

Demonstration of Improved Energy Extraction from a Fractured Geothermal Reservoir

**A progress report for the period 1.9.1996 - 28.2.1997
for the Thermie project GE-0060/96**

**Hita- og Vatnsveita Akureyrar
Orkustofnun - National Energy Authority
Uppsala University
Hoechst Danmark A/S
RARIK - Iceland State Electricity**

April 1997

Content

1. Summary
2. Progress report
 - 2.1 Introduction
 - 2.2 Design
 - 2.2.1 Overall design of the project
 - 2.2.2 Logging
 - 2.2.3. Pipeline design
 - 2.2.4. Design of pumps
 - 2.2.5 Design of seismic monitoring system
 - 2.3 Manufacture
 - 2.3.1. Pipeline construction
 - 2.3.2. Monitoring equipment
 - 2.3.3. Pumps
 - 2.3.4. Seismic equipment
 - 2.3.5. Modification of seismic software
 - 2.4 Assembly/Installation
 - 2.5 Commissioning
 - 2.6 Monitoring
3. Financial reports
 - 3.1 Hita- og Vatnsveita Akureyrar
 - 3.2 Orkustofnun
 - 3.3 Uppsala University
 - 3.4 Hoechst Danmark a/s
 - 3.5 Rarik

1. SUMMARY

The project started in September 1996 with the design phase. Logging of injection boreholes, pipeline design and design of pumps were completed during the first 6 month period while something was still left of the design of seismic monitoring equipment.

The manufacturing phase started in November 1996 by production of pipes followed by the pipeline construction of which about 30% were left by the end of the period. Modification of seismic software was initiated but not finished.

In general the progress of the project is very much in line with the time and cost schedule of the contract and no major deviations have occurred yet.

2. PROGRES REPORT

2.1 Introduction

The structure of the following progress report is based on the items described in the detailed breakdown of the project in table 21 of Annex I of the contract, but with minor deviations.

The work on the project started in September 1996 and the progress until end of February 1996 is described. On next page a progress diagram for the project is shown.

2.2 Design

2.2.1 Overall design of the project

This part was already more or less finished during the preproposal phase. The overall design was reviewed in connection to the more detailed design of individual parts of the project but it has only minor changes from the original design. The overall design of the project is under constant re-estimation during the progress of the project.

2.2.2 Logging

The first logging phase of the injections well were completed during the autumn 1996 under responsibility of Orkustofnun. The logging included sonic logs, resistivity logs and borehole televiwer as well as several other conventional logs.

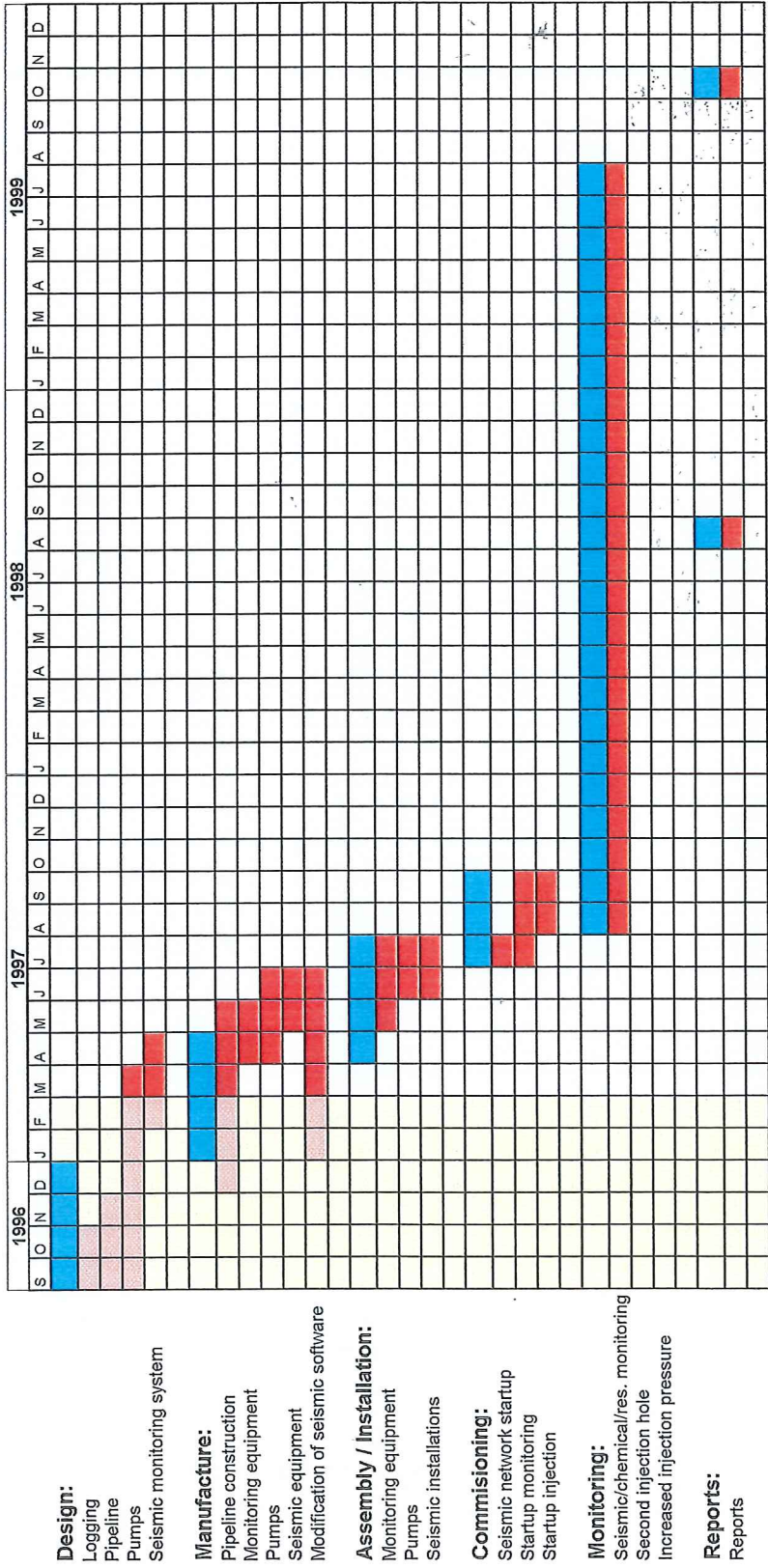
2.2.3 Pipeline design

The general specifications of the pipeline was finished in October 1996 and detailed design of the pipeline as whole in November 1996. The design work was carried out by technical department at HVA with assistance of consulting engineers.

