

13.0 HUMAN BEINGS

13.1 INTRODUCTION

The well-being of the local community and the wider community within Islandmagee has been comprehensively addressed within this Environmental Impact Statement:

- Impact on commercial fishing activities – Chapter 6
- Impact on air quality and noise – Chapter 7
- Impact on material assets including traffic – Chapter 8
- Impact on landscape and visual appearance– Chapter 13

The potential impacts of the proposed gas storage facility are described in detail within these chapters and, where appropriate, mitigation measures are presented.

This chapter of the EIS details the human ‘environment’ of the hinterland of the subject site in terms of population profile and trends, employment and community aspects. It then discusses the impact of the proposed gas storage scheme on the overall amenity of the area and puts forward a series of mitigation measures to offset any potential negative impacts. This chapter of the EIS describes how the proposed development will impact on human beings in the surrounding area, in terms of tourism potential and socio-economic profile.

13.2 SOCIO-ECONOMIC PROFILE

Information obtained from census data shows that the population of Islandmagee was 2,385 in 2001, with 30,832 people in the Larne Local Government District area. Within the entire East Antrim Parliamentary Constituency there was a population of 84,062 representing almost 5% of the entire population of Northern Ireland. Unemployment in the region is relatively low, in 2001 unemployment figures for Islandmagee were 2.4%, lower than both Larne 3.7% and average figures for all of Northern Ireland at 4.1%.

The town of Larne and its surrounding hinterland have become popular with many commuters travelling to their place of employment in Belfast; this in part is an outcome of the upgrading of the A8 from Larne to Belfast, reducing average travelling times to Belfast to around 30 minutes. The improved road infrastructure coupled with a more reliable and efficient train service to the city have increased the number of residents living in the area, yet travelling to nearby Belfast to work.

Larne is a regionally important town within Northern Ireland and has been identified in the regional Development Strategy as a regionally important gateway, due to the presence of the Port of Larne. The Port is of economic significance to the area directly sustaining almost 40 jobs at the Port and indirectly maintaining many local businesses.

The 2001 census showed that there were 29,175 employee jobs (excluding agriculture) in East Antrim, this represents 4.6% of the Northern Ireland total. Of this 21.1% of employees in East Antrim were employed in the manufacturing sector and 74.3% in the service sector;

this compares with 15.7% and 77.7% respectively for Northern Ireland as a whole. Since the census in 2001 it is estimated that there are an additional 655 jobs in East Antrim, a percentage change of 2.3%. This ranks East Antrim tenth among the eighteen Parliamentary Constituency Areas in terms of percentage growth in employment opportunities.

Estimates in 2006 suggest 37,785 people are in employment in East Antrim and 13,467 in the Larne Local Government area, in all sectors of employment. Agriculture, hunting, forestry and fishing make up 3.24% of employment in Larne which is higher than both the East Antrim average (1.56%) and the Northern Ireland average (3.02%). Manufacturing is the most significant single sector of employment accounting for 18.11% of employment in Larne and 16.58% in the wider East Antrim area.

People employed in the mining, quarrying and construction industries form 7.8% of the total workforce of Larne, the proposals are likely to temporarily increase this percentage as approximately 200 temporary construction workers will be employed during the construction phase of the above ground facilities. 11 permanent employees and engineers will be required to operate the gas storage facilities following their construction and a further 20 are likely to be employed in the company headquarters which are proposed to be located in the East Antrim area.

There are four licenced aquaculture sites operating within the boundaries of the Lough, although not all are currently actively farmed. Two licenced Atlantic Salmon Fisheries are located along the Antrim Coast at Glenarm Bay and in Red Bay. This local employment in fisheries and shellfish will remain unaffected, as impacts are not anticipated to extend beyond the immediate outfall discharge area (see Chapter 9, "*Coastal Processes*"). Lobster and scallop fishing also takes place on the eastern shore of Islandmagee and predicted impacts are discussed in more detail in Chapter 6, "*Intertidal and Underwater Flora and Fauna*".

There will be a slight negative impact to the agricultural sector as digging of agricultural land is required in order to lay the pipelines needed for the intake of seawater and discharge of brine. The areas along the pipeline route will experience temporary loss of productivity for around 6 months; however compensatory measures will be put in place, ensuring there is no financial loss for the landowner as a result of pipeline construction and all ground will be fully reinstated post construction. Mitigation measures will also be used to ensure the reduction in productivity is only temporary and soil fertility remains unaffected. The topsoil and subsoil, will be separately stripped and set aside, with careful attention paid to drainage and soil structure during reinstatement.

