

**MONITORING AND MANAGEMENT OF CONTINUOUS NOISE**

**SEIC Response to Recommendation WGWAP 2/016:**

**Rationale for SEIC not Adopting the WGWAP Noise Criteria for the**

**PA-B Topsides Installation**

**Submitted by SEIC**

**BACKGROUND**

At the 2<sup>nd</sup> meeting of the WGWAP, held in St Petersburg between 15-18 April 2007, the Panel presented its final advice, to SEIC, concerning exposure criteria for continuous noise (WGWAP 2/INF.15). The intention was that these criteria should be discussed in detail at the meeting but due to time constraints this was not feasible.

In response to the proposed exposure criteria submitted by the Panel, SEIC argued that it was not technically feasible to implement the proposed criteria since planning for the 2007 construction season had been undertaken based on the previous (2006) proposed criteria for continuous noise. SEIC further advised that it would provide the Panel with a detailed response to the proposed criteria prior to the 2007 construction season. In the event, this response was not forthcoming until the construction season was underway (received from SEIC 24<sup>th</sup> August 2007).

SEIC's response is attached a contribution to the discussion on this issue.

## **SEIC RESPONSE TO RECOMMENDATION GWGAP 2/016**

### **RATIONALE FOR SEIC NOT ADOPTING THE GWGAP NOISE CRITERIA FOR PA-B TOPSIDES INSTALLATION 24AUGUST 2007**

#### **Background**

The criteria that determine whether action to stop construction needs to be taken (the “noise Action Criteria”) have been a subject of discussion with the GWGAP since 2005. Various sets of criteria have been developed and adopted over time. These are shown in Table 1.

<b>No</b>	<b>Meeting</b>	<b>Name</b>	<b>Date</b>
1	ISRP	No definitive criteria	Feb 2005
2	Gland ISRP	Vedenev Criteria	May 2005
3	IISG Vancouver II	Modified Vedenev Criteria	April 2006
4	GWGAP 2 (St Petersburg)	Dose Based Criteria	April 2007

SEIC first introduced the idea of using noise action criteria as a mitigation measure in the Comparative Environmental Analysis of the Piltun Pipeline Route Options, developed in 2004. The subsequent ISRP report (February 2005) mentioned the need for further definition.

Noise mitigation criteria were discussed for the first time during a meeting between SEIC and the ISRP convened by the IUCN in Gland (May 2005). During that meeting it was decided that Alexander Vedenev, the acoustics scientific representative on the ISRP panel, would recommend a set of noise action criteria before the start of the PA-B CGBS installation.

Through subsequent correspondence the draft criteria were presented to SEIC in June 2005 and were accepted with some adaptations, mainly relating to exposure time intervals, aimed at enabling their practical implementation in the field. Results from the 2005 field season, the rationale for the ISRP criteria and SEIC’s amendments were discussed at the Vancouver I (IISG) forum in September 2005. Based on the discussions during this meeting, SEIC decided to adopt without alterations the “Vedenev Criteria” for use in the 2006 offshore pipeline construction. During the 2005 and subsequent construction seasons SEIC has complied with the Vedenev criteria.

At the IISG Vancouver II forum in April 2006 SEIC presented its revised approach, which was now in line with the Vedenev Criteria. In the IISG report of the meeting, SEIC’s recommendations were accepted but an additional criterion calling for corrective action if noise levels of 120 dB were measured at the edge of the feeding area for a period of four continuous hours was introduced. These are the “Modified Vedenev Criteria”. SEIC did not consider it reasonable to adopt this additional criterion, as it would likely result in extending the installation of the offshore pipelines into two seasons, without significantly reducing impact on the whales.

The discussions about noise action criteria continued at the GWGAP-1 forum in November 2006, where the Panel clarified its interpretation of the individual exposure time criteria at various levels as being in fact a dose based continuum. SEIC acknowledged the dose based criteria but expressed doubts about their applicability, and debate with the GWGAP on the matter continued. At an interim meeting in February 2007 the GWGAP agreed that they would present a final position at GWGAP-2 in April 2007. This document was presented and included the “Dose Based Criteria”, essentially restating the dose based approach with some additional detail about the integration window, but no time was allowed at the April meeting to continue the debate or to allow SEIC to explain the impact of adopting the more conservative criteria.

## Discussion

There are two main practical reasons why SEIC maintain that it was not reasonably practicable to implement the April 2007 WGWAP noise action criteria, these being

- a) The time required for planning and implementation of the criteria was too short and
- b) The effective limitation to proceed with further construction activity

### *Time element for implementation*

In April 2007, when the WGWAP tabled the more conservative criteria, the design and detailed planning for the installation of the PA-B topsides was substantially complete with vessels already on charter. All practical noise mitigation measures had already been built into the planning of the construction activities. This process resulted in the minimum possible presence of vessels directly attending to the topsides installation, namely a leading and trailing tug and the topsides barge itself. All other vessels were positioned to the east of the PA-B location to reduce their contribution to the noise footprint in the feeding area. No further reduction of the noise footprint would have been readily possible without compromising the success and safety of the topsides installation.

