

**Pre-cognition of Professor Chris Hilson in
Planning Permission Appeal PPA-240-2032**

**COAL BED METHANE PRODUCTION, INCLUDING DRILLING, WELL
SITE ESTABLISHMENT AT 14 LOCATIONS AND ASSOCIATED
INFRASTRUCTURE AT LETHAM MOSS, FALKIRK FK2 8RT Falkirk (P-
12-0521-FUL) and Stirling (12/00576/FUL)**

on behalf of FoE Scotland; FoE Falkirk; FoE Stirling; and supported by Transition Stirling
(referred to as 'FoE Scotland')

Hearing session 2

Regulatory Regime

I am a Professor of Law and Head of the School of Law at the University of Reading. I hold a BA/MA (Cantab) in Law from the University of Cambridge and a PhD in Law from the University of Sheffield. I was Editor-in-Chief of the *Journal of Environmental Law* (OUP) between 2007-2012. I have published widely in both domestic and European environmental law and policy. I was a policy advisor to the waste industry for a period during the 1990s and am currently an occasional legal advisor to ClientEarth. The current statement is written in my personal capacity and should not be taken to represent the views of any of the above organisations.

The evidence that follows aims to demonstrate the gaps in, and inadequacy of, the current regulatory regimes that apply to coal bed methane (CBM).

1. CBM, like shale gas, is an example of 'unconventional' gas – a term which refers not to the technique for extracting it but rather to the geological formations in which it is found (which differ from 'conventional' gas fields). While extraction of CBM may use some similar techniques to those used for shale gas (e.g. horizontal/directional drilling), it differs in that it typically involves removal of water from the coal seams ('dewatering') rather than injection of fluids into the rock, as occurs with hydraulic fracturing or 'fracking'. Fracking does, however, remain a possible technique for CBM activities where seams are thicker or at deeper levels,¹ or in future years when well production levels are declining.

2. There are significant public concerns around unconventional gas. Many of these stem from the weak regulation to which the industry has been subject in the US, with associated claims of environmental degradation and harm to human health, which have begun to give rise to significant levels of litigation. These 'local' environmental concerns are accompanied by more 'global' ones involving the climate change impacts of unconventional gas.

¹ http://www.scottish.parliament.uk/ResearchBriefingsAndFactsheets/S4/SB_13-68.pdf p 8.

3. The core concerns relating to CBM in particular are as follows:

- Effect of dewatering abstraction on groundwater levels and supplies
- Potential of dewatering to lead to pollution of groundwater by toxic chemicals, including radioactive substances
- Risk of pollution of surface waters through discharge of dewatering produced water
- Industrialisation of the landscape and effect on local amenity of multiple well pads (cumulative impacts)
- Potential impact on human health of air pollution from drilling sites
- Risk to climate change targets from 'direct' site emissions (fugitive methane emissions, venting, flaring)
- Risk to climate change targets from 'indirect' emissions (combustion of CBM to produce electricity, or as gas for domestic heating etc)
- Risk to climate change targets from impact of unconventional gas on investment in renewables

4. The response of the UK² and Scottish³ governments to public concerns over unconventional gas has been to emphasise the strength of UK regulation (when compared to e.g. the US) and its ability to address these concerns. However, the evidence presented below will demonstrate that the current regulatory system is far from adequate and that there are some clear gaps and deficiencies in the protection it affords.

5. The regulatory controls over onshore oil and gas exploration, appraisal and production are labyrinthine in structure. The first permission or licence required by a CBM operator in Great Britain is a PEDL⁴ licence from DECC⁵ under powers, reserved to Westminster, in the Petroleum Act 1998.⁶ PEDLs are generally awarded in licensing 'rounds'. Such rounds require a

² <https://www.gov.uk/government/policies/providing-regulation-and-licensing-of-energy-industries-and-infrastructure/supporting-pages/developing-shale-gas-and-oil-in-the-uk>, which states "The Government takes the safety of the public and protection of the environment very seriously. We commissioned the Royal Society to review the scientific and engineering evidence on shale gas extraction conducted by the Royal Academy of Engineering and the Royal Society. This concluded that "the health, safety and environmental risks associated with hydraulic fracturing (often termed 'fracking') as a means to extract shale gas can be managed effectively in the UK as long as operational best practices are implemented and enforced through regulation. The Government believes that the regulation is robust for exploration, but wants to continue to improve it."

