Appendix 3

The Brian Coyle Observation and Objection Report

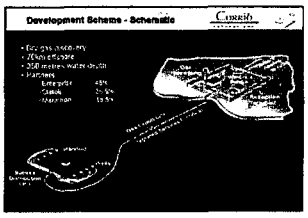
Based on

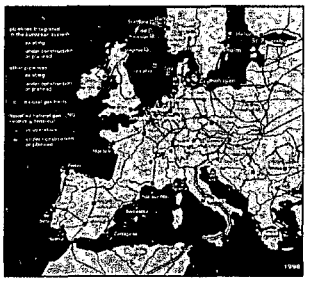
Applicants response

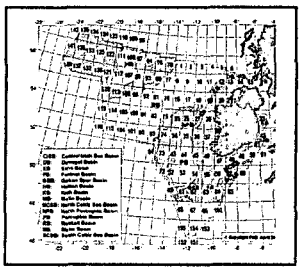
to

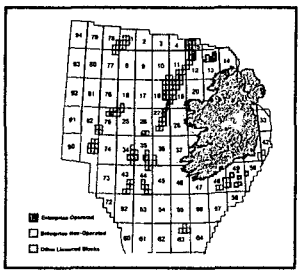
Further Information Request

THE BRIAN COYLE OBSERVATION & OBJECTION REPORT TO THE FURTHER INFORMATION RESPONSE









By Brian Coyle,
BE, CEng, MIEI, MIStructE

Chartered Consulting
Civil & Structural Engineer

Director of
COYLE KENNEDY LTD
Consulting Engineers

REFUSAL SHOULD BE GRANTED

TO THE SITE CHOSEN FOR CORRIB GAS TERMINAL

THE PROPOSED CONSTRUCTION TECHNIQUES & ROUTES

THE PEAT DEPOSITION SITE AT SRAHMORE

THE UPSTREAM HIGH PRESSURE PIPELINE ROUTE

BASED ON ITS WORLD RECORDS AND THE FURTHER INFORMATION RESPONSE

Should we allow the Corrib Gas Field to be Connected:

- ❑ To an Inland Terminal

And

- ❑ Becomes the only Inland Terminal In the WORLD?
- ❑ Surrounded in BLANKET BOG that can become unstable at an angle of 2degrees or more
- ❑ Connected from a Landfall at the Base of a Hill that is Unstable
- ❑ Residents as close as 60m to the High Pressure Untreated Pipeline
- ❑ Residents within the Explosion/Gas Vapour Exclusion Zone from the Terminal and High Pressure Pipeline
- ❑ Streams and Rivers within an exclusion zone feeding into a major drinking water supply
- ❑ The only World Wide Deposition of 450,000m3 of Acidic Blanket Bog
- ❑ Causing in excess of 100,000 traffic turning movements during its development
- ❑ Resulting in the removal and discharge of at least 400,000,000 litres (Four hundred million) litres of acidic water to the North and South of Carrowmore Lake, the only drinking water supply for the entire region
- ❑ In an Area of Natural Ground Instability

Why should we?
- when all the other World Wide Authorities have done different

As We Are Lead To believe by the Applicant That There Are No Other Alternatives! When in fact there are!

Is it the lack of experience in our Representatives and Authorities that they do not know the difference between right and wrong?

We do not want an Erris EU Directive to be written similar to the Seveso II directive that was written following the disaster and the ultimate consequence to people in the small town called Seveso in Italy.

The Content of this report is written without prejudice and should be read in conjunction with the initial report.

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Observer and Objector

The observations and the reasons given for refusal contained in this document are compiled and written by Brian Coyle BE, CEng, MIEI, MIStructE Chartered Consulting Engineer and are the observations of many of my immediate family and friends that reside throughout the Erris community. These observations and objections are contained within the full text of this document and are supported with references from standards, publish documents and from the applicant's response to the further information request issued by the Planning Authority, dated 17th Feburary 2004.

Proposed Development Planning Text

Bellagelly South & Srahmore Attavally Proposed Development.

PLANNING REFERENCE NO. 033343

LOCATION BELLAGELLY SOUTH
SRAHMORE ATTAVALLY

PERMISSION SOUGHT FOR

CONSTRUCT GAS TERMINAL FOR THE RECEPTION AND SERAPATION OF GAS FROM THE CORRIB GAS FIELD, AND FOR A PEAT DEPOSITION SITE, RESPECTIVELY. THE DEVELOPMENT WILL CONSIST OF THE CONCURRENT DEVELOPMENT OF TWO SITES LOCATED 11 KILOMETRES APART, APPROXIMATELY, AND IDENTIFIED AS THE SITE OF THE GAS TERMINAL FOR THE RECEPTION AND SEPARATION OF GAS FROM THE CORRIB GAS FIELD IN THE TOWNLAND OF BELLAGELLY SOUTH AND THE SITE OF THE PEAT DEPOSITION SITE IN THE TOWNLANDS OF SRAHMORE AND ATTAVALLY, BANGOR ERRIS. THE DEVELOPMENT AT THE BELLAGELLY SOUTH SITE WILL CONSIST OF: A GAS TERMINAL FOR THE RECEPTION AND SEPARATION OF GAS INCLUDING PLANT AND EQUIPMENT; PROVISION OF 4,935 SQ M (GROSS FLOOR AREA), APPROXIMATELY, OF BUILDINGS; ACCESS ROADS; 40 NO. CAR PARKING SPACES; AND ANCILLARY DEVELOPMENTS, OF WHICH 13 HA, APPROX, WILL BE DEVELOPED INRESPECT OF THE GAS TERMINAL'S FOOTPRINT. THE PROPOSED DEV. WILL OF THE BELLAGELLY SOUTH SITE WILL ALSO CONSIST OF; THE EXCAVATION AND REMOVAL OF 450,000 CUBIC M

Summary

- The applicants own recommendations are not been meet along the entire stretch of the public haul road even after upgrading works.
- The proposed road width of 5.5m is not verified in accordance with NRA standards or any other published documents and therefore it effectiveness and safety cannot be addressed for such large volumes of heavy traffic.
- Emergencies and contingencies have not been fully considered, addressed or resolved by this recent submission.
- The applicant has identified that the haul route is supported on 2-3m of peat
- The overall impact of the road improvement works on existing land, embankments, slope stability, drainage and private property is not fully assessed.
- Published documents state that there is a statutory requirement to provide for the health, safety and welfare of all employees and members of the public in connection with the design, construction operation and maintenance of pipelines
- Published documents state that it is desirable to avoid a route where the pipeline might be subject to heavy external stresses or where the consequences of a leak, if one did occur, might be particularly serious. In practice, all cross-country pipelines and some local pipelines will have to be subjected to a detailed safety evaluation as part of its consideration.
- The highly flammable liquid transported in the pipeline under pressure creates forces at bends, junctions, valves and all restrictions to, and changes in, direction of flow.
- Additional transient forces may be generated by pump starts or stops, valve closures etc. The vector analysis arising from high-pressure fluid in the pipeline must be resolved and hence the pipeline effectively supported or else it will fail.
- Section 2.2 in the EIS report states that the terminal is designed to throughput of 10 million cubic meters per day (350 million standard cubic feet per day).

- Taking account of the 10 million cubic meters per day and on the basis that 'volume in' equates to 'volume out' then the speed of flow through a 508mm diameter pipeline with a 25.4mm wall thickness will be a whooping c. 2,500km/hr (two thousand five hundred kilometres per hour).

