

# **DRAFT**

## **SERVICE CONTRACT**

The Geological Survey of Denmark and Greenland, Øster Voldgade 10, DK-1350 Copenhagen K, Denmark, hereinafter called "GEUS"

and

CONTRACTOR

(address)

have entered into the following

### **SERVICE CONTRACT**

CONTRACTOR undertakes to provide GEUS with Processing Services in accordance with the attached documents:

- General Conditions for Processing Services.
- Specifications of Processing Services.
- Pay Rates and Basis for Pay Rates.

For GEUS:

Signed:

Name:

Date:

For CONTRACTOR:

Signed:

Name:

Date:



# **General Conditions for Processing Services**

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## **1. Basis for Agreements**

### *1.1 The Contract*

1.1.1 By the word "Contract" is meant the Signature of Agreement Page, these General Conditions for Processing Services, Specifications of Processing Service, Pay Rates and Basis for Pay Rates and the appendices, attachments and agendas referred to herein or later agreed, all of which by this reference are incorporated.

By the word "Service(s)" is meant all services to be performed under this Contract.

1.1.2 None of the parties may transfer rights and obligations under this Contract without the other party's written acceptance.

## **2. Scope of Service**

### *2.1 Scope of Service*

The Scope of Service is described in the Specifications.

### *2.2 Performance*

2.2.1 CONTRACTOR shall perform the Service in a professional and skilful manner and in accordance with the Contract and good oil industry practice, and in accordance with such procedures and instructions that may from time to time be issued by GEUS or GEUS's representative.

2.2.2 CONTRACTOR shall obtain and maintain at its own cost, all authorisations and permits as may be necessary for the performance of the Service.

2.2.3 CONTRACTOR shall comply with all applicable laws and regulations of all governmental and other authorities having jurisdiction.

2.2.4 CONTRACTOR shall provide all necessary materials and equipment, personnel, including the supervision thereof of sufficient skill and quantity for the performance of the Service.

2.2.5 CONTRACTOR shall diligently search for faults or defects in any data, specification or item furnished by GEUS and promptly notify GEUS's representative in writing of any such fault or defect.

2.2.6 Key personnel or any other person assigned by CONTRACTOR for the performance of the Service and approved by GEUS shall not be removed by CONTRACTOR without the prior written approval of GEUS. Such approval shall not be unreasonably withheld.

2.2.7 CONTRACTOR may not subcontract without GEUS's written approval.

### *2.3 Guarantee*

- 2.3.1 CONTRACTOR shall guarantee against all defects and deficiencies in delivered materials, work and services performed, for a period of 12 months after handing over of the Service.
- 2.3.2 During the guarantee period, CONTRACTOR shall on its own account remedy all defects and deficiencies.

### *2.4 Representation and Co-operation*

- 2.4.1 CONTRACTOR and GEUS shall each appoint a representative, who shall have full authority to resolve all day to day matters which may arise between the parties and any agreements on such matters shall be binding on CONTRACTOR and GEUS as if they were agreed by CONTRACTOR and GEUS themselves.
- 2.4.2 GEUS's representative shall have the right to:
- a) monitor and review at any time the performance of the Service, and direct and instruct CONTRACTOR's representative upon all matters concerning the Service,
  - b) obtain information about CONTRACTOR's processing methods,
  - c) test and examine any methods, schedules, calculations, materials, equipment or workmanship used or to be used in connection with the performance of the Service,
  - d) reject any part of the Service which does not conform to the Contract.

Neither failure of GEUS to inspect nor failure to discover or reject any portion of faulty Service shall be deemed to imply acceptance thereof or in any way relieve CONTRACTOR from its responsibilities according to this Contract.

### *2.5 Variation of Service*

- 2.5.1 GEUS shall be entitled to demand variations within the scope and nature of the Contract and to make special requirements concerning the execution and work of the Contract. Such requirements for variations shall be agreed on in writing between GEUS and CONTRACTOR as soon as possible.
- 2.5.2 Negotiations concerning any such variations shall not entail any delay in the conduct or performance of the Services under this contract or performance of the Services under this Contract or of such requested variations of Services.
- All variations or extra Service shall be ruled by the terms of the Contract.
- 2.5.3 Agreements with GEUS as to performance for variations and extra Services shall be completed on agreement sheets, which are valid only when dated and signed by CONTRACTOR and GEUS.