³ Question S4W-11976: Iain Gray, East Lothian, Scottish Labour, Date Lodged: 19/12/2012, "To ask the Scottish Government how onshore gas extraction fits into its energy strategy. **Answered by Fergus Ewing (28/01/2013):** < > Scotland's energy needs are set out in our [Draft Energy Generation Policy Statement](#) – which sets out the pathway to a low carbon generation mix in Scotland, supported by a diverse portfolio of energy sources to reflect the breadth of Scotland's energy resources and ensure security of our energy supply. As part of that, the Scottish Government is open to onshore gas extraction, which, along with all other energy production in Scotland is subjected to a rigorous regulatory regime to ensure it is sourced and produced with due regard to the environment. Onshore gas is a valuable national resource which can play a part in Scotland's energy mix. The Scottish Government therefore works closely with the UK Government on the licencing [sic] of onshore gas extraction in Scotland and with Scottish Environmental Protection Agency on the regulation of unconventional gas in Scotland." Available at <http://www.scottish.parliament.uk/parliamentarybusiness/28877.aspx?SearchType=Advance&ReferenceNumbers=S4W-11976&ResultsPerPage=10>

⁴ Petroleum Exploration and Development Licensing.

⁵ Department of Energy and Climate Change.

⁶ Under section 1, 'petroleum' is defined as including "any mineral oil or relative hydrocarbon and natural gas existing in its natural condition in strata".

prior 'Strategic Environmental Assessment' (SEA) under the SEA Directive 2001/42/EC⁷ in order to assess the environmental effects of, and reasonable alternatives to, the licensing proposals. A SEA was initiated in 2005 for the existing 13th Round for onshore oil and gas exploration and production,⁸ and one is currently under consultation for the forthcoming 14th Round.⁹

6. PEDL licensing provides an alternative, more targeted system than auctions, for allocating exclusive, payable rights to search for and exploit oil and gas in geographical 'blocks', for set time periods associated with exploration, appraisal and development. Applicants must prove technical competence, awareness of environmental issues and financial capacity before a PEDL is offered.¹⁰ Environmental awareness requires applicants "to demonstrate understanding of the environmental sensitivities and potential constraints on blocks both at the application stage and during any subsequent operations."¹¹ Operators are also expected to comply with licence conditions set out in 'model clauses' which include, inter alia, a requirement to avoid harmful methods of working, such as taking all practicable steps to "prevent the escape of Petroleum into any waters in or in the vicinity of the Licensed Area."¹²

7. Under the licences, operators are required to seek consent from DECC (via what were Petroleum Operations Notices - PONS, and is now a Well Operations Notification System - WONS)¹³ for particular activities such as drilling a well.¹⁴ This consent is additional to and not in place of any other relevant regulatory permissions (such as planning permission) outlined below, which the operator will be required to prove have been obtained before consent is granted.

8. Under both the model clauses¹⁵ and section 12 of the Energy Act 1976 (as amended)¹⁶ consent from DECC is also required for the *flaring* of gas. There is a number of exceptions¹⁷ and exemptions¹⁸ from the need for consent for flaring. Consent is similarly required, but only under the Act, for the disposal of gas by unignited release (*venting*) into the atmosphere. No exceptions or exemptions appear to apply to venting.

⁷ [2001] OJ L197/30.

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http://webarchive.nationalarchives.gov.uk/20121114093642/http://og.decc.gov.uk/en/olgs/cms/licences/lic_rounds/13th_round/13sea/13sea.aspx

⁹ <https://econsultation.decc.gov.uk/decc-policy/consultation-env-report-further-oil-gas-licensing/>

¹⁰ DECC, 'Oil and Gas: Petroleum Licensing Guidance' (2012) <https://www.gov.uk/oil-and-gas-petroleum-licensing-guidance>

¹¹ <http://www.publications.parliament.uk/pa/cm200708/cmhansrd/cm071107/wmstext/71107m0001.htm>

¹² Sch 4 (production licences) and Sch 6 (exploration and development licences), clause 19(1) Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004.

¹³ <https://www.gov.uk/oil-and-gas-petroleum-operations-notices>. The WONS system sits behind the UK Oil Portal (https://itportal.decc.gov.uk/eng/fox/live/PORTAL_LOGIN/login) which requires registration – which is detrimental in terms of public transparency.

¹⁴ Sch 4 (production licences) and Sch 6 (exploration and development licences), clause 15, Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004.

¹⁵ Sch 4 (production licences) and Sch 6 (exploration and development licences), clause 19(3), Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004.

¹⁶ By the Gas Act 1986.

¹⁷ These are limited temporary exceptions regarding unforeseeable health and safety and flow maintenance emergencies listed in Sch 4, clause 19(7) and Sch 6, clause 19(5) Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004.

¹⁸ E.g. if it is permitted under the terms of a *production* licence – Energy Act 1976, section 12(3)(a).