- The applicant has stated the orthophosphate impact to surface watercourses from phosphate-impacted soils is widely recognised as being a major concern in certain parts of Ireland, because it can lead to eutrophication of lakes and rivers. The orthophosphate concentrations recorded by the applicant in the blanket bog is approximately 250-10,000 times greater than the allowable concentration in lake waters.

- The milling of peat commonly associated with the work that Bord Na Mona does is better compared to harvesting crops than removing saturated blanket bog. This statement is supported with picture evidence in the Bord Na Mona Website.

- The proposed construction work (grouting) resulting in the injection of chemicals into the ground where surface water run-off will flow into rivers and streams and then into a major drinking water supply for the entire region should undoubtedly be avoided. Published documents states that this process should be independently investigated.

- The applicant has now identified that the proposed process of removing the peat is weather dependent. Waterproofing sheeting will have to be placed over the peat every time it rains. Can you imagine acres of peat to be covered with sheets ever time it rains. Therefore, it could take many months and even years to remove the saturated blanket bog in order to meet the criteria put forward by the applicant.

Further Information Request Volume 1 No.1
Fully detailed traffic management plan.

Observation to Applicants Response

The applicants response to this request identifies that their own recommendations are not been meet along the entire stretch of road even after upgrading. The road geometry survey details submitted are extremely limited and do not convey the impacts of the road improvement works.

The proposed road width of 5.5m is not verified in accordance with NRA standards or any other published documents and therefore it effectiveness cannot be addressed. The applicant has raised their own concern in relation to the proposed road width when they suggest in Section 4.3 Par. 4.3.1

"where physically possible and where land between fences permits, a width greater than 5.5m is recommended."

It is physically possible and land does exist to meet this recommendation.

As previously identified the proposed haul route is the shortest route available to many people residing the North Erris area. The applicant has assumed that all emergences will be transported using an emergency vehicle.
This is seldom the case and often local residents transport their own medical emergences to Castlebar general hospital. Local residents have used this haul route to transport very sick people or a pregnant woman by private car to Castlebar general hospital. Once again peoples lives are at risk with this proposed development.

The time taken to travel along this section of road, with its envisaged poor quality, slippery surface, "*noticeable settlement*" surrounded with large vehicles carrying saturated and dusty material is a matter of great concern for the general public in this area. Trucks queuing at junctions to gain access onto major and minor roads will inevitably impede local traffic flow.
Therefore, emergencies and contingencies have not been fully considered, addressed or resolved by this recent submission.

There is insufficient information on the drawings submitted in addressing this request to determine the extent of the proposed road improvements.

It is obvious to anyone that drives along the proposed haul route that the existing pavement and road side embankments are not capable of supporting the local traffic that use this road. The applicant has identified that this road is supported on approx 2.0 -3.0m of Peat. Some roadside embankments are currently failing.

The drawings submitted to address this request (e.g. Drg. No. 2044-1010) contains limited information. The existing road geometry survey information included on the drawing is extremely limited and therefore the extent and impact that the upgrade works will have on adjoining land and existing land drains, water flow is not addressed effectively. The existing road is very narrow in some locations with steep unstable embankments, mainly consisting of peat. The survey information does not identify the gradient of this embankment or the location of existing land drains.
Therefore the overall impact of the road improvement works on existing land, embankments, slope stability, drainage and private property is not fully assessed.

Further Information Request Volume 1 No.2
Written confirmation from the relevant regulatory authority that the design of the proposed gas pipelines from the terminal compound to the site boundary is suitable to ensure the structural stability of the pipelines constructed in deep peat soil.

Observation to Applicants Response
The text of the applicant's response to Further Information Item No. 2 does not contain the necessary text to independently qualify the structural stability of the pipelines constructed in deep peat soil.

The applicant and/or regulatory authority has not justified or provided the qualitative assessment, analysis and design to justify that the pipeline is structurally adequate in poor ground conditions especially when it is surrounded in peat and/or mineral soil in an area of natural ground instability surrounded with heather and woodland that is susceptible to fires during prolonged periods of dry weather. We are all familiar with the intensive heat, rapid spread and uncontrollable damage caused by gorse fires. This risk exists and is more imminent as climate changes are expected to become more severe (Longer Dry Periods and Longer Wet Periods).

The pipeline route chosen should have been assessed based on its functionality, surrounding ground geology and its long-term performance in this environment. The structural stability of this pipeline and hence the Health and Safety aspects of this section of pipeline and indeed the entire pipeline must be considered.

Sections of the submitted documentation by the applicant from the Department of the Marine and Natural Resources dated 15th April 2002 is only a partial reproduction of some sections of text contained in the following British Standards.

BS 8010 Part 1: Pipelines on Land
BS 8010 Part 2: Pipelines on land; design, construction and installation
Section 2.8: 1992 Steel for oil and gas

A reproduction of part or any part of a standard is certainly not a means of justifying the structural stability of the pipeline. These standards are also referenced in Mr. Andrew Johnston report on the evaluation of Onshore Pipeline Design Codes dated 28th March 2002. Some of the design standards mentioned in Mr. Johnston report are now withdrawn or superseded. However, the safety aspects of the standards usually become more stringent as events and failures of pipelines occur.

Like most relevant standards or publish documents associated with the transportation of materials in pipelines, these documents contain specific references to safety requirements. Section 1.3 of BS 8010 Part 1 states that;

" *There is a statutory requirement to provide for the health, safety and welfare of all employees and members of the public in connection with the design, construction operation and maintenance of pipelines*"

The published document titled 'Guidance Notes for Applications and Notifications for Onshore Pipelines under the Pipelines Act 1962' published in 1993 also considers Pipeline Safety.

It states that

"it is desirable to avoid a route where the pipeline might be subject to heavy external stresses or where the consequences of a leak, if one did occur, might be particularly serious" "In practice, all cross-country pipelines and some local pipelines will have to be subjected to a detailed safety evaluation as part of its consideration. This is particularly the case for high pressure gas pipelines and a pipeline conveying toxic or highly volatile fluids, such as liquid petroleum gas (LPG), natural gas liquids (NGL) or ethylene."

The applicant and/or regulatory authority must consider and provide design details and calculations to justify the structural stability and hence the health and safety aspects of the pipeline including the surrounding landscape.

The section of pipelines queried in the further information request, and indeed any other section of pipeline should have been and must be assessed on the basis of structural stability, safety and integrity as there are various uses/work carried out on the surrounding landscape. The Health and Safety authority has a statutory obligation (under the health and safety at work act) to consider the health and safety of people at work. The long-term Health and Safety and people's livelihoods working at home and on the land (Agricultural use, building etc) prior to, during or after any possible failure/explosion event of the pipeline must be considered.

This information should be made available for independent verification. Design standards are often withdrawn or superseded by more stringent requirements. The current safety requirements in current standards will only become more stringent as more and more pipe failures occur. The statutory safety requirement will always be there and will be further enhanced as pipe failures keep occurring and environments and lives damaged and lost. Refer to 'Observation to Applicant's Response' Volume 1 No. 3 of this report for published documented facts.

The text contained in Section 8 of the Department of the Marine and Natural Resources letter dated 15th April 2002 acknowledge that upheaval buckling will occur when it states that

"*the proposed measures for mitigating upheaval buckling of the flexible in-field flowlines should be subject to review.*"

Upheaval buckling is only part of the overall problem associated with this pipeline route. Surrounding ground settlement and movement in any direction mainly lateral and vertical around the pipeline will considerably increase the pipe loading and thus excessive stresses in the wall of the pipe will occur that can cause fractures and ultimate failure of the pipeline. This can occur in an area of natural ground instability close to a major drinking water supply for the entire region. The length of the pipeline that can become unsupported during differential ground movement can increase the shear, longitudinal and bending stresses in the pipeline. When a pipe passes through/supported on adverse ground conditions e.g. waterlogged ground, peat, and mineral soil the likelihood and consequences of differential ground movement and settlement is inevitable.

