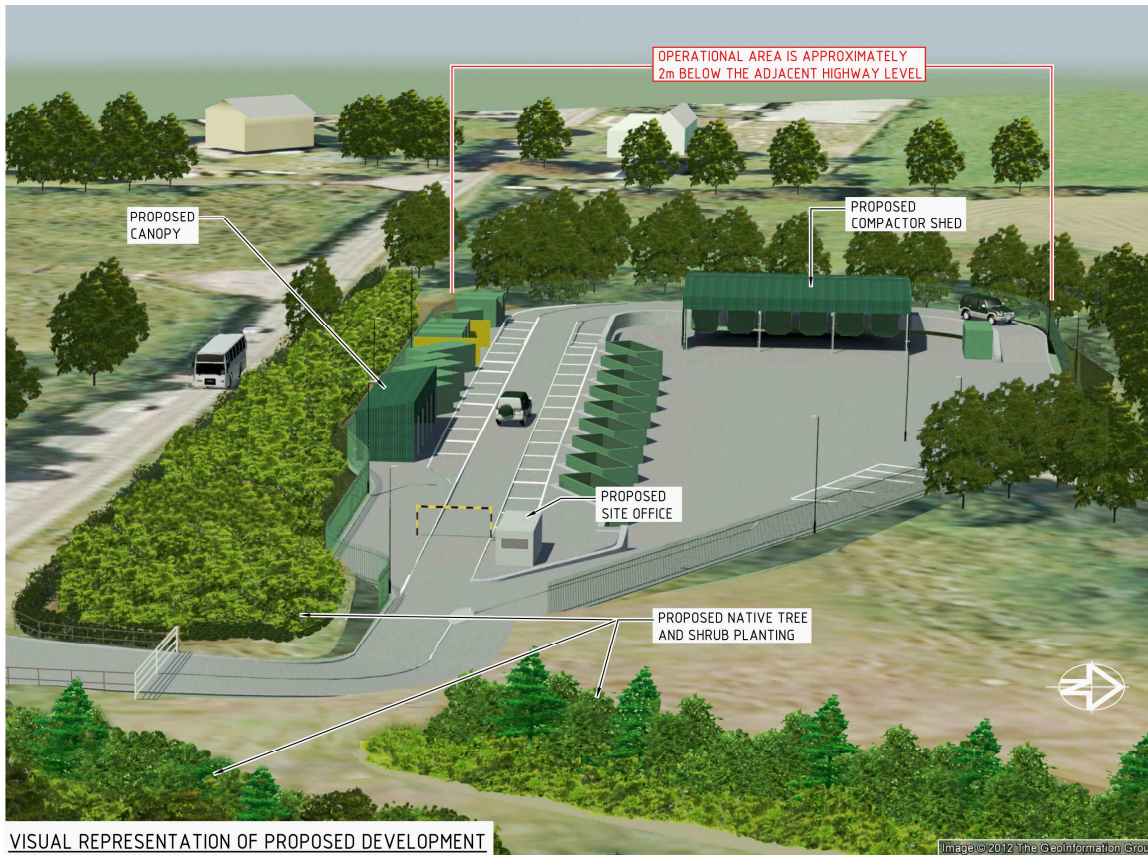


**John Griffiths AC / AM**  
Gweinidog yr Amgylchedd a Datblygu Cynaliadwy  
Minister for Environment and Sustainable Development



# Proposal for Civic Amenity and Recycling Centre

## New Hedges, Pembrokeshire



### Reference: P-04-423 Brooklands Nursing Home

A petition has been submitted to the Assembly Petitions Committee named 'Brooklands Nursing Home'.

This briefing document has been drafted by Pembrokeshire County Council who are proposing the siting of a new Civic Amenity and Recycling Centre near New Hedges, and aims to give you an understanding of the background to these proposals.

### The Existing Civic Amenity Site

The current civic amenity site for the South East of Pembrokeshire at The Salterns, Tenby, is small, cramped and difficult to access, particularly for people with mobility problems. It is also only able to send around 60% of the waste it receives for recycling, whereas most other facilities of this kind in the County recycle above 70%. It is, therefore, no longer fit for purpose and there is no room to expand and, consequently, an alternative needs to be sourced.

### Site Selection Process

A rigorous site selection process was undertaken to find an alternative site. Pembrokeshire County Council identified a number of criteria to inform the site selection process. Criteria included:

- A site larger than the current facility at The Salterns, Tenby, to allow for wider segregation of different waste streams
- A site of adequate size which would allow for the effective separation of the public from operational activities, in order to ensure the safety of the public and to allow on-going public use of the facility during operational activities
- A site which offers the ability to develop a modern facility capable of serving current and foreseeable requirements
- A site with good access and transport links

- A site preferably located to the North of the current site, on the A478/A477 corridor, as this will better service the communities of Saundersfoot, Kilgetty, Begelly and Narberth without undue disadvantage to Tenby residents, whilst reducing the number of vehicles entering Tenby.
- A site at a location which complements the locations of the other sites across the county (i.e. not too close). Other sites include: Waterloo (Pembroke Dock); Hermon; Manorowen; St David's; and, Winsel (Haverfordwest).

A significant amount of research and investigation was undertaken by Pembrokeshire County Council over a number of years to identify a potential Civic Amenity and Recycling Centre site as a replacement for the existing Tenby facility.

### **Preferred Site**

During the site selection process, a number of potential sites were rejected on the basis that they did not meet key selection criteria. However, following approaches to a number of land owners in the regions by a local land agent, a site at New Hedges along the A478 was identified.

The New Hedges site offers physical and site locational advantages, which include:

- A central location in relation to main centres of population at Penally, Tenby, Kilgetty and Saundersfoot
- An existing access road onto the A478 and an existing area of hard standing
- A boundary of mature trees which provide effective screening along the A478 and along the perimeter of the remainder of the site
- A larger site area than the current facility in Tenby that will allow for the effective segregation of different waste streams
- A site area that will allow for the physical separation of the public from operational activities, thereby ensuring the safety of the public and allowing on-going public use of the facility during operational hours
- The opportunity to develop a modern facility capable of serving current and foreseeable recycling needs

This site at New Hedges was identified by Pembrokeshire County Council as the best option for a new Civic Amenity and Recycling Centre, and the Council is confident that its excellent access, its minimal impact on neighbouring properties, and its ability to offer the widest possible range of recycling options in the County, will significantly improve recycling rates in the area.

### **Concerns**

The main concerns that have been raised about the proposed site at New Hedges are its proximity to Brooklands Nursing Home, a specialist care home for elderly patients with Alzheimer's and dementia. Concerns raised are predominantly concerning noise, odour and highway access. Pembrokeshire County Council has undertaken a number of face-to-face meetings over a sustained period with representatives from Brooklands to understand their concerns and to answer their questions about the proposed facility.

The Council has taken these concerns into great consideration, and has made changes to the plans to ensure that noise and odour from the site will be kept to an absolute minimum, including the introduction of noise barriers. Specialist experts have been employed to undertake assessments on the site to measure noise impact, and these have proved that the expected impact is minimal. Odour will not be a problem at the site as any residual waste that cannot be recycled will be kept in enclosed containers which will be positioned at the far end of the site.