9. PEDL regulation has developed piecemeal over a number of years and is focused principally on resource exploitation. The environmental awareness requirements, while mentioned in guidance, do not have sufficient statutory backing. The provisions on flaring and venting – both activities which have potentially significant climate change implications (principally CO₂ and methane respectively) – are inconsistently provided for in relevant primary and secondary legislation and, again, seem more designed to ensure optimal resource exploitation (and thus low wastage of gas through flaring or venting) than they are to prevent environmental harm.¹⁹ Neither is the interrelationship with other, more environmentally focused regulation of flaring and venting (covered further below) made at all clear. Recent FoI requests by third parties suggest that ongoing monitoring and control of venting and flaring is falling between the regulatory cracks.²⁰ Finally, if the PEDL regime is intended to cover environmental effects (as it should be) then, other than in relation to the recent SEA, public participation and transparency of environmental information is also significantly lacking.²¹

10. The Coal Industry Act 1994²² states that ownership of CBM rests with the Crown and not the Coal Authority. Nevertheless, further consent via a ‘Coal Bed Methane Access Agreement’, is also required from the Coal Authority before an operator is able to work on coalfields or surface land owned by the Authority.²³ The Authority’s policy is not to grant access unless a PEDL licence has already been granted to the applicant by DECC.²⁴

11. The Coal Authority is placed under a statutory duty to have regard to the “desirability of the exploitation, so far as that is economically viable, of coal-bed methane in Great Britain.”²⁵ The 1994 Act is, however, severely deficient regarding environmental protection requirements: there is, for example, no *statutory* sustainable development duty placed on the Authority such as is typically found in numerous, more modern statutes.²⁶ To include only what might be identified as the economic element of sustainable development in the form of the ‘desirability’ section above, without considering the environmental element to it, seems deficient. Nevertheless, as a matter of *policy*, the current application form for an access agreement does require applicants to provide certain environmentally important information, including “Details of measures the applicant would take to prevent or remedy spontaneous combustion, uncontrolled emissions of gas or water or other hazard directly or indirectly caused or related by the proposed activities”

¹⁹ The Energy Act 1976, which was enacted at the time of the 1970s oil crisis, is largely concerned with conserving fuel.

²⁰ Frack off Scotland, ‘Letter to Fergus Ewing’ <http://frackoffscotland.org.uk/?cat=5>

²¹ See eg *ibid*, ‘Dart’s Plans for Letham Moss’ (the operator, Dart’s Field Development Plan, which would show the full number of planned wells and hence cumulative environmental impact, was not made public). The Plan has since been partially released after a FoI request (n 20).

²² Section 9.

²³ The Coal Authority, ‘Methane Associated with Coal Seams’, <http://coal.decc.gov.uk/en/coal/cms/publications/mining/seams/seams.aspx>. See also Coal Industry Act 1994 section 9(4).

²⁴ The Coal Authority, ‘Guidance Notes For Applicants For Coal Access Agreements, Or For Access To Land Owned By The Coal Authority, For The Purpose Of Coal Bed Methane Extraction’ (2000)

<http://coal.decc.gov.uk/assets/coal/GuidanceNotesforCBM2000.pdf> p1.

²⁵ Section 3(5).

²⁶ See eg Andrea Ross, ‘Why Legislate for Sustainable Development? An Examination of Sustainable Development Provisions in UK and Scottish Statutes’ (2008) 20 *Journal of Environmental Law* 35.

as well as “Details relating to the sealing of boreholes and restoration proposals.”²⁷ Operators are, additionally, expected to be aware of the Coal Authority’s ‘Guidance on Managing the Risk of Hazardous Gases when Drilling or Piling Near Coal’.²⁸

12. CBM operators are also required to secure planning permission from the Local Planning Authority under the Town and Country Planning (Scotland) Act 1997 for CBM surface well pad operations and also for sub-surface drilling, both of which will amount to ‘development’ for the purposes of The Town and Country Planning (Scotland) Act 1997 (as amended).²⁹

13. Current Scottish planning policy contains a somewhat one-sided presumption in favour of oil and gas related development, stating that “The aim is to maximise the potential of Scotland’s oil and gas reserves in an environmentally acceptable manner as part of a strategy for achieving safe, secure and indigenous energy supply.” The policy also states that development plans for areas covered by PEDL licences should identify the factors that will be taken into account in deciding planning applications for wellheads and transmission infrastructure. Relevant factors are stated to include: “disturbance and disruption from noise, potential pollution of land, air and water, impact on communities and the economy, cumulative impact, impact on the natural heritage and historic environment, landscape and visual impact and transport impacts.” Where PEDL licences extend across local authority boundaries, planning authorities are expected to “work together to ensure a consistent approach to on-shore oil and gas extraction, including the consideration of cumulative effects.” The policy goes on to state a preference for non-road transport of the end-product, to require full site-restoration conditions and to prohibit drilling near homes and other noise-sensitive properties unless noise remains within acceptable levels.³⁰