2.2.4 Design of pumps

At the end of February 1997 the design of pumps for the reinjection system was finished. The design work was carried out by technical department of HVA in co-operation with Orkustofnun, Rarik and consulting engineers.

Progress diagram for project GE-0060/96.
 The diagram shows the initial time schedule, the actual progress until 28.2.1997 and expected time schedule from that date



Legend:

- █ Time schedule according to the contract
- █ Actual/expected time schedule 28.2. 1997
- █ Time period for the progress report

2.2.5 Design of seismic monitoring system

The design of the seismic system started in Dec. 1996 and was not finished by the end of February 1997. The design is in the hands of the University of Uppsala in co-operation with Orkustofnun and HVA. It is estimated to be completed in May 1997.

Site investigation in the Laugarland area in the respect of seismic monitoring was performed in January 17th. Good bedrock can be found on hillsides west and east of the river Eyjarfjardara but the flat bottom of the valley is covered by thick sediments with unfavourable conditions for precise detection of high frequency seismic signals. The valley bottom should therefore be avoided in site selections.

Genetic Algorithms have been used to invert for the best location of the six stations. The results show very strong dependency of the exact location of the closest station. Five of the 6 seismic stations will be located on the hill sides and there it should not be any problem to find good places for the seismic sensors. For the remaining station, which will be the closest station to the production and reinjection wells, further site investigations are needed. This station should be placed as close to the injection well as possible without getting too much noise from the production pumps or the injection facilities.

To find a suitable site for the closest station, noise tests will be carried out in March or April in order to record the ground motion from the production pumps which can produce large signals especially close to the resonance frequency. When the exact location of the closest station is found we will use the Genetic Algorithms to get suggestions for locations of the remaining stations. The criteria used in the inversion is maximising the variance of the: a) distances up to 3500 m, b) angles from the source to the stations, and c) the angles within a quadrant modulus.

Contacts will be established with the National Telephone Company P&S to get information about the availability of telephone lines in the area. The type of connection we are seeking can range from: a) simple modem connection, b) X.25 connection, c) Internet subscription or d) ISDN connection. The minimum speed of the connection should be 2400 baud, but higher speeds are desirable. We will just select the alternative with the best price-performance ratio that can be obtained.

2.3 Manufacture

2.3.1 Pipeline construction

The manufacture of the pipes for the 12 km long pipeline for return water from Akureyri to Laugarland were completed in early December 1996. Hocht Danmark was responsible for this part of the project with aid of a subcontractor, Set hf.

A open tender for the construction of 8 km of the pipeline was launched in Dec 1996, the remaining 4 km are to be constructed by the own staff of HVA. A total of 5 contractors

made bids. The lowest bid was accepted and a subcontract was made in Dec 1996. The lowest bid was 38% of the expected price while the highest one was 83% of the it. This unusual low prices are due on low activities among contractors during the main winter season.

The pipeline construction started in late Dec 1996 and by the end of February 8 of the 12 km were finished in spite of difficult climatic conditions in February.

2.3.2 Monitoring equipment

Not started by end of February 1997.

2.3.3 Pumps

Not started before end of February 1997.

2.3.4 Modification of seismic software

During December '96 and January '97 work has been focused on software development related to the interfacing of the Nanometrics HDR digitizer to the SIL Utility Software. Tests have been performed for 500 samples per second on three channels using Pentium computer. Results show a good performance although approximately one second of data is lost during 24 hours of operation. The reason for this is still under investigation questioning if this is due to problems within the digitiser or the software handling of the incoming data.

During the next three months, work will be concentrated on adaptation of the phase-detection procedure to the 500 cps configuration and the higher frequency content of the data. Adaptation of the rest of the seismological software is planned to be worked on during April and May '97.

2.3.5 Seismic equipment

After the design phase of the seismic monitoring system the components of the seismic stations will be purchased from various producers, assembled and installed. This is estimated to take place in April to June.

2.4 Assembly/Installation

Not started by end of February 1997.

2.5 Commissioning

Not started by end of February 1997.

2.6 Monitoring

Not started by end of February 1997.

3.1 Financial report from Hita- og Vatnsveita Akureyrar

PART D - FINANCIAL REPORT Nr. 1
(to be submitted in 4 copies)

Nature of costs (1) :...Total cost

Name and address of the contractor: **Hita- og Vatnsveita Akureyrar**

Contract Nr: **GE- 0060-96**

Name of Financial Officer: **Franz Árnason**

Telephone: 354-461-2110

Telefax: 354-461-2591

Place designated for financial audit:

Hita- og Vatnsveita Akureyrar, Rangárvöllum, 600 Akureyri

Exchange rate applies for national conversion / ECU currency (4):

81,899

A) Expenditure incurred during the period from ...1.9.1996...to...28.02.1997

Category of expenditure (5)	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel	9.146.000	111.674
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	2.425.831	29.620
4. Subcontracting	3.765.281	45.975
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	72.960	891
7. Other expenditure (9)	1.119.405	13.668
Indirect costs (10):		0
8. Personnel overheads (Annex I)	7.496.400	91.532
9. Equipment overheads (Annex 3)		0
VAT (12)	0	0
TOTAL A (to be carried over)	24.025.877	293.360

40% contribution of the commission	9.610.351	117.344
------------------------------------	-----------	---------

(*) See page "Contractors Declaration" and Part D of Annex II to the contract for declaration and explanatory notes on the expenditure submitted.