As well as meeting with individual members of the community on request, an information exhibition has taken place with members of the local community to answer their questions about the proposed new site at New Hedges. Steps have also been taken by Pembrokeshire County Council to reassure the local community of the rigorous process that has been undertaken to identify a new site and to put in place measures to ensure the site has as minimal an impact as possible on the surrounding area.

Since the announcement of New Hedges as the preferred site for the new Civic Amenity and Recycling Centre, additional sites have been suggested by individuals. These have all been carefully

considered by Pembrokeshire County Council against the selection criteria, but have all been deemed unsuitable and, therefore, discounted.

Through the extensive site assessment work undertaken, Pembrokeshire County Council has concluded that the only potential location for a Civic Amenity and Recycling Centre is the proposed site at New Hedges.

**The following provides responses to questions that have been raised:**

**What is a Civic Amenity and Recycling Centre and what type of waste will it manage?**

Civic Amenity and Recycling Centres are **not** landfill sites; they are designed specifically to make it easy for the general public to dispose of and recycle their average everyday waste. The proposed facility in New Hedges will cater for general household residual waste (waste that has all recyclable materials taken out) which will be compacted and stored in an enclosed sealed container. It will also handle materials that will be sent away for recycling such as steel and aluminium cans, green garden waste, paper, glass bottles, mattresses, carpets, electrical items such as TVs, and white goods such as fridges and freezers.

The site will also deal with household materials that fall under the definition of 'hazardous waste'. These are materials which you would find in the home such as paints, oils, fluorescent tubes, batteries and other household products.

**Why has the site in New Hedges been chosen as the preferred location, surely there are better sites elsewhere in the County?**

Pembrokeshire County Council has carried out a detailed and rigorous assessment of possible sites across the South East of the County and the site at New Hedges has been identified as the most appropriate. It has excellent access to it from the A478 and, importantly, is large enough that the facility can be designed in such a way as to minimise any form of impact on neighbouring properties. As an example, the nearest skip will be over 100 metres away from neighbouring residences.

**Won't the site be smelly and attract vermin?**

No. Any residual waste that enters the Civic Amenity and Recycling Centre will be compacted and kept in enclosed sealed containers under a canopy, and situated over 130 metres away from the nearest property and over 200 metres from Brooklands Nursing Home. These waste containers will be removed from the site several times a week. The Salterns site in Tenby currently has approximately 160 homes and 40 caravans **within** 200 metres of the residual waste containers and has not received any complaints about smell from those neighbouring residents.

**Won't it look unsightly, particularly for people living close by?**

No; the facility will be designed to be sympathetic to its environment. The access road into the site and the waste containers situated there will be sunk below road level so as not to be seen by the nearest property or from the main road. In addition, most of the existing shrub and trees will be retained within the landscaping of the proposal. The proposal also includes new trees and shrub being planted so that the site will not be seen by the nearest property or from the main road.

**Will it be noisy?**

Detailed assessments have been carried out by noise experts at the site. The noise levels produced by the facility would be lower than the average background noise already generated by traffic on the A478; the background noise is the lower noise levels which have been recorded on site. The centre of the access road to the site will be over 50 metres away from the nearest residence (Brooklands Nursing Home) whereas the centre of the A478 with fast moving and noisy traffic sits just 18 metres away from Brooklands. Traffic will enter the site at a slow pace making minimal noise and the design of the facility will act as a barrier to any potential noise.

**Will it result in a large amount of extra traffic?**

The A478 currently accommodates an average of 9,900 vehicles a day along its New Hedges route. The new development will have approximately 340 vehicles a day using it, in addition to 3 HGVs (Heavy Goods Vehicles) taking waste from the site. The new development is expected to increase average daily traffic volumes on the A478 to 10,586 vehicles along its New Hedges route, and the

resultant traffic impact is expected to be negligible. In addition, the A478 carriageway is forecast to operate well within its design capacity following the opening of the proposed Civic Amenity and Recycling Centre.

**How will the new facility help improve recycling rates in the area?**

The existing civic amenity site for the South East of Pembrokeshire at The Salterns, Tenby is currently the worst performing site in the County, with a recycling rate of around 60%. This is due to the site's access problems for users, particularly the fact that many of the containers can only be accessed by users climbing steps up to them. The lack of space available on site has also meant that recycling facilities have not been able to expand as much as other sites in the County.

The new state-of-the-art facility proposed at New Hedges will have the widest possible range of recycling options in the County, on par with the Waterloo Civic Amenity and Recycling Centre in Pembroke Dock. Improved public access and safety, changes to traffic management and the segregation of operational and public areas will provide users with a better experience and allow for the collection of good quality recycling materials. By providing the residents in the South East of Pembrokeshire with improved facilities, it is envisaged that recycling rates at the new facility will increase to above 70%.

**If you would like any further information or have any questions which are not answered in this document, please contact Pembrokeshire County Council on 01437 764551 or email [wastemanagement@pembrokeshire.gov.uk](mailto:wastemanagement@pembrokeshire.gov.uk)**

Dear Sirs

**Our client: Brooklands Nursing Home Limited**

Further to your e-mail of 19 November 2012, please find below our client's comments on the correspondence provided:

The process undertaken by Pembrokeshire County Council ("PCC") in preparing for submission of a planning application for New Hedges for the site of a new Civic Amenity Site has failed to apply the level of transparency and community engagement that one would expect in the context of the siting of the type of facility which is recognised by TAN 21 (Waste) as being normally sited in an industrial site or in an area away from residential areas.

The owner of Brooklands Nursing Home (which is immediately adjacent to the site) and other local landowners whose interests could reasonably have been expected to be affected by the submission only discovered the intention to apply for planning permission for the site by way of a letter from PCC hand delivered to them on 10 July 2012.

Only as a result of objections has PCC now taken steps to engage with any consultation but in reality the consultation which the Council is undertaking is simply to overcome the defect in the process and is not genuine consultation with a view to considering views expressed with the possibility of altering the decision (as amply reflected in the submission to the Petition's Committee)

The Existing Civic Amenity Site

The submission from PCC refers to the existing site at the Salterns as no longer being fit for purpose specifically because it sends around only 60% of the waste it receives for recycling whereas other in the county achieve 70% recycling rates.

- PCC should identify the rates for each other civic amenity site and what steps have been taken to collect data and to analyse such data to identify the reasons why the material submitted at the Salterns is less capable of being recycled.
- PCC has not explained why the alleged lower recycling performance at this CAS is evidence of the unsatisfactory nature of the site as opposed to the recycling behaviours of the people attending this site, the type of waste being deposited at the site (and how this relates to the behaviour of those attending the site in relation to kerbside recycling and standard waste collection service) and/or management of this particular site.
- PCC has not provided evidence of lower total recycling by the "catchment" area of the CAS (which might have been expected to have been provided by PCC if they wished to put forward a strong case).
- Even had PCC offered such evidence one would also have expected it to have been supported by critical analysis including customer feedback and consultation to confirm that the assumption (as that is all it could be in the absence of proper testing and evaluation) as to relationship with alleged deficiencies in the CAS is valid. This has also not been provided.
- PCC hasn't provided any evidence that the CAS isn't capable of taking all recyclable waste which might be expected to be delivered to it based on comparison with data from other sites and their catchment areas. No evidence has been offered of longer queuing to enter the site than at other sites or feedback from customers as to that being the reason why they don't use the site.