14. The new, draft Scottish Planning Policy removes the maximising presumption, replacing it with a more neutral need to “recognise the continuing role of indigenous coal, oil and gas in maintaining a diverse energy mix and improving energy security”.³¹ The policy notes that the production stage is likely to require a separate (additional) planning permission to the earlier exploration and appraisal stages.³² It also states that adequate buffer zones should be provided between sites and settlements.³³ However, the buffer zone is undefined in terms of distance and the policy does not make it clear whether it would apply only from the boundary of the site surface or would also include below ground activity.

²⁷ (n 24) Annex A.

²⁸ <http://coal.decc.gov.uk/assets/coal/whatwedo/4860-guidance-on-managing-the-risk-of-hazardous-gases-w.pdf>; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265984/Onshore_UK_oil_and_gas_exploration_Scotland_Dec13_contents.pdf p 37.

²⁹ Section 26(1). As amended by the Planning etc. (Scotland) Act 2006. Drilling does not count as permitted development – see further SEPA, ‘Regulatory Guidance: Coal bed Methane and Shale Gas’, Version 121119, para 44.

³⁰ ‘Scottish Planning Policy’ (2010), <http://www.scotland.gov.uk/Publications/2010/02/03132605/8>

³¹ <http://www.scotland.gov.uk/Resource/0042/00421076.pdf> para 167.

³² *ibid*, para 173. In England, all three stages require separate permissions. See https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/224238/Planning_practice_guidance_for_onshore_oil_and_gas.pdf para 10.

³³ (n 30) para 175.

15. The Scottish Environmental Protection Agency (SEPA) is, among other bodies, a statutory consultee for all mineral planning applications, under Schedule 5 of the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008.

16. An environment statement as part of an environmental impact assessment (EIA) may also need to accompany the planning application, under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011. If a development falls within Schedule 1 of the Regulations, then an EIA is mandatory. Operations where more than 500 tonnes of oil or 500,000 cubic metres of gas will be extracted per day will fall under Schedule 1. For Schedule 2 projects, EIA is required if the development is likely to have a significant effect on the environment. To fall within Schedule 2, the development must either be located in a sensitive area or be listed and meet relevant criteria and thresholds.³⁴ In the case of “deep drilling”,³⁵ the “area of the works” must exceed 1 hectare as a threshold. It is unclear if works here refers only to surface works but it is submitted that it includes all works, including underground horizontal drilling. Should that not be the case, a limit of 1 hectare on the surface appears arbitrary. Also listed in Schedule 2 (with a threshold of 0.5 hectares) are “Surface industrial installations for the extraction of coal, petroleum, natural gas and ores, as well as bituminous shale.” However, reference to “extraction” here raises a question mark over whether this covers the exploratory stage of unconventional gas development, though the term is not defined in the EIA Directive.

17. Although in 2013 the European Parliament proposed an extension of the EIA Directive to make EIA mandatory for all unconventional oil and gas development involving fracking, including at the exploration stage,³⁶ this amendment was dropped in January 2014.³⁷ However, in any event, this amendment would not have applied to CBM or other unconventional oil and gas development which does not use fracking.³⁸

18. While a formal EIA was conducted for the application subject to the current appeal, previous applications by Dart and its predecessors in the area were granted planning permission without an EIA.³⁹

19. Waste from CBM drilling, including e.g. drill cuttings, spent drilling fluids/muds, dewatering produced water and sludges removed from it during treatment, and fugitive gas or gas intentionally released to air⁴⁰ or for waste combustion, will be classed as an ‘extractive waste’

³⁴ <http://www.scotland.gov.uk/Publications/2011/06/01084419/2> figure 1 and para 36.

³⁵ Which CBM will invariably involve.

³⁶ <http://www.europarl.europa.eu/news/en/news-room/content/20131004IPR21541/html/Shale-gas-new-fracking-projects-must-pass-environmental-test>.