13.3 TOURISM

The effect of tourism in Northern Ireland has become more apparent in recent years. The most recent confirmed tourism figures published by the NITB are from 2008, although preliminary estimates are available for 2009. These results are presented in Table 13.1 to Table 13.3.

Table 13.1 Estimated Visitor Tourism Jan-Dec 2008/09

2008	2008	2009 (estimated)	% Change
Total visits	2,076,000	1,951,000	-6
Overseas visits (excluding GB & ROI)	507,000	446,000	-12%
Holiday/leisure/recreation visits	508,000	535,000	+5%
Revenue	£396m	321m	-19%

Table 13.2 Estimated Total Visitors by Home Area Jan-Dec 2008/ 09

2008	2008	2009 (estimated)	% Change
Great Britain	1,202,000	1,025,000	-15%
Republic of Ireland	367,000	480,000	+31%
Europe	261,000	226,000	-13%
N. America	160,000	143,000	-10%
Elsewhere	86,000	77,000	-11%

Table 13.3 Estimated Holiday Visitors by Home Area Jan-Dec 2008/09

2008	2008	2009 (estimated)	% Change
Great Britain	128,000	102,000	-20%
Republic of Ireland	155,000	215,000	+39%
Europe	95,000	95,000	-
N. America	82,000	84,000	+3%
Elsewhere	48,000	39,000	-18%

*Figures may not add up to totals due to rounding.

In 2008 total overseas holiday visitor numbers of 508,000 spent an average total of over £1 million per day in Northern Ireland, resulting in revenue of £396 million (up from 493,000 and £376million in 2007). Domestic spending was in the region of £159m, meaning the Northern Ireland tourist industry earned £555m in 2008.

In 2008 the purpose of visit Holiday/leisure/recreation trips to Northern Ireland grew by 3% (+15,000); VFR (visiting friends or relatives) trips remained unchanged compared to 2007 while business trips declined by 11% (-62,000). There were an additional 16,000 trips for 'other' purposes to Northern Ireland in 2008 when compared to 2007 (+13%).

The increase in holiday/leisure/recreation trips was due to a huge growth in holiday/leisure/recreation trips by ROI residents (+26%; +32,000) which is attributed to a strong growth in the value of the Euro. Declines in holiday/leisure/recreation trips were evident from Great Britain (-5,000), Europe (-9,000) and North America (-12,000) while

visitors from the rest of the world took an additional 8,000 holiday trips in 2008 compared to the previous year.

Declines in the business sector were due to a reduction in the number of GB and ROI business visitors. Business visitors from England and Scotland declined by 32,000 (-10%) and 18,000 (-20%) respectively. ROI residents made 12,000 fewer business trips to Northern Ireland in 2008 compared to 2007 (-25%), with significant declines evident in the last quarter of 2008.

The majority of visits to Northern Ireland are between July and September, accounting for 31% of total visits to the region. Northern Ireland's tourist economy is directly responsible for around 36,700 jobs, representing around 5% of the workforce of Northern Ireland. The tourism market in Northern Ireland has demonstrated considerable progress in recent years by increasing tourist visits to the region; however the extent of an impact that the tourist industry has on the economy lags behind both the UK and Republic of Ireland figures, mainly as a consequence of the political conflict since the early 1970s.

In 2006 there were 77,800 tourist visits to Larne which resulted in expenditure of around £10.3m - an increase of £4.3million since 2002. This represents a significant boost of capital to the area and demonstrates the successful and growing tourist industry in the Larne area. Tourism contributes significantly to the economy in both the area of Larne and indeed County Antrim in general. The Antrim coast and coastal route is a popular attraction for both domestic and foreign visitors, with the Antrim Coastal route and the Giant's Causeway in North Antrim being one of the biggest tourist attractions in Ireland.

There are no hotels on Islandmagee itself, with the nearest hotels being in Larne or Carrickfergus. There are currently seven self-catering accommodation sites registered with the NITB and three B&Bs. Council operated camping and caravan facilities are available at Browns Bay with a few smaller private caravan sites along the shores and one independent camping barn/hostel.

Passenger surveys undertaken at airports and ferry terminals by the NITB provide an indication of why people have chosen to visit Northern Ireland, although these surveys cannot be seen as conclusive, particularly where the smaller special interest and activity products are concerned. The most popular primary reason amongst survey respondents for visiting Northern Ireland is to play golf, followed by genealogy and attending festivals or events.