Carry Over of Total A	24.025.877	293.360
-----------------------	------------	---------

B) Total expenditure previously submitted	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel		
2. Depreciation of Equipment (6)		
3. Consumable equipment (8)		
4. Subcontracting		
5. Data-processing costs (8)		
6. Travel and related costs (7)		
7. Other expenditure (9)		
Indirect costs (10):		
8. Personnel overheads (Annex I)		
9. Equipment overheads (Annex 3)		
Adjustment of previous expenditure (11)		
VAT (12)		
TOTAL B		
C) Cumulative expenditure since the work commencement date	Expenditure per period	
	Nat. currency	ECU
Direct costs:	9.146.000	111.674
1. Personnel	0	0
2. Depreciation of Equipment (6)	2.425.831	29.620
3. Consumable equipment (8)	3.765.281	45.975
4. Subcontracting	0	0
5. Data-processing costs (8)	72.960	891
6. Travel and related costs (7)	1.119.405	13.668
7. Other expenditure (9)	0	0
Indirect costs (10):		
8. Personnel overheads (Annex I)	0	0
9. Equipment overheads (Annex 3)	0	0
VAT (12)	24.025.877	293.360
TOTAL C	31.409.354	383.513

CONTRACTORS CERTIFICATE (13)

We certify that

- the above expenditure was incurred for the work specified in the contract and that it was necessary to the proper performance of this work;
- this involves actual expenditure which falls within the definition of allowable costs specified in the contract;
- all the necessary authorizations were obtained from the Commission;
- all the documents justifying the costs are available for the purpose of audit;
- any necessary adjustments to expenditure reported in previous expenditure statements have been incorporated in this statement.

Date:

Date:

Name of Project Manager
Franz Árnason

Name of Financial Officer
Franz Árnason

Signature of Project manager

Signature of Financial Officer

NOTES

- 1 Insert the applicable indication: TC (total cost); AC (additional cost).
- 2 Cross out the useless indication - for the associated contractor, see Article 3 of Annex II. Each associated contractor has to give a separate statement of expenditure via the contractor with whom he is associated - his costs should not appear in the statement of expenditure of the contractor concerned.
- 3 The associated contractor must specify the contractor's name with which he is associated.
- 4 The exchange rates must correspond to the rate indicated in Article 21, paragraph 1 of Annex II.
- 5 Separate details need not be provided for each specific category in the annexes that follow.
- 6 Equipment must be depreciated - see Article 19, paragraph 2 of Annex II.
- 7 See Article 19, paragraph 4 of Annex II.
- 8 See Article 19, paragraph 5 of Annex II.
- 9 See Article 19, paragraph 6 of Annex II. They must be approved by the Commission.
- 10 See Article 20 of Annex II. The contractors who apply the method of additional cost can attribute up to 20% of the direct costs to personnel, material, travel, consumables, computer costs and other high costs specific to the project.
- 11 Does not apply to the first cost statement. Any correction has to be detailed and justified.
- 12 For any invoice or note specific to the project, drawn up by a supplier where the amount exceeds ECU 2.500, see Article 3, paragraph 2 of the contract.
- 13 The technical and the financial officer responsible must sign the certificate.
- 14 This concerns the person appointed as being directly responsible for the completion of the work - see Article 2, paragraph 3 of Annex II.

1. PERSONNEL AND OVERHEADS

ANNEX 1

Staff categories (1)	Names A	Number of hours or of days B	Wage rate (2) C	Time scale for overheads (3) D	Amount for personnel (B) * (C)	Assembling overheads (B) * (D)
Project leader	Franz Árnason	533	2200	1800	1.172.600	959.400
Engineers	Magnús Finnsson	297	2200	1800	653.400	534.600
Technicians and equivalents	Divrese technicians	3660	2000	1640	7.320.000	6.002.400
Other categories (to be specified)					0	0
Sub-totals					9.146.000	7.496.400
TOTAL (Personnel + overheads)						16.642.400

1 Use the categories corresponding to the contractor's valid salary structure.

2 This wage rate contains the items indicated in Article 19, paragraph 1 of Annex II.

3 The principles applicable to overheads are indicated in Article II of the contract. This column should remain empty when contractors apply the method of additional cost.

2. CONSUMABLE EQUIPMENT EXPENDITURE

ANNEX 3

(national currency)

Date of purchase	Accounting reference	Suppliers	Type of equipment	Amount
1. Consumables/ materials				
1.1.- Direct purchases	44-17-285	Tækjatekni	Pipe welding machine	799.938
1.3- Internal supplies	44-117-635	HVA	Pipeline material	991.843
	44-117-355	HVA	Pipeline material	634.050
Total consumables				2.425.831
Overheads of equipment				

(1) Where necessary, indicate the overheads specifically applicable to the equipment (quality control, handling and storage expenses)

4. SUBCONTRACTING
(Services, Studies, Consultancy)

ANNEX 4

(national currency)

Invoices		Suppliers (1)	Brief description of type of assistance	Amount
Dates	ACC. Refer.			
	44-117-511	Haldór Baldursson	Pipeline construction	2.712.906
	44-117-499	Ari Hilmarsson	Pipeline construction	420.348
	44-117-432	VN	Pipeline design	583.476
	44-117-412	Diverse	Lorries	48.551
TOTAL 4				3.765.281

1) Any relationship , ownership or control between the supplier and contractor must be declared

5. COMPUTER COSTS

ANNEX 5

(national currency)

- Processing centre:						
- Computer type:						
- Invoicing units:						
Month	Code	Utilisation types (1)			Rate (2)	Amount
					TTA 5	0