³⁷ [http://www.environmentalistsonline.com/article/2014-01-03/comromise-agreed-over-eia-directive](http://www.environmentalistsonline.com/article/2014-01-03/compromise-agreed-over-eia-directive)

³⁸ <http://goodenergiesalliance.com/2013/10/14/the-eia-directive-details-of-vote/>

³⁹ See e.g. the planning application for the exploration and pilot test well granted permission by Falkirk Council, P/12/0109/FUL,

http://eplanning.falkirk.gov.uk/online/files/4AA674648618055022EFFE0B98607718/pdf/P_12_0109_FUL-Supporting_Statement-279230.pdf (for other recent examples, see e.g.

http://www.sepa.org.uk/customer_information/energy_industry/unconventional_gas/current_activities.aspx)

⁴⁰ Cf. Dart’s Waste Management Plan, para 3.3 which claims that this is a non-waste by-product (though cf. para 2.3 which states that natural gas during early development and non-routine operations is a waste; cf. also paras 3.41-

for the purpose of the EU Mining Waste Directive 2006/21/EC.⁴¹ This Directive has been transposed into Scottish law by the Management of Extractive Waste (Scotland) Regulations 2010. Under the Directive, extractive waste must not endanger human health, harm the environment, cause a nuisance from noise or odour or adversely affect the landscape or places of special interest.⁴² Operators are required to use 'best available techniques' in taking all necessary measures to prevent or reduce as far as possible any adverse effects on the environment or human health arising from their management of extractive waste.⁴³ They are also required to draw up a waste management plan for the minimization, treatment, recovery and disposal of extractive waste, taking into account the principle of sustainable development.⁴⁴

20. The Directive provides that the Member state authorities 'may'⁴⁵ (not 'must') reduce or waive the requirements of the Directive in relation to the 'deposit' of non-hazardous waste generated from the 'prospecting' of 'mineral resources' (except oil and evaporates other than gypsum or anhydrite),⁴⁶ but *only* if satisfied that there will be no risk to human health or the environment.⁴⁷ 'Prospecting' under the Directive would encompass only relevant non-hazardous waste from the CBM gas *exploration* phase but, due to recital 6 to the Directive (which makes it clear that the 'pre-production development phase' is part of 'extraction' and not 'prospecting'), it would not cover *appraisal*; nor does it cover waste arising at the well *production* stage.

21. The regulator in Scotland is the local planning authority, with the required waste management plan for safe environmental management of such wastes dealt with as part of the planning permission. This governance arrangement is far from adequate. Waste management licensing ought to be within the control of an *independent* environmental regulator such as SEPA. In England, the relevant mining waste regulation is carried out by the Environment Agency. It is not only politically independent but, more importantly here, much more likely to have the relevant, cross-media environmental expertise required for both standard setting and subsequent monitoring and enforcement of those standards. This is underlined by the forward guidance that SEPA has felt necessary to provide to local authorities.⁴⁸

22. The waste management plan must be provided by the applicant as a discrete, stand-alone plan. The operator cannot simply claim substantive (though not formal) compliance with the required contents of a plan by pointing to details provided by it on waste management under other regulatory regimes such as the EIA environment statement or Pollution Prevention and Control (PPC) permits. To do so would drive a coach and horses through the formal requirements of Regulation 11, including in particular 11(1) which requires the plan to "plan for the minimisation, treatment, recovery and disposal of extractive waste, take account of the

3.42 and 6.3; this discrepancy is also noted by SEPA in its response to the Joint Statement - email from SEPA, 'DART energy appeals - SEPA response', 24 January 2014, p 5, para 1).

⁴¹ [2006] OJ L102/15.

⁴² Art 4.

⁴³ Art 4.

⁴⁴ Art 5. Dart's plan was submitted on the 23 December 2013.

⁴⁵ 'May' is repeated in reg 8.

⁴⁶ I.e. gas remains included as a mineral resource.

⁴⁷ Art 2. See also Reg 8.

⁴⁸ SEPA (2012), Guidance Note LUPS-GU20, 'Standing Advice for Planning Authorities on Extractive Waste Management Plan consultations submitted under the Management of Extractive Waste (Scotland) Regulations 2010'.

principle of sustainable development, [and] have the objectives in Schedule 1". It seems extremely unlikely that existing waste management information would formally address all of these required points in relation to 'extractive waste'. It would also make a mockery of the important publicity requirements in Regulation 12 involving placing the formal plan on the register. Neither is the Court of Justice of the European Union likely to accept substantive rather than formal compliance – to do so would place the UK at risk of being found in breach of its obligations under the Mining Waste Directive.⁴⁹

23. The current Scottish regime fails to regulate certain key wastes through all stages of CBM development. This is notable in relation to waste methane gas, which is a (c86 times over 20 years, and c34 times over 100 years) more potent greenhouse gas than CO₂. Gas may be unintentionally released via leaks ('fugitive' emissions), intentionally released via venting, or intentionally burned through flaring. Guidance on unconventional oil and gas issued by the English Environment Agency includes details on flaring, venting and fugitive emissions within the relevant section on mining waste management.⁵⁰ The equivalent SEPA guidance mentions flaring and venting only in relation to the Pollution Prevention and Control (Scotland) Regulations 2012 and states that, at the *exploration* stage, a PPC permit would not be required.⁵¹ It therefore appears that waste gases are unregulated by SEPA at this stage.