The applicant specifically states in Section 4.5.1 of the EIS report;

"*that **minimal** differential movement of the ground **is essential** because*

- *for **safety** and operability, particularly for equipment operating under high pressure, piping and equipment require very tight tolerances on differential settlement.*

- *Piperacks, **piping** and equipment design and installation would be very complex in a plant subject to differential settlement.*

- *excessive settlement would create operability difficulties for equipment such as pumps, turbines and compressors*

The highly compressible and variable characteristics of the surrounding landscape (peat, mineral soil) surrounded in an area of natural ground instability places this pipeline at great risk.

The highly flammable liquid transported in the pipeline under pressure creates forces at bends, junctions, valves and all restrictions to, and changes in, direction of flow.
Additional transient forces may be generated by pump starts or stops, valve closures etc. The vector analysis arising from high-pressure fluid in the pipeline must be resolved and hence the pipeline effectively supported.

BS 8010: Part 1 Section 1.4 'Insurance' states that;

"Promoters should ensure that there is adequate third party insurance in force during design, installation and subsequent operation of pipelines."

The published CIRIA Report 164 states that the *HSE data for the period 1980-1990 showed that of some 600 incidents world-wide there were 128 incidents in the UK involving gas, including both fuel gases such as LPG and chemical gases such as chlorine. The major incident in the UK was the Piper Alpha disaster in 1990 in which 167 people were killed as a result of an explosion of LPG. Incidents have occurred as a result of the transfer of gas in pipelines, the build up of gas in sewers and natural gas accumulation in buildings (e.g Abbeystead)*

I request that the applicant and/or regulatory authority submit/provide details and design calculations for the structural stability of the high pressure pipeline taking account that it is sited in an area of natural ground instability surrounded in blanket bog and its failure could destabilise the ground even more. Further more since this pipeline is within an establishment a proper HSA zoning should be applied to the pipeline, identifying safety and risks to each zone.

The applicant has submitted the design calculations for the site drainage but has not provided sufficient details to demonstrate how the pipeline will be adequately supported. How does the applicant intend to support and stabilise the foul and surface water pipe network and prevent from excessive settlement, back fall and ultimate failure? Is the pipe network going to be piled and supported on beams? Bearing in mind that both networks will contain harmful contaminated substances.

The structural design, installation, operation, performance and safety of all pipelines supported on and surrounded in an area of natural ground instability should be adequately indemnified and collateral warranties given from each relevant regulatory authority and project member. The pipelines and any other element should not fail for the life of the structure, as the consequences of such can be dramatic.

This information should be publicly available and independently verified. Otherwise the application should be refused.
The applicant and regulatory/local authorities must justify and be aware of the consequences of their intended objectives and decisions.

Section 2.2 in the EIS report states that the terminal is designed to throughput of 10 million cubic meters per day (350 million standard cubic feet per day).

Offshore Technology Website indicated that well tests have confirmed a flow rate of 60 million ft³/day. Six wells are intended to operate at first. This is comparable to the 350 million standard cubic feet per day quoted in the applicant's submission. Offshore Technology Website states that the reserves in the Corrib field are around One trillion ft³.

Taking account of the 10 million cubic meters per day and on the basis that 'volume in' equates to 'volume out' then the speed of flow through a 508mm diameter pipeline with a 25.4mm wall thickness will be a whooping c. 2,500km/hr two thousand five hundred kilometres per hour.

We are all aware of how difficult it is to restrain and support a fire fighting hose, what will restrain this high-pressure pipeline? The blanket bog certainly will not.

Further Information Request Volume 1 No. 3
Proposals for system of collection and storage of any pumped water containing deleterious substances, including concrete, separate from

the surface drainage network and settlement ponds and to provide for its safe disposal.

Observation to Applicants Response
Grouting for Ground Engineering CIRIA C514. 2000 indicates and outlines the risk assessment and environmental impact assessment of grouting.

It states that

'it is an offence under the Water Resources Act, 1991 to cause or knowingly permit any poisonous, noxious or polluting matter or any solid waste matter to enter any controlled waters. Failure to comply with the above Act may lead to a criminal prosecution. Lacks of intent or negligence are no defence. In addition, expensive civil law suits may follow if harm is caused to someone else's person or property.
December 1997 the Environmental Agency had no defined policy on groundwater pollution caused by grouting in the ground.

It also states; *that any environmental impact assessment and especially the decision about admissible limits should be based on two largely independent investigations.'*

There should be an independent assessment made by an accredited body (with adequate PI insurance) as to the potential consequences arising from this method of construction. The EPA, WHO, Agrément Board bodies, should also confirm their acceptance.

This response should also deal with the safe collection and disposal of 'fire fighting' water. In the event of a fire, bunds around tanks can fill with fire fighting water and reach capacity prior to tank failure; the tank containing the dangerous substance can fail either during or after a fire thus there will be no containment volume for the dangerous substance. The applicant must identify a solution to this potential problem. Settlement ponds will not remove dissolved solids or chemicals in water. Containment bunds containing fire-fighting water will provide less storage volume for the dangerous substance.

The table below extracted from CIRIA Report 164 summarises the causes of loss of containment of liquids, which occurred at one large chemical complex in NW England. There were a 170 such incidents at the complex over a three-year period.

The cause of these incidents is listed below;

Transfer of materials through on-site pipework	37%
Failure of Storage Tanks	7%
Tankers (loading and off-loading)	7%
Compressor / oil bowsers	6%
Valves	5%
Pumps	2%
Other plant and Equipment	7%
Human Error	10%
Miscellaneous	19%

Note: the high percentage of pipe failures, storage tank failures and human errors. The risks of equipment failure alone associated with this development are very high and to further enhance these risks it is sited on poor ground, in natural ground instability, the only inland 8km upstream pipeline in the world, surrounded in blanket bog covered in heather, rush and forest that can quite easily ignite in the expected prolonged dry weather periods.

There are other onshore sites available that do not pose these risks.

The application should therefore be refused.

Further Information Request Volume 1 No. 5
Full details for the proposed sewage disposal system, including any water-table and percolation tests and the design of a suitably sized percolation area.

Observation to Applicants Response
The applicant response to this request states

"*the site investigation indicated that there is a perched water table in the peat and that the peat is relatively impermeable*"

This was also evident last Friday (26th March 2004) when local residents went to investigate and walk the land. The whole area was waterlogged and it was almost impossible to walk the site as people were sinking to there knees in the peat.

A soil percolation test at the location of the proposed puraflo modules / percolation area must be carried out as the effluent from the treatment system will only pond on the peat surface. This is not acceptable or adequate by any standard and the applicant's response to this request is inadequate. We are all aware how long it takes water to percolate through peat (weeks and even months).

Further Information Request Volume 1 No. 6
Submit a map outlining phosphate hot-spots, quantities of contaminated material, details of the analysis of the occasional occurrence of high levels of phosphorous detected in peat samples on the site and proposals to deal with the same including disposal. The format of the response shall include a comparison between

the total concentration (above background levels), that may theoretically, result from the development works and other land use activities that regularly occur in the area e.g. afforestation, clearfelling etc.

Observation to Applicants Response
The applicant indicates that numerous phosphorous soil sample points were located throughout the site. The maximum reported orthophosphate concentration was 219mg/l at a specific location but generally the concentrations were below 50mg/l in a zone close to the surface. They have stated that orthophosphate concentrations decrease significantly with depth and at greater depths (5.1m) decreased below 5mg/l.