- 1) -Connection time
- CPU time
- printing (line)
- Storage
- Specific equipment and material

2) Method of calculation must be included

6. TRAVEL AND SUBSISTENCE FOR CONTRACTOR'S STAFF

ANNEX 6

(national currency)

Date	Place	Purpose	Name	Expenditure		
				Travel	Hotel & expenses	TOTAL
6.1. Trips inside the EU						
nov. 96	Reykjavik	Meeting	Franz Arnason	9.540	63.420	72.960
6.2. Trips outside the EU¹						
				TOTAL 6		72.960

1) See Article 19, paragraph 4 of Annex II

7. OTHER EXPENDITURE

ANNEX 7

(national currency)

Invoices		Suppliers	Type of expenditure	Amount
Dates	ACC. Refer.			
	44-117-621	HVA	Car	242.055
	44-117-622	HVA	Lorries	342.169
	44-117-625	HVA	Construction machines	477.560
	44-117-539	Diverse	Diverse material	57.621
TOTAL 7				1.119.405

8. SUMMARY OF THE PARTICIPANTS' CONTRACTUAL COSTS (IN ECU)

ANNEX 8

For the period from: 1-sep-96 to: 28-feb-97

Title of the project: **Demonstration of improved energy extraction from a fractured geothermal reservoir**
 Contract nr: **GE-0060-96**

The participant's name ¹	Position ²	Total costs (ECU)	community contribution (ECU)	Nature of the costs ³	Comments ⁴
HVA	COO	293.360	117.344	TC	
OS	CR	18.052	7.221	TC	
UU	CR	30.606	12.242	TC	
Rarik	CR	2.313	925	TC	
Hoechst	CR	77.575	31.030	TC	
TOTAL		421.905	168.762		

The original copy of the statement of expenditure signed by each participant is attached.

Certified by the person(s) appointed by the contractors (5) as being essential to work carried out under the contract.

Name: Franz Árnason

Name:

Position: director

Position:

Signature:

Signature:

Date:

Date:

- 1) Coordinator, contractors, associated contractors and, if the contract requires it, principal subcontractors.
- 2) Insert the corresponding indication: COO (coordinator), CR (contractor), AC (Associated contractor).
- 3) Insert the corresponding indication: TC (total costs), AC (additional costs).
- 4) When a participant does not give a statement of expenditure, indicate "no statement" in the column "Remarks". If the statement of expenditure of a participant covers more than one period, indicate the number of periods in the column "Remarks". Separate cost statements must be given for each period.
- 5) Or persons designated for the purpose of Article 2 (b), paragraph 2 of Annex II

3.1 Financial report from Orkustofnun

PART D - FINANCIAL REPORT Nr 1
(to be submitted in 4 copies)

Nature of costs (1) :...Total cost.....

Name and address of the contractor: **Orkustofnun**

Contract Nr :**GE-0060-96**

Name of Financial Officer: **Jón Haukur Guðlaugsson**

Telephone: 569-6000

Telefax: 568-8896

Place designated for financial audit:

Orkustofnun, Grensásvegur 9, 108 Reykjavík, Iceland

Exchange rate applies for national conversion / ECU currency (4):

81,899

A) Expenditure incurred during the period from ...1.09.96...to...28.02.1997.

Category of expenditure (5)	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel	832.000	10.159
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	0	0
7. Other expenditure (9)	0	0
Indirect costs (10):		0
8. Personnel overheads (Annex I)	646.400	7.893
9. Equipment overheads (Annex 3)		0
VAT (12)	0	0
TOTAL A (to be carried over)	1.478.400	18.052

40 % contribution of the commission	591.360	7.221
-------------------------------------	---------	-------

(*) See page "Contractors Declaration" and Part D of Annex II to the contract for declaration and explanatory notes on the expenditure submitted.

Carry Over of Total A

1.478.400

18.052

B) Total expenditure previously submitted	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel		
2. Depreciation of Equipment (6)		
3. Consumable equipment (8)		
4. Subcontracting		
5. Data-processing costs (8)		
6. Travel and related costs (7)		
7. Other expenditure (9)		
Indirect costs (10):		
8. Personnel overheads (Annex I)		
9. Equipment overheads (Annex 3)		
Adjustment of previous expenditure (11)		
VAT (12)		
TOTAL B		
C) Cumulative expenditure since the work commencement date	Expenditure per period	
	Nat. currency	ECU
Direct costs:	832.000	10.159
1. Personnel	0	0
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	0	0
7. Other expenditure (9)	0	0
Indirect costs (10):		
8. Personnel overheads (Annex I)	0	0
9. Equipment overheads (Annex 3)	0	0
VAT (12)	1.478.400	18.052
TOTAL C	1.478.400	18.052

CONTRACTORS CERTIFICATE (13)

We certify that

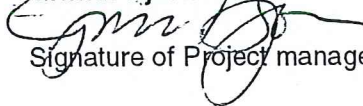
- the above expenditure was incurred for the work specified in the contract and that it was necessary to the proper performance of this work;
- this involves actual expenditure which falls within the definition of allowable costs specified in the contract;
- all the necessary authorizations were obtained from the Commission;
- all the documents justifying the costs are available for the purpose of audit;
- any necessary adjustments to expenditure reported in previous expenditure statements have been incorporated in this statement.