### **3. Term**

#### *3.1 Term*

CONTRACTOR shall commence performance of the Service according to the Specifications clause 2.4.

3.1.1 The Service (and any part hereof) shall be completed in an expeditious manner to fulfil the Service within the deadline specified in the Specifications clause 2.5.

3.1.2 Should the mode, manner and/or speed of performance be such as to give GEUS's representative reason to believe that the Service will not be completed within the deadline, GEUS's representative shall notify CONTRACTOR, and thereupon CONTRACTOR shall work such additional overtime and/or take such other measures as may be necessary in order to complete the Service within the said deadline.

3.1.3 If, at any time during the course of its performance of the Service, CONTRACTOR should for any reason believe that the Service (or any part hereof) cannot be completed within the deadline specified in the time schedule, CONTRACTOR shall promptly, but in any event not later than 5 days of the date it first has cause to believe that the performance of the Service may be delayed, notify GEUS's representative in writing of such possible delay, and indicate:

- a) the amount of delay CONTRACTOR believes will or could be incurred and other particulars relating thereto, and
- b) any remedial action CONTRACTOR considers appropriate to avoid such schedule delays.

CONTRACTOR shall bear any additional costs hereunder resulting from all measures undertaken by CONTRACTOR according to this clause.

#### *3.2 Completion of Services*

3.2.1 CONTRACTOR shall advise GEUS in writing when the Service is completed. Provided the Service has been completed satisfactorily for GEUS in accordance with the terms and conditions of the Contract, GEUS shall give CONTRACTOR an Acceptance Certificate, or else GEUS shall inform CONTRACTOR in writing of GEUS's reasons for not accepting the Service.

3.2.2 Until GEUS has accepted the Service in the manner aforementioned, the Service shall not be considered accepted either in whole or in part. Neither partial payments made during the performance of the Service, nor the presence of GEUS's representative during the course of the Service, shall constitute acceptance of the Service of or any part or the Service.

## **4. Payment**

### *4.1 Compensation, Invoices, and Payment*

4.1.1 GEUS shall pay CONTRACTOR as full compensation for the Service performed hereunder in accordance with the fees, rates and reimbursements set forth in Pay Rates and Basis for Pay Rates.

CONTRACTOR shall be entitled to submit to GEUS invoices claiming the amounts payable by GEUS in respect of the Service carried out in accordance with Pay Rates and Basis for Pay Rates Clause 9.

Included with said invoices shall be vouchers and documents necessary to substantiate the expenditures listed in CONTRACTOR's invoices, such as personnel time and activity reports, copies of vendors' invoices for any equipment and materials provided, etc.

4.1.2 GEUS shall pay all of CONTRACTOR's properly documented invoices within thirty (30) days after receipt of said invoices.

GEUS shall be entitled to withhold payment of legitimately disputed portions of invoices pending resolution of the dispute.

Said payments by GEUS shall not preclude the right of GEUS to dispute thereafter any of the items invoiced.

Any undisputed amount due to CONTRACTOR which is not paid within the above period shall bear interest of 5 percent above the applicable discount rate (diskonto) set by the Central Bank of Denmark.

For delayed payment the interest will be calculated from the due date.

Where GEUS may have amounts outstanding, these yield interest according to the same conditions.

4.1.3 The final invoice shall cover at least 10% of the total value of the Services done under this Agreement and shall be submitted following the completion of the Services to be performed by CONTRACTOR. The final invoice will be paid within 30 days of receipt if the Services performed by CONTRACTOR are within time limits specified in the Specifications and are accepted by GEUS. The invoice shall be clearly marked "Final Invoice". Provisions of this paragraph are an exception to provisions specified in Clause 4.1.2.

4.1.4 All invoices related to the Services specified in this agreement are to be submitted to GEUS within 3 months following the completion of the Services.