The applicant has stated that the maximum limit for orthophosphate in river waters is 0.05-0.07mg/l and 0.02-0.05mg/l in lake waters. This implies that test results have indicated that orthophosphate concentrations in the blanket bog is approximately 250-10,000 times greater than the allowable concentration in lake waters.

It is imperative to realise that peat consists of approximately 90-95% moisture content (by weight) and now we are informed of its high phosphorus concentrations.

The applicant has stated on Volume 1 Item 6 Page 2 that

"Orthophosphate impact to surface watercourses from phosphate-impacted soils is widely recognised as being a major concern in certain parts of Ireland, because it can lead to eutrophication of lakes and rivers. The principal migration pathway via which orthophosphate typically impacts surface watercourses is via surface runoff."

The applicant once again ignores his own advice and proposes to perform work that will increase the risk of water contamination. The proposed works to the highly saturated and highly concentrated phosphorus blanket bog (containing 405million litres of acidic water) to place it in windrows and to deposit it at the Srahmore site following many mechanically loading, moving and unloading operations is dramatically increasing the surface area of the peat and thus allowing free water containing high concentrations of phosphorous to escape into the surface water streams, rivers, ponds and Carrowmore Lake via *surface runoff.*

The proposed blanket bog operations are;

excavating blanket bog to remove it from its current position at the terminal site,

loading to transport it to windrows at the terminal site,
transport it to the windrows at the terminal site

unloading to form windrows at the terminal site,
moved into windrows at the terminal site,

loaded again to be transported to Srahmore,
transported c. 11km to Srahmore
unloaded again at the Srahmore Site

loaded onto Bord Na Mona **Haku trailer**
transported to the final depositon site at Srahmore
unloaded at the final deposition site at Srahmore

and finally **compacted** at the deposition site at Srahmore. The compaction alone will cause water to escape.

The proposed [loading, transport, unloading] peat operations occurs at least three times, coupled with this is mechanically moving and compacting operations.

This sequence of operations is certainly not acceptable when one considers that there are alternatively sites available without any peat excavation or disposal requirements and outside the catchment area of a major drinking water supply for the entire Erris region. Water will continue to fall-on and escape from the peat when it is placed at the deposition site at Srahmore, (located to the south of Carrowmore Lake). The deposited peat will eventually absorb water thus reducing the shear strength and can ultimately cause peat failure. Remember the applicant has previously clamed that peat slopes can fail at angles of two degrees and above and their proposal have identified that water reduction is necessary for deposition of peat at the Srahmore site. Peatlands that have remained in place for thousands of years have failed, What make this site any different? Shear planes (2 degree and above) could occur within the main body of the peat.

Further Information Request Volume 1 No. 9 and Volume 2 No. 7
Information and proposals to address the possible impacts of free water from excavated peat on water quality, including PH and loading of humic and other acids.

An assessment of the impact of mineral soil being overlain on the existing peat soil.

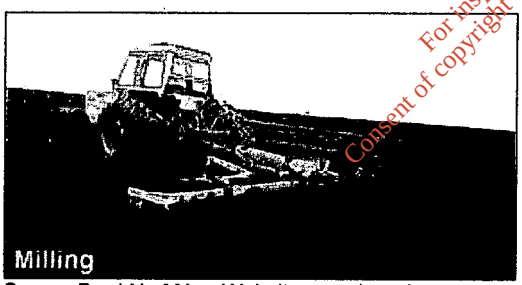
Observation to Applicants Response
This observation also comments on information submitted by the applicant in relation to

Request for further information Volume 2; Items 7.

The content of the applicant's response to these items are misleading. On the afternoon of the 26th of March 2004 at approximately 5:00pm representatives from the Leenamore and Ballinaboy residents group and representatives from Shell walked the proposed gas terminal site. It was obvious to all that walked the site on that day that it was completely waterlogged and extremely soft sometimes people sinking to their knees in soft peat. It was reported that one of Shells representatives actually turned back as the conditions were so bad. Worked had commenced on site without providing any obvious protection/prevention of water pollution. It has been reported that, on site Shell's representative were informed of this and did not provide any evidence to demonstrate otherwise.

How then can the applicant suggest that the site is well drained? It may be well drained but the drains are not drying/draining the peat. The statement '*well-drained nature of the peat*' is misleading as this site visit suggested otherwise.

Bord Na Móna involvement with peat through the years is dealing with milled peat i.e. they effectively scrape the top 10-15mm from the surface and put it into windrows.



Source Bord Na Móna Website www.bnm.ie

Source Bord Na Móna Website www.bnm.ie

The dust like peat particles blow in the wind while this work is been carried out. This process or the works and any mitigation measures carried out during this process should not be compared with the removal of approx 450,000m3 of saturated blanket bog at Ballinaboy.

Source Bord Na Móna Website www.bnm.ie

This process and the main work carried out by Bord Na Móna is better compared to harvesting crops than removing saturated blanket bog. Comparing such process, works and mitigation measures is somewhat worrying and is an indication of the lack of knowledge in this area.

The applicant has already pointed out that water will escape from the blanket bog when it is excavated etc. Windrowing of the blanket bog will only affect the immediate surface of the windrowed peat. The impermeable nature of the blanket bog with its low voids ratio (unlike milled dust like peat) will not allow air to pass through the windrowed blanket bog and thus air drying is not effective. The blanket bog at low depth is inevitably in its virgin state. I welcome an on-site demonstration at Ballinaboy to prove different.

Bord Na Mona shows and states on their website that Peat cut with a hand held slane (winning) has a moisture content of 95%. This is after the bank of turf has been exposed to the elements for a full year. This is stated on http://www.ipcc.ie/cbwinning.html. How can they qualify then that windrows of blanket bog mainly in its virgin state will result in an effective reduction of the moisture content.

The Bord Na Móna submitted documentation contained in Volume 2 Item 7 is questionable for the following reasons.

- It is obvious from last Fridays site visit that the drainage system in place is not sufficient.
- Bord Na Mona has indicated that restoration of the drainage system is required implying that the existing drainage system is insufficient and hence the poor conditions experienced at last Fridays site visit.
- Blanket Bog below the invert levels of the drains should be considered to be in its virigin state and hence greater moisture content is expected.
- The water table was reported to be high

- They state that the free water in the peat drains away rapidly. Isn't the blanket bog very impermeable with very little voids?

- They have indicated that "depending on the prevailing weather condition such windrowing could lower the moisture content of the peat to approximately 80% over 8 days but would typically achieve 82-87%.

- The intended bulldozing and compaction of the peat will increase the risk of contaminated water escaping from peat and will increase the oxidation of the peat thus contradicting the statement made by the Applicant in Volume 2; Item 3 that "Nitrogen is reduced to Ammonia rather than oxidised to Nitrate" It is no wonder the second paragraph in Volume 2; Item 3 begins with the uncertainty statement that "It is not expected that the level of Ammoniacal Nitrogen will increase..". The submission requires more reassurance than that.

The industrial field trials should be observed and reported by an independent accredited body with adequate PI insurance, independent to companies involved with this application as the consequences of their report could have an overwhelming effect on the quality of water and surrounding environment. Evidence from the photographs (taken during this trial and submitted in the content of the applicants response) shows that this (one-off not independently verified test trial) was carried out in very good (sun shinning, blue sky) weather conditions.

The applicant states without technical support that

" the settlement ponds will provide a more than adequate buffer for any minor differences between the quality of the water released from the peat, and that present in the drains from other sources."