- Even had PCC provided such evidence one would expect PCC also to have produced a business case to identify options for overcoming the perceived deficiencies. That business case would be expected to have considered options (with detailed analysis of potential impact) of:
  - steps which might be taken to improve any of the alleged deficiencies in the site;
  - whether retention of the existing site with another smaller site being provided might be able to provide the required capacity and capability (therefore, splitting the traffic levels across two sites and providing two convenient locations for users in those areas and better satisfying a number of the criteria identified in the PCC submission regarding for example location to suit communities of Saundersfoot, Kilgetty, Begelly and Narberth without due disadvantage to Tenby residents and a site which complements locations of other CAS's across the county).

Such a business case would have been expected to include a comparison with the effectiveness of small civic amenity sites in the UK which manage to achieve higher recycling targets and whether improvements to this CAS (including management of the site) might be capable of addressing any shortcomings. The business case would then consider the various options in the context of a cost/benefit analysis. No evidence of such a business case has been provided (notwithstanding that PCC will be aware of concerns as to lack of transparency in the process they have adopted to date).

It should also be noted that the report from the Welsh Audit Office entitled "Public Participation in waste Recycling" highlights the necessity for waste authorities to collect and utilise data to demonstrate the impacts of the operational decisions in connection with waste to ensure that decisions are then properly informed. Consequently, it was essential that the business case was developed on up to date and detailed data.

Also whilst the criteria have been identified, no objectives which should have been the key drivers for the choice of criteria have been identified. There is no identification of the detailed need – for example how many additional "tipping" movements needed to be accommodated which could not be accommodated at the existing site etc. A vague requirement for "a site larger than the current facility" reflects the fact that the approach undertaken by PCC is poorly considered and insufficient and very different from the alleged "rigorous site selection process".

The identification of criteria for an options appraisal for a new site based on such vague notions without the evidence base and analysis which a business case would have provided should be considered to be unreliable and inappropriate.

#### Site Selection Process

It is stated that a rigorous site selection process has been undertaken but no evidence of this has been offered or produced. A number of issues would need to be explored with the benefit of the "rigorous" option appraisal report (which should be readily available to the public)

- Criteria have been identified in the submission as having been "included" in the assessment. PCC should be required to:
  - identify all the criteria which were applied;
  - the weightings used for each criterion;
- PCC should then explain how such criteria were chosen as the key criteria for the options appraisal and weightings allocated including:
  - who by;

- using what process (including whether PCC has followed Treasury guidance on option appraisal processes);
  - when;
  - are the criteria still as valid for current circumstances and current strategies and policy? It is stated in the submission that research and investigation to identify sites has taken place over a number of years and this either suggests that the criteria themselves are a number of years old or that the criteria have been developed to reflect the identification following that extensive investigation of a site at New Hedges (which would be wholly inappropriate for the purpose of a proper options appraisal in accordance with Treasury guidance);
  - were they reported to the Executive as being the chosen criteria prior to their being used for the options appraisal work (and if so PCC should provide the report to the Executive recommending those criteria) or simply produced as part of the options appraisal (in which case they would appear as a fait accompli);
  - which stakeholders were engaged in setting the criteria and weightings, how and when (and what criteria were utilised in deciding who the relevant stakeholders were);
  - do the criteria properly mirror the approved waste strategy and can this be demonstrated;
  - do the criteria properly mirror the transport strategy and can this be demonstrated (eg by making residents of Tenby travel outside the area and thereby actually contradicting one criterion of reducing number of vehicles entering Tenby – on the return journey);
  - In which of the criteria which PCC have identified and were allegedly used in the options appraisal was the issue of adverse impacts of the development of the CAS considered? The development of each site for a CAS would potentially have different impacts on the surrounding areas and uses. This would be reasonably expected to be reflected in the options appraisal? Has this taken place?
  - Similarly the development of each site for a CAS would potentially have different costs. How was cost taken into account in the criteria used and applied in options appraisal?
- PCC should be required to disclose the “significant amount of research and investigation” as a matter of meeting the requirements for transparency. Objectors have yet to be provided with anything other than a list of sites considered and a simplistic and inadequate “pro/con” style assessment which cannot amount to the “rigorous site selection process” claimed by PCC. No detailed assessments relating to the potential sites have been made available;
  - PCC should explain what site investigations have been undertaken to constitute the “significant amount of research and investigation” including:
    - when they were undertaken;
    - what resources were applied (eg. they state in the subsequent part of the submission that a local land agent had approached a number of landowners. Were all local land agents approached to investigate availability of sites? If so, when and for what period? If not, why was that decision made, by whom and when? PCC should demonstrate the period and on what terms/objectives it engaged each land agent (including any criteria which each land agent was required to adopt to identify potential sites) and confirm that all sites which had been identified by the land agents were considered under the options

appraisal process and where is the evidence of that process and consideration by the Executive – see also questions above concerning this process);

- what processes they undertook (eg did they send a written call-for-sites to all land agents and valuers or utilise any advertisements to seek suggestions. If not, why not. If they did were any of these processes renewed prior to finalising the options appraisal if, as suggested in the submission, this process has been going on for a number of years?);
- which stakeholders did they engage with, how, when and utilising what mechanisms (eg was there appropriate community engagement and consultation).

### Preferred Site

The submission identifies that New Hedges was identified as the best option for a new CAS identifying a number of alleged benefits of the site. However there are a number of questions which aren't addressed:

- No details have been provided over the site selection process, who undertook it and when;
- Assuming that the site selection process took place utilising criteria referred to in the submission (about which a number of questions have been raised above) then which were the other short listed sites for the detailed option appraisal and what were the respective scores? Why has this information not been released?
- The report to the Executive Committee should be provided with the details of the reasons why New hedges was identified as the “best option” and the corresponding scores of the other sites considered in the options appraisal so that the Executive Committee could make a fully informed decision;
- Only alleged benefits have been identified in the submission which raises considerable concern as to the robustness and validity of the options appraisal. The submission does not suggest that all disadvantages were considered at the outset of the options appraisal but rather that “the main concerns that have been raised about the proposed site” suggesting this is simply a reactive consideration. This raises the fundamental question - when and at what stage in the process did PCC recognise that the property adjacent to this site was a sensitive nursing care home providing a number of specialist EMI beds? If it was not identified within the written options appraisal then the options appraisal is flawed and demonstrates that it has been used only to justify a decision which had already been taken.
- where is the consideration as to the impact on the operation of the home both in terms of a business (eg impact on attracting new customers and retaining existing customers), in terms of the impact on those customers (eg in terms of the health and well-being of the customers having regard to their specific conditions) and in operational and safety terms (eg in the event of an emergency event at the CAS then any evacuation of the nursing home could be very detrimental to the health and well-being of the residents particularly having regard to the risks associated with moving people with such conditions)?
- Why was the owner of the Brooklands Nursing Home not approached for his views and input as part of any stakeholder consultation which took place or as part of the options appraisal particularly as this is a specialist facility and PCC would have needed to understand the impacts which would have included medical advice (eg compare the position when closing down a nursing home and moving customers);
- when and how was the planning status of the site considered in the context of the options appraisal. How and on what basis (and expert advice) was it considered that the site would be



suitable in the options appraisal when the site had previously been deemed unsuitable for development as set out below:

- NP/05/347 – Application for toilet facilities for walkers – Refused 26/09/05 for reason that the proposal would constitute unacceptable development in the open countryside and would contravene policies GE1, GE2 and TO3 of the Unitary Development Plan
  - PCNPA Local Development Plan – Land Allocations: Site rejected at Stage 2 (site evaluation) for the reason that development would impact on the National Park’s Special Qualities. Stage two evaluation stated that development at this site “*would be intrusive within the wider agricultural landscape, and is likely to be detrimental to the special qualities of this area which forms a significant approach to coastal settlements at this area*”.
- in the circumstances it is appropriate to require sight of all instructions/directions/guidance to the persons undertaking the site selection process and require an explanation for the basis of these instructions/directions/guidance. In the absence of any instructions/directions and /or guidance then an explanation should be provided as to how the options appraisal was intended to be objective, fair and transparent;
  - in identifying the alleged benefits of the site, no mention is made as to how this relates to data collected to inform the process as to the impact of the allocation of this site for CAS on the behaviours and requirements of the residents of the relevant areas in relation to their recycling behaviour including transportation

### Concerns

It is alleged that PCC have undertaken a “number of face to face meetings over a substantial period” – until 10 July, the owners of Brooklands Nursing Home were unaware of the intended development of the site and have only met with PCC officials 3 times, with the first meeting being on 11 July. This must also call into question PCC’s self-assessment in terms of the process which it has adopted - “rigorous” (in connection with their site selection process) and “significant” (in connection with the amount of research and investigation carried out).

The fact that PCC states that it has taken concerns expressed by Brooklands Nursing Home into account in making changes to ensure noise and odour from the site will be kept to an absolute minimum is equally of concern. Had the option appraisal been undertaken correctly these relatively obvious issues should not have required any “change” but would have been recognised at the outset.

Noise impact reports should form part of an EIA which we consider is essential to be undertaken in respect of this site but which PCC have tried to avoid. Pembrokeshire National Park Authority have been informed that should an application be accepted without being supported by an EIA then the owners of the home have reserved the right to challenge that decision. The ground given for not requiring an EIA (namely that PNPA consider that the issues can be dealt with as part of the planning application without an EIA is not considered to be a valid ground and the reason given on behalf of PCC in support of its application for a decision that an EIA was not required is considered to have been misleading.

Notwithstanding requests for the noise reports produced as a result of the noise assessments which PCC claim to have undertaken, they have not been provided. It is considered that the noise reports will not follow guidance as to the way in which noise assessments should be carried out having regard to the fact that no request for access onto the Brooklands Nursing Home property has been requested. Furthermore in assessing the noise levels it is not identified during which periods, on how many occasions, what times of the day and even in what seasons these assessments have been carried out and how constant the noise levels have been.

The process of consulting with and involving the community in the process has been unsatisfactory. It is considered that there has been insufficient notice of community meetings to discuss the proposals and

the attempt to engage with the community has been derisory and just going through the motions, although very belatedly late (with first attempts being made only when the application was shortly expected to be lodged).

PCC should be asked to set out a detailed chronology identifying:

- when the option appraisal was carried out;
- when a decision was made that New Hedges was the preferred site;
- when a decision to apply for planning permission was made;
- when the planning authority were first approached about siting the CAS at New Hedges and details of all meetings and correspondence with the planning authority concerning New Hedges;
- details of any other discussions with the planning authority in respect of alternative sites identified in the options appraisal
- when public consultation was first commenced and notice given to all residents affected by the proposal; and
- the communication strategy/policy for the proposal and when this was adopted.

PCC should also be asked to expand their explanation of what steps they have undertaken “to reassure the local community of the rigorous process that has been undertaken to identify a new site and to put in place measures to ensure the site has as minimal an impact as possible on the surrounding area”? These should be set out and considered in the context of a decision having already been made to make the planning application.

It should be of considerable concern that PCC acknowledge that after the announcement of New Hedges as the preferred site that additional sites have been suggested which appear not to have figured in the original identification of site and appraisal. It suggests that the original process was not rigorous in identifying all suitable sites and that if the process were re-commenced on a full consultation and engagement basis that other sites might be forthcoming (rather than apparently relying on individuals to identify sites).

It is not explained whether these additional sites have been properly evaluated using the option appraisal process and scoring. It is simply stated that they were considered to be unsuitable without explaining the relative scores that the sites were allocated. However we would also highlight that as disadvantages do not appear to have been considered as part of the options appraisal (see comments above) then even had the sites been appraised in accordance with the options appraisal the process would still have been defective.

By failing to adopt a robust and properly prepared and developed process the decision to choose New Hedges as the preferred site for the CAS has inevitably relied upon assumptions and unreliable or missing information (as to the impacts on the customers/patients at the Nursing Home).

Such a cursory attempt at identifying the key issues and understanding the impacts means that the process fails to achieve what can reasonably be expected of a public body fulfilling its statutory and common law duties. The impact on the residents/customers of the Home are considered likely to amount to interference with their Human Rights

The assessment of the traffic increase requires considerably greater explanation. The basis for and assumptions made within the calculations should be set out in detail.

The calculations indicate an increase in traffic of 7% which itself would be considered a significant increase (rather than “negligible”). Also such an increase cannot be simply ignored:

- in terms of duration of noise (as more traffic will mean noise from traffic may be more constant);

- in the context of likely impact on traffic including safety in the context of queuing on and crossing a road which carries traffic at significant speeds;
- in the context of traffic entering the Home (particularly emergency vehicles) which may be badly affected in the event of queuing to enter the CAS
- in terms of impact on seasonal traffic.

The response of PCC in the submission rather re-emphasises the point that such issues are not being given proper consideration by PCC who are merely glossing over any disadvantages in the site.

There still appears to be no appreciation by PCC of the vastly more sensitive nature of the adjacent site than just a domestic dwelling. Any increase in noise or duration of noise (or even perception of noise) will have significantly greater impact on the residents/patients and those wishing to place their family members at the Home. PCC also do not appear to have undertaken any assessment on the impact of the likely noise from the site (rather than simply the traffic) and the noise impacts on the rear of the Home (where noise from traffic would be reduced but noise from the CAS would not).

The reference to no complaints having been received in respect of the Salterns is misleading as level of complaints will also relate to the period over which the site has been operating. No recent complaints in respect of a facility which has existed for a significant period is to be expected unless there had been a change in operations which increased smell. Odour impacts will depend on considerably more than mere distance and therefore if it is being alleged that there is/will be no odour caused by the CAS then this should be properly tested at each site. It is also not clear what the distance will be to the nearest container from Brooklands Nursing Home as compared with the existing CAS to the nearest house.