Larne and Islandmagee are ideally placed as a tourist destination with the Port of Larne featuring as a main entry point in to Northern Ireland. In 2008 the port facilitated 230,383 tourist vehicles from England, Scotland and the Isle of Man (down slightly from almost 250,000 in 2007). The Port operations will remain completely unaffected by the construction or post construction operation of the gas caverns. Consultation has been held with the Port to ensure that the area chosen for the outfall discharge will not interfere with shipping activities. Consultation has been held with the MCA however it has not yet been determined whether the discharge outlet will require to be marked or not.

Table 13.4 Activities undertaken by visitors to Northern Ireland, 2008 (NITB)

Activity	Main reason for visit	Participated in activity, but not main reason	Total
Golf	13,000	30,700	43,700
Genealogy	10,000	9,300	19,300
Festival/event	10,000	13,500	23,500
Special interest sport	6,800	5,600	12,400
Walking	3,900	151,600	155,500
Historic properties	2,800	109,200	112,000
Game fishing	1,900	3,600	5,500
Field sports	1,900	2,100	4,000
Cycling	1,900	16,500	18,400
Equestrian	1,900	5,900	7,800
Coarse fishing	1,600	1,700	3,300
Sea fishing	1,300	5,100	6,400
Gardens	1,000	45,400	46,400
Museums/exhibitions	900	50,400	51,300

Larne Lough and the surrounding areas are extremely popular with both visitors and locals; offering a number of amenity and recreation sites including Brown's Bay, Portmuck Harbour, Ballylumford Harbour and Carnfunnock Country Park. The Lough itself offers a unique environment and each is home to a number of rare species and habitats attracting ornithologists in particular. The activities of the construction period will not affect these sites thus numbers of visitors to the area should remain unaffected.

A proposal to refurbish and reopen the Gobbins Cliff Path, one of the most popular tourist attractions in Northern Ireland in the early 20th Century, has recently received planning permission. The scheme will reopen 1.5 miles of the cliff path and Larne Borough Council hopes it will attract 70,000 paying visitors on guided tours and become an internationally recognised visitor attraction. The proposed gas storage scheme at Islandmagee will not impact upon the Gobbins cliff path proposals and indeed Islandmagee Storage wish to support the project (see Section 13.4 below).

Sailing and diving are popular in the area with several boat clubs and a diving school operating within and around Larne Lough. Leaching of the caverns and their subsequent operation will not impact upon the day to day operations of the diving school as construction of the caverns will be deep below the bed of the Lough. The impacts of the brine discharge have been thoroughly investigated in terms of marine flora and fauna and coastal processes in chapters 6.0 and 9.0 respectively of this EIS. There are not predicted to be any significant impacts outside the immediate mixing zone (c.20 metres from the outfall) during the outfall's construction or operational phases in the context of biodiversity and turbidity. There is therefore not anticipated to be any significant impact to the recreational diving or recreational sea fishing tourism industries off the coast of Islandmagee. It has yet to be confirmed by the MCA whether the outfall structure will require to be marked and buoyed. However, there is not anticipated to be any potential impact arising from the outfall upon navigation in the area. Local amenity areas will not experience any long term disruption; the only disruption will be

the construction of the pipelines which will require land to be excavated; however following burial of the pipe these areas will be unaffected.

The proposed project at Larne Lough is likely to have no impact on the tourist industry in the area post construction. Local businesses such as B&Bs, shops and other services are likely to experience an increase in revenue during the construction phase from the construction workforce and people coming to the area specifically for the construction and maintenance of the caverns.

In general the proposals will have little impact on the local community due to the nature of the construction. Equally however the local community will receive few benefits from the proposed project, as Islandmagee lacks the infrastructural requirements to supply natural gas to each household, and possible job opportunities post-construction are limited. As a result Islandmagee storage propose to set up a community benefit scheme as part of the proposal, details of which are outlined below in Section 13.4.

13.3.1 Bathing Waters

The NI Environment Agency monitors designated bathing waters in Northern Ireland against standards in the Bathing Water Regulations (SI 1991/1597) and the recently implemented Quality of Bathing Water Regulations (Northern Ireland) 2008, which are derived from the EC Bathing Water Directive (76/160/EEC).

