

## SECTION 16.0

### MANAGEMENT UNIT 11: EASINGTON GAS TERMINALS

#### 16.1 Summary Information

##### 16.1.1 Location

Management Unit 11 is situated towards the southern end of the Holderness Coastline. It covers some 1 km of eroding coast fronting the Easington Gas Terminals and has been identified as a Management Unit on the basis of this characteristic land-use (i.e. the rural-industrial land use change defines both limits of this unit).

##### 16.1.2 Coastal Processes

There is a net longshore drift of sediment from north to south. The glacial till cliffs in this location are receding at an average rate of approximately 1.5 m/year. Gas pipelines owned by British Petroleum and British Gas are located under the foreshore. The pipelines are visible in the vicinity of the low water mark.

##### 16.1.3 Coastal Defences

Apart from a very short length of partly collapsed gabions there are no existing defences within Management Unit 11. There are plans currently (1998) to protect the gas terminals from coastal erosion using a rock revetment placed at the base of the cliff over the full length of the unit (1,000m).

Management Unit 11 is not at risk from tidal inundation.

##### 16.1.4 Land-Use, Human and Built Environment

The hinterland of Management Unit 11 is primarily characterised by British Gas and BP Easington and Dimlington Gas Terminals which cover some 70 hectares. These sites comprise treatment and processing facilities supplying up to 25% of Britain's gas supply.

The limited recreational activities in Management Unit 11 centre around beach fishing, nearby caravanning and passive beach use. The remaining land in the unit is in agricultural use. Fishing vessels work the nearshore waters.

##### 16.1.5 Natural Environment

The cliffs of the Management Unit are composed of glacial till underlain by chalk. The foreshore comprises sand with some shingle, overlying clay. There are no sites designated as being of nature conservation importance within the unit, although Dimlington Cliff, a geological SSSI, abuts Management Unit 11 to the north.

##### 16.1.6 Policies

The policies of the former Holderness Borough Council and Humberside County Council continue to apply to Management Unit 11. These will be replaced in due course by new

policies of the forthcoming development plans to be prepared by East Riding of Yorkshire Council. Management Unit II is also within the area covered by the policies of the Local Environment Agency Plan.

### 16.1.7 Issues

A particular issue of affecting the unit is the need to achieve a balance between the protection of the gas terminals and conservation of natural processes (and the habitats which depend on them). This issue has recently been debated fully during the Environmental Impact Assessment (EIA) for coast protection works to the Easington Gas Terminals. The outcome of the EIA was a recommendation for a scheme comprising a rock revetment some 1,000m in length. Further, the EIA recommended that a review of the scheme be undertaken in 25 years.

The consequences for Easington village, The Lagoons SSSI, and the Spurn peninsula of any increased erosion downdrift of the works was another major issue associated with these proposals. Potential updrift effects, including reduced rates of erosion affecting Dimlington Cliff SSSI, were also raised.

Concern has been expressed regarding the potential downdrift effects associated with any future gas pipeline stabilisation works.

### 16.1.8 Specific Objectives

Building on the objectives discussed in Section 4.4 of this document, the following unit-specific objectives are identified for Management Unit 11:-

- To provide protection against erosion to the Easington Gas Terminals in accordance with Planning Consent conditions
- To ensure that updrift and downdrift effects are minimised.

## 16.2 Results of Economic Appraisal

The economic costs and benefits of coastal defence works for the gas terminals were thoroughly assessed during the preparation of Engineers Reports for the proposed coast protection scheme. This analysis (1996) identified economic benefits associated with the protection of the terminals of approaching £30 million. For a scheme with a cost of the order of £4 -5 million, this produced a benefit cost ratio which clearly demonstrated the economic justification for carrying out coastal defence works to Management Unit 11.

The do nothing option cannot therefore be justified in economic terms as there is clear economic justification for adopting the hold the line option.

The economic analysis carried out demonstrated that there is insufficient economic benefit, in coast protection terms, to justify active intervention to advance the current line of defence. This assessment has been carried out based on the assumption that advancing the line would be achieved via the construction of an offshore breakwater.

The analysis carried out to establish the economic viability of adopting the retreat the line option has demonstrated that significant economic losses would be experienced if such a policy were to be adopted at the present time. The retreat the line option does not, therefore, represent an economically viable option.

The economic analysis carried out for the unit is shown in Appendix I.

### **16.3 Discussion of Policy Options**

The objectives are set out in full in Section 4.0 and the evaluation process is described in Section 5.0.

#### **16.3.1 Do Nothing**

Although the do nothing option would be compatible with the processes at work within the cell and with the preferred options for adjacent units, it does not meet the unit-specific objective of providing protection to the gas terminals. Under the do nothing option, the terminals would be threatened by erosion with significant economic and environmental effects. The consequences of adopting the do nothing option in Management Unit 11 would not, therefore, be acceptable in terms of the human and built environment. It is also questionable whether the option would be sustainable, in particular the loss of the terminals to erosion would cause pollution of the marine (and terrestrial) environment.

The do nothing option is therefore rejected.

#### **16.3.2 Retreat the Line**

Whilst there is some uncertainty as to the potential impacts of the retreat the line option on the natural processes operating, it is nonetheless likely that the consequences of this option would be similar to those of the do nothing option.

The retreat the line option is therefore rejected.