Date: 22/4 1997

Date: 21/4 97

Name of Project Manager

Grimur Björnsson


Signature of Project manager

Name of Financial Officer

Jón Haukur Guðlaugsson


Signature of Financial Officer

NOTES

- 1 Insert the applicable indication: TC (total cost); AC (additional cost).
- 2 Cross out the useless indication - for the associated contractor, see Article 3 of Annex II. Each associated contractor has to give a separate statement of expenditure via the contractor with whom he is associated - his costs should not appear in the statement of expenditure of the contractor concerned.
- 3 The associated contractor must specify the contractor's name with which he is associated.
- 4 The exchange rates must correspond to the rate indicated in Article 21, paragraph 1 of Annex II.
- 5 Separate details need not be provided for each specific category in the annexes that follow.
- 6 Equipment must be depreciated - see Article 19, paragraph 2 of Annex II.
- 7 See Article 19, paragraph 4 of Annex II.
- 8 See Article 19, paragraph 5 of Annex II.
- 9 See Article 19, paragraph 6 of Annex II. They must be approved by the Commission.
- 10 See Article 20 of Annex II. The contractors who apply the method of additional cost can attribute up to 20% of the direct costs to personnel, material, travel, consumables, computer costs and other high costs specific to the project.
- 11 Does not apply to the first cost statement. Any correction has to be detailed and justified.
- 12 For any invoice or note specific to the project, drawn up by a supplier where the amount exceeds ECU 2.500, see Article 3, paragraph 2 of the contract.
- 13 The technical and the financial officer responsible must sign the certificate.
- 14 This concerns the person appointed as being directly responsible for the completion of the work - see Article 2, paragraph 3 of Annex II.

1. PERSONNEL AND OVERHEADS

Staff categories (1)	Names A	Number of hours or of days B	Wage rate (2) C	Time scale for overheads (3) D	Amount for personnel (B) * (C)	Assembling overheads (B) * (D)
Project leader	Guðni Axelsson Grímur Björnsson	24 2	2600 2600	2020 2020	62.400 5.200	48.480 4.040
Experts	Guðrún Sverrisdóttir Skúli Víkingsson Valgarður Stefánsson Ólafur G. Flóvenz Jón Örn Bjarnason Einar H. Haraldsson	99 1 12 146 9 27	2600 2600 2600 2600 2600 2600	2020 2020 2020 2020 2020 2020	257.400 2.600 31.200 379.600 23.400 70.200	199.980 2.020 24.240 294.920 18.180 54.540
Technicians and equivalents					0	0
Other categories (to be specified)					0	0
Sub-totals					832.000	646.400
TOTAL (Personnel + overheads)						1.478.400

1 Use the categories corresponding to the contractor's valid salary structure.

2 This wage rate contains the items indicated in Article 19, paragraph 1 of Annex II.

3 The principles applicable to overheads are indicated in Article II of the contract. This column should remain empty when contractors apply the method of additional cost.

3.1 Financial report from Uppsala University

PART D - FINANCIAL REPORT Nr. 1
(to be submitted in 4 copies)

Nature of costs (1) : Total cost
Name and address of the contractor /
Uppsala University

Contract Nr: **GE-0060-96**
Name of Financial Officer: Inga Stina Hansson
Telephone: 46-18-183312
Telefax: 46-18-181-640
Place designated for financial audit:
Uppsala University, Villavaegen 16, S-75236 Uppsala

Exchange rate applies for national conversion / ECU currency (4):

8.64594

A) Expenditure incurred during the period from1.9.1996.....to...28.02.1997.....

Category of expenditure (5)	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel	138 433	16 127
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	4 760	551
7. Other expenditure (9)	345	40
Indirect costs (10):		0
8. Personnel overheads (Annex 1)	120 081	13 889
9. Equipment overheads (Annex 3)	0	0
VAT (12)	0	0
	TOTAL A (to be carried over)	
	264 619	30 606

40% contribution of the commission	105 848	12 242
------------------------------------	---------	--------

(*) See page "Contractors Declaration" and Part D of Annex II to the contract for declaration and explanatory notes on the expenditure submitted.

CONTRACTORS CERTIFICATE (13)

We certify that

- the above expenditure was incurred for the work specified in the contract and that it was necessary to the proper performance of this work;
- this involves actual expenditure which falls within the definition of allowable costs specified in the contract;
- all the necessary authorizations were obtained from the Commission;
- all the documents justifying the costs are available for the purpose of audit;
- any necessary adjustments to expenditure reported in previous expenditure statements have been incorporated in this statement.

Date: 20.03.197

Date: 4/70327

Name of Project Manager
Reynir Bødvarsson

Name of Financial Officer
Inga-Stina Hansson

Dept. of Geophysics

Carl-Erik Lund

Carl-Erik Lund

Signature of Project manager

Signature of Financial Officer

NOTES

- 1 Insert the applicable indication: TC (total cost); AC (additional cost).
- 2 Cross out the useless indication - for the associated contractor. see Article 3 of Annex II. Each associated contractor has to give a separate statement of expenditure via the contractor with whom he is associated - his costs should not appear in the statement of expenditure of the contractor concerned.
- 3 The associated contractor must specify the contractor's name with which he is associated.
- 4 The exchange rates must correspond to the rate indicated in Article 21, paragraph 1 of Annex II.
- 5 Separate details need not be provided for each specific category in the annexes that follow.
- 6 Equipment must be depreciated - see Article 19, paragraph 2 of Annex II.
- 7 See Article 19, paragraph 4 of Annex II.
- 8 See Article 19, paragraph 5 of Annex II.
- 9 See Article 19, paragraph 6 of Annex II. They must be approved by the Commission.
- 10 See Article 20 of Annex II. The contractors who apply the method of additional cost can attribute up to 20% of the direct costs to personnel, material, travel, consumables, computer costs and other high costs specific to the project.
- 11 Does not apply to the first cost statement. Any correction has to be detailed and justified.
- 12 For any invoice or note specific to the project, drawn up by a supplier where the amount exceeds ECU 2.500, see Article 3, paragraph 2 of the contract.
- 13 The technical and the financial officer responsible must sign the certificate.
- 14 This concerns the person appointed as being directly responsible for the completion of the work - see Article 2, paragraph 3 of Annex II.