The quality of water in the drains at present is from surface water runoff and should not be compared to acidic water contained in the peat. Organic fibres arising from the disturbed peat may take many months to settle. Therefore, the capacity of the settlement ponds and the detention/attenuation time required is directly related to the suspended solid characteristics in the water and the rate at which they settle. Settlement ponds will not remove any dissolved solids.

Sudden surges from heavy rainfall will also disturb the settled solids. How does the applicant intend to cater for these events?
In the interest of the health and safety and for the control and monitoring of water quality I request that water sampling and testing should be undertaken by an approved independent testing authority not linked to the applicant. This water sampling and testing should be carried over a period of months to obtain an effective baseline existing water quality in the drains etc.

There are other alternatives available to the applicant that does not unearth such vast quantities of saturated blanket bog, containing up to 10,000 times the allowable quantities of pollutants in lake waters, posing a high risk to the water quality and surrounding environment.

For this and many other reasons, I request that *a refusal to this application be granted.*

Further Information Request Volume 1 No. 11

Information on the possible impacts on water quality, aquatic ecology and surrounding peatlands arising from the use of the highly alkaline lime/cement binder to comparatively small parts of the site. The information should include technical information and assessments to support the use and appropriateness of this method of peat improvement in this location.

Observation to Applicants Response
Construction work resulting in the injection of chemicals into the ground where surface water run-off will flow into rivers and streams and then into a major drinking water supply for the entire region should undoubtedly be avoided.

In the interest of protecting a major drinking water supply for the entire region, there should be an independent certificate of approval to demonstrate (Agrement Cert or a Cert from the WHO or EPA) that the proposed method of construction including the cement binder to improve the load bearing capacity of the peat will not affect the quality of the water. If this is not forthcoming then this method of construction should be avoided.

It is noted in CIRIA C514. 2000 'Grouting for Ground Engineering' was not part of the applicant research references. This document indicates and outlines the risk assessment and environmental impact assessment of grouting.

It states that

'it is an offence under the Water Resources Act, 1991 to cause or knowingly permit any poisonous, noxious or polluting matter or any solid waste matter to enter any controlled waters. Failure to comply with the above Act may lead to a criminal prosecution. Lacks of

intent or negligence are no defence. In addition, expensive civil law suits may follow if harm is caused to someone else's person or property.
At December 1997 the Environmental Agency had no defined policy on groundwater pollution caused by grouting in the ground.

It also states *that*

'any environmental impact assessment and especially the decision about admissible limits should be based on two largely independent investigations.'

It is inconceivable to think that the applicants 'Mitigation Measures' to prevent the escape of a leachate is done by blocking drains. *Can you imagine on site someone saying, 'there goes the leachate lets block the drain!' Oh hang on, its about to rain!*

Without prejudice, RSK ENSR general notes states that where any data supplied by the client or from other sources have been used it has been assumed that this information is correct. Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. There are too many assumptions and restrictions in order to achieve their client's objectives in their response.

I therefore request that the recommendations made in the CIRIA document be adhered too and that two independent investigations be carried out for the grouting proposal. This proposed method of construction should have an approved accredited status for this particular environment.
The attitude of the applicant to block drains is absolutely ridiculous. What happens in the event of heavy rainfall? What happens when grouting occurs below the invert level of the drain?

Based on the current submitted information and without independent verification of the impacts of this proposed method of construction, I request that this application be refused as there are other construction alternatives available including sites the will not require this construction technique.

Further Information Request Volume 1 No 13.
Investigation of the feasibility of only allowing surface water which is actively pumped from the site entering the settlement ponds and ensuring that site drainage during construction is a totally pro-active hydrometric process rather that a semi passive one. (Parameter would involve setting a maximum allowable output flow rate from the site and in the event that this flow rate is exceeded, flooding of the site is the end result, rather that dealing with the risk of overloading of the settlement ponds.)

Observation to Applicants Response
Certainly the surface water runoff to the settlement ponds should be limited to ensure that they perform their intended function. Turbulence in the settlement/silt ponds should be eliminated. A surcharge of water (high flow of water) entering the settlement/silt ponds will cause turbulence and an imbalance in the settlement pond and hence the solids will become suspended in the water.
Remember the applicant has submitted information to show that c. 2.25mm of rainfall caused an increase of flow from 25 l/s to 275 l/s within a couple of hours. This is a very low rainfall event and would occupy almost 1000m^3 in one hour.
An intense rainfall event could be 40-60mm of rainfall in one hour. The specific gravity of the suspended substances will vary and therefore the time taken for them to settle will vary. Any extreme event and its consequences should be accommodated and resolved within the site boundaries.

For this reason the response to this request is insufficient and therefore this application should be refused, as construction methods exist that will prevent this from occurring. Alternatively there are other sites available in less sensitive areas.

Further Information Request Volume 1 No 15.
A data history setting out the hydrological dynamics of the site to date. In particular the relationships between rainfall events, flows in perimeter drains and levels of phosphates and suspended solids.

Observation to Applicants Response
The applicant's response to item No. 15 states that phosphate levels have not been continuously measured even though it has been quoted by the applicant in FI Volume 1; Item 6 page 2 that

"Orthophosphate impact to surface watercourses from phosphate-impacted soils is widely recognised as being a major concern in certain parts of Ireland, because it can lead to eutrophication of lakes and rivers."

I am sure that this part of Ireland is no different!

Also, the applicant has not qualified the type of suspended solids, some solids will settle quicker than others and the settlement ponds must be designed to accommodate the settlement of all types of suspended solids not

just silt alone. Otherwise the chemically rich suspended solids will escape into the streams and rivers and hence into Carrowmore lake.

The complete excavation and operations carried out thereafter to unearth a huge volume of saturated blanket bog in a relatively deep and confined area cannot be compared to work already carried out by Bord na Mona. This work will unleash an abundance of organic material with high concentrations of containments into the water; some of it will remain in suspension for a long time while other materials (roots, timber, heather fibrous material etc.) will float on the surface of the water. Sudden surcharges of rainfall will also affect the settled solids.

The expected surcharge of water flow from only 2.25mm of rainfall is evident. FI request Volume 1: Item 15 Figure 1a shows that a c 2.25mm of rainfall caused a sudden surcharge flow of 275 l/s in drain 22 within a two hour period. This indicates a very quick high flow response arising from a rainfall event, which ultimately can disturb the settled solids.

Further Information Request Volume 1 No 16.
Proposals to deal with the storage of peat on site in the event of adverse weather conditions preventing sufficient de-watering of the peat to allow transportation to the deposition site.

Observation to Applicants Response
Dewatering of blanket bog covered with waterproofing sheeting cannot be compared to the dewatering process usually carried out by Bord Na Mona. The loose powder like material harvested by Bord Na Mona with a high degree of voids allows any moisture to percolate through the milled peat thus allowing it to dry shed water and hence effectively dry.
This will not happen with the windrowed insitu blanket bog, as there are little or not voids in peat hence its low permeability. Furthermore, any waterproofing sheeting will need to be anchored down tight to the peat surface further preventing water drying of the blanket bog.
It is insufficient and impractical to suggest that the windrowed blanket bog will be covered every time it rains. Is the peat going to be covered if a small shower of rain comes along? If its not going to be covered then the water content will increase etc etc. The covers on Bord Na Mona milled peat are usually on for months at a time.

The applicant has now identified that the proposed process of removing the peat is weather dependent.

Therefore, the applicant's response and proposal is insufficient, impractical as it could take many months and even years to remove this peat in order to meet the criteria put forward by the applicant.