Please could you kindly acknowledge receipt.

Yours faithfully

**HUGH JAMES**

# Agenda Item 4.8

## P-03-263 List Stradey Park

### Petition wording

We call upon the National Assembly for Wales to urge the Minister for Heritage to grant listed status to Stradey Park, in order to protect the heritage of this world famous rugby ground and cultural icon for the people of Wales.

### Supporting information:

The petition to list Stradey Park was inspired by calls that *“something should be done”* to protect the heritage at this world famous location. It is significant that these calls have continued after the Scarlets have moved across Llanelli to their new stadium. Stradey Park is clearly more than just a place where rugby was watched – it is part of local culture and national heritage.

A cultural icon can be defined as anything that is readily recognised, and generally represents an object or concept with great cultural significance to a wide cultural group. It may come to be regarded as having a special status as particularly representative of a particular group of people or a period in history.

Stradey Park is synonymous with the support of a Welsh community for its rugby club in the 20<sup>th</sup> century – it is undoubtedly a cultural icon.

Stradey Park has gained worldwide fame, not only for the exploits of the players who took to the famous turf, but also for the fervent support supplied by those who crammed into the stands and terraces surrounding it during the matches, and at half-time and full-time onto the pitch itself.

That support became world renown as typically Welsh, an image strengthened by songs celebrating famous victories at Stradey, such as the Max Boyce song “9-3” about the support of the community at Stradey for the 1972 victory over the All Blacks – the last by any club side in the world. “All roads led to Stradey Park”, “The day the pubs ran dry” and “I was there” all conjure up images of Stradey Park on that day and Llanelli captain Delme Thomas being carried off the pitch by fellow players, surrounded by thousands of supporters.

Stradey Park invokes images of Welsh working men completing a shift in the tinsplate works, docks or mines before playing a match in front of thousands of fellow workers of Tinopolis. The famous “sosbans” that were placed on the Stradey posts were a direct reference to Llanelli’s main export – Tinsplate – and in particular the “Stamping” Works located less than a mile from Stradey Park where saucepans were made and exported worldwide.

Stradey Park has always been known as the “most Welsh” of Welsh grounds, not least for its Welsh language scoreboard and Welsh language singing on the terraces. “Sosban Fach” is known throughout the world after it was adopted and sung by supporters due to the “sosbans” on posts. A gymanfa ganu was held in 1972, before the All Blacks game.

Typical of a rugby ground being at the heart of a Welsh community, Stradey Park has seen many non-rugby events including hosting several other sports and annual Guy Fawkes night fireworks displays.

On 15th November 2007 the funeral of Ray Gravell was held on the Stradey Park pitch. This unique event in Welsh history – described by some in the press as “a Welsh state funeral” – was attended by 6000 mourners including leading figures in Welsh political, sporting and cultural life, with many thousands of people lining the streets outside. Images of the coffin standing on the pitch, flanked by the Eisteddfod sword bearer and the assembled tribute makers were broadcast live on S4C.

There is no doubt that Stradey Park is of great cultural and historical significance to Wales. It was a modern day battle field and particularly representative of the Welsh passion for rugby in the 20th century. The petition has achieved in excess of 3500 signatures made more significant because this was a heritage petition not a rugby petition. The petition was collected on shop counters throughout Carmarthenshire and even without much publicity it has attracted signatures because people believe that the Stradey Park pitch should be saved to mark the location and its heritage.

Although the petition is named “List Stradey Park”, and there are many that would like to see the whole stadium saved, it is generally accepted that listing Stradey Park would mean listing the Stradey Park pitch and retaining it as open space within any development. This modern day battlefield is what makes it unique because of the events that have taken place on it, obviously rugby successes and the momentous Ray Gravell “state funeral”, but also the famous Stradey Park half-time and full-time pitch invasions where families would play where their heroes had just played.

To list a sports pitch would probably require a new listing category or an amendment to an existing category. As tourism becomes ever more important in Wales, key locations of modern Welsh heritage such as Stradey Park need to be protected, so the need for the National Assembly to direct Cadw to create or adapt a listing category for sports pitches is evident.

Once a location like Stradey Park is lost under a development it becomes almost worthless. Perhaps a few tourists may be attracted to read an interpretive panel or blue plaque near the site, but the benefit to the local economy would be negligible. Places like Stradey Park need to be preserved to allow them to be marketed as tourist locations of modern Welsh heritage for the 21st century. Tourists want to be able to take to the pitch, not just read about it.

As well as the 3500+ signatures and a Facebook group of over 520 members, several local organisations including Llanelli Town Council and Llanelli Rural Council support the aims of the petition to protect the Stradey Park pitch. However none of these groups has the power to deliver that protection.

The petition has received international support, as well as support from other parts of Wales and the UK showing clearly that Stradey Park is of national

importance. Locally, the petition has also received the support of former Llanelli, Wales and Lions greats such as Delme Thomas and Phil Bennett.

A website supporting the petition can be found at [www.stradeyparkpetition.co.uk](http://www.stradeyparkpetition.co.uk). Further information to support a listing, from the kind provision in 1879 of land within its boundary walls by the Stradey Estate, through to the closure of the ground in October 2008, can be supplied.

**Petition Raised by:** Mr V Jones

**Petition first considered by Committee:** November 2009

**Number of signatures:** 4383

Huw Lewis AC / AM  
Y Gweinidog Tai, Adfywio a Threftadaeth  
Minister for Housing, Regeneration and Heritage



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-263  
Ein cyf/Our ref HL/06342/12

William Powell AM  
Chair  
Petitions Committee  
Ty Hywel  
Cardiff Bay  
Cardiff  
CF99 1NA

22 October 2012

Dear William,

Thank you for your letter of 10 October 2012 asking that the Petitions Committee be sent a copy of the report that my officials in Cadw are preparing to scope the options for protecting our sporting heritage in the future.

I will send you a copy of the report which is expected to be complete by 31 December 2012. All the options will be considered as part of the development and implementation of the proposed new heritage legislation and associated policy and guidance.

**Huw Lewis AC / AM**  
Y Gweinidog Tai, Adfywio a Threftadaeth  
Minister for Housing, Regeneration and Heritage

# Agenda Item 4.9

## **P-04-322 A call to revise Cadw's hold upon churches in Wales**

### **Petition wording**

We call upon the National Assembly for Wales to investigate the inflexible way in which Cadw enforces its regulations upon active, vibrant congregations using listed buildings across Wales, thereby keeping them in a state of architectural inertia, unable to take advantage of modern developments in building materials and making it difficult for churches to make changes necessary for them to serve the coming generation and the local community.

**Petition raised by:** Graham John

**Number of signatures:** 147

**Petition first considered:** June 2011



Huw Lewis AC / AM  
Y Gweinidog Tai, Adfywio a Threftadaeth  
Minister for Housing, Regeneration and Heritage



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-322  
Ein cyf/Our ref HL/06343/12

William Powell AM  
Chair Petition's committee  
Ty Hywel  
Cardiff Bay  
Cardiff  
CF99 1NA

22 October 2012

Dear William

Thank you for your letter of 10 October asking whether a historic buildings taskforce working group will be established and whether it will include independent churches.

