

REQUEST FOR PROPOSAL

Title:	Acquisition of Vibroseis seismic reflection data in southern Nechako basin, British Columbia
Date Issued:	6 th April 2007
GBC Ref. No:	S-2007-01
Solicitation Closes:	2:00 PM on 18 th May 2007 Pacific Daylight Savings Time
Enquiries to:	Andrew J. Calvert, Nechako Project Leader and Contracting Authority (Tel: 604-290-5511; Email: calvert@geosciencebc.com)

Geoscience BC Suite 410 – 890 West Pender Street Vancouver, BC, Canada V6C 1J9 Tel: 604-662-4147 Fax: 604-662-4107 www.geosciencebc.com

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SECTION I – PART I: DESCRIPTION OF REQUIREMENT

Title

Acquisition of Vibroseis seismic reflection data in southern Nechako basin, British Columbia

Statement of Work

The successful Bidder will be required to perform the Work in accordance with the Statement of Work attached as Annex "A".

Delivery

All deliverables under any resultant contract must be received by Geoscience BC on or before 31st December 2007.

Bidders' Conference

A bidders' conference will be held in order to address all questions relating to this requirement.

Location:To be arrangedTime:10:00 AMDate:30th April 2007

All questions must be received in writing by the Contracting Authority, no later than 25th April, 2007, and these will be addressed at the meeting. If you are interested in attending the conference, you are requested to provide the names of the persons attending to the Contracting Authority before 25th April 2007. Minutes of the bidders' conference will be distributed to all firms receiving a bid solicitation document.

SECTION I – PART II: STANDARD INSTRUCTIONS, CLAUSES, GENERAL TERMS AND CONDITIONS

Standard Acquisition Clauses and Conditions

Geoscience BC is in the process of developing its own instructions, general terms, conditions and clauses for acquisition. Until these are finalised we will follow the principles set out in the Standard Acquisition Clause and Conditions Manual of the Government of Canada (<u>http://sacc.pwgsc.gc.ca/sacc/contents-e.jsp</u>). Submission of a bid constitutes acknowledgement that the Bidder has read and agrees to be bound by such instructions. Where the provisions set out out in the notice differ from the provisions in the Government of Canada provisions the notice provisions shall apply.

Terms and Conditions of Solicitation and Resulting Contract

All instructions, general terms, conditions and clauses identified herein by title, number and date are hereby incorporated by reference into and form part of this bid solicitation and any resulting contract, as though expressly set out herein, subject to any other express terms and conditions herein contained.

The following modifications shall apply to and form part of any resultant contract:

- 1) Geoscience BC to Own Foreground Information
 - a) Without divesting the Contractor or any other party of intellectual property rights that have come into being prior to the Contract, copyright, patent and all other intellectual property rights to all Foreground Information shall, immediately upon its conception, development, reduction to practice or production, vest in and remain the property of Geoscience BC. The Contractor shall have no right in or to any such Foreground Information except any right that may be granted in writing by Geoscience BC.
 - b) The Contractor hereby permanently waives its moral rights, as defined in the *Copyright Act*, R.S.C., c. C-42, to all Technical Information conceived, developed, or produced by the Contractor as part of this Work under the Contract, and shall provide to Geoscience BC, at the completion of the Contract or at such other time as the Contract or Geoscience BC may require, a written permanent waiver of such moral rights, in a form acceptable to Geoscience BC, from every author who contributed Technical Information.
 - c) The Contractor shall incorporate the copyright symbol and the following copyright notice into all Foreground Information recorded in any form or medium: Copyright (c) [insert year] Geoscience BC
 - d) Where copyright or patent or other intellectual property rights in Technical Information vest in Geoscience BC under the Contract, the Contractor shall execute such conveyances or other documents relating to those rights as Geoscience BC may require, and the Contractor shall, at Geoscience BC's expense, afford Geoscience BC all reasonable assistance in the prosecution of any patent application or registration of copyright or an industrial design, including the assistance of the inventor in the case of Inventions.

e) Unless prior written consent to the contrary is given by Geoscience BC, the Contractor shall not incorporate into the Work any Background Information that would prevent Geoscience BC from awarding contracts to other contractors for the alteration, further development or other use of the Foreground Information, or that would otherwise restrict Geoscience BC's right to use the Foreground Information in any way Geoscience BC deems necessary or desirable.