4.1.5 GEUS shall not have to make payments other than those mentioned in Clause 4.1.

#### *4.2 Records and Audit*

Representatives and auditors of GEUS shall have access at all times during normal working hours for a period of two (2) years from completion of the Services to the following records for audit purposes: all time sheets and other records relating to reimbursable items, all original invoices from suppliers and subcontractors together with supporting documentation to verify reimbursable quantities and reimbursable man-hours performed; all books of accounts in which such reimbursable items are contained.

However, such records containing data other than directly and exclusively pertaining to the Service hereunder are open for inspection only to a chartered accountant of GEUS's choice.

If mistakes are demonstrated, appropriate adjustment with regard to payments shall be made.

#### *4.3 Taxes, Duties and Fees*

4.3.1 CONTRACTOR shall be responsible for reporting and paying of all taxes, duties (hereunder customs duties), fees and other governmental charges incurred in connection with its Service. CONTRACTOR shall promptly settle all such taxes, duties, fees and charges and all interest, penalties and costs assessed in connection therewith, and will indemnify and hold GEUS harmless against same.

4.3.2 CONTRACTOR shall provide to the appropriate governmental or taxing/customs authority and GEUS all information necessary to satisfy any obligations CONTRACTOR or GEUS has to report to the said authority in connection with this Contract.

### **5. Liability and Indemnification**

#### *5.1 Personal Injury and Property Damage of CONTRACTOR*

CONTRACTOR hereby waives any claim it may now or hereafter have against, and indemnifies and holds harmless, GEUS and any other contractor of GEUS in respect of all losses, expenses and claims of whatsoever nature and howsoever caused, even if caused in whole or in part by GEUS or its subcontractors or the employees of either, arising in connection with the performance of this Contract due to

- a) personal injury or death of employees of CONTRACTOR or its subcontractors,
- b) physical loss or damage to property owned, leased or hired by CONTRACTOR or its subcontractors or the employees of either,

c) physical loss or damage to property owned by third parties in CONTRACTOR's possession (including but not limited to tapes and documents)

except to the extent attributable to the Wilful Misconduct of GEUS or any other contractor of GEUS or any of its employees.

### *5.2 Personal Injury and Property Damage of GEUS*

Subject to Clause 5.3 GEUS hereby waives any claim it may now or hereafter have against, and indemnifies and holds harmless CONTRACTOR and its subcontractors in respect of all losses, expenses and claims of whatsoever nature and howsoever caused, even if caused in whole or in part by CONTRACTOR or its subcontractors or the employees of either, arising in connection with the performance of this Contract due to

a) personal injury or death of employees of GEUS or any other contractor of GEUS,

b) physical loss or damage to property owned, leased or hired by GEUS or its employees

except to the extent attributable to the Wilful Misconduct of CONTRACTOR or its subcontractors or the employees of either.

### *5.3 Tapes*

5.3.1 All tapes related to the Service under this Contract (hereinafter referred to as GEUS tapes) will be deemed to be in CONTRACTOR's possession when they are in CONTRACTOR's processing centre and until they have been delivered to GEUS according to Clause 5.3.3 below.

5.3.2 In the event of any damage to or loss of GEUS tapes or the information thereon while they are in the possession of CONTRACTOR the following shall apply:

a) If such damage or loss occurs prior to the production of a secondary tape, then CONTRACTOR will cover all expenses for GEUS to acquire new field tapes with the same standard.

b) If such damage or loss occurs after the production of a secondary tape containing all the original information, then CONTRACTOR and GEUS shall meet to discuss an equitable solution.

c) Any reprocessing and other reprocessing related cost e.g. shipping that are necessary due to damage of GEUS tapes shall be at CONTRACTOR's expense.

5.3.3 GEUS tapes will be deemed to have been properly delivered to GEUS if received by GEUS or a third party appointed by GEUS at an address according to GEUS's instructions or otherwise at GEUS's address set out in this Contract.

5.3.4 CONTRACTOR shall take out and maintain insurance covering the liability for tapes, which can be imposed on it in accordance with Clause 5.3.2.