It is imperative to remember that the peat will contain in excess of 405,000,000 litres (four hundred and five million litres) of acidic water with high concentrations of phosphorus.
This is not acceptable as the peat contains high levels of chemicals that will undoubtedly escape into the surface water streams and rivers and eventually into Carrowmore lake thus affecting water quality.

It is for these reasons also that I request that this application be refused. There are other sites available that do not require the excavation, removal and high risks that are associated with such large volumes of peat removal.

THIS IS SIMPLY THE WRONG SITE FOR THIS PROJECT.

Appendix 4

Correspondence

Between

Brian Coyle

Mayo County Council

And

Health and Safety Authority

Appendix 4A

Includes correspondence between Brian Coyle and Mayo County Council

Appendix 4B

Includes correspondence between Brian Coyle and Health and Safety Authority

Appendix 4A

Correspondence

Between

Brian Coyle

And

Mayo County Council

OUR REF: 04-025-040420-01L

20th April 2004

Brian Coyle
Block 1, 2nd Floor
GFSC
Moneenageisha Rd
Galway

Planning Department
Mayo County Council
The Mall
Castlebar
Co. Mayo.

Re: Request for the HSA Report for the proposed Gas Terminal.
Planning Reference Number 03/3343

To Whom It May Concern / Mr. Ian Douglas

This is to notify Mayo County Council that on the morning of the 20th of April 2004, I made a verbal request (by telephone) to Mr. Ian Douglas to view or obtain a copy of the submission/observation documentation prepared by the Health and Safety Authority (National Authority for Occupational Safety and Health) in relation to the proposed Gas Terminal Development referenced under planning number P03 / 3343

During our telephone conversation, Mr. Ian Douglas informed me that this document is not currently available as it is regarded as an internal document and will be available once Mayo County Council has made their decision.

The consequence of this is that the public are unable to view or obtain a copy of this document and therefore their concerns and observations in relation to the HSA submission will not be considered prior to a decision being made by Mayo County Council. Concerned members of the public have also informed me that they have requested a copy of this document but with no avail.

I therefore request Mayo County Council to confirm to me in writing why this document has this status and is not currently available to the public. Any information submitted by the National Authority for Occupational Safety and Health in relation to this development is certainly of public interest and should be made available as soon as possible giving sufficient time for public verification and examination prior to a decision being made by Mayo County Council.

Yours Sincerely

Brian Coyle BE, CEng, MIEI, MIStructE
Chartered Engineer

BY FAX + POST

COMHAIRLE CHONTAE MHAIGH EO

Aras an Chontae, Caislean a 'Bharraigh, Contae Mhaigh Eo.
Teileafóin (094) 24444 Fax (094) 23937

Your Ref. Our Ref.

27th April, 2004

COYLE KENNEDY
RECEIVED
28 APR 2004
CONSULTING ENGINEERS

Mr. Brian Coyle,
Chartered Engineer,
Block 1, 2nd Floor,
GFSC,
Moneenageisha Road,
Galway.

RE: HAS Report for the proposed Gas Terminal.

Dear Mr. Coyle,

This letter is to confirm our telephone conversation as requesetd in your letter dated 20th April, 2004. Full consideration will be given the concerns you have expressed.

Yours sincerely,

Iain Douglas,
Senior Planner.

OUR REF: 04-025-040428-01L
YOUR REF:

28th April 2004

Brian Coyle
Block 1, 2nd floor,
GFSC,
Moneenageisha Road,
Galway.

Iain Douglas
Planning Department,
Mayo County Council,
The Mall,
Castlebar,
Co. Mayo.

Dear Iain,

I have received your letter (Mayo County Council) dated the 27th April 2004. The content of your letter does not address my request as stated in my letter dated 20th April 2004. I attach a copy of my letter that you have already received for your information. My concerns are in relation to the examination and assessment of safety issues. Access to rightful information pertaining to the safety of my family and members of the public has now become time consuming, frustrating and difficult with little time for observation and/or assessment.

I request an appropriate written response to my letter dated 20th April 2004, ref 04-025-040420-01L, mainly indicating why the Health and Safety Report has achieved the status its got.

Yours Sincerely,

Brian Coyle BE, CEng, MIEI, MIStructE
Chartered Engineer

Encl.
B. Coyle Letter 04-025-040420-01L 20th April 2004
Mayo County Council Response dated 27th April 2004

BY FAX + POST.

Appendix 4B

Includes correspondence

Between

Brian Coyle

And

Health and Safety Authority

during the

Planning Process

OUR REF: 04-025-040420-02L

20th April 2004

Brian Coyle
Block 1, 2nd Floor
GFSC
Moneenageisha Rd
Galway

Mr. John Colreavy
Health & Safety Authority
10 Hogan Place,
Dublin 2,
Ireland.

Re: Request for the HSA Report for the proposed Gas Terminal.
Planning Reference Number 03/3343

To Whom It May Concern / Mr. John Colreavy

This is to inform the National Authority for Occupational Safety and Health (HSA) that on the morning of the 20th of April 2004, I made a verbal request (by telephone) to Mr. Ian Douglas of Mayo County Council to view or obtain a copy of the submission/observation documentation prepared by the Health and Safety Authority in relation to the proposed Gas Terminal Development in County Mayo referenced under planning number P03 / 3343. Mr. Ian Douglas has confirmed and described the HSA document that Mayo County Council has received from the HSA.

During our telephone conversation, Mr. Ian Douglas informed me that this document is not currently available as it is regarded as an internal document and will be available once Mayo County Council has made their decision.

The consequence of this is that the public are unable to view or obtain a copy of this document and therefore their concerns and observations in relation to the HSA submission will not be considered prior to a decision being made by Mayo County Council. Concerned members of the public have also informed me that they have requested a copy of this document but with no avail.

As the HSA is the National Authority for Occupational Safety and Health, I therefore request to view or obtain a copy of this document immediately from the HSA.
I also request in writing from the HSA that they identify/list all the names and addresses of people, any other authorities / bodies, documents and events (published or otherwise) that has been referenced/consulted in preparation of the recent HSA report. I would expect that all references are included in the content of the report. I also request the HSA to confirm in writing the extent to their investigation and their conclusion, under the terms (Seveso II directive) 'establishment', 'anticipated substances' 'pipelines' 'related infrastructure' etc.

Yours Sincerely

Brian Coyle BE, CEng, MIEI, MIStructE
Chartered Engineer

HEALTH AND SAFETY AUTHORITY

10 Hogan Place, Dublin 2, Ireland.
Telephone: 01-614 7000 Fax: 01-614 7020 Website: http://www.hsa.ie/osh

Mr. Brian Coyle,
Block 1,2nd Floor,
GFSC
Moneenageisha Road,
Galway.

21st April 2004,

Dear Mr Coyle,

I acknowledge receipt of your " Observations and Objection Report " and your letter of the 20TH April 2004.

I was not aware that the HSA report was not available from Mayo Co.Co. and I have spoken to the Department of the Environment, Heritage and Local Government concerning this issue.

Your request for a copy of the report is under consideration .

Yours sincerely

John Colreavy.
Process Industries Unit

HEALTH AND SAFETY AUTHORITY

10 Hogan Place, Dublin 2, Ireland.
Telephone: 01-614 7000 Fax: 01-614 7020 Website: http://www.hsa.ie/osh

Mr. Brian Coyle,
Block 1,2nd Floor,
GFSC
Moneenageisha Road,
Galway.

22nd April 2004,

Dear Mr Coyle,
Further to my letter of the 21st April I have been advised that the Authority will need to receive a request either under the Freedom of Information Act or Freedom of Access to Information on the Environment Regulations.