2) Ownership of Intellectual Property

Any intellectual property arising from Research and Development carried out in the course of Work under the Contract will vest in Geoscience BC.

Bidder Performance

- a) Geoscience BC may reject a bid where any of the following circumstances is present:
 - i. the Bidder becomes bankrupt or is insolvent or is seeking statutory creditor protection or where, for whatever reason, its activities are rendered inoperable for an extended period;
 - ii. evidence, satisfactory to Geoscience BC, of fraud, bribery, fraudulent misrepresentation or failure to comply with any law protecting individuals against any manner of discrimination, has been received with respect to the Bidder, any of its employees or any subcontractor included as part of its bid;
 - iii. Geoscience BC has exercised its contractual remedies of suspension or termination for default with respect to a Contract with the Bidder, any of its employees or any subcontractor included as part of its bid; or
 - iv. Geoscience BC determines that the Bidder's performance on other contracts, including the efficiency and workmanship as well as the extent to which the Bidder executed the work in accordance with contractual terms and conditions, is lacking in sufficient quality to jeopardise the successful completion of the requirement being bid on.
- b) Where Geoscience BC intends to reject a bid pursuant to a provision of paragraph (a), the Contracting Authority will so inform the Bidder and provide the Bidder ten days within which to make representations, prior to making a final decision on the bid rejection.

SECTION I – PART III: OTHER INSTRUCTIONS

Contracting Authority

The Contracting Authority for this Request for Proposal (RFP) is:

Andrew J. Calvert Nechako Project Leader Geoscience BC Suite 410 -890 West Pender Street Vancouver, BC, Canada V6C 1K9

Tel: 604-662-4147 Cell: 604-338-2723 Fax: 604-662-4107

DO <u>NOT</u> SEND YOUR PROPOSAL TO THE CONTRACTING AUTHORITY

Enquiries/Time Extension to the RFP Closing Date

All enquiries and other communications related to this RFP throughout the solicitation period and until contract award shall be directed <u>in writing only</u> to the Contracting Authority by email at calvert@geosciencebc.com or fax at 604-662-4107.

To ensure the equality of information among bidders, answers to enquiries which are relevant to the quality of proposals will be forwarded simultaneously to every bidder. Such enquiries must be received at least ten (10) working days before the closing date.

A request for a time extension to the bid closing date <u>WILL NOT</u> be considered.

Submission of Proposal

Provided all signatures and certifications are completed, bids will be accepted in the form of electronic submissions in PDF format to proposals@geosciencebc.com by the time and date indicated on page 1 of this RFP document.

Bids will also be accepted by direct delivery to the following location, by the time and date indicated on page 1 of this RFP document:

Bid Receiving (Attn: Lauren Elliot) Geoscience BC Suite 410 – 890 West Pender Street Vancouver BC Canada V6C 1J9 Tel: 604-662-4147

Proposals submitted in response to this RFP will not be returned.

Validity of Proposal

Any proposal must remain open for acceptance for a period of not less than ninety (90) days after the closing date of the RFP. After the RFP closing date, no amendments to the proposal will be

accepted. However, during the evaluation, the Contracting Authority may require clarification from or conduct interviews with Bidders.

Applicable Laws

The Contract shall be interpreted and governed, and the relations between the Parties determined, by the laws in force in the province of British Columbia and the parties attorn to the jurisdiction of the British Columbia courts.

Rights of Geoscience BC

Geoscience BC reserves the right to:

- a) reject any or all proposals received in response to this RFP;
- b) enter into negotiations with one or more bidders on any or all aspects of its proposal;
- c) accept any proposal in whole or in part;
- d) cancel and/or reissue this requirement at any time;
- e) award one or more contracts;
- f) verify any or all information provided with respect to this requirement;
- g) award contracts without competition for follow-on Work, if any, to the successful bidder for this requirement.

Incurring of Cost

No costs incurred before receipt of a signed contract or specified written authorisation from the Contracting Authority can be charged to any resulting contract.

SECTION II – PART I: PROPOSAL PREPARATION INSTRUCTIONS

Preparation of Proposal

Bidders shall prepare a proposal addressing all the requirements of this RFP.

The proposal must include a first sheet specifying the Bidder name and address, the name and title of the person authorised to sign on behalf of the Bidder, and their signature. The Bidder's signature indicates acceptance of the terms and conditions set out herein. Ensure that the signatory has authority to commit the organisation to making such a contractual offer.