Carry Over of Total A

264 619

30 606

B) Total expenditure previously submitted	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel		
2. Depreciation of Equipment (6)		
3. Consumable equipment (8)		
4. Subcontracting		
5. Data-processing costs (8)		
6. Travel and related costs (7)		
7. Other expenditure (9)		
Indirect costs (10):		
8. Personnel overheads (Annex 1)		
9. Equipment overheads (Annex 3)		
Adjustment of previous expenditure (11)		
VAT (12)		
TOTAL B		
C) Cumulative expenditure since the work commencement date	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel	139 433	16 127
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	4 760	551
7. Other expenditure (9)	345	40
Indirect costs (10):	0	0
8. Personnel overheads (Annex 1)	120 081	13 889
9. Equipment overheads (Annex 3)	0	0
VAT (12)	0	0
TOTAL C	264 619	30 606

ANNEX 1

1. PERSONNEL AND OVERHEADS

Staff categories (1)	Names A	Number of months B	Wage rate (2) C	Time scale for overheads (3) D	Amount for personnel (B) * (C) (B) * (C)	Assessment overheads (B) * (D) (B) * (D)
Project leader	R. Búðarsson	2,5	95,762	30,780	88,954	76,875
Engineers	B. Lund R. Svinga	1 0,4	95,762 95,762	30,790 30,790	95,762 14,301	90,780 12,916
Technicians and equivalents					0	0
Other categories (to be specified)					0	0
Sub-totals					199,489	120,081
TOTAL (Personnel + overheads)						259,514

1 Use the categories corresponding to the contractor's valid salary structure.

2 This wage rate contains the items indicated in Article 19, paragraph 1 of Annex II.

3 The principles applicable to overheads are indicated in Article II of the contract. This column should remain empty when contractors apply the method of additional cost.

PART D - FINANCIAL REPORT Nr. 1
(to be submitted in 4 copies)

Nature of costs (1) :Total cost
Name and address of the contractor /
Uppsala University

Contract Nr: **GE-0060-96**
Name of Financial Officer: **Johnny Anderson**
Telephone: 46-18-183312
Telefax: 46-18-181-640
Place designated for financial audit:
Uppsala University, Villavaegen 16, S-75236 Uppsala

Exchange rate applies for national conversion / ECU currency (4): 8,64594

A) Expenditure incurred during the period from1.9.1996.....to...28.02.1997.....

Category of expenditure (5)	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel	139.433	16.127
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	4.760	551
7. Other expenditure (9)	345	40
Indirect costs (10):		0
8. Personnel overheads (Annex I)	120.081	13.889
9. Equipment overheads (Annex 3)	0	0
VAT (12)	0	0
TOTAL A (to be carried over)	264.619	30.606

40% contribution of the commission	105.848	12.242
------------------------------------	---------	--------

(*) See page "Contractors Declaration" and Part D of Annex II to the contract for declaration and explanatory notes on the expenditure submitted.

Carry Over of Total A

264.619

30.606

B) Total expenditure previously submitted	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel		
2. Depreciation of Equipment (6)		
3. Consumable equipment (8)		
4. Subcontracting		
5. Data-processing costs (8)		
6. Travel and related costs (7)		
7. Other expenditure (9)		
Indirect costs (10):		
8. Personnel overheads (Annex I)		
9. Equipment overheads (Annex 3)		
Adjustment of previous expenditure (11)		
VAT (12)		
TOTAL B		
C) Cumulative expenditure since the work commencement date	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel	139.433	16.127
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	4.760	551
7. Other expenditure (9)	345	40
Indirect costs (10):	0	0
8. Personnel overheads (Annex I)	120.081	13.889
9. Equipment overheads (Annex 3)	0	0
VAT (12)	0	0
TOTAL C	264.619	30.606

1. PERSONNEL AND OVERHEADS

Staff categories (1)	Names A	Number of months B	Wage rate (2) C	Time scale for overheads (3) D	Amount for personnel (B) * (C)	Assembling overheads (B) * (D)
Project leader	R. Böövarsson	2,5	35.752	30.790	89.380	76.975
Engineers	B. Lund R. Slunga	1 0,4	35.752 35.752	30.790 30.790	35.752 14.301	30.790 12.316
Technicians and equivalents					0	0
Other categories (to be specified)					0	0
Sub-totals					139.433	120.081
TOTAL (Personnel + overheads)						259.514

1 Use the categories corresponding to the contractor's valid salary structure.

2 This wage rate contains the items indicated in Article 19, paragraph 1 of Annex II.

3 The principles applicable to overheads are indicated in Article II of the contract. This column should remain empty when contractors apply the method of additional cost.

6. TRAVEL AND SUBSISTENCE FOR CONTRACTOR'S STAFF

(national currency)

Date	Place	Purpose	Name	Expenditure		
				Travel	Hotel & expenses	TOTAL
6.1. Trips inside the EU						
970116-970127	Iceland	Project meeting	R. Bóðvarsson	2.125	2.635	4.760
6.2. Trips outside the EU¹						
				TOTAL 6		4.760

1) See Article 19, paragraph 4 of Annex II

7. OTHER EXPENDITURE

ANNEX 7

(national currency)

Invoices		Suppliers	Type of expenditure	Amount
Dates	ACC. Refer.			
5.12.1996	sto21446	DHL	Express documents	345
			TOTAL 7	345

CONTRACTORS CERTIFICATE (13)

We certify that

- the above expenditure was incurred for the work specified in the contract and that it was necessary to the proper performance of this work;
- this involves actual expenditure which falls within the definition of allowable costs specified in the contract;
- all the necessary authorizations were obtained from the Commission;
- all the documents justifying the costs are available for the purpose of audit;
- any necessary adjustments to expenditure reported in previous expenditure statements have been incorporated in this statement.