- 5.3.5 CONTRACTOR has a maximum insurance limit for the reinstatement of such data either by the Contractor or the Company of (amount). This sum is for all Data in the contractor's possession at any one time, and therefore the Contractor can only be held liable for the pro-rata costs of any specific data set.
- 5.3.6 CONTRACTOR shall be responsible for all data (including, without limitation, original field tapes) from its receipt by the Contractor to its re-delivery at the Company's office or at any other location designated in writing by the Company with a single delivery insurance limit of (amount) whilst tapes are in transit.

#### *5.4 Consequential Loss*

In connection with personal injury or death and physical loss or physical damage neither CONTRACTOR nor GEUS shall be liable for consequential damages (such as, but not limited to, loss of profits, production or use) arising out of the performance of Service hereunder.

## **6. Termination**

### *6.1 Cancellation*

Without prejudice to GEUS's other rights under the Contract GEUS at its sole discretion may by giving not less than 14 days written notice to CONTRACTOR cancel and terminate the performance of the Service under this Contract either in whole or in part at any time and for any reason.

Upon such optional termination, CONTRACTOR shall be entitled to receive and/or retain the portion of the Contract price which is reasonable and proportional to the Service s performed by CONTRACTOR prior to termination, including such direct costs and expenses as CONTRACTOR shall unavoidably incur.

CONTRACTOR shall execute and deliver such documents and shall take all such actions as may be required in order to vest in GEUS all title, rights and other benefits held by CONTRACTOR in connection with the performance of the Service.

### *6.2 CONTRACTOR's Breach of Contract*

- 6.2.1 If CONTRACTOR fails to conduct the Service in accordance with the Contract, GEUS is entitled to terminate the Contract immediately without any prejudice whatsoever to its rights, if CONTRACTOR has not remedied the matter within five (5) working days from receipt of written notice to that effect. CONTRACTOR shall consult with GEUS's representative as to the remedial action.
- 6.2.2 If GEUS is entitled to terminate the Contract in accordance with Clause 6.2.1:

- a) GEUS shall have the right to complete the Service with the assistance of third parties. In such case CONTRACTOR shall pay to GEUS the amount of all costs incurred by GEUS in completion or causing the completion of the Service in excess of the costs that would have been incurred by GEUS if CONTRACTOR had completed the Service up to a maximum of 25% of the contract value;
- b) CONTRACTOR shall execute and deliver to GEUS such documents and shall take all such actions as may be required in order to vest in GEUS all title rights and other benefits held by CONTRACTOR in connection with the performance of the Service;
- c) GEUS shall be entitled to claim damages according to the law.

6.2.3 The rights pursuant to the terms of Clause 6.2.1 and 6.2.2 hereof shall be without prejudice to any other remedies available to GEUS by virtue of law or this Contract.

### *6.3 Force Majeure*

A party shall not be considered to be in default in the performance of its obligations to the extent that it proves that such performance has been prevented by Force Majeure, which means circumstances beyond the reasonable control of such party and which could not have been foreseen and/or reasonably overcome by the party such as but not be limited to acts of God, action of the elements, war and strikes.

Neither lack of funds nor any legal strike which is exclusively directed against CONTRACTOR shall be considered circumstances of Force Majeure.

A party claiming Force Majeure shall promptly give written notice to that effect to the other party stating the particulars of such Force Majeure. The performance of any obligation to the extent prevented by Force Majeure inclusive of the corresponding performance or payment from the other party shall be suspended while Force Majeure is operative, but shall be resumed as soon as possible after the termination thereof.

Should any act of Force Majeure cause a suspension for a period of ten (10) or more consecutive days, GEUS shall be entitled to terminate this Contract.

### *6.4 CONTRACTOR's Bankruptcy*

If CONTRACTOR becomes insolvent or suspends its payments or a petition is made by or against CONTRACTOR or CONTRACTOR applies for or consents to or suffers the appointment of a liquidator, GEUS shall be entitled to terminate the Contract without any warning by written notice to CONTRACTOR or CONTRACTOR's estate or liquidator, and Clause 6.2.2 and 6.2.3 shall apply in case of such termination.