Ensure that the proposal includes a contact name, address, phone number, and email address.

The proposal must be structured in two parts (A and B) TO BE BOUND SEPARATELY or SUPPLIED AS TWO SEPARATE ELECTRONIC FILES with names S-2007-01A_YOUR-COMPANY-NAME and S-2007-01B_YOUR-COMPANY-NAME:

A – Technical and Management Proposal (with no reference to price) – 3 copies (if hardcopy)

B – Price Proposal and certifications (Annex 'E'') – 3 copies (if hardcopy)

In order to be considered for contract award, bidders must comply with the stated certification requirements detailed in Annex "E".

Your proposal should be concise and should address, but not necessarily be limited to the points listed in Annex "F", Preparation of Proposals.

Capability Survey

A survey team may contact/visit your organisation to determine your technical and financial ability to perform. If so, current financial statements and other pertinent data should be available at that time.

Verification of Pricing Information

With the submission of the price proposal, the bidder, if selected for contract negotiations, grants the Contracting Officer, or his/her representative, the right to examine, for the purpose of verifying the cost of pricing data submitted, those books, records, documents, and other supporting data, along with the computation and projections used therein. This right may be exercised in connection with any negotiations prior to contract award.

Certifications

The mandatory certifications identified in Annex "E' must be completed as part of your price proposal.

SECTION II – PART II: EVALUATION CRITERIA AND CONTRACTOR SELECTION METHOD

Evaluation Criteria

The technical proposal will be evaluated in accordance with the Evaluation Criteria and Contractor Selection detailed in Annex "D" attached. It is suggested that you address these criteria in sufficient depth in your proposal. The proposal will be evaluated solely on its content. Geoscience BC reserves the right to request additional data or clarification from the Bidder.

SECTION III: RESULTING CONTRACT CLAUSES

Additional terms and conditions applicable to any resulting contract:

Experience and Education

The Contractor certifies that all statements made with regard to the education and experience of individuals proposed for completing the subject Work are accurate and factual, and the Contractor agrees that Geoscience BC reserves the right to verify any information provided in this regard and that untrue statements may result in the Contract being terminated for default pursuant to the terms and the general conditions forming part of this Contract.

ANNEX "A": STATEMENT OF WORK

TITLE: ACQUISITION OF VIBROSEIS SEISMIC REFLECTION DATA IN SOUTHERN NECHAKO BASIN, BRITISH COLUMBIA

1. Introduction

The seismic reflection survey in the Nechako basin region, west of Quesnel and Williams Lake in British Columbia, will be the first seismic work to be carried out in the area since the early 1980s when Canadian Hunter shot approximately 1300 km of seismic data using Vibroseis. Although 5 wells were drilled in the early 1980s as a result of this program, hydrocarbon exploration in the area ceased soon after. There is a strong interest on the part of Geoscience BC in seeing a renewed exploration effort in the Nechako basin. For this reason, a significant budget has been allocated to hydrocarbon-related studies of the Nechako basin. This RFP represents a first phase of seismic acquisition, which is to be completed in 2007. This Phase I survey is aimed at defining better the regional structure of the basin, and evaluating the effectiveness of modern Vibroseis acquisition in the basin, which is largely covered by volcanics of unknown thickness. It is anticipated that a second phase of seismic acquisition will take place in 2008, the precise details of which will depend on the results of the Phase I survey.

The key acquisition problems are likely to be <u>signal penetration through the near-surface</u> <u>volcanic rocks</u> and the imaging of underlying sedimentary strata. Since the results of the Phase I survey will be prominently publicised in an effort to encourage exploration of the Nechako basin, the successful acquisition contractor stands to gain useful publicity. The contractor will be acknowledged in all reports and scientific results derived from this work.

The acquired seismic data will be maintained confidential for at least one year after completion of the survey. The contractors shall not release any data resulting from this survey without the written permission of Geoscience BC.