Monitoring takes place from May to September and 20 samples from each bathing water area are taken at regular intervals. Currently, the classification of “Excellent”, “Good” or “Poor” is based on measurements of Total coliforms (colonies / 100ml); Faecal coliforms (colonies / 100ml); Faecal streptococci (colonies / 100ml); Salmonella; and Enterovirus (plaque forming units / 10 l) found in each sample. In order to achieve the “Excellent” classification, annually 80% (16 out of 20 sampling occasions) must meet the coliform standards AND 90% (18 out of 20 sampling occasions) must meet the guideline microbiological water quality standard of the Bathing Water Directive faecal streptococci standards. To achieve “Good” status, annually 95% (19 out of 20 sampling occasions) must meet the lower minimum mandatory microbiological water quality standard of the Bathing Water Directive.

Compliance with additional monitoring criteria relating to cyanobacteria, macro-algae and phytoplankton as well as other miscellaneous pollution such as tarry residues, glass, rubber, or other waste will become a requirement from March 2012.

Brown’s Bay, located approximately 2.5km from the proposed outfall discharge point, on the western side of around Skernaghan Point (Figure 13.1) is a designated bathing water.

Since 2000, Brown’s Bay has achieved “Excellent” status for its bathing water on five occasions and “Good” status on four occasions. In 2002, Brown’s Bay unfortunately failed to meet the mandatory standards due to exceeding the faecal coliforms targets on three occasions during the sampling season.