Date:

Date:

Name of Project Manager
Reynir Böðvarsson

Name of Financial Officer
Johnny Anderson

Signature of Project manager

Signature of Financial Officer

NOTES

- 1 Insert the applicable indication: TC (total cost); AC (additional cost).
- 2 Cross out the useless indication - for the associated contractor, see Article 3 of Annex II. Each associated contractor has to give a separate statement of expenditure via the contractor with whom he is associated - his costs should not appear in the statement of expenditure of the contractor concerned.
- 3 The associated contractor must specify the contractor's name with which he is associated.
- 4 The exchange rates must correspond to the rate indicated in Article 21, paragraph 1 of Annex II.
- 5 Separate details need not be provided for each specific category in the annexes that follow.
- 6 Equipment must be depreciated - see Article 19, paragraph 2 of Annex II.
- 7 See Article 19, paragraph 4 of Annex II.
- 8 See Article 19, paragraph 5 of Annex II.
- 9 See Article 19, paragraph 6 of Annex II. They must be approved by the Commission.
- 10 See Article 20 of Annex II. The contractors who apply the method of additional cost can attribute up to 20% of the direct costs to personnel, material, travel, consumables, computer costs and other high costs specific to the project.
- 11 Does not apply to the first cost statement. Any correction has to be detailed and justified.
- 12 For any invoice or note specific to the project, drawn up by a supplier where the amount exceeds ECU 2.500, see Article 3, paragraph 2 of the contract.
- 13 The technical and the financial officer responsible must sign the certificate.
- 14 This concerns the person appointed as being directly responsible for the completion of the work - see Article 2, paragraph 3 of Annex II.

3.1 Financial report from Høchst Danmark as

PART D - FINANCIAL REPORT Nr. 1
(to be submitted in 4 copies)

Nature of costs (1) : TC

Name and address of the contractor: **Hochest Danmark as**

Contract Nr: **GE - 0060-96**

Name of Financial Officer: **Björn Petersen**

Telephone: 45-44-888200

Telefax: 45-42-915052

Place designated for financial audit:

Islevdalvei 110. DK 2610 Roedovre. Danmark

Exchange rate applies for national conversion / ECU currency (4):

7,45463

A) Expenditure incurred during the period from ...1.9.1996....to 28.02.1997.....

Category of expenditure (5)	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel	0	
2. Depreciation of Equipment (6)	0	
3. Consumable equipment (8)	578.291	77.575
4. Subcontracting	0	
5. Data-processing costs (8)	0	
6. Travel and related costs (7)	0	
7. Other expenditure (9)	0	
Indirect costs (10):		
8. Personnel overheads (Annex I)	0	
9. Equipment overheads (Annex 3)		
VAT (12)	0	
TOTAL A (to be carried over)	578.291	77.575

40 % contribution of the commission	231.316	31.030
-------------------------------------	---------	--------

(*) See page "Contractors Declaration" and Part D of Annex II to the contract for declaration and explanatory notes on the expenditure submitted.

Carry Over of Total A

578.291

77.575

B) Total expenditure previously submitted	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel		
2. Depreciation of Equipment (6)		
3. Consumable equipment (8)		
4. Subcontracting		
5. Data-processing costs (8)		
6. Travel and related costs (7)		
7. Other expenditure (9)		
Indirect costs (10):		
8. Personnel overheads (Annex I)		
9. Equipment overheads (Annex 3)		
Adjustment of previous expenditure (11)		
VAT (12)		
TOTAL B		
C) Cumulative expenditure since the work commencement date	Expenditure per period	
	Nat. currency	ECU
Direct costs:	0	0
1. Personnel	0	0
2. Depreciation of Equipment (6)	578.291	77.575
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	0	0
7. Other expenditure (9)	0	0
Indirect costs (10):		
8. Personnel overheads (Annex I)	0	0
9. Equipment overheads (Annex 3)	0	0
VAT (12)	578.291	77.575
TOTAL C	1.156.581	155.149

CONTRACTORS CERTIFICATE (13)

We certify that

- the above expenditure was incurred for the work specified in the contract and that it was necessary to the proper performance of this work;
- this involves actual expenditure which falls within the definition of allowable costs specified in the contract;
- all the necessary authorizations were obtained from the Commission;
- all the documents justifying the costs are available for the purpose of audit;
- any necessary adjustments to expenditure reported in previous expenditure statements have been incorporated in this statement.

Date: 9.4.97

Date: 9.4.97

Name of Project Manager

Björn Petersen

Signature of Project manager

Name of Financial Officer

Björn Petersen

Signature of Financial Officer

NOTES

- 1 Insert the applicable indication: TC (total cost); AC (additional cost).
- 2 Cross out the useless indication - for the associated contractor, see Article 3 of Annex II. Each associated contractor has to give a separate statement of expenditure via the contractor with whom he is associated - his costs should not appear in the statement of expenditure of the contractor concerned.
- 3 The associated contractor must specify the contractor's name with which he is associated.
- 4 The exchange rates must correspond to the rate indicated in Article 21, paragraph 1 of Annex II.
- 5 Separate details need not be provided for each specific category in the annexes that follow.
- 6 Equipment must be depreciated - see Article 19, paragraph 2 of Annex II.
- 7 See Article 19, paragraph 4 of Annex II.
- 8 See Article 19, paragraph 5 of Annex II.
- 9 See Article 19, paragraph 6 of Annex II. They must be approved by the Commission.
- 10 See Article 20 of Annex II. The contractors who apply the method of additional cost can attribute up to 20% of the direct costs to personnel, material, travel, consumables, computer costs and other high costs specific to the project.
- 11 Does not apply to the first cost statement. Any correction has to be detailed and justified.
- 12 For any invoice or note specific to the project, drawn up by a supplier where the amount exceeds ECU 2.500, see Article 3, paragraph 2 of the contract.
- 13 The technical and the financial officer responsible must sign the certificate.
- 14 This concerns the person appointed as being directly responsible for the completion of the work - see Article 2, paragraph 3 of Annex II.