2. Objectives/Requirements

The approximate location of the survey area is shown in Figure 1 of this Annex, with detailed location maps of the survey lines shown in Figure 2. Nechako basin likely comprises a number of sub-basins up to approximately 3.0 s thick, but the thickness of the basin is poorly known and in this initial survey imaging of the underlying basement in addition to the sedimentary section is required. The Contractor shall provide all of the necessary facilities, equipment, materials, competent and experienced crew and supervisory and administrative support to collect 350-400 km of regional multichannel Vibroseis seismic reflection data (see 3.2 of this Statement of Work). The data will be collected along or near the profiles as shown in Figure 2. The total profile length collected during the survey will depend on the cost per km of data acquisition, and the final budget allocation. The objective is to obtain the maximum length of profile with the money available, without jeopardizing high data quality.

It is understood that vibration effort may be transferred within the seismic line. For example, if there is a length of line that cannot be used for vibrating, then the equivalent effort may be used to undershoot the gap or may be transferred to an alternative portion of the planned line. The transfer of vibrating effort will not incur extra costs.

Data acquisition shall be completed by 31^{st} December, 2007.

The field data and associated topographic survey information for each line shall be provided by the Contractor to the processing contractor (to be determined) within five (5) working days of the acquisition of the seismic line (five working days from the final day of vibrating on the line). The Contractor is responsible for the safe transit of the tapes from the field to the processing contractor.

Final deliverable items specified in section 3.5 of this Annex must be delivered by **31**st **December, 2007.**

Prior to the start of the survey the Contractor's representatives are required to meet with the Contracting Authority or their delegate to discuss all aspects of the work.

3.0 Technical Specifications/Details

3.1 Field Specifications

The following specifications are provided as a guide to the field procedures for data gathering; alternative parameters or methods to obtain the data will be considered if justified. VIBROSEIS reflection seismic profiling, using state-of-the-art equipment and procedures, is envisioned as being the preferred method of data acquisition. Final specifications will be chosen by the Contracting Authority or their delegate. Only new computer tapes may be used for the recording of data. All equipment, including geophones/sensors, shall be checked according to manufacturer's specifications before going into the field. Prior to mobilization, the Contractor should provide to the Contracting Authority or their delegate a list of all hardware and software to be utilized for the survey with an explanation of how this equipment satisfies the required technical standards. The cost of pre-mobilization field tests should be included in the general cost of mobilization and demobilization. Mobilization should not proceed until the Contracting Authority or his delegate have indicated that the specific equipment to be provided satisfies technical requirements.

To ensure data quality, high quality control of both the acquisition system and recorded data is required. Excessive line leakage, significant equipment malfunctions and high wind conditions, etc., will be cause to temporarily shut down the operation until conditions improve. If weather patterns develop such that midday conditions are excessively windy, it may be necessary to suspend operations during the windy part of the day and work only during the night, early morning and evening. Geophones/sensors must be planted vertically and well coupled with the ground over the entire survey; wherever possible they should be buried. Field supervisors (bird dogs) representing the Contracting Authority will be with the survey crew for the duration of the

data acquisition. They will visit the field operation at least once per day for a 12-hour operation, twice per day for a 24-hour operation or more times as necessary. Various tests that they will require may include, for example, wind strips and tests of accurate source signal generation. Changes in personnel during the course of the acquisition which result in a significant reduction in crew experience must be approved by the Technical Authority or their delegate.

Standard and comprehensive tests (as recommended by the manufacturers of the recording and vibrator systems) are to be performed at appropriate times each day, week or month. Records of these tests including all monitor records will be deliverable items. Pulse tests on all recording channels must be carried out and recorded with the field filters in, and this record must be put on tape together with the regular daily tests. A monitor display of these pulse tests must also be made in the field for the bird-dog to check for consistent waveform. Monitor records are to be kept for vibration points every 500 m along each line and are considered deliverable items. The seismic data will be collected using the parameters specified in section 3.2. Field tapes must be shipped to the processing contractor on a regular basis. On a daily basis the Contractor may be requested to provide to the Contracting Authority or his delegate (i) a standard format tape containing instrument tests, and (ii) a field tape obtained using production acquisition parameters. These tapes, which will be used for quality control and other infield analyses will be signed-out and returned within one day by the bird-dogs.

3.2 Survey Design

The location of the seismic profiles are shown in Figure 2. Seven different sets of acquisition parameters (scenarios R1, R2, R3, R4, R5, R6, R7 and R8) are being considered for the regional profiles. The choice of acquisition parameters will be made by the Contracting Authority, based on (1) maximizing the line kilometres of data that can be acquired, (2) maximizing the source effort at each vibration point, and (3) maximizing the information (i.e. number of channels and listen time effort) obtained per line kilometre. It is possible that different acquisition parameters will be used for different lines for evaluation purposes.