24. Under the Industrial Emissions Directive 2010/75/EU, a permit will be required where it is intended to flare waste gas in a plant with a capacity of more than 10 tonnes per day.⁵² Although the Pollution Prevention and Control (Scotland) Regulations 2012 purport to implement the Directive, its provisions exclude flaring because they (incorrectly) apply only to solid and liquid wastes and not waste gases.⁵³ There is therefore a gap in the Scottish legislative provisions in relation to flaring.

25. A PPC permit will be required for the processing or further treatment of *non-waste* gas for use in mains supply (as with the proposed Dart Gas Delivery and Water Treatment Facility - GDWTF).⁵⁴ Once this processing/refining is operational, the PPC permit can be expected to cover other 'directly associated activities' taking place *on the same site*, including drilling, and will include monitoring duties in relation to all environmental media including air, from both point

⁴⁹ See eg the House of Lords case *Berkeley v Secretary of State for The Environment* [2001] 2 AC 603 (substantial compliance insufficient).

⁵⁰ Environment Agency, 'Onshore Oil and Gas Exploratory Operations: Technical Guidance', consultation draft, August 2013, pp 20-21, http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/LIT_7983_3b53c2.pdf. On fugitive emissions, see further technical evidence by the Environment Agency, 'Monitoring and control of fugitive methane from unconventional gas operations' <http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/scho0812buwk-e-e.pdf>

⁵¹ SEPA (n 29) paras 37-38 (stating that a PPC permit is required only where 'processing' of the gas on site is involved).

⁵² Environment Agency (n 50) p 6. In England, see the Environmental Permitting (England and Wales) (Amendment) Regulations 2013, reg 35.

⁵³ Sch 1, Ch 5, section 5.1 (final line), definition of 'waste'. Flaring is not caught by section 5.3 either. The previous English regulations – the Environmental Permitting (England and Wales) Regulations 2010 – were similar until altered by the 2013 amending regulations (see n 52). The Directive effectively contains two separate parts on incineration: Ch. 2, Art 10 and Sch 1, which are not limited to solid and liquid waste; and Ch 4, which by reason of Art 42(1), is so limited. For an explanation of the different purposes, see DEFRA, 'Industrial emissions Directive – key points to note' (2012) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82610/industrial-emissions-cp-note-120312.pdf pp 1 and 3.

⁵⁴ SEPA (n 29) para 38. See also http://eplanning.falkirk.gov.uk/online/files/C446AE9731EE2E6C7A288EBF2C4BFCCE/pdf/P_12_0521_FUL-Consultation_Response_Scottish_Environmental_Protection_Agency_SEPA_-386502.pdf

sources and fugitive emissions within the site boundary.⁵⁵ Although *satellite* production and surface to in seam wells will be physically connected to Dart's GDWTF by pipeline, because they are up to 4km away they are not legally 'on the same site' and hence will not themselves count as an 'installation' requiring a separate PPC permit.⁵⁶ This is an error in the implementation of the Industrial Emissions Directive which contains no such 'same site' requirement.⁵⁷ While Dart will thereby escape full PPC control for each satellite well site, SEPA has, nevertheless recognised that "some regulatory control over these sites is desirable".⁵⁸ It thus stated its intention to 'flex' the main GDWTF PPC permit to include limited air emissions controls from such satellite sites by relying on the power to impose 'off-site' conditions.⁵⁹ However, this does not make up for the fact that there is potentially a failure to implement the proper scope of the Directive here. In addition, in its response to the Joint Statement, SEPA now appears to question its ability to flex in this way: "As the Reporters will appreciate, this is a novel process, and one on which SEPA is still working to develop its regulatory position. The scope of the 2012 Regulations to regulate the various aspects of process is not yet completely clear. As such, we would like to clarify that although it is our intention to regulate the central gas processing and water treatment facility and the fugitive methane emissions in the manner stated above [PPC requirement of monitoring of fugitive emissions around the well heads and the central gas processing facility], having reviewed our position, we are unable to state definitively at this point that we will regulate the fugitive methane emissions from the well heads."⁶⁰

26. Thus, in England, environmental control of flaring (as opposed to resource waste control via DECC) will fall under the Environmental Permitting system – either through a mining waste permit or via an installation permit. Venting is covered by the waste management plan. In Scotland, environmental control of flaring, venting and fugitive emissions is seemingly not provided for at all at the exploration stage. SEPA guidance suggests that controls will apply only during production if gas treatment/processing is taking place on site and only, if at all, in a reduced, 'flexed' way to satellite well sites during this time.