There are no current plans for a historic buildings taskforce working group. However, I have asked my officials in Cadw to look at the possibility of initiating a task and finish group in the New Year to look at "ecclesiastical exemption" in the context of the review of the heritage protection legislation and a review of the support needed for listed places of worship to ensure their long-term sustainability.

I believe that a task and finish group of this nature could be a useful means of both examining a serious issue and also bringing together the various interest groups to share experiences and examples of good practice.

**Huw Lewis AC / AM**  
Y Gweinidog Tai, Adfywio a Threftadaeth  
Minister for Housing, Regeneration and Heritage

# Agenda Item 4.10

## **P-04-403 Saving Plas Cwrt yn Dre/Old Parliament House for the Nation**

### **Petition wording:**

We call upon the National Assembly of Wales to instruct the Welsh Government to purchase Plas Cwrt yn Dre also known as Dolgellau's Old Parliament House before this national treasure is sold on the open market and lost for ever.

**Additional information:** Plas Cwrt yn Dre, also known as Owain Glyndwr's Old Parliament House was moved from Dolgellau to the Dolerw Park, Newtown in 1886. The Quakers, who currently own it can no longer afford to maintain it and are selling it for £55,000. It is undoubtedly a national treasure and we think it should be purchased by the Welsh Government for the nation.

**Petition raised by:** Sian Ifan

**Date petition first considered by Committee:** 2 July 2012

**Number of signatures:** 218 (An additional 10 signatures were collected on an associated petition)

Huw Lewis AC / AM  
Y Gweinidog Tai, Adfywio a Threftadaeth  
Minister for Housing, Regeneration and Heritage



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-403  
Ein cyf/Our ref HL/06391/12

William Powell AM  
Chair Petition's committee

6 November 2012

Dear William,

Thank you for your letter of 22 October about the petition asking that the Welsh Government be instructed to purchase Plas Cwrt yn Dre, Newtown.

Buildings are listed in three grades which reflect their relative importance at the national level. Grade II listed buildings represent those that are of special interest which warrant every effort being made to preserve them, grade II\* listed buildings are important buildings of more than special interest and grade I listed buildings are exceptional. Grade I and II\* listed buildings represent the top 8% of all listed buildings in Wales.

In reconsidering the grading of Plas Cwrt yn Dre my officials in Cadw concluded that there was little evidence to support its traditional association with Owain Glyndwr and relatively little fabric survived from the original late medieval building. However, the history of the building from the perspective of its preservation was considered to be sufficiently interesting to justify an enhanced grading from II to II\*.

The claim that the building was the site of a Parliament called by Owain Glyndwr first emerged in the early nineteenth century. That claim was a significant factor in the building's subsequent history, including its preservation in situ, and its subsequent dismantling and imaginative reconstruction in Newtown in 1885. Although relatively little pre-nineteenth century fabric survives, it is clear that the reconstructed building in Newtown was largely based on the historic building in Dolgellau, taking what was then deemed to be its most interesting features as the basis for the reconstruction. It gives us a rare link not only to a timber-framing tradition in Dolgellau, but also to ideas about historical architecture at the end of the nineteenth century. On these grounds it was upgraded to II\* to draw attention to this remarkable history, and to ensure that any proposals to alter it are informed by a proper understanding of its interest.

As regards the workshops being held by my officials in Cadw to inform the Heritage Bill, three horizon scanning workshops were held in February and March 2012 to consider the

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drivers that might shape Wales in the future. A report on the outcome of the workshops has been published and a copy is attached for information.

Four specialist workshops were then held in May and June 2012, covering the built historic environment; archaeology; historic assets from the owner's perspective and historic parks, gardens and landscapes. The workshops focused on the present arrangements and what we want our protection framework to achieve in the future. These workshops were followed by the Treftadaeth conference, held in July 2012 and attended by nearly 150 people. This conference included a series of workshops which looked at the future of our protection framework. A full report on the outcomes of the workshops and conference is in preparation.

Finally, Cadw, in partnership with CyMAL and the Wales Council for Voluntary Action, is currently holding three road-shows/drop-in events across Wales to engage further with Third Sector organisations and local communities, seeking their views about the future of the historic environment in Wales and our framework for protection.

I hope that my reply is of help.

A handwritten signature in cursive script, appearing to read 'Huw Lewis'.

**Huw Lewis AC / AM**

Y Gweinidog Tai, Adfywio a Threftadaeth  
Minister for Housing, Regeneration and Heritage

# Towards a Heritage Bill

## Summary report on the Horizon Scanning workshops held in Cardiff, Aberystwyth and Llandudno Junction February/March 2012

Cadw, June 2012

### Background and Approach

During February and March 2012, Cadw hosted three stakeholder workshops designed to capture a diverse range of perspectives on the Welsh historic environment and the factors likely to impact upon it in the future. The workshops were attended by ninety individuals with a professional or personal interest in the historic environment sector.

The workshops formed the first stage of a scoping exercise to inform future policies and strategies, including the content of the proposed Heritage Bill scheduled for introduction in 2014–15.

This initial phase involved horizon scanning which is the process of gathering new insights and identifying new and emerging trends and developments which will have an impact in the future. The intention was not to try to predict what is going to happen in twenty, thirty or forty years time, but to build up a picture of a world that plausibly could happen. This challenges us to think about what that would mean, whether it should be welcomed, and how the negative consequences might be avoided. It was hoped that undertaking horizon scanning at the start of the scoping exercise would stimulate and support subsequent discussion on future policy for the historic environment of Wales.

The outputs of this horizon scanning will inform the next phase of activity, a series of sector-specific workshops co-convened with partner organisations, to consider focused discussions on the strengths and weaknesses of the current heritage protection system.

This report explains the approach taken and summarises the discussions that took place over the three workshops.

### Key themes emerging from discussion on the role of the Historic Environment

The first session of each workshop involved a facilitated discussion in which participants identified the many different roles played by the Historic Environment. Several distinct themes emerged from the discussion demonstrating the diverse ways in which the Historic Environment functions, impacting variously through **practical, psychological, economic, educational and environmental** means.

These discussions not only highlighted the inter-dependencies between the work of Cadw and other

heritage organisations but also the need to look beyond the heritage sector and take into account policy development in other areas e.g. education, economy, health the environment and many others, in order to ensure that the historic environment is fully taken into account. It was suggested that there was a need for the historic environment sector to take a more proactive role in championing its value and potential.

It was suggested that Cadw is well-placed to develop a proactive role in ensuring that policy makers in other areas within the Welsh Government are made aware of the historic environment. For example, this approach has already started with discussions taking place with Welsh Government Planning Division. Other areas will follow during the policy development process.

The discussions also highlighted the fact that the historic environment plays a variety of often contrasting roles — from a purely economic one to the far less tangible 'sense of place', a recurring theme across the three workshops. There was also a wide interpretation as to what the historic environment constitutes. Whilst the terminology was kept deliberately general in the context of the discussions in order to generate a wide-ranging debate, there may be a need to be more focused and specific about what is meant by the historic environment. This will help aid the understanding of the wider public and also clarify Cadw's role.