The seven sets of acquisition parameters are listed below:

Scenario R1:	960 channels, 100 m vibration point interval with six 28 s sweeps per VP
Scenario R2:	960 channels, 60 m vibration point interval with six 28 s sweeps per VP
Scenario R3:	960 channels, 60 m vibration point interval with four 28 s sweeps per VP
Scenario R4:	960 channels, 40 m vibration point interval with four 28 s sweeps per VP
Scenario R5:	960 channels, 20 m vibration point interval with three 28 s sweeps per VP
Scenario R6:	960 channels, 10 m vibration point interval with one 28 s sweeps per VP
Scenario R7:	480 channels, 40 m vibration point interval with four 28 s sweeps per VP
Scenario R8:	480 channels, 20 m vibration point interval with three 28 s sweeps per VP

Since the survey region, which is covered by volcanic rocks, is believed to be an area of poor data quality, the bidder is encouraged to propose their own survey parameters with pricing, in addition to pricing the above scenarios.

Source specifications:

- Source spacing (see Scenarios R1 to R8 above)
- At least 4 vibrators (Mertz 18 or equivalent) with a total peak force of 176,000 lb or more on the ground; for occasional repairs of single vibrators a <u>minimum</u> total peak force of 132,000 lb on the ground will be allowed on the condition that sweep effort is increased to <u>fully compensate</u> for the loss of total peak force on the ground. For example, in scenario R2, 168 s (six 28 s sweeps) of sweep time with 176,000 lb or more of vibrator total peak force on the ground are required at each vibration point. When only 132,000 lb of vibrator total peak force on the ground is used, 224 s of sweep time (eight 28 s sweeps) will be required. No more than 5% of the line may be surveyed with less than 176,000 lb of peak force on the ground.
- anticipated sweep frequencies 8-80 Hz (upsweep) with a sweep length of 28s
- source will roll-on into spread at start of line and roll-off at end of line
- source array to a maximum of 60 m depending on field conditions
- force control or equivalent
- capability to monitor phase distortions between expected and actual signals

Receiver specifications:

- 20 m receiver group interval
- 8 Hz or 10 Hz geophones with critical damping equal to 0.7 or alternative high quality sensor
- at least 6 geophones/group where geophones employed
- length of geophone group up to a maximum of 20 m
- state-of-the-art topographic survey. The survey will use satellite positioning to provide the coordinates of the beginning and end of each line and at control points along the line to give an absolute horizontal accuracy of 50m and an absolute vertical accuracy of 3m at all source locations along the line. Relative accuracy will be 3m horizontally and 0.6m vertically between any two points on the seismic line (how this is to be achieved must be documented, taking into account errors in surveying methods).

Data Recording:

- minimum of 960 live channels required (scenarios R1 to R6) or 480 channels (scenarios R7 and R8)
- 6 s record length after correlation
- total uncorrelated record length of 34 s
- sample rate 2 ms
- high quality infield anti-aliasing and frequency filters, including 60 Hz notch if requested by the Contracting Authority
- no more than 2% of all channels "dead" or malfunctioning at any time
- operational noise reject systems
- demonstrable infield capability to produce variable area plots of uncorrelated and correlated data; it must be possible to display these plots with both fixed gain and automatic gain control applied

3.3 Permits

The contractor will be responsible for negotiating with Federal, Provincial, Municipal and other agencies (First Nations) for obtaining all necessary permits and clearances to do the work.

3.4 Logs of the Field Survey

The Contractor shall keep a detailed log of line kilometers surveyed and shall communicate this information to the Technical Authority or their delegate on a daily basis. Results, including plots, printouts, etc., of daily and other system tests (including vibrator correlation information) are deliverable items and may be inspected at any time during the survey. Surveyor's notes, including information on monumentation, and Observer's log books (in digital form) are deliverable items.

3.5 Deliverable Items

Unless otherwise specified, digital tapes mentioned in the following will be in a standard SEG (Society of Exploration Geophysicists) format. Acceptable types of tapes are DLT or IBM3590 tapes. Only new tapes will be accepted as deliverables. Field tapes are to be shipped from the field to the processing contractor and will reside with the processing contractor until the processing has been completed. The Contractor is responsible for safe transit of the field tapes to the processing contractor.