Brown's Bay bathing water status 2000-2009

2009	2008	2007	2006	2005	2004	2003	2002	2001	2000

	Excellent
	Good
	Fail

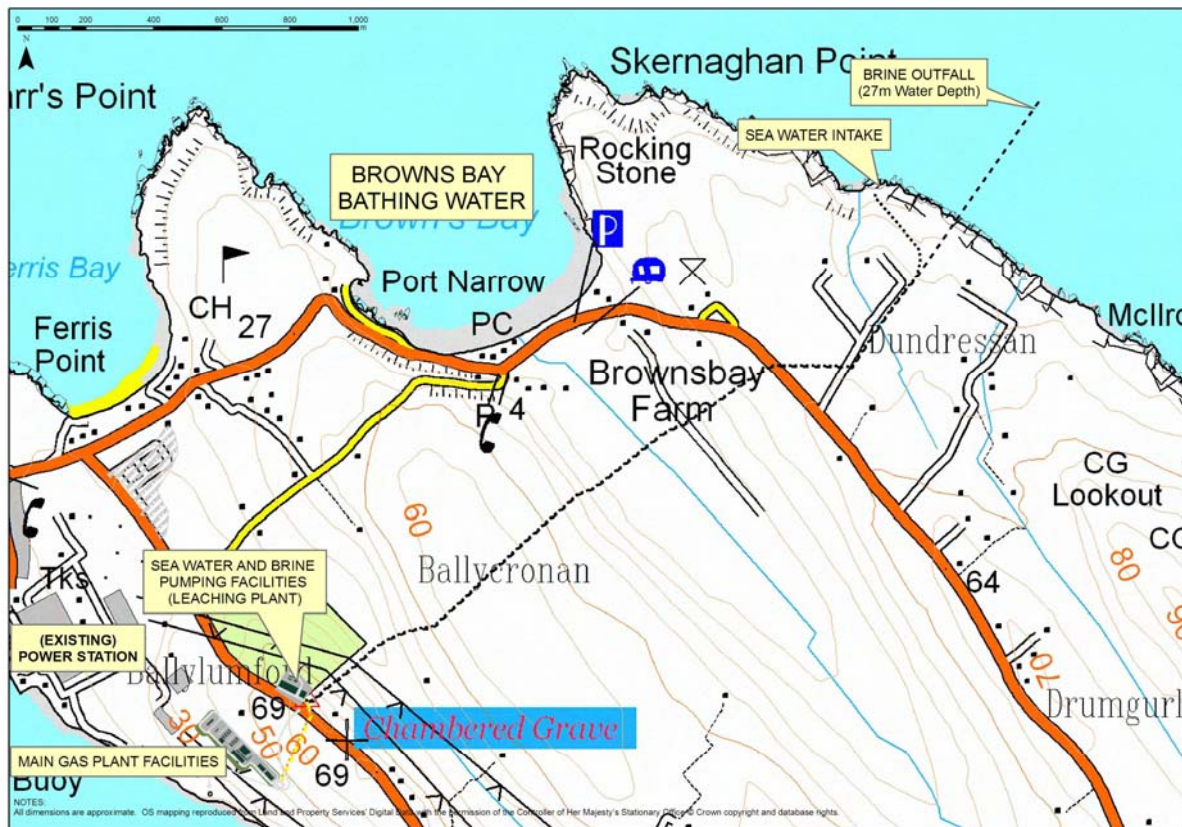


Figure 13.1 Browns Bay Bathing Water

Brown's Bay has been disadvantaged in achieving "Excellent" status on a regular basis by the lack of sewerage infrastructure in the northern part of Islandmagee and the predominantly agricultural land use. NI Water have invested significantly in sewerage system upgrades in Larne and further south in Islandmagee, however the northern portion of Islandmagee is expected to remain dependent on septic tanks for disposal of foul waste for the foreseeable future. Tighter restrictions on the storage and handling of slurry by farmers are also being implemented in an effort to improve bathing water quality around all of Northern Ireland.

The proposed gas storage facility and its associated brine outfall will have no impact on Browns Bay's ability to achieve Excellent status as a bathing water as the discharge from the outfall will not contain any faecal coliforms or faecal streptococci. The gas plant facilities will have a correctly designed septic tank or domestic treatment plant to treat any foul waste arising from the office facilities. There will also be no impact from the proposed gas storage facilities on the amenity value of Browns Bay as a bathing water in terms of turbidity, physio

chemical status or colour of the water and the additional monitoring criteria being established in 2012 will be similarly unaffected by the operation of the brine discharge.

13.4 CORPORATE AND SOCIAL RESPONSIBILITY

Islandmagee Storage Limited hold a strong belief in supporting the local community. Subject to obtaining planning permission and full funding for the gas storage project, the Company would like to set up a Trust that would include representatives from the local area, who, together with representatives from the Company, would support local projects and ideas themed around its main aims and objectives which will be Education, Geology and the Environment. The Trust would be set up in accordance with The Department for Social Development regulations and it is proposed that there will be an initial investment of £1million on a range of projects in the first three years, following full funding of the gas storage project, with another £50,000 per annum thereafter for a minimum of 6 years. The Trust itself will also be able to apply for other sources of external funding to develop more projects and ideas.

During 2009 Islandmagee Storage Limited met with local residents and held information sessions on Islandmagee. From these visits and discussions it became apparent that there is a need for the community centre to be upgraded. Islandmagee Storage Limited is offering to contribute towards the funding of the replacement of the centre which is part of the overall Gobbins Cliff Path proposal of Larne Borough Council. Central to the local community, it is currently in a very poor state of repair but is very well used by local groups and organisations. Current users include youth groups (judo and youth club) bowling club, over 60s club, ladies badminton, play group, boy's brigade and Islandmagee Community Development Association.

The centre could form a focal point for the Trust to achieve its aims and objectives. It is the intention of Islandmagee Storage Limited to have a part-time Community Liaison officer on Islandmagee and this person could be based at the new community centre. Part of their role could be to develop new initiatives for the local people such as, for example, a junior wildlife watch group that educates youngsters about nature and the environment. Sessions could include moth trapping, searching rock pools and bird watching. There is an opportunity to develop opportunities for environmental volunteering, beach cleans, litterpicks and keeping footpaths clear. The Trust could work with local schools to support the teaching of geology, drawing upon the experience of the staff of Islandmagee Storage Limited. The Liaison Officer would manage the Trust and encourage groups to apply for funding to develop and expand ideas.

The Trust model for community involvement and unilateral undertaking is based on that developed by Islandmagee Storage Limited shareholder Infratrata plc for a similar project in Dorset. Further details can be found at www.theportlandgastrust.org.

13.5 SAFETY

13.5.1 Introduction

Salt caverns have been used for storage of natural gas in Europe and the rest of the world for over 40 years and have proved to be a safe and efficient way of storing gas. The storage of natural gas in salt caverns formed part of the UK Government's Energy Review published in 2006, which included an expert report by the UK Health and Safety Executive (HSE) addressing the potential health and safety risks. This concluded that the hazards and risks associated with the storage of natural gas in salt caverns are well understood, that effective safety standards have been developed to ensure that the risks from future developments can be managed sensibly, and that the existing regulatory strategy for ensuring that the risks are properly controlled is robust.