As part of the HSA report contains material supplied by another party, the consent of that party is being sought, pursuant to Regulation 36 of the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations,2000.

Yours sincerely

John Colreavy.
Process Industries Unit

OUR REF: 04-025-040423-02L

23th April 2004

Brian Coyle
Block 1, 2nd Floor
GFSC
Moneenageisha Rd
Galway

Mr. John Colreavy
Health & Safety Authority
10 Hogan Place,
Dublin 2,
Ireland.

Re: Request for the HSA Report for the proposed Gas Terminal.
Planning Reference Number 03/3343

Dear. John

Further to your fax on the 22nd of April and the reference you make in this fax to your letter dated 21st of April (that I currently do not have as it is probably in the post). Obtaining this information through the Freedom of Information Act or Freedom of Access of Information on the Environment Regulations will take considerable time. Mayo County Council will have made their decision, before I get a copy and review the HSA document.

Therefore, can you identify to me in writing the scope and conclusion of the HSA report for this proposed project as soon as possible.

Yours Sincerely

Brian Coyle BE, CEng, MIEI, MIStructE
Chartered Engineer

By Fax + Post

OUR REF: 04-025-040423-02L

23th April 2004

Brian Coyle
Block 1, 2nd Floor
GFSC
Moneenageisha Rd
Galway

Mr. John Colreavy
Health & Safety Authority
10 Hogan Place,
Dublin 2,
Ireland.

Re: Gas Terminal, Co. Mayo
Planning Reference Number 03/3343

Dear. John

I would like to inform you that in a report titled "Decommissioning of the proposed Bellanaboy Bridge Terminal ---John Downey--- Corrib Subsurface Manager" it states that "it is highly probable that any further gas discoveries in the Slyne / Erris Basin would be produced via the proposed Bellanaboy Terminal subject to the receipt of the necessary consents and approvals".
This statement suggests that other gas finds can be processed at this terminal; as other gas finds can/could contain higher concentrations of Hydrogen Sulphide and since this is a very toxic substance and can kill at concentrations even as low as 0.1-0.5% therefore I would like to commission you and/or National Authority of Occupational Safety and Health to examine the consequences of treating sour gas at this proposed terminal site.

We are all too familiar with the failure of pipelines. The proposed high-pressure upstream and down stream pipeline with transport untreated and treated gas respectively through various soil types. Therefore, I would also like to commission you and/or National Authority of Occupational Safety and Health to examine the consequences of such and event. The health and safety of people at work in close proximity to the pipeline should also be considered. The proposed setback distance of 70m is for the safety of the pipeline from surrounding activities and does not include for the safety of the public.

A clear understanding of the terminology used is very important e.g. "Dry Gas" "Wet Gas" "Sweet Gas" and "Sour Gas".

Please outline your proposals, commitment, and fee for this assignment.

Yours Sincerely

Brian Coyle BE, CEng, MIEI, MIStructE
Chartered Engineer

cc Ian Douglas- Mayo County Council

BY FAX + POST.

OUR REF: 04-025-040428-02L

28th April 2004

Brian Coyle
Block 1, 2nd Floor
GFSC
Moneenageisha Rd
Galway

Mr. John Colreavy
Health & Safety Authority
10 Hogan Place,
Dublin 2,
Ireland.

Re: Gas Terminal, Co. Mayo
Planning Reference Number 03/3343

Dear. John

I await your written response to my letter dated 23rd of April 2004 ref 04-025-040423-02L. The content of this letter indicates that I am in a position to commission you and/or HSA to examine and report on the extremely likely event of upstream and downstream pipeline failure (associated with the proposed gas terminal) as it is passes through deep blanket bog in an area of natural ground instability that can fail at slopes of 2-degrees and above. I also would like you to examine the consequences and related events that can arise from the treatment of gas containing hydrogen sulphide.

Please respond in writing with your proposals, commitment, and fee for this assignment.

Yours Sincerely

Brian Coyle BE, CEng, MIEI, MIStructE
Chartered Engineer

BY FAX + POST

HEALTH AND SAFETY AUTHORITY

10 Hogan Place, Dublin 2, Ireland.
Telephone: 01-614 7000 Fax: 01-614 7020 Website: http://www.hsa.ie/osh

Mr. Brian Coyle,
Block 1, 2nd Floor,
GFSC
Moneenageisha Road,
Galway.

27th April 2004,

Proposed Gas Terminal

Dear Mr Coyle,

I refer to your letter of the 23rd April requesting information on the scope and conclusion of the HSA report to Mayo County Council.

Whilst the application of the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations preclude the release of much of the information supplied to Mayo County Council except in the context of the Access to Information on the Environment Regulations; it is possible to provide an summary of the key points from the executive summary as follows:

The Authority determined that the risks were at such a level that, according to the land use planning criteria of the Authority for this purpose, it **does not advise against** the granting of planning permission in relation to this development.

The Authority also makes the following recommendations:

a) Paved areas to be extended to bund walls and arranged so that any accidental releases over bund wall are diverted to the open drains sump
b) Extension of impermeable areas around the slugcatcher such that any potential release is contained.
c) Online Total Organic Carbon monitoring to be installed at silt ponds with provision for automatic re-routing of flow to contaminated firewater pond *in event of* accidental discharge to system.

d) For the purposes of emergency planning:

arrangements should be made between the applicant and Mayo Co. Co. to provide for traffic control on roads close the terminal in the event of a major incident.

e) For the purpose of control on future development:

Should there be any proposed amendment to the permitted scheme which relates to the control or impact of major accident hazards (as defined by Seveso II Directive) then that amendment shall not proceed until the agreement of the H.S.A. has been obtained.

Also the Authority considered the establishment to be the terminal footprint (area within the security fence where the hazardous substances are processed and stored).

The excavation of peat at Bellanaboy Bridge and its deposition at the Srahmore site are outside the scope of the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations.

Yours sincerely,

John Colreavy,
Process Industries Unit

Appendix 5

Extract from SI 476/2000

Extract from SI 476/2000

Demonstration of safe operation.

8. (1) This Regulation and Regulations 9 to 11 shall apply to all establishments.

(2) In respect of an establishment to which this Regulation applies, the operator shall, whenever requested by the Central Competent Authority or by an inspector of that Authority, provide or cause to be provided to the Authority or to that person such evidence (including documents) to prove that he has—

(*a*) identified the major accident hazards, and

(*b*) taken all necessary measures to comply with these Regulations.

General duties of operators.

9. (1) In respect of every establishment it shall be the duty of the operator concerned to take all necessary measures—

(*a*) to prevent major accidents occurring, and

(*b*) to limit the consequences of any such major accidents for man and the environment.

(2) Without prejudice to the generality of paragraph (1), the matters in respect of which the necessary measures are to be taken by the operator shall include—

(*a*) the identification of all major accident hazards in the establishment including an assessment of the extent and severity of the consequences of such accidents;

(*b*) the provision and maintenance of installations and systems of work and of the means of entry to and exit from the establishment or any part thereof that are, so far as is reasonably practicable, without risk for man and the environment;

(*c*) the making of arrangements to ensure that the use, handling, storage and transport of dangerous substances in the establishment are, so far as is reasonably practicable, without risk for man and the environment;

(*d*) the provision of such information, instruction, equipment, training and supervision as is necessary to ensure, so far as is reasonably practicable, the occupational safety and health of the persons working in the establishment;

(*e*) the use of the best practicable means—

(i) to prevent a major emission into the environment from any part of the establishment of dangerous substances resulting from uncontrolled developments in that establishment, and

(ii) for rendering harmless and inoffensive such substances as may be so emitted.