The following items will be deliverables to Geoscience BC, Suite 410 – 890 West Pender Street, Vancouver, BC Canada V6C 1J9:

Digital tapes:

a) UNCORRELATED field tapes in appropriate SEG format - one copy (1) of each.b) Topographic survey information - one (1) copy.

Displays:

Geophone group location and shot point maps at 1:100,000; two (2) print copies and a digital file.

Field information:

Field notes from the surveyor and observer, including the observer's log, chaining notes and information on monumentation along the lines - one (1) digital copy.

Contractor's report:

Details on the field survey and data acquisition - two (2) copies. This must include the following:

• the name and location of the reflection survey

- the name and address of the contractor, the phone and fax numbers of the company, the date of the survey
- a list of contents; a description of the survey's progress
- copies of licences and government approval documents a map showing the location of all the lines shot and the location(s) and any additional test acquisition at a reasonable scale on a basemap with pertinent cultural elements
- a complete copy of prints of the surveyed lines at 1:100,000.

The text should include discussion of:

- the problems encountered during the survey and how they were dealt with (e.g., bad weather days, shut downs for instrumental problems, etc.)
- details of subcontracting companies (e.g., surveyors, etc.)
- details of the recording equipment used
- details of the response functions of the field recording system, its filters, etc.
- details of the geophones used, response functions, etc.
- plots of the actual source and receiver array(s) used for the regional acquisition and, where possible, any test acquisition work.

An annex could contain:

- direction of progress on each line
- complete lists of testing equipment available (if any)
- personnel lists showing who was in charge for the survey over what time interval, Party Manager, Observer(s), etc.
- complete equipment list.

Any Foreground Information shall be fully disclosed and documented by the Contractor in the technical reports delivered by the Contractor to the Technical Authority under this Contract.

3.6 Schedule

Data acquisition must be completed and all deliverable items received by **31st December 2007.**

ATTACHMENT "I" of ANNEX "A": DETAILS OF SEISMIC LINE LOCATIONS

Summary of Line Locations

Line lengths have been determined from maps and are approximate. The locations of the beginning-of-line (BOL) and end-of-line (EOL) points will be finalised after the contractor is selected, and initial feedback from local communities and First Nations has been received. It will be the responsibility of the contractor to ensure that the total length of seismic line agreed in the contract is not exceeded.

- 2007-01 (96 km): Nemaiah valley to Red Stone IR: Nemaiah valley road and Taseko Lake Road
- 2007-02 (75 km): Redstone to Bull Canyon along Young Rd, then along Highway 20 to Harper Lake
- 2007-03 (28 km): Alexis Creek to White Pelican Provincial Park: Stum Lake FSR
- 2007-04 (64 km): Bull Canyon Provincial Park toward Canyon Mountain: Alexis Lakes Rd and Aneko River FSR
- 2007-05 (48 km): Nazko to Nazko Lakes Provincial Park: Honolulu Rd/Nazko Falls FSR
- 2007-06 (39 km): Fishpot Lake to Udy Creek Rd: Michelle FSR and Nazko Rd
- 2007-07 (39 km): Willan Lake to Vedan Creek: Chilcotin South (2000) FSR

Approximate total line length is 389 km

Line Coordinates

Coordinates are provided for the BOL and EOL as UTM zone 10 coordinates, which have been converted from WGS84 to NAD27. These UTM coordinates have also been converted to geographic latitude and longitude. The accuracy of these preliminary coordinates is approximately ± 250 m.



Figure 1: Seismic line locations shown on a map of the geology of the southern Nechako basin



Figure 2a: Location of line 2007-01, which runs from the Nemaiah valley in the southwest to Red Stone IR at the edge of the Chilcotin river valley.

<u>2007-01</u>

BOL:	X = 430500, Y = 5699375	51.4432 N, 124.0000 W
EOL:	X = 492500, Y = 5752625	51.9263 N, 123.1091 W
Estimated line	length: 96 km	



Figure 2b: Location of lines 2007-02 and 2007-03. Line 2007-02 runs mostly along Highway 20, which is paved, from near Redstone to just east of the intersection with the Palmer Lake FSR, but follows an alternate route in the valley for part of the way. Line 2007-03 begins at the intersection of Stum Lake FSR with Highway 20 and runs along the Stum Lake FSR to the west side of Beaver Lake, west of White Pelican Lake provincial park.