Finally, the discussions also reinforced the value of an inclusive approach to reform, engaging a wide variety of interest groups in order to understand the issues facing the historic environment.

More specific articulations of the roles identified during the workshops included:

#### Social and psychological role

##### *Linking people, place, and past*

- Linking people to places, a sense of identity and pride, essence of place, a feel for place, helping individuals understand how they are connected to their place, creating a sense of place
- Linking the people of Wales with the past
- Building a collective memory related to place
- Acting as a backstop to the past and a grounding of where we are. Giving something to hold on to in a world changing at an ever-increasing pace. Providing an anchor

### **Community, social history, local identity**

- Defining the character of an area or community
- Providing a focus for the community, prompting civil action (e.g. a community coalescing around a school closing)
- Providing a sense of identity and pride
- Communicating social history
- Providing a glue for holding communities together

### **National identity, status**

- Acting as a foundation of Wales' identity
- Developing a sense of citizenship
- Giving Wales a status in the world
- Giving an opportunity to enhance our reputation through the way we value our heritage

### **Other**

- Supporting and benefitting health — both physical and mental
- Representing civilisation

### **Economic role**

#### **Tourism potential**

- Providing potential for tourism
- Representing the distinctiveness that Wales offers in terms of buildings and landscapes and giving us an identity to sell to the world

#### **Regeneration and jobs**

- Supporting and providing a focus for regeneration
- Creating jobs, both directly related to conservation and also tourism.

### **Education and skills development role**

#### **Lessons from the past, context for today**

- Providing lessons from the past that we can learn from, e.g. effects of climate change.
- Providing a record of what has happened, a physical link with the past; tactile, real evidence of what has happened
- Source of knowledge about the past — the Nation's memory
- Evidence of human and industrial activity giving a context to where people live

#### **Informing the future, firing the imagination**

- Looking to the past can inform the future
- Stimulating education and learning
- Encouraging debate, raising questions
- Standing in the place where things have happened can fire one's imagination

#### **Developing traditional, practical skills**

- Providing an opportunity to develop traditional, practical skills
- Teaching and driving the need for skills, e.g. traditional conservation skills

#### **Practical role**

- Providing context, a starting point for architects to build from
- Providing authenticity in a virtual world
- Providing homes, businesses (one third of housing in Wales is pre-1919)
- Creating an attractive environment in which to live, work; aesthetic appeal

### **Environmental role**

#### **Old can be better than new**

- Some historic buildings can perform better environmentally than modern ones
- Historic buildings provide a huge stock of materials that may be useful again in future years
- Historic environment often comes from a low-carbon economy, so works within the constraints of a low-carbon economy

#### **Source of information about the past**

- Providing information which can inform future actions and decisions.

## **Key trends impacting on the historic environment in the future**

The second session undertaken at each workshop involved a STEEP analysis, facilitating thinking about wider issues that may impact in the future by the consideration of changes in the following areas:

- Social
- Technological
- Economic
- Environmental
- Political

Participants, working in groups, were invited to identify trends and developments in the wider world that may have an impact on the historic environment of Wales.

The following key themes emerged:

- Climate change and global warming — direct impact on historic assets of changing climate and rising sea levels and the impact of mitigation measures to limit future climate change (e.g. windfarms; harnessing tidal energy)
- Decline of resources — in particular future global shortages (eg water, food, fossil fuels etc).
- Economic development (growth or decline)
- The relative impact of technological change on the historic landscape and heritage assets
- The relative impact of technological change on people's behaviour
- The changing nature of the structure of the economy
- Short or long-term-ism in terms of both economic and political decision making
- The perceived value of heritage — whether traditional expert-led or local/community based
- The pace and extent of political devolution
- The impact of globalisation — including the changing geo-political environment and the rise of new global powers
- The changing nature of society — whether becoming more or less fragmented
- The availability, awareness and application of research technology
- The increasing need to develop alternative energy resources
- The importance of the value of the historic environment to the sustainability agenda
- Developing economic divide between the rich and poor
- The level of community spirit and cohesion.

- Whether accountability for decision-making on public resources lies locally or centrally
- The role of civic-minded societies
- Changing work patterns e.g. more remote working
- Changing demographics e.g. ageing population, migration
- Design/manufacturing/services economy — balance versus imbalance
- Importance of non-economic factors e.g. well-being
- Resources — availability, impact e.g. on transport
- Impact of new global powers: China and Brazil, India, Russia e.g. on tourism, resources
- Welsh identity and attitudes towards Welsh nationhood
- Community (localism)
- Education curriculum changes

## Scenario Development

In order to decide the lines upon which the future scenarios would be based, participants in each workshop were asked to vote for which themes they thought:

- would have the biggest impact on the historic environment of Wales; and
- which were the most uncertain

A plenary discussion was held, outlining the chosen scenarios which were expressed in terms of four quadrants: on axes from one extreme to the other, depending on whether in the future they might have either a positive or negative effect. The basis for developing the narratives for future scenarios were as follows:

### Workshop 1 — Cardiff

Traditional view of heritage	Traditional view of heritage
Negative impact of new technology	Positive impact of new technology
Community view of heritage	Community view of heritage
Negative impact of new technology	Positive impact of new technology

### Workshop 2 — Aberystwyth

Positive technology	Positive technology
Negative economy	Positive economy
Negative technology	Negative technology
Negative economy	Positive economy

### Workshop 3 — Llandudno Junction

Negative economy	Positive economy
Positive impact of climate change	Negative impact of climate change
Negative economy	Positive economy
Negative impact of climate change	Positive impact of climate change

## Issues to reflect on and implications for policy development

In the final sessions, a plenary discussion identified several emerging issues. The following are some of the views expressed by participants:

### Engagement

- Heritage assets can, through the local pride they inspire, provide a positive means of engendering engagement with local communities and enabling regeneration. Local communities need to be empowered to make decisions about what is important to them.
- Some buildings that might be greatly valued by their local communities might not be valued at a national level by the 'heritage establishment'. Is there scope for a system to exist at a local community level running parallel with the designation system with decision-making based on different criteria?
- Is there a need for greater engagement with communities in the need to protect their own heritage?
- The need to engage a wider demographic in the debate about the historic environment. Younger people may have a different perspective on what is important, and will have a different attitude to technological enhancements.

### Impact of Technology

- The demand for a greater 'simulated' experience will impact on authenticity.
- 'Big tickets' which can offer a sophisticated experience are likely to maintain their appeal but factors such as virtual access and transport challenges may mean smaller heritage assets will struggle to attract visitors and income.
- Technological change (e.g. social networking) is facilitating greater democratisation of decision making — opportunities for a greater 'bottom-up' approach.
- The development of virtual reality applications has significant implications for heritage assets but alongside this there is still a demand for the live experience. How do we ensure that the virtual experience complements, rather than competes with, the real experience?
- The need to embrace new technology that offers opportunities to increase engagement and develop knowledge of the historic environment e.g. mobile phone applications that can teach children about history and get them involved in ways relevant to them.
- The exposure of individuals to the wider world via digital communication channels and increasing isolation from their immediate community may impact adversely on a distinctive Welsh culture and language.
- The need to ensure that we have the capability to maintain archives and records — as the virtual environment will one day become part of the fabric of the historic environment. We need to consider digital preservation e.g. moving records from tape to digital.