#### **16.3.3 Hold the Line**

The hold the line option would provide an adequate standard of protection to the gas terminals and it is an economically and technically viable option. It is not, however, compatible with the processes at work within the cell, in particular sediment transport, and it could potentially lead to increased rates of downdrift erosion. It could also cause reduced rates of erosion updrift and hence detrimentally affect the geological SSSI at Dimlington.

The scheme which is presently proposed to protect the terminals incorporates measures to keep any such impacts to a minimum. Even so, it is questionable whether the option is sustainable. A programme of monitoring has been agreed for the proposed scheme and the continued viability of the defences will be assessed in relation to the expected residual life of the terminals in the year 2020.

The hold the line option is therefore a potentially viable option in the short term. Coastal defence options will need to be re-considered in the year 2020.

#### 16.3.4 Advance the Line

Whilst the advance the line option would provide protection to the terminals, it conflicts with many of the other management objectives for the unit. It would not be compatible with the processes at work within the cell and hence it would not comply with the natural environment objectives. It is neither economically viable nor sustainable.

The advance the line option is therefore rejected.

#### 16.4 Preferred Option

**The preferred strategic coastal defence option for Management Unit 11 is to hold the line.**

**The presence of the gas terminals in Management Unit 11 and their importance on a national scale justifies a hold the line policy for Management Unit 11 at least in the short term. It is recognised that holding the line, as a long term option is not sustainable because the defences will increasingly affect the coastal processes operating. For this reason, the life of the proposed defences is finite and is subject to planning consent conditions. Despite their design, it is possible that the defences at Easington may eventually begin to reduce updrift erosion, contribute to increased rates of downlift erosion and interrupt longshore transport. Monitoring and periodic review of the preferred option is therefore recommended in order to assist in the determination of the medium to long term viability (i.e. 25 plus years) of the hold the line option.**

**The long term preferred option for Unit 11 will probably be to retreat (to the “natural” line of the coast at that time) followed by do nothing.**

**The preferred option detailed above has been approved by MAFF as a Strategy Plan for the unit.**

#### 16.4.1 Mitigation and Monitoring Requirements

As indicated above, monitoring is recommended to provide sufficient information to properly inform both ongoing reviews of this SMP and the previously agreed review after 25 years. In order to support and prepare for a potential future retreat/do nothing option, it may also be prudent to ensure that potential future coastal defence policy options are considered when applications for new development in this unit (including development associated with the terminals) are being assessed.

Further, if monitoring demonstrates a build up of sediment to the north of the work mitigation, for example, in the form of sediment by-passing might be required.

A beach management plan which includes recommendations for monitoring and mitigation was prepared and submitted to MAFF for approval (1997) as part of the preferred option to protect the gas terminals. This plan has subsequently been approved in 1998 and will be reviewed every 5 years. The Easington Monitoring Committee will review the results of monitoring and determine whether or not mitigation measures should be instigated.

See also Table 3.0, Monitoring Recommendations, Section 25.3.

**MANAGEMENT UNIT 11: EASINGTON GAS TERMINALS**

STRATEGIC OPTION	GENERAL MANAGEMENT OBJECTIVES							UNIT SPECIFIC OBJECTIVES					
	Common to all Management Units							Defined Below					
	Technically Realistic	Economically Viable	Environmentally Acceptable: Human & Built Environment (See Supporting Matrix Below)	Environmentally Acceptable: Natural Environment (See Supporting Matrix Below)	Compatibility with Processes at Work within Sediment Cell	Compatibility with Preferred Options for Adjacent Management Units	Overall Sustainability	Provide Protection to Gas Terminals	Minimise Updrift and Downdrift Effects	(Not Used)	(Not Used)	(Not Used)	(Not Used)
Do Nothing	✓	(4)	x	x	✓	✓	x✓	x	✓				
Retreat (1)	x	x	x✓	✓	?	✓	x	x	?				
Hold the Line	✓	✓	✓	x✓	x	✓	x	✓	x✓				
Advance (2)	✓	x	✓	x✓	x	✓	x	✓	x				

**Notes:**

- ✓ Yes - complies with management objective
- x No - conflicts with management objective
- x✓ Meets with the objectives in some respects but not in others
- ? Insufficient data to assess situation
- (1) Defined as: active intervention to retreat from existing coastline (i.e. other than by natural erosion)
- (2) Defined as: active intervention to advance from existing coastline (i.e. other than by natural accretion)
- (3) Other than tourism, recreation and agriculture
- (4) Least cost option (see Section 4.2.2)
- N/A Not applicable

**SUPPORTING MATRIX**

STRATEGIC OPTION	MANAGEMENT OBJECTIVES FOR THE STUDY COASTLINE													
	Land Use and the Human and Built Environment								Natural Environment					
	Coastal Defence	Agriculture	Fisheries	Tourism and Recreation	Archaeology	Military Use	Offshore Activity	Industry/Economic Activity (3)	Navigation	Biology	Geology	Natural Processes	Landscape	Water Quality
Do Nothing	x	x	✓	x	?	N/A	x	x	✓	x✓	N/A	✓	x	x
Retreat (1)	x✓	x	✓	✓	?	N/A	x	x	✓	x✓	N/A	x	✓	✓
Hold the Line	✓	✓	✓	✓	?	N/A	✓	✓	✓	x✓	N/A	x	x✓	✓
Advance (2)	✓	✓	x	x✓	?	N/A	✓	✓	x	x✓	N/A	x	x✓	✓

**N.B. Reference should be made to Section 5.0 which explains in detail the procedure used for completing the matrices**