2. CONSUMABLE EQUIPMENT EXPENDITURE

ANNEX 3

(national currency)

Date of purchase	Accounting reference	Suppliers	Type of equipment	Amount
1. Consumables/ materials				
1.1.- Direct purchases	Set no.59426	Set hf	PE pipes	303.867
1.3- Internal supplies	H1A-268389 H1A-35361 H1A-35547		PE-granules PE-granules PE-granules	37.424 118.500 118.500
Total consumables				578.291
Overheads of equipment				

(1) Where necessary , indicate the overheads specifically applicable to the equipment (quality control, handling and storage expenses)

3.1 Financial report from Rarik

PART D - FINANCIAL REPORT Nr 1
(to be submitted in 4 copies)

Nature of costs (1) : ... Total cost.....
Name and address of the contractor: **Rarik**

Contract Nr : **GE-0060-96**
Name of Financial Officer: **Tryggvi Aðalsteinsson**
Telephone: 569-6000
Telefax: 568-8896
Place designated for financial audit:
Rarik, Óseyri 9, 600 Akureyri, Iceland

Exchange rate applies for national conversion / ECU currency (4): 81,899

A) Expenditure incurred during the period from ...1.09.96...to...28.02.1997.

Category of expenditure (5)	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel	106.600	1.302
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	0	0
7. Other expenditure (9)	0	0
Indirect costs (10):		
8. Personnel overheads (Annex I)	82.820	1.011
9. Equipment overheads (Annex 3)		0
VAT (12)	0	0
TOTAL A (to be carried over)	189.420	2.313

40 % contribution of the commission	75.768	925
-------------------------------------	--------	-----

(*) See page "Contractors Declaration" and Part D of Annex II to the contract for declaration and explanatory notes on the expenditure submitted.

Carry Over of Total A

189.420

2.313

B) Total expenditure previously submitted	Expenditure per period	
	Nat. currency	ECU
Direct costs:		
1. Personnel		
2. Depreciation of Equipment (6)		
3. Consumable equipment (8)		
4. Subcontracting		
5. Data-processing costs (8)		
6. Travel and related costs (7)		
7. Other expenditure (9)		
Indirect costs (10):		
8. Personnel overheads (Annex I)		
9. Equipment overheads (Annex 3)		
Adjustment of previous expenditure (11)		
VAT (12)		
TOTAL B		
C) Cumulative expenditure since the work commencement date	Expenditure per period	
	Nat. currency	ECU
Direct costs:	106.600	1.302
1. Personnel	0	0
2. Depreciation of Equipment (6)	0	0
3. Consumable equipment (8)	0	0
4. Subcontracting	0	0
5. Data-processing costs (8)	0	0
6. Travel and related costs (7)	0	0
7. Other expenditure (9)	0	0
Indirect costs (10):		
8. Personnel overheads (Annex I)	0	0
9. Equipment overheads (Annex 3)	0	0
VAT (12)	189.420	2.313
TOTAL C	189.420	2.313

CONTRACTORS CERTIFICATE (13)

We certify that

- the above expenditure was incurred for the work specified in the contract and that it was necessary to the proper performance of this work;
- this involves actual expenditure which falls within the definition of allowable costs specified in the contract;
- all the necessary authorizations were obtained from the Commission;
- all the documents justifying the costs are available for the purpose of audit;
- any necessary adjustments to expenditure reported in previous expenditure statements have been incorporated in this statement.

Date:

Date:

Name of Project Manager
Tryggvi Þór Haraldsson

Name of Financial Officer
Tryggvi Aðalsteinsson

Signature of Project manager

Signature of Financial Officer



NOTES

- 1 Insert the applicable indication: TC (total cost); AC (additional cost).
- 2 Cross out the useless indication - for the associated contractor, see Article 3 of Annex II. Each associated contractor has to give a separate statement of expenditure via the contractor with whom he is associated - his costs should not appear in the statement of expenditure of the contractor concerned.
- 3 The associated contractor must specify the contractor's name with which he is associated.
- 4 The exchange rates must correspond to the rate indicated in Article 21, paragraph 1 of Annex II.
- 5 Separate details need not be provided for each specific category in the annexes that follow.
- 6 Equipment must be depreciated - see Article 19, paragraph 2 of Annex II.
- 7 See Article 19, paragraph 4 of Annex II.
- 8 See Article 19, paragraph 5 of Annex II.
- 9 See Article 19, paragraph 6 of Annex II. They must be approved by the Commission.
- 10 See Article 20 of Annex II. The contractors who apply the method of additional cost can attribute up to 20% of the direct costs to personnel, material, travel, consumables, computer costs and other high costs specific to the project.
- 11 Does not apply to the first cost statement. Any correction has to be detailed and justified.
- 12 For any invoice or note specific to the project, drawn up by a supplier where the amount exceeds ECU 2.500, see Article 3, paragraph 2 of the contract.
- 13 The technical and the financial officer responsible must sign the certificate.
- 14 This concerns the person appointed as being directly responsible for the completion of the work - see Article 2, paragraph 3 of Annex II.

1. PERSONNEL AND OVERHEADS

Staff categories (1)	Names A	Number of hours or of days B	Wage rate (2) C	Time scale for overheads (3) D	Amount for personnel (B) * (C)	Assembling overheads (B) * (D)
Project leader	Tryggvi Þór Haraldsson	16	2600	2020	41.600	32.320
Engineers	Arnar Sigdíssson	15	2600	2020	39.000	30.300
	Þórhallur Hjartarson	10	2600	2020	26.000	20.200
Technicians and equivalents					0	0
Other categories (to be specified)					0	0
Sub-totals					106.600	82.820
TOTAL (Personnel + overheads)						189.420

1 Use the categories corresponding to the contractor's valid salary structure.

2 This wage rate contains the items indicated in Article 19, paragraph 1 of Annex II.

3 The principles applicable to overheads are indicated in Article II of the contract. This column should remain empty when contractors apply the method of additional cost.