## Economic issues

- Consideration needs to be given to improve ways of maximising the potential of our heritage assets in relation to their economic contribution.
- The opportunities for economic benefit offered by our heritage assets and the need to consider the role of the private sector in maximising their potential.
- It can be difficult to realise the economic potential if those elements of the historic environment that are more intangible.
- We mustn't go down the route of over-commodifying the historic environment.
- There is a risk to the Historic Environment if we wait for the 'good times' to invest. Heritage regeneration can be a creator of growth and we need to 'weather the storm' while the economy is bad and protect things for the future.
- The sector needs to make the case to politicians or investors of the value of the historic environment.
- There is a need to deal with the challenges and constraints of economic growth.
- There is a need to recognise custodianship in the form of private ownership in a clear way and find ways to 'sweeten the pill'.

## Cultural issues

- Should the emphasis on statutory obligation be wider than listing/designation, perhaps to include an obligation to invest / advance culture/knowledge?
- The richness of the available media and other factors may encourage an even greater focus on 20th century and recent history and a decline in interest in, and respect, for older heritage assets.
- Need to take advantage of the fact that the historic environment is what makes Wales special and this should be taken into account when decisions are made.
- It is important that we maintain our vision and communicate what our values are as a society.
- We need to have ambition for the things that people do and the places where we live — we need a set of aspirational values and actions for the historic environment sector.
- The Heritage Bill should contain a formal articulation of what matters.

## Environmental issues

- There is need to increase knowledge and correct misinformation about the performance of historic buildings compared to new buildings in relation to ecological and environmental factors.
- All of the scenarios developed acknowledged that the historic environment can be a barrier to development.
- There is a danger that heritage is being sacrificed for climate change mitigation.

- Climate change has a twofold effect on the historic environment — mitigation impacts (wind turbines etc) and direct impact e.g. flooding, sea level rises, extreme weather events.
- Our current policy is failing to deal with some new developments e.g. UPVC windows. We need a better balance between sacrifice and survival.
- If we accept that climate change mitigation needs to occur, we need to make it happen where it will have the least effect on the historic environment.
- Citizens can come to the defence of the historic environment when government decides aspects are not worth saving.
- The future may see more polarisation of communities — farmers may benefit economically from housing wind turbines on their land but others may think that it ruins their 'rural idyll'.
- Need to mainstream the historic environment and link in to work going on in the natural environment.
- Industrial heritage is good for a low carbon economy.

## Decision-making

- The historic environment is diverse and contains a wide range of different types of heritage assets. But whose role is it to determine what is important to conserve? Is this a function for local or national bodies?
- Cadw and other expert bodies need to engage with and empower local communities to participate in protecting their own heritage, through awareness raising and sharing of knowledge/guidance.
- Government decision-making might come under greater pressure for a more populist approach and could find itself inundated with demands e.g. e-petitions for listing particular buildings and information.
- Legislative and policy change needs to reflect an emerging shift from a 'material/fabric' based conservation decision making process to a 'values' based decision making process — that is taking into account social, community and economic values.
- Need a more positive voice for Cadw and local authorities — who often are seen as controllers. An interim body may offer this option.
- Should decisions rest with 'heritage experts'/local people/communities? There could be increasing pressure on the current regulatory environment — as being irrelevant and 'out-of-touch'.
- The increasing emphasis on community engagement may lead to a position where 'everything is important'. This suggests the need to put obligations on to 'authorities' or 'heritage professionals' to ensure that decisions are transparent and based on accepted principles.
- Identifying 'trusted partners' who look after properties would allow local authorities and Cadw to concentrate resource where its needed.



## **P-04-420 : Construct an Owain Glyndŵr Monument**

### **Petition wording:**

We call upon the Welsh Government to construct a Monument to Owain Glyndwr, on the scale and grandeur of the William Wallace Monument at Stirling, Scotland. There are several locations that would be fitting including Corwen, Machynlleth to name just two. If the Welsh Government can reportedly be planning to redecorate the foyer area of the AM's Office block to the tune of 200k, then we think that the Welsh Government can invest an even bigger amount of money on the construction of a Monument to our Last Native Prince of Wales Owain Glyndwr. Once completed it would put the chosen location of the Monument on the map bringing in much needed revenue from tourism thus boosting the image of Wales even more. So everyone's a winner.

**Petition raised by:** Russell Gwilym Morris

**Date petition first considered by Committee:** 2 October 2012

**Number of signatures:** 74

Huw Lewis AC / AM  
Y Gweinidog Tai, Adfywio a Threftadaeth  
Minister for Housing, Regeneration and Heritage



Llywodraeth Cymru  
Welsh Government

Eich cyf/Your ref P-04-420  
Ein cyf/Our ref HL/06339/12

William Powell AM  
Chair Petition's Committee  
Ty Hywel  
Cardiff Bay  
Cardiff  
CF99 1NA

22 October 2012

Dear William

Thank you for your letter of 10 October regarding a petition being considered by the Committee about the creation of a statue in Wales to honour Owain Glyndŵr.

Whilst I recognise the important of Owain Glyndŵr in Wales' history, the Welsh Government does not normally fund the creation of new memorials or other commemorations. I understand that the National Wallace Monument in Scotland was funded at the time through a public campaign and private donors. There are a number of existing memorials to Owain Glyndwr in Wales such as those in Machynlleth and Corwen. Whilst not of the scale of the National Wallace Monument, they serve as focal points for the commemoration of Owain Glyndŵr.

In March 2011 Cadw completed a programme of capital works to three of the most important sites associated with Owain Glyndŵr: Sycharth Castle, Glyndyfrdwy and Machynlleth Parliament House. Over £800,000 was spent on essential conservation works and improving public access and information at these three sites. This project was developed in response to concerns that monuments were at risk and this intervention has ensured the preservation of some key historic sites.

I cannot comment on the remarks regarding reported refurbishment costs. This is a matter for the Assembly Commission.

**Huw Lewis AC / AM**  
Y Gweinidog Tai, Adfywio a Threftadaeth  
Minister for Housing, Regeneration and Heritage

Bae Caerdydd • Cardiff Bay  
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Wedi'i argraffu ar bapur wedi'i ailgylchu (100%)  
Page 1 of 2

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## **P-03-301 Equality for the transgender community**

### **Petition wording**

We the undersigned call upon the National Assembly for Wales to urge the Welsh Government to ensure that the transgender community is given equal support and direct assistance, as given to comparable communities such as Sexual Orientation support groups, to promote equality and awareness for the transgender community.

### **Link to petition:**

<http://senedd.assemblywales.org/mgIssueHistoryHome.aspx?IId=898>

**Petition raised by:** Transgender Wales

**Number of signatures:** 113

**Previously considered by the Committee on:** 28 September 2010, 11 January, 1 March, 29 March, 21 June, 12 July 2011.

**Update:** Correspondence has been received from the Health and Social Care Committee, the Minister for Health and Social Care and the British Medical Association Wales.