The major accident risks associated with accidental releases of gas (i.e. fires or explosions) will be controlled by the adoption of established industry standards and relevant good practice, developed over many years and incorporating input from industry and regulatory authorities. A gas explosion within a cavern is highly improbable, since the great depth of the caverns and their pressure will prevent the ingress of air required to form an explosive mixture. Recognised safety engineering techniques will be adopted at key stages of the project and isolation, protection and shutdown systems will be implemented as appropriate. In an emergency at the surface, the facilities will be designed so that the gas in the caverns can be isolated immediately with sub-surface safety valves (SSSV) and the site made safe.

Islandmagee Storage Limited will ensure that adequate engineering or procedural safeguards will be in place to control risks for major accident scenarios and will be required to demonstrate under Control Of Major Accident Hazards Regulations (Northern Ireland) (COMAH) that risks are reduced to a level that is as low as reasonably practicable (ALARP). Before construction is allowed to proceed, and again before operations are allowed to commence, the regulatory authorities must be satisfied that safety aspects have been properly addressed.

13.5.2 Safety Credentials of Islandmagee Storage Limited

The Islandmagee Storage Project is a joint venture of Infrastrata plc (renamed in December 2009 from Portland Gas plc) and Mutual Energy Limited (renamed in November 2009 from Northern Ireland Energy Holdings Ltd).

Infrastrata is an AIM listed company, which is developing an international portfolio of gas storage and related infrastructure assets. It was recently successful in securing planning permission for a 1000mcm underground gas storage facility at Portland, Dorset, which is set to become the largest onshore gas storage facility in the UK.

Mutual Energy is a mutual company that manages energy assets in the long term interests of Northern Ireland's energy consumers. It owns and operates the Moyle Interconnector (which links the electricity networks of Scotland and Northern Ireland) and the Premier Transmission

Pipeline System (which includes the Scotland to Northern Ireland natural gas transmission pipeline (SNIP) and the Belfast gas transmission pipeline (BGTP)).

In order to provide the specialist skills and experience required for the initial feasibility study and outline engineering design, Islandmagee Storage Limited has engaged DEEP Underground Engineering GmbH, a specialist independent engineering company based in Germany, with particular expertise in underground gas storage, and CB&I, a global oil and gas engineering consultancy firm. Germanischer Lloyd (formerly Advantica in the UK) has been engaged to assist with the safety analysis.

13.5.3 Operational Safety

Delivery of the intent of the Major Accident Prevention Policy will be through Islandmagee Storage Limited's Safety Management System.

Health, Safety and Environment is clearly identified as a management responsibility. All line managers are held accountable for the health and safety of all persons under their control. In addition, all employees are responsible for their own health and safety, and the health and safety of others who may be affected by their actions.

The gas facilities will be covered by industry standard fire and gas detection and emergency shut down (ESD) systems.

The safety of the staff involved in the processes on site will have a high priority. All personnel will get safety instructions, adequate personal protective equipment, adequate training and commitment to safety before being involved in operations. Personal safety always has priority over economic aspects or damage of plant equipment. The plant manager and the operator always have the duty and permission to stop running processes in case of unsafe operating conditions.

Executive and deputy personnel will be appointed and their responsibilities will be outlined in an organisation chart. The organisation chart describes the responsibilities and the relationships between the different functions. These will also include the responsibilities for safety, quality and to the environment.

In the event that any external company or contractor is engaged to perform any work on-site, all field personnel will be subjected to a documented safety induction. The appointment of a person in charge, by the contractor, is mandatory.

Adequate personal safety equipment will be provided to each staff member, which is obligatory to be used at the leaching plant and cavern areas. The standard personal safety equipment to be worn on-site comprises a hard hat, safety boots, safety goggles and ear protection. Visitors will also receive appropriate personal protective equipment and safety instructions before entering the site.

All operations personnel must have adequate qualifications for their work. Additionally, regular training will be provided and documented.

Each staff member will receive first aid instruction and regular training. First aid material will be kept in the operation building. Addresses and phone numbers of ambulance, doctors and the nearest hospital will be on display in the control room of the operation building.

Alcohol and drugs will be strictly prohibited within the plant area.

The gas facilities site will have adequate fencing, sterile zone and access gates. The fencing will have appropriate emergency exits to be opened from the inside without a key. Access control will be performed by a guard who will ensure that safety inductions for site visitors are carried out. Visitors will have to report on entering the site and will have to sign the visitors' book.

The wellheads and pipelines will be rated above the maximum anticipated operating pressure at the surface. If, during leaching or gas operations, pipes are disturbed inside the well by a leak or pipe rupture, the well head will be closed automatically by fail-safe ESD valves and the leaching or gas operations for this cavern will be stopped. The ESD systems will be operable independently from the electric power supply.