It is important to note that the key mitigation measure that the Company agreed to adopt, following another of the Panels recommendations, was to install the topsides as early in the season as possible, prior to the major migration of whales into the feeding area. The target was to have the topsides in place before mid July. The extensive preparation and planning undertaken by SEIC resulted in a successful installation of the topsides earlier than planned on 5 July 2007. In order to be able to meet the Dose Based Criteria it would be necessary to develop an entirely new approach to the installation, which was not possible in the time available, if at all. Any attempt to re-engineer the installation method would likely have pushed the activity well into the peak whale feeding period with the potential to impact more animals.

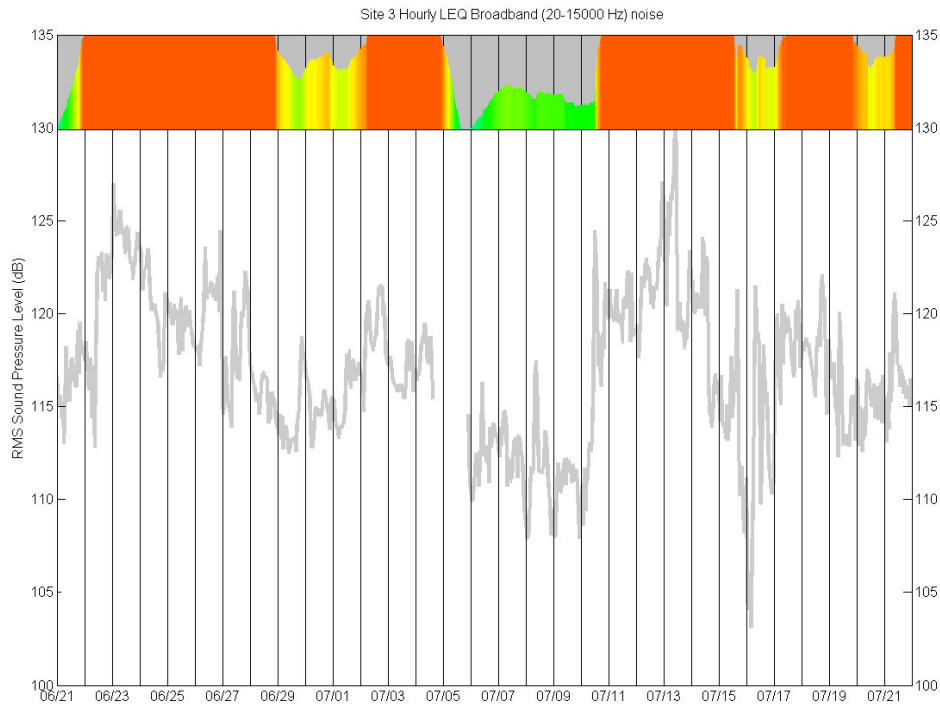
At the time SEIC had to decide on how to proceed with the 2007 program the method for implementation of the dose based criteria as a real time mechanism for taking action in the field had not been developed. SEIC specialists considered that this was not possible in the time available.

### *Limitation to proceed with further construction*

Prior to deciding on how to proceed with the 2007 construction activity, in April 2007 SEIC tested the likely impact of adopting the Dose Based Criteria proposed by the WGWAP by applying them to the sound levels generated during the LUN-A topsides, which was installed in 2006. This showed that implementation of these noise criteria would not allow the SEIC to continue with the construction (Figure 1). In this diagram, all construction that would be carried out in the red shaded areas would not be possible.

SEIC's adopted noise mitigation criteria were carefully designed to limit the estimated impact to a maximum of 5 whales potentially showing avoidance behaviour due to exposure to 120dB or more. The acoustic footprints of various scenarios were predicted using an advanced sound propagation model and the actual noise measurements from the similar 2006 LUN-A topsides installation, which was effectively used as a test run. The number of whales potentially present in the acoustic footprint of 120 dB or more was calculated using whale density maps conservatively based on all whale distribution data collected in the Piltun area from 2002 to 2006.

**Figure 1 LunA noise using dose based approach**



Following on the PA-B topsides installation, SEIC conducted an initial analysis with the real time radio transmitted data to assess how the actual noise measurements compare with the Dose Based Criteria. The acoustic buoy closest to the PA-B location transmitted noise levels in excess of the Dose Based Criteria for a significant time period (i.e. approximately 26 hours). However, the buoys just north and south transmitted noise levels that did not exceed the WGWAP criteria. This confirms that the noise footprint was indeed minimised and limited to a small area of the feeding ground. More thorough analysis of the recorded acoustic data will be conducted after the construction season.

**Conclusion:**

From the above discussion SEIC maintains that, irrespective of the validity or otherwise of the criteria recommended at WGWAP-2, their implementation was simply not feasible in the time available between that meeting and the installation of the PA-B topsides. However, SEIC minimised any potential impact on the Western Gray Whales by conducting the work as early in the season as possible and by reducing the noise levels on the feeding ground through the implementation of an extensive noise mitigation approach during the design and planning phase of the construction. The noise action criteria adopted were those made by Vedenev in 2005 and these were not exceeded.

There is agreement between the Panel and the Company that the debate should continue at WGWAP-3 and that a full analysis of the PA-B topsides installation should be carried out to provide data to inform this debate and to identify if there are any identifiable impacts on the whales. The future work on noise criteria may well follow the task force approach successfully used in developing the criteria to be used during the 4D seismic survey in 2008