(3) An operator of an establishment on being notified in writing by the Central Competent Authority, that the establishment has been identified by the Authority as part of a group of establishments where the likelihood and the possibility or consequences of a major accident may be increased because of the location and the proximity of such establishments, and their inventories of dangerous substances, shall—

(*a*) provide suitable information in an appropriate manner about the establishment to each other establishment in the group to enable them to take account of the nature and extent of the overall hazard of a major accident in their major accident prevention policy documents, safety reports and internal emergency plans,

(*b*) take account in the manner as outlined in sub-paragraph (3)(a) of information provided to him by each establishment in the group, and

(*c*) co-operate with those establishments to enable them to carry out any obligations they have under Regulations 15(1), 17(3) and 19(1).

Major accident prevention policy.

10. (1) It shall be the duty of every operator to prepare, or cause to be prepared, a statement in writing which shall set out the manner in which major accidents are to be prevented, which statement shall be known and is herein-after referred to as a "maior accident prevention

policy document".

(2) The major accident prevention policy document shall—

(*a*) be designed to guarantee a high level of protection for man and the environment by appropriate means, structures and management systems, and

(*b*) take account of the principles specified in Annex III to the Directive (which is set out in the Second Schedule).

(3) In the event of a modification of the establishment or any part thereof which shall include any modification to an installation, storage facility, process or nature or quantity of dangerous substances, which could have significant repercussions on major accident hazards, the operator shall review and, where necessary revise, the major accident prevention policy document pursuant to compliance with paragraph (2).

(4) An operator shall implement the policy set out in his major accident prevention policy document.

Notification of establishments.

11. (1) Save as otherwise provided in this Regulation, an operator shall at least 6 months, or such shorter period as the Central Competent Authority may agree in writing, before—

(*a*) the start of construction of an establishment,

(*b*) the start of operation of an establishment,

send to the Authority a notification containing the information specified in the Third Schedule.

(2) Notwithstanding paragraph (1) it shall be sufficient compliance with that paragraph if the operator of an existing or other establishment sends the notification required by paragraph (1) to the Central Competent Authority not later than 3 months after the coming into operation of these Regulations.

(3) Paragraph (1)(*b*) shall not require the notification to contain information already contained in the notification sent pursuant to paragraph (1)(*a*) if that information is still valid and accurate.

(4) An operator shall immediately inform the Central Competent Authority in writing in the event of—

(*a*) any significant increase in the quantity, or a significant change in the nature or physical form, of a dangerous substance present, as indicated in the notification provided pursuant to paragraphs (1) or (2), or any change in the processes employing it, or

(*b*) permanent closure of the installation.

(5) Paragraphs (1), (2) and (4) shall not require the notification of any information which has been included in a safety report already submitted to the Central Competent Authority.

(6) An operator shall as soon as practicable after the coming into operation of these Regulations, but in any event not later than 3 months after such date, submit in writing to the planning authority in whose functional area the establishment is situated and to any other planning authority whose functional area may be affected by a major accident at the establishment—

(*a*) confirmation that the establishment is subject to these Regulations, and

(*b*) the details outlined in paragraphs (*a*), (*d*), (*e*), (*g*) and (i) of the Third Schedule.

Appendix 6

Extract from HSA report

3. Quantified Risk Assessment (H.S.A.)

3.1 Introduction

The functions of the Authority are set out in appendix 2. One of its many functions relates to the provision of land use planning advice to planning authorities, which is a legal obligation under SI 476 of 2000.
However there are a number of general exclusions contained in the regulations, the most relevant to this proposed development being as follows:

the occurrence outside an establishment of -

- the transport of dangerous substances by road, rail, internal waterways, sea or air,
- associated intermediate temporary storage,
- the transport of dangerous substances in pipelines and pumping stations.

THE SEVESO II DIRECTIVE STATE: the transport of dangerous substances in pipelines and pumpin stations OUTSIDE ESTABLISHMENTS COVERED BY THIS DIRECTIVE

Then there are some activities, not listed as exclusions, which do not come within the scope of the regulations:

- Comparison of potential sites for a proposed establishment
- Activities related to site development /construction

There are aspects specific to this application which are excluded:

- Excavation of Peat at Bellanaboy Bridge site
- Deposition of Pear at the Srahmore Site

The Authority has defined the scope of the analysis as follows

The Establishment:
The establishment is considered to be the terminal (the area within the security fence footprint where the hazardous substances are processed and stored). This decision was taken in respect of the previous planning applications and has been retained following discussions between the Authority and E.U. Commission officials and representatives of the other E.U. member states.

Assessment of Global Stability of Terminal:
The Authority retains no expertise in-house for consideration of this issue in its provision of land-use advice. The stability issues have been addressed in the Environmental Impact Statement (EIS) provided by the applicant for normal conditions. The Authority has requested and received specific information relating to major accident hazards affecting global stability from the applicant. This has been forwarded to Mayo County Council. It is the understanding of the Authority that Mayo County Council have already retained a consultant to advise it in this regard.

5

Appendix 7

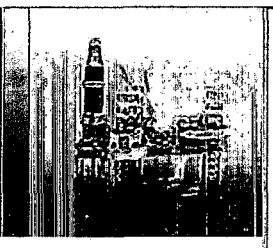
Rivers Fields Sour Gas Field

Located

in

The Irish Sea

East Irish Sea



Milestones

- **Major source of current natural gas production**
- **Millom and Dalton fields are fully developed**
- **Start-up of Rivers fields expected by early 2004**
- **Location offers excellent access to markets**
- **Plays to Burlington's technological expertise**

The East Irish Sea is a major source of current production for Burlington, as well as a source of near-term growth through development of new natural gas fields. Burlington entered the East Irish Sea in 1997 by acquiring 10 licenses covering 267,000 acres, and has 100 percent working interest in seven operated gas fields there. The company invested $128 million in capital here during 2002, primarily in the large Rivers Fields development program. Our East Irish Sea operations report to the International Division's London office.

High production from Millom and Dalton Fields

Burlington produces sweet natural gas from the Millom and Dalton fields from a combination of platform wells and subsea completions. The two fields are located about 25 miles west of Walney Island, Barrow, and are estimated to contain recoverable reserves of more than 300 Bcf. Production began in 1999, with an expected lifespan of 20 years. Net production from the fields doubled during 2001, peaking at 135 MMcfed with the addition of wells in the Millom Field. Those wells illustrate Burlington's advanced drilling technology, with two of them being "trilaterals," meaning that they incorporate three horizontally drilled lateral extensions that offer more thorough exploitation of the Ormskirk Reservoir. Net production from the fields was 97 MMcfed during 2002.

Production approaching from Rivers Fields

A $260-million project to develop natural gas production from the Rivers Fields, a complex of five sour gas fields in the East Irish Sea estimated to contain more than 250 Bcfe of resources, is nearing completion. Production is expected to begin by early 2004 at rates in excess of 100 MMcfed. The complex includes five fields - Calder, Darwen, Crossans, Hodder and Asland - that are all named after rivers. The fields are located between the British mainland and the Isle of Man. The development project includes the recent construction and installation of an unmanned production platform on the Calder Field, with the other fields scheduled for development during 2003 by sub-sea wells tied back to this facility. The gas will flow to a gas terminal currently under construction at Barrow-in-Furness in Cumbria. The facility will include a compressor station and sour gas treatment plant, and will be operated by Centrica plc.

Note reference to Five Sour gas fields.