<u>2007-02</u>

BOL:	X = 456500, Y = 5771000	52.0898 N, 123.6349 W
EOL:	X = 519375, Y = 5754625	51.9440 N, 122.7181 W
Estimated li	ne length: 75 km	
<u>2007-03</u>		
BOL:	X = 481125, Y = 5770250	52.0845 N, 123.2755 W
EOL:	X = 499375, Y = 5785250	52.2196 N, 123.0092 W
Estimated li	ne length: 28 km	



Figure 2c: Location of line 2007-04, which runs along the Alexis Lakes Rd through Nazko Lakes provincial park, and continues to the northwest along the Aneko FSR.

<u>2007-04</u>

BOL:	X = 446125, Y = 5821750
EOL:	X = 472125, Y = 5772500
Estimated line	length: 64 km

52.5451 N, 123.7944 W 52.1043 N, 123.4070 W



Figure 2d: Locations of lines 2007-05 and 2007-06. Line 2007-05 runs along the Honolulu Rd and the Nazko Falls FSR. Line 2007-06 runs east-west along the Nazko Rd in the east, and the Michelle(?) FSR in the west.

<u>2007-05</u>

BOL:	X = 468750, Y = 5824875	52.5750 N, 123.4611 W		
EOL:	X = 463000, Y = 5863750	52.9241 N, 123.5504 W		
Estimated line length: 48 km				
<u>2007-05</u>				
BOL:	X = 443875, Y = 5868125	52.9617 N, 123.8356 W		
EOL:	X = 475625, Y = 5867000	52.9540 N, 123.3628 W		
Estimated line length: 39 km				



Figure 2e: Location of line 2007-07, which runs east-west through the community of Big Creek. The line runs approximately from Willan Lake in the west to Vedan Creek in the east.

<u>2007-07</u>

BOL:	X = 480250, Y = 5724000
EOL:	X = 517250, Y = 5732750
Estimated line	length: 39 km

51.6686 N, 123.2856 W 51.7474 N, 122.7501 W

Mobilisation between Northern and Southern Lines

There does not appear to be direct road from the northern Quesnel Forest District to the southern Chilcotin Forest District. However, the dashed blue lines shown in Figure 3 indicate GPS tracks along roads driven during the summer of 2006 during a scouting survey. The Brown (8100) FSR, heads west from the Nazko Falls FSR and then south around the side of a large clear-cut. This clear-cut can be accessed from Highway 20 along the Alexis Lakes FSR in the Chilcotin Forest District. The distance between the 8100 FSR and the edge of the clear-cut is approximately 30 m through light brush. It is possible that a vibe buggy could cross this distance, but smaller line trucks might have difficulty. However, it should be relatively straightforward to construct a short crossing. In addition, other roads, which are accessible from the south, have been constructed near this clear-cut, but are presently blocked by concrete barriers. These logging roads may provide easier access to the Nazko Falls FSR.

Details of mobilisation between northern and southern seismic lines should be presented in the management plan.



Figure 3: GPS track lines (dashed blue lines) from a scouting survey in August 2006.

ANNEX "B": ADDITIONAL INFORMATION FOR PRICING

Mobilization

The firm price for mobilization is intended to compensate the Contractor for operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies, vehicle registration and incidentals to the survey area; and for any work and operations which must be performed or costs that must be incurred incidental to the initiation of meaningful work at the site and for which payment is not otherwise provided for under the contract.

Demobilization

The firm price for demobilization is intended to cover the costs associated with return transportation for survey personnel and equipment to the Contractor's facility after completion of data acquisition.

Permitting costs

No overhead costs, administrative expenses, indirect costs or profile fees are allowed under this item.

Firm prices for acquisition

The prices shown for acquisition shall include all labour, materials, equipment, transportation and other costs of the field efforts. These prices must include any allowances for shutdown due to equipment failure, rework, weather problems, including excessive noise (e.g. due to wind), etc. Such shutdowns may be requested by the Contracting Authority in consultation with the Contractor, or at the Contractor's discretion. The Bidders's should consider the necessity for high quality data in allowing for these items. These items will not be reimbursed separately.

ANNEX "C": SECOND FUNDING SOURCE AGREEMENT (NOT APPLICABLE)

This Annex is intentionally left blank.