All equipment will be protected from adverse weather conditions by housings or other measures. Openings in building walls for ventilation or cooling air inlets shall be on the lee side of the buildings of the main wind direction if possible.

Appropriate equipment protection will be selected for operation in designated hazardous zones and comply with ATEX requirements.

Buildings and other areas will be protected by appropriate extinguishant systems/portable fire extinguishers. A fire fighting plan will be established during the detailed design phase.

Alarm procedures will be performed in accordance with the alarm plan. The alarm plan will be on display in the operations building and will include alarm procedures for accidents, injuries, leaks, fire and other dangerous events. The alarm plan will also contain phone numbers of fire brigade, ambulance, doctors, authorities and the phone numbers of all staff and management personnel.

The operations personnel will receive written instructions and procedures for the leaching and normal operating processes, abnormal operation conditions, emergency procedures and auxiliary operations. This will include work instructions for all chemical analyses to be performed in the laboratory. In emergency shutdown or at abnormal operating conditions the plant can be shut down and put into a safe condition.

For storing and handling of hazardous materials, designated storage areas, handling procedures and training will be provided.

Leaks will be monitored by leak detectors as required, backed up by regular inspections of the leaching and cavern areas.

Although the leaching and gas storage plant will be controlled automatically by a process control system, the operations will be supervised by local personnel during day and night. During day time the operation supervisor or his deputy will be on site and additional specialised personnel will support the local crew in operating the equipment. Other personnel will be on call to solve problems occurring during operation.

A total of some 4 full time operational personnel will be employed. The staff is anticipated to comprise:

- 1 site manager (engineer)
- 10 operators to staff 3 shifts of 8 hours duration

Safety provisions will comprise the most modern 'fail-safe' safety systems to be installed, including the SSSV in each cavern to isolate the caverns in an emergency to restrict any release of any of the stored gas.

Automatic emergency routines will prevent injury and damage and will ensure a controlled shut-down of the plant in case of hazard. For example any unexpected event will result in the automatic closure of the SSSVs isolating each cavern, the venting of gas in the surface pipework and plant and the safe shut-down of the plant.

13.5.4 Safety Legislation

This section lists relevant items of safety legislation, together with a brief explanation of how they relate to the proposed facility. Each stage of the development of the project will be in compliance with the relevant legislation.

- **The Health and Safety at Work (Northern Ireland) Order 1978**

This lays a general duty on all employers to secure the health, safety and welfare of persons at work and to protect persons other than persons at work against risks to health and safety from work activities.

- **Planning (Hazardous Substances) Regulations (Northern Ireland) 1993**

ISML will apply to the Hazardous Substances Authority for a hazardous substances consent.

- **The Control of Major Accident Hazards Regulations (Northern Ireland) 2000 (COMAH)**

The proposed development will be a "Top Tier" COMAH site. Islandmagee Storage Limited will therefore submit a "pre-construction safety report" to the Competent Authority (CA) for assessment three to six months before construction starts, and will not commence construction until the CA has advised its conclusions. The operator must also submit a full safety report on operational activities to the CA and not commence operations at the establishment until the CA has advised them of its conclusions. On-site emergency plans will be prepared by Islandmagee Storage

Limited and off-site emergency plans will be developed in consultation with the Local Authority. Operations at the site will be subject to regular inspections by the Health and Safety Executive Northern Ireland (HSENI).

- **The Offshore Installations and Wells (Design and Construction, etc.) Regulations (Northern Ireland) 1996**

Whilst these regulations do not strictly speaking apply to onshore brine/salt cavern wells, Islandmagee Storage Limited will nevertheless include in the COMAH pre-construction safety report a demonstration that it has considered the requirements of Regulations 13 to 21 of these Regulations.

- **Borehole Sites and Operations Regulations (Northern Ireland) 1995**

Similarly, Islandmagee Storage Limited considers it prudent to follow the requirements of Regulations 4, 5, 7, 8, 9 & 10 of these regulations, even though, as above, these regulations may not strictly apply to brine wells.

- **Gas Safety (Management) Regulations (Northern Ireland) 1997 (GS(M)R)**

Gas conveyors and the Network Emergency Coordinator rely on other industry participants to enable them to run the gas networks safely. GS(M)R imposes a legal duty on gas producers, processing facilities, storage site operators, shippers, suppliers and others to co-operate (in accordance with Regulation 6) with them as far as is necessary to minimise the risk of a supply emergency.

