Statement of Principles

Weather Downtime

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This document includes the Statement of Principles, a description of the issues (with examples) and contractual language.

Key Words:

- **Client**
- **Contract**
- **Contractor**
- **Exploration Risk**
- **Seismic Operations**
- **Standby Rate**

Terms that are in bold type are defined in the Glossary of Terms which forms part of this family of Statements of Principles.

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Statement of Principles

1 Seismic **Contractors** should be responsible for meeting all **Contract** technical and HSE specifications reasonably within their operational control. However, certain circumstances beyond the **Contractor's** reasonable control, including adverse weather conditions, which inhibit the **Contractor's** ability to acquire data to technical specifications or in a manner that is safe and to HSE specifications, should be considered an **Exploration Risk** under the **Contract** and compensated accordingly.

2 Weather downtime should be defined as those periods during the course of **Seismic Operations** (including during mobilization and demobilization) where the influence of weather conditions, including atmospheric electrical conditions, results in a halt to any **Seismic Operation**s due to impact on data quality and/or operational safety, such circumstances being beyond the **Contractor's** reasonable control.

3 Prior to the start of data acquisition (i.e. crew mobilization, drilling, surveying, initial spread deployment, etc.), as well as after the completion of data acquisition (i.e. demobilization, retrieval of spread etc.), weather downtime should start from the time when conditions cause an interruption of essential activities and should continue until those activities can be effectively resumed, and should include all time required to repair damage caused to the spread or delay to repair of trailing equipment as a result of weather downtime.

4 After the start of data acquisition, weather downtime should start at the last accepted shot-point and continue until the next accepted shot-point, inclusive of the time required to repair damage caused to the spread or delay to repair of trailing equipment as a result of weather downtime.

5 Weather downtime should be charged to the **Client** at the operational **Standby Rate** negotiated in the commercial **Contract**.

Commercial Context

- During the last twenty-five years or so, 3D seismic has become an essential component in the exploration, development, and production of hydrocarbon reservoirs. In an effort to increase operational efficiencies, and thus reduce unit costs for 3D seismic data, the seismic **Contracting** industry has dramatically increased the number of receivers and recording channels deployed at any one time. The number and length of the hydrophone arrays (streamers) towed behind the survey vessel has been steadily growing.

- As the number of streamers increased so too did the complexity of the in-water positioning systems and sensors required to determine the position of each hydrophone group in the spread.

- Currently, typical seismic acquisition spreads incorporate six to sixteen streamers with lengths ranging from 4,000 to 10,000 meters. In some cases up to twenty-four streamers have been deployed and some surveys have required streamer lengths in excess of 10,000 meters.

- As can be easily imagined the success in being able to tow all this equipment in the proper geometric relationship is heavily influenced by local weather conditions. Winds, waves, currents, and tides all produce dynamic forces that interact (and in most cases counteract) with the desired motion of the seismic spread. Sea state also impacts the acoustic performance of the seismic sources and receivers - as sea state increase the signal-to-noise ratio of the seismic data decreases. Additionally, atmospheric electrical conditions (i.e., lightning, ionospheric scintillation, etc) can cause significant degradation in navigation and positioning systems.

- During any given **Seismic Operations**, weather conditions will at some point act to degrade the quality of seismic and/or positioning data to a degree that makes the data unacceptable relative to the **Contract** specifications. In such case, the field unit (consisting of **Contractor's** equipment and personnel) will "go down for weather". The practical meaning of the term is that all data acquisition efforts are held in standby until weather conditions abate to the point that seismic and/or positioning data can be acquired within **Contract** specifications.

- Weather conditions also have a significant impact on the safety of the crew and the deployed equipment. In some instances it is paramount from a safety perspective to retrieve the equipment in anticipation of an extended period of "bad" weather. With modern day seismic spreads, the time required to retrieve and re-deploy the equipment could be significant, including multiple days of efforts.

- Similarly, seismic data acquisition on land can also be negatively impacted by adverse weather conditions. For example, in desert areas sand storms can shut down operations for many consecutive days, in mountain regions high winds and/or poor visibility can stop helicopter flights, and in tropical areas intense rains can prevent the laying of receiver lines.

- The safety aspects of equipment deployment, retrieval, and maintenance are also significantly impacted by local weather conditions.

- Each commercial **Contract** between a data acquisition **Contractor** and a **Client** for seismic data services includes a set of technical and Health, Safety, and Environment (HSE) specifications that define the expected standards for data quality and survey operations. In most instances data acquired outside of the technical specifications will be rejected. In all instances operations will be halted when weather conditions act to increase the risk to safety of crew and equipment.

- Many of these same data quality and safety concerns are applicable to 2D surveys as well 3D surveys.

- The issue to be dealt with in this statement regards the financial impact and consequent payment of field unit costs when weather conditions prevent the acquisition of data in compliance with the **Contract** technical and HSE specifications.

Recent Examples

Seismic Operations Offshore Netherlands 2002

Vessel mobilization was delayed by extreme bad weather, during which streamers were accidentally damaged. Even though all **Standby Rate** terms applied during mobilization, the **Client** asserted that chargeable standby following the streamer damage incident was limited to the six hours per streamer allowed under the **Standby Rate** terms for repairs to damaged equipment. The **Client** refused to accept liability for any weather time whilst the equipment was being repaired.

Land Operations Offshore Morocco 2001

Onshore acquisition efforts are just as susceptible to weather induced delays as are marine surveys. For example a land operation in Morocco in 2001 was stopped due to extreme and exceptional bad weather conditions that were out of the range of historical meteorological statistics for that area. The **Client** had refused to accept a weather **Standby Rate** or a limitation of **Contractor's** liability within the **Contract**. The result was a substantial financial loss for the **Contractor** and a suspension of the **Contract**. Therefore within any seismic survey, 2D and 3D, there is a high degree of financial risk related to the uncertainty in the impact of weather conditions during the course of operations.

Contractual Language

1. Definition of Weather Downtime

Weather Downtime shall mean any time period during which the Services/ Work cannot be performed in accordance with the technical and HSE specifications of the **Contract** due to adverse weather conditions (howsoever arising), such circumstances being beyond **Contractor's** reasonable control.

2. Applicable Rates during Weather Downtime

During any period of Weather Downtime, the **Contractor** shall be compensated at the **Standby Rate** set out in Exhibit xxx of the **Contract**.