27. An operator will also be required to secure a 'CAR' licence from SEPA under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).⁶¹ Under CAR, SEPA authorise, inter alia (and subject to certain exemptions), the construction of deep boreholes (>200m, which will now require a complex licence under CAR as opposed to a general binding rule),⁶² the abstraction of water (in e.g. dewatering) and the discharge of this fluid to surface or groundwater, with the aim of preventing significant adverse impacts on the water environment. Once abstracted, produced water from dewatering will be classified as extractive waste (while e.g. held in tanks – as planned at the initial stages for the Dart proposal) and subject to local authority control, via planning conditions, under the Management of Extractive Waste (Scotland) Regulations 2010, until such point as it is discharged into e.g. receiving surface waters, at which point it becomes subject to CAR licensing and SEPA control

⁵⁵ SEPA, *ibid*, para 39.

⁵⁶ *United Utilities v Environment Agency* [2006] Env LR 42, cited in SEPA letter of 8 Oct 2013 to Mrs Stringer.

⁵⁷ *United Utilities* case, *ibid*.

⁵⁸ SEPA letter (n 56).

⁵⁹ *ibid*; Reg 24 of the Pollution Prevention and Control (Scotland) Regulations 2012.

⁶⁰ Email from SEPA (n 40) paras 2.3-2.4.

⁶¹ Introduced under the Water Environment and Water Services (Scotland) Act 2003.

⁶² http://www.sepa.org.uk/water/water_regulation.aspx para 4.1. See also http://eplanning.falkirk.gov.uk/online/files/C446AE9731EE2E6C7A288EBF2C4BFCCE/pdf/P_12_0521_FUL-Consultation_Response_Scottish_Environmental_Protection_Agency_SEPA_-386502.pdf

again. This lack of an integrated, joined-up approach to licensing appears unsatisfactory. When the Dart GDWTF is operational, then it seems likely that a more integrated approach to waste water will apply, with the whole operation from extraction to discharge falling under SEPA PPC control.

28. In the context of the current appeal, Dart currently has three CAR licences⁶³ (a fourth is mentioned in the Environment Statement and SEPA's response to it as necessary for the *new* discharge point planned for the Firth of Forth,⁶⁴ though control of this discharge under the PPC licence is mentioned in the Joint Statement and the latter seems more likely in principle; additional CAR licences will also be needed where pipelines and roads cross watercourses). The first (CAR/L/1111096) relates to borehole construction. The second (CAR/S/1010756) lays down standards for the *quantity* of water that can be abstracted from the wells. It allows Dart to abstract up to 73m³ from each well and a total of 880m³ from all wells each day. The third CAR licence (CAR/L/1017224) sets discharge consent levels for the *quality* of produced water to be discharged at the *existing* outfall to the Forth. The abstracted water receives treatment on site before discharge to try to ensure that it complies with the consent levels. Both of the latter licences have only a quarterly monitoring requirement.

29. Produced water from CBM dewatering will typically contain naturally occurring radioactive materials (NORM), since these are often found in geological formations including coal seams. This water, once abstracted, is thus likely to be classed as radioactive waste and hence require an authorisation from SEPA under the Radioactive Substances Act 1993 (RSA93) for temporary accumulation⁶⁵ and subsequent disposal.⁶⁶ According to SEPA guidance, there will be a precautionary presumption that "all developments will require an authorisation issued under RSA93, prior to the start of groundwater abstraction, for the accumulation and disposal of the fluids that flow back as radioactive wastes." It will then be for the operator to rebut this by demonstrating, if they are able to, that the concentrations fall below the threshold levels for radioactivity set out in the Act. Dart's Waste Management Plan states that samples of produced water from pilot CBM wells have indicated levels above threshold and that it intends to submit an application to SEPA for authorisation under the RSA.⁶⁷

30. Operators are also subject to health and safety regulation of wells and well sites by the Health and Safety Executive. The overall framework for regulation is set out in the Health and Safety at Work etc Act 1974, with detailed, oil and gas-specific controls contained in the Borehole Sites and Operations Regulations 1995 and the Offshore Installations and Wells (Design and Construction, etc) Regulations 1996 (which also apply onshore).