- **The Pressure Systems Safety Regulations (Northern Ireland) 2004 (PSSR)**

PSSR require users and owners of pressure systems to demonstrate that they know the safe operating limits, principally pressure and temperature, of their pressure systems, and that the systems are safe under those conditions. They need to ensure that a suitable written scheme of examination is in place before the system is operated. They also need to ensure that the pressure system is actually examined in accordance with the written scheme of examination.

- **Dangerous Substances and Explosive Atmospheres Regulations (Northern Ireland) 2003 (DSEAR)**

DSEAR sets minimum requirements for the protection of workers from risks related to dangerous substances and potentially explosive atmospheres.

13.5.5 Standards and Design Codes

13.5.5.1 Pipelines

- **PD 8010 Code of Practice for Pipelines (2004)**

Part 1: Steel Pipelines on Land

Part 2: Subsea Pipelines

- **BS EN 14161 Petroleum and Natural Gas Industries – Pipeline Transportation Systems, British Standards Institution (2003)**

13.5.5.2 Caverns and Wellheads

- **BS EN 1918 (1998)**
Part 3 Functional recommendations for storage in solution-mined salt cavities
Part 5 Functional recommendations for surface facilities
- **API Spec 6A Specification for Wellhead and Christmas Tree Equipment (17th Ed. 1999)**
- **API 5C2 Bulletin on Performance Properties of Casing, Tubing, and Drill Pipe (21st Ed 1999)**
- **ANSI / API RP 14B Petroleum and Natural Gas Industries; Subsurface Safety Valve Systems - Design, Installation, Operation and Redress (5th Ed. 2005)**

13.5.5.3 Storage and Gas Plant Facilities

- **IGE/SR/17 Fire Precautions for Use in Buildings in the Gas Industry**
- **BS 5908 Code of Practice for Fire Precautions in the Chemical and Allied Industries**
- **BS 5306 Fire Extinguishing Installations and Equipment on Premises**
- **IEC 60079 Electrical Apparatus for Explosive Gas Atmospheres Part 10, Classification of Hazardous Areas**
- **IP15 Area Classification Code for Installations Handling Flammable Fluids: Model code of Safe Practice in the Petroleum Industry (Part 15)**
- **IEC61508 Functional Safety of Electrical/Electronic/Programmable Electronic Safety-Related Systems (Parts 1 and 2)**

13.6 CONCLUSIONS

13.6.1 Predicted Impacts

The proposed gas storage facilities at Islandmagee, due to their proximity to the existing gas and electricity infrastructure and with the added benefit of being largely sub surface, will have few negative impacts on the people of the Islandmagee or wider Larne borough areas. During the construction phase there may be some short term disruption to a limited number of people, particularly those whose land may be required to lay the sea water and brine pipeline and the properties located closest to the gas and brine facilities and the wellpad

entrance. However, Islandmagee Storage Limited aims to minimise these negative effects by developing mitigation measures in order to reduce or eliminate any potential problems.

13.6.2 Mitigation Measures

In addition to those mitigation measures already outlined in Chapters 7 (Noise), 8 (Traffic) and 13 (Landscape and Visual impact), Islandmagee Storage Limited will be setting up a mechanism for liaison with the community, to inform residents of the programme of works anticipated over the construction period and advising of any unusual construction events, e.g. the transport of an oversize load, blasting activities or noisy operations. Updates will be provided on the Islandmagee Storage Project on the project website www.islandmageestorage.com but other mechanisms such as a project notice board in a local shop may be established by agreement with the Islandmagee Community Development Association and/or other community representatives.

Islandmagee Storage also proposes to implement a telephone hotline at which personnel on site can be reached in order to answer and act upon queries from residents.

13.6.3 Residual Impacts

Around 200 temporary construction jobs and more than 20 permanent jobs will be created by the Islandmagee Storage Project, with potential for indirect employment benefits as the scheme is likely to become a catalyst for significant Northern Ireland inward investment with new equity and debt input.

The gas storage facility will benefit almost every resident of Northern Ireland by ensuring stability in supply of both natural gas and of electricity which is largely generated from combustion of natural gas within the province. The project will make a contribution to providing a reliable source of flexibility of supply in Northern Ireland as well as GB and Ireland, creating a stabilising influence on prices, reducing price volatility and thereby reducing wholesale gas prices at times of peak demand, which in turn will lead to more stability and should therefore assist in reducing the volatility of Northern Ireland gas prices.

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