## **7. Ownership and Confidentiality**

### *7.1 Ownership of Data, Drawings, Plans and Specifications*

7.1.1 All rights, including but not limited to copyrights, patent and other intellectual property rights in all data, information, drawings, maps, plans, specifications and other material furnished by GEUS or compiled or produced by CONTRACTOR as a part of the Service shall be the sole property of GEUS and all copies thereof, whether made by GEUS or not, shall be the property of GEUS.

Such documents may only be used by CONTRACTOR for the purpose of the Services.

All such documents and all copies thereof, shall be returned to GEUS upon completion or termination of the Contract.

### *7.2 Patent Rights*

7.2.1 CONTRACTOR shall indemnify and hold GEUS harmless from all claims of infringement of copyright, patent or any other intellectual property right arising out of the Service conducted by or for CONTRACTOR hereunder and in respect to any implements, appliances, process, equipment or material used by or for CONTRACTOR hereunder, and shall reimburse GEUS fully for any royalties, damages or other payments that GEUS shall be obliged to pay in this respect, provided that GEUS promptly notifies CONTRACTOR in writing of such claims of intellectual right infringement.

### *7.3 Confidentiality*

All information including all documents, data, drawings and specifications obtained or produced by CONTRACTOR in connection with the Service shall be held in confidence by CONTRACTOR, its subcontractors and their personnel during and after the Contract period.

### *7.4 Publicity*

7.4.1 All contact with the press and media shall be made through GEUS and neither CONTRACTOR nor its subcontractors nor their personnel may make any statement to the public concerning the Services.

7.4.2 CONTRACTOR shall not publish or permit to be published any information about or photographs of the Services or the business of GEUS generally without GEUS's written consent. Such consent shall only apply to each specific application and relate only to the application. The accuracy of an information released which was not supplied directly by GEUS shall be the absolute responsibility of CONTRACTOR.

## **8. Governing law and venue**

The contract shall be governed by and interpreted in accordance with the laws of Denmark. All disputes arising out of or in connection with the agreement shall be amicably settled if possible. The ordinary courts of the Kingdom of Denmark shall finally settle all legal disputes, which cannot be amicably settled between the Parties. The parties agree on the Maritime and Commercial Court of Copenhagen considering the fact that the court is composed of professional judges and lay assessors, maritime and commercial experts.

# **Specifications of Processing Services**

## **1. General**

1.1 *Seismic Data*

1.2 *Navigation Data*

1.3 *Representatives*

## **2. Processing**

2.1 *Basic Processing Sequence*

2.2 *Optional Processing Routines*

2.3 *Testing*

2.4 *Commencement of Processing*

2.5 *Deadlines for Completion of Processing.*

2.6 *Products to be delivered.*

## **3. Reporting**

3.1 *Weekly Report*

3.2 *Monthly Report*

3.3 *Final Report*

## **1. General**

The data to be processed under this Contract has been acquired during (date) the Faroe Islands and offshore South Greenland and consists of approximately xx km of data. CONTRACTOR undertakes to perform the tests and processing of such data at the agreed processing sequence, to supply reporting to GEUS and to deliver the final products to GEUS's address and to the Faroese Government all as detailed described in the Contract and to such rates as are referred to herein.

The processing will be carried out in CONTRACTOR's processing centre in (address).

### *1.1 Seismic Data*

The data acquisition parameters are as follows:

Source Type :

Shot point Interval: 25 m

Group Interval: 12.5 m

Cable Length: 4500 m or 6000 m

No. of Groups:

Record Length: 8/10 sec

Sample Rate: 2 msec

Field data format: SEG D on IBM 3590 cartridges

Recording equipment:

### *1.2 Navigation Data*

Navigation data will be supplied in the form of UKOOA format tapes. Navigation data for previous surveys for intersection information will be supplied as tie point information (shot point numbers and co-ordinates).

### *1.3 Representatives*

GEUS representatives will be: NN and NN

CONTRACTOR representative will be: NN



## **2 Processing**

### *2.1 Basic processing sequence*

The following sequence is to be considered the required flow. However, GEUS reserves the right to alter the sequence as necessary to provide improvement in data quality.