⁶³ http://eplanning.falkirk.gov.uk/online/files/2408184BC3441C8B57195CB6BEBEC7ED/pdf/P_12_0521_FUL-Water_Abstraction_Discharge_Licences_Report-398171.pdf

⁶⁴ Environment Statement, para 3.283;

http://eplanning.falkirk.gov.uk/online/files/C446AE9731EE2E6C7A288EBF2C4BFCCE/pdf/P_12_0521_FUL-Consultation_Response_Scottish_Environmental_Protection_Agency_SEPA_-386502.pdf

⁶⁵ Section 14.

⁶⁶ Section 13.

⁶⁷ Paras 3.45-3.47.

31. Although not a licensing regime as such, local air quality management under Part IV of the Environment Act 1995 and associated regulations is also relevant to CBM emissions to air. Its application in the context of the current appeal appears to have been viewed in different ways, with the Environment Statement observing that there are no currently designated Air Quality Management Areas (AQMAs) within 5km of the proposed sites and that “no interactions are anticipated”,⁶⁸ and the more recent, part-agreed Joint Statement requiring an air quality management plan (AQMP), with extensive air quality monitoring requirements on the developer starting 6 months prior to well construction. While the pollutants covered and locations for monitoring overlap with the statutory local authority air quality regime, what is put forward in the joint statement is planning based control via planning conditions, responsibility for which lies with the developer. This is likely to have to pick up any gaps in air quality monitoring left by uncertainty over the scope of SEPA PPC coverage mentioned above (paras 25-6). Such an approach is explicitly envisaged by the relevant policy guidance on local air quality management.⁶⁹

32. From the above it can be seen that there are numerous regulatory regimes in place. Reading the various guidance documents in both Scotland and England, then, if one judges from the sheer number of regimes, one might be tempted to conclude that the industry is at the very least adequately regulated, if not over-regulated. However, one should beware concluding that more is better here. From the current UK Government’s perspective, it would appear odd to be satisfied with a mountain of disparate red-tape – indeed to be trumpeting this – rather than adopting its more usual stance of seeking to replace it with a more integrated approach. But that – a dedicated, integrated regime with time for consultation on its details – is what is needed here rather than a rush to production using existing laws. The current patchwork of regulation is just that and is not fit for purpose.

33. First, many of the regulatory regimes (e.g. PEDL, Coal Authority) are economically rather than environmentally focused, with a preference for resource maximisation rather than environmental protection; or else (HSE) they are aimed at health and safety (especially of workers) and not at safeguarding broader public health or the environment.

34. Second, even where the regimes are environmentally and public health focused, there remain considerable uncertainties regarding the interconnection between them (and also between the economic and environmental regimes) which are only being worked out on an ad hoc, catch-up basis. There has been confusion over the relationship between the EIA regime and the mining waste management regime (whether a discrete waste plan is required if there is one in the EIA statement). Venting and flaring (which have both global climate and local air pollution implications), though subject to economic regulation via PEDL, are oddly absent from

⁶⁸ Para 4.74.

⁶⁹ LAQM PG(S)(09) para 10.8: “If a proposed emission source does not require a pollution control permit (e.g. if the source is not regulated under Integrated Pollution Prevention and Control (IPPC) ... then planning authorities might, in some circumstances, consider adding conditions to the planning permission to tackle the source's possible effect on local air quality. These conditions might require a scheme of monitoring and mitigation, covering planning concerns to be approved by planning authorities before any development went ahead.” Available at <http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Pollution-1/16215/PG09>

the mining waste regime (unlike in England) and are only caught at the *production* stage through the PPC controls (as are fugitive emissions). Even then they are caught in full only for the main site and may not be caught for satellite well sites at all. It seems unsatisfactory that planning conditions based around local air quality management should have to pick up the regulatory gap here.

35. If no one seems quite sure what regimes waste gases fall under, a similar problem arises with waste produced water from CBM dewatering. Does this fall within CAR, the mining waste regime, PPC, the radioactive substances regime or a combination of these? An operator has, for example, claimed that since radioactive waste in technical EU legal terms amounts to non-hazardous waste, it should benefit from the exemption, described earlier at paragraph 19, from the mining waste regime.⁷⁰

36. Although there has been guidance published on unconventional oil and gas, this has only described the various regulatory regimes in sequence rather than addressing these key, interrelationship points – points that would necessarily be addressed in drawing up a dedicated regime. As things stand, it is difficult to have full confidence in the regime on paper, let alone its implementation in practice.

⁷⁰ Caudrilla letter subject to FoI by Greenpeace - <http://www.documentcloud.org/documents/759662-fge-b-l002-ea-mwd.html>