1. Demultiplex if needed, merge and reformat of seismic and positioning data
2. Editing and polarity reversal of bad (portions of) records and traces
3. Designature and phase matching
4. Corrections for spherical divergence and inelastic attenuation
5. Produce geometry QC displays: as Near trace plots
6. Low cut filter (as required)
7. Trace decimation with spatial anti-alias filter (if required)
8. Optional noise attenuation (FK or FX filtering with removable AGC)
9. Deconvolution, possibly surface consistent
10. Preliminary velocity analysis: 1 km interval (20 CDPs, 12 velocity functions), velocities to be horizon consistent, iso-velocity plots produced
11. Preliminary NMO correction with mute
12. Display of brute stacks
13. Multiple attenuation (FK or wave equation demultiple in CDP domain) (as required)
14. Time variant scaling
15. DMO gathers and QC stack
16. Final velocity analysis (post-DMO) and QC stack 500 m interval (20 CDPs, 12 velocity functions), velocities to be horizon consistent, iso-velocity plots produced
17. DMO (t-x domain Kirchhoff or F-K domain log stretch)
18. Final NMO correction
19. Pre-stack mute (inner and outer trace muting)
20. Time variant scaling
21. Final stack (mean, alpha trimmed mean or median stack)
22. Deconvolution, single or multiple operator.
23. Optional F-X deconvolution (Random Noise Attenuation)
24. Filtering and scaling (as required)
25. Kirchhoff migration
26. Optional application of wavelet filter to produce a zero-phase section (wavelet shall either be supplied by GEUS or Contractor)
27. Spectral whitening
28. Time variant filtering and scaling
29. Produce final tapes on IBM 3590 cartridges from raw stack, raw and final filtered migration data in SEG-Y format, stacking and migration velocities in ESSO V2 format

### *Alternative Algorithms*

Contractor agrees to test alternative migration algorithms:

### *Variations to Basic Processing Sequence*

GEUS may require the following changes, which will affect basic and optional processes:

- i) Record length decrease or increase, per second
- ii) Pre-stack processing at decreased or increased sampling intervals
- iii) Post-stack processing at decreased or increased sampling intervals

### *2.2 Optional Processing Routines*

The optional processing routines mentioned in Pay Rates and Basis for Pay Rates shall be performed at the request of GEUS.

### *2.3 Testing*

Contractor shall select and GEUS shall agree to test parameters using segments of at least one seismic line in each area. The testing includes all sensible and relevant tests necessary to perform the processing to a standard acceptable to GEUS, both the basic processing sequence and any chosen optional processes, including but not be limited to tests on:

*Initial testing, as soon as possible after receipt of data for the first line*

1. Select 5 shots for each of the areas, representing the range of signal to noise ratios and specific noise problems
2. Amplitude recovery tests on selected shots
3. Exclusive filter trial on shots (10 Hz bands)
4. Low cut filters trial on shots (2 Hz steps)
5. All necessary testing for deconvolution
6. Preliminary DBS on shots
7. NMO and mute tests
8. Noise suppression tests pre and post stack
9. Testing of stacking method

*Pre stack testing, where relevant a control stack shall be included in displays*

1. Noise attenuation
2. Deconvolution
3. Scaling
4. Mute
5. Multiple attenuation
6. DMO

### *Post stack parameter testing*

1. Deconvolution
2. Noise suppression
3. Filter testing
4. Spectral whitening
5. Scaling

### *Migration parameter testing*

Trials shall investigate various algorithms and determine the migration velocity field once the optimum algorithm has been selected.

### *2.4 Commencement of Processing*

The field tapes will arrive at CONTRACTOR's processing centre in (month) 2003. Data processing shall commence as soon as tapes are delivered to the processing centre or as otherwise specified by GEUS.

### *2.5 Deadlines for Completion of Processing*

Deadlines will comprise final deadlines for completion of all processing and intermediate deadlines for completion of various phases of processing.

2.5.1 *Intermediate deadlines.* From time to time, GEUS will require in writing to CONTRACTOR that a particular phase of processing or testing be completed within a particular period. If, on receipt of this instruction, CONTRACTOR objects to this deadline, CONTRACTOR must inform GEUS in writing within three days when a new intermediate deadline will be agreed by mutual negotiation.

2.5.2 *Final deadlines.* Within the agreed final deadline for Completion of Processing, CONTRACTOR will produce and deliver the final sections and final tapes described in clause 2.6. The final deadline for Completion of Processing will be the 31 December 2003.

If the final deadline for Completion of Processing is exceeded, penalty will fall due according to Pay Rates and Basis for Pay Rates clause 6.

If a processing sequence different from the one described in clause 2.1 is chosen, the parties will meet to discuss a revised time schedule.

If processing is delayed while CONTRACTOR waits for decisions or information from GEUS, then CONTRACTOR will notify GEUS of the delay, and the deadline will be extended if appropriate.

## 2.6 Products to be delivered

### 2.6.1 Test and Quality Control Displays

Test panels and QC displays shall be in a quality and scale as agreed.

No test material may be destroyed by CONTRACTOR without written permission by GEUS.

CONTRACTOR complies with the standards for quality assurance as set down in (to be specified).

The following list describes the minimum production quality control carried out on marine seismic data processing contracts:

1. Paper prints of all test displays annotated with reference parameters
2. Near trace or inner traces summed, after application of differential NMO (if applicable), with deconvolution, band-pass filter and equalisation applied ,
3. Display of brute stacks, defined as stacks of all traces from a line
4. Tapes of all pre- and post-multiple attenuation velocity analyses, at GEUS' request. Tapes will be send to GEUS in SEG-Y format on 3590 cartridge or Exabyte at a cost of xx DKK per tape.
5. 100% (single fold) sections, after NMO correction and muting
6. Display of binned gathers for three CDP locations on each line (beginning, middle and end of line)
7. Iso-velocity sections of the final stacking velocities
8. QC map showing the average feathering angle, every 40 shots, at GEUS' request
9. Display of raw stacks, after NMO, DMO, velocity analysis and muting
10. Provisional final stacks and migrations on paper
11. Display of the final filtered and migrated stacks, with water depth and velocities used displayed above the final sections.

### 2.6.2 Final Report according to clause 3.3.

### 2.6.3 Tapes and displays

All tapes related to the Service under this Contract are to be stored for 1 month, free of charge to GEUS, after final acceptance of all products delivered according to clause 2.6.2.

After this final acceptance by GEUS the disposal of tapes shall be according to GEUS's instructions.

No tape shall be erased without GEUS's written authorisation.

A detailed list over number of and type of intermediate tapes produced during the project is to be sent to GEUS within one (1) month after the final acceptance of products.

Upon request by GEUS an extra set of demultiplexed tapes can be output and dispatched to GEUS immediately after demultiplexing.

The following tapes shall be supplied, formatted and labelled at GEUS's specification:

1. Stacking and migration velocity tapes
2. Raw stack tapes
3. Raw migration tapes
4. Final migration tapes

All final data shall be supplied on IBM 3590 cartridges to GEUS. The data acquired off the Faroe Islands should be provided also for the Faroese Government in the same format.

Displays on film and paper of final migration and final stacks but only for data acquired off the Faroe Islands shall be supplied as 1:25.000 @ 10 cm /sec and/or 1:50.000 @ 5 cm /sec. The displays shall be scaled and labelled as agreed. Film and additional paper displays are not included in the basic processing price.

All tapes produced to be delivered to GEUS by CONTRACTOR shall be reduced to a minimum number of tapes (concatenated). Each tape should be labelled with a detailed list of contents, and any other relevant information, including SP- and CDP range.

#### 2.6.4 Tape Standard

- Stack and migration output tapes should be in standard SEG-Y format. Profiles shall be written on tape, each profile with EBCDIC-, Binary and trace header. Profiles are separated with E.O.F. marks. Information in EBCDIC, Binary and trace headers in agreement with GEUS's specifications.
- Stacking velocity tapes should be ASCII representation in accordance with GEUS's specification.
- All final data should be supplied on IBM 3590 cartridges to GEUS. The data acquired off the Faroe Islands should be provided also for the Faroese Government in the same format.

### **3. Reporting**

#### *3.1 Weekly Report*

CONTRACTOR shall supply weekly processing progress reports by e-mail. The report shall specify Services performed during the week as well as a cumulative statement of Services performed.

### *3.2 Monthly Report*

CONTRACTOR shall supply monthly economical status report including estimated total project costs.

### *3.3 Final Report*

Within 4 weeks after completion of processing under this agreement a final report shall be delivered. The final report shall at least include the following:

#### 3.3.1 General information:

- Location of the survey
- Acquisition parameters
- Special problems with the data affecting the processing

#### 3.3.2 Personnel:

- Name and position of all personnel involved in the processing

#### 3.3.3 Processing techniques:

- Detailed description of all processes used, and if clarifying, displays showing the use of these techniques
- List of all processing parameters used

#### 3.3.4 Processing statistics:

- Actual time schedule for the processing
- Number of km processed
- Line list with line lengths, shot point ranges, CDP ranges

#### 3.3.5 Testing:

- Description and illustration of all relevant tests

#### 3.3.6 Display and Attachment:

- Display of all relevant tests, display of typical final sections, and velocity analysis display

#### 3.3.7 Products delivered:

- List of all final displays delivered
- List of all tapes delivered with shot point and CDP ranges

#### 3.3.8 Evaluation:

Comments by CONTRACTOR on the quality of the final processed data, suggestions for improvement

## **Pay Rates and Basis for Pay Rates General**

- 1. General**
- 2. Basic Processing.**
- 3. Testing**
- 4. Rates for Selected Optional Processing Routines and Support Services**
- 5. Final Report**
- 6. Penalty**
- 7. Conditions for Monthly Payment**



## **1. General**

GEUS will pay CONTRACTOR compensation for all Service performed according to the following Pay Rates. All rates are Danish Kroner (DKK).

All rates shall remain firm during the contract period. All km are subsurface km. Prices herein include all Services necessary to perform the Service in a satisfactory manner, including copying charges and all necessary supplies.

Shipping charges for final products from CONTRACTOR's processing centre to GEUS are to be carried by CONTRACTOR. Other shipping charges will be reimbursed at cost.

## **2. Basic Processing**

The basic price includes all displays and reports mentioned in the Specifications. The basic price is based on the assumption that the data are processed to 8 / 10 sec. record length and a sample rate of 4 msec.

Basic price: (quotation)

## **3. Testing**

All necessary testing shall be included in the basic price.

## **4. Rates for Selected Optional Processing Routines and Support Services**

With the tender CONTRACTOR shall provide details of optional processes and support services:

### *4.1 Pre-Stack Processes*

- a) Noise Attenuation
- b) Multiple Attenuation
- c) Wavelet Processing
- d) Additional Velocity Analysis

### *4.2 Post-Stack Processes*

- a) Noise Attenuation
- b) Wavelet Processing
- c) Migration
- d) Inversion
- e) Additional Velocity Analysis

### *4.3 Support Services*

- a) Additional/Copy Tapes
  - IBM 3590 cartridge
  - 8mm exabyte
- b) Displays 1:25,000 @ 10 cm /sec 1:50.000 @ 5 cm /sec
  - Film
  - Sepia
  - Paper
- c) Additional Final Reports
- d) Tape Storage

## **5. Final Report**

One copy of the final report is free. Additional copies are available at x each.

## **6. Penalty**

If the final deadline for Completion of Processing, as described in Specifications clause 2.5, is not met, CONTRACTOR will reduce the processing compensation by 2 per cent of the total project cost per complete working week delayed to a maximum of 10 per cent.

GEUS may at its own authority postpone the start date for the Penalty. If GEUS chooses to do so, GEUS shall notify CONTRACTOR in writing as to how much this date has been postponed.

## **7. Conditions for Monthly Payment**

CONTRACTOR may submit monthly invoices before the final invoice, covering the running costs incurred. Payments may be staged as follows:

- 20 per cent of the basic price may be invoiced after brute stack
- 50 per cent of the basic price may be invoiced after final stack
- 20 per cent of the basic price may be invoiced after final migration
- 10 per cent of the basic price may be invoiced when all films, reports and tapes have been generated.

Provisions of this paragraph should not be considered an exception to provisions specified in clause 4.1.3 of General Conditions.