ANNEX "D": EVALUATION CRITERIA AND CONTRACTOR SELECTION

1) Evaluation Criteria

This section details the methodology that will be employed for evaluation of the bidder's responses to the stated requirements of this RFP. The bidder's proposal will be evaluated in accordance with the following:

1.1 Technical Proposal

1.1.1 Survey Program

Suitability and quality of the equipment for regional and high resolution data acquisition, including topographic surveying equipment, Vibroseis units, electronic controls for the Vibroseis units including force control (or equivalent), recording cables (must be water resistant – including all connectors), sensor type (must include water resistant connectors), sensor deployment (single or array, buried or not), in-field frequency filters (including notch filters or equivalent), in-field processing facilities, dynamic range of recording system, in-field playback/playout facilities (including display of uncorrelated records), in-field noise reject capability (including "diversity" stack-type noise rejection), in-field correlation capability, etc. Specify whether individual uncorrelated sweeps will be recorded.

Bidders who have previous experience of seismic acquisition in volcanic-covered areas should include details in the technical proposal, and explain how the problems specific to such areas are addressed by their proposal.

1.1.2 Company and Personnel

Competence and experience of the contractor and any sub-contractor, which can be demonstrated by similar or related past work, sufficient back-up manpower and resources, experience and competence of geophysical "party chief"/observers/other "key" personnel, understanding and recognition of the scope and objectives for the survey, understanding required to obtain optimum quality data with the resources available, management capability, and proposed interaction with the other contractors (e.g. the processing contractor) and Geoscience BC personnel.

Contractors that are able to demonstrate an ability to fully train and include members of First Nations or local communities in their work program, should clearly indicate this in their proposal.

1.2 Acceptance Criteria

Proposals for the acquisition contract will be evaluated according to items 1.1.1 and 1.1.2. Bidders evaluated as having major deficiencies in any of the above items will not be considered further.

2) Contractor Selection

The potential contractor will likely be selected from those that meet the required technical standards on the basis of lowest overall price to Geoscience BC for items 2.3.1, 2.3.2, and 2.3.4 to 2.3.8 inclusive of Annex "F".

Geoscience BC, however, reserves the right to select a potential contractor that offers a higher technical quality of survey, or includes additional equipment (e.g. extra source effort, extra channels, 3-component recording) that is evaluated as providing a significant benefit for seismic acquisition in this region.

Overall prices should be presented separately for each of the specified acquisition parameter sets (defined in sections 3.2 of Annex "A"). The lowest overall price will be calculated using the following items (see section 2.3 of Annex "F"):

For Item 2.3.1	- mobilization to Nechako basin
For Item 2.3.2	- demobilization from Nechako basin
For Item 2.3.4	- 5 hours initial noise tests
For Item 2.3.5	- 5 hours of additional tests
For Item 2.3.6	- 5 hours of extra mobilization and demobilization
For Item 2.3.7	- 350-400 km of regional data acquisition on roads in accordance with the parameters detailed in section 3.2 of Annex "A"
For Item 2.3.8	- Firm price for deliverables listed in section 3.5 of Annex "A"

3) Follow-On Work

At the discretion of Geoscience BC, contracts for subsequent phases of work may be considered by Geoscience BC on a directed basis to the same Contractor, subject to the results of this work, the Contractor's satisfactory work performance, the availability of funding and program priorities. However, there is no implied commitment by Geoscience BC to proceed with any follow-on work.

ANNEX "E": CERTIFICATIONS

To be considered responsive, proposals must contain the following certifications:

Legal Entity and Corporate Name

Please provide a statement to certify whether the bidder is a sole proprietorship, partnership or corporate entity, indicating the laws under which the partnership or corporate entity was registered or formed, together with the registered corporate name. Also provide a statement identifying the country where the controlling interest/ownership (name if applicable) of your organization is located.

		-	
		-	
Date	Signature		Print Name
for:			(Name of Proposing Party)

Availability and Status of Personnel

The Bidder certifies that, should it be authorized to provide services under any contract resulting from this solicitation, the persons proposed in its bid will be available to commence performance of the work within a reasonable time from contract award, or within the time specified herein, and will remain available to perform the work in relation to the fulfillment of this requirement.

If the Bidder has proposed any person in fulfillment of this requirement who is not an employee of the Bidder, the Bidder hereby certifies that it has written permission from such person (or the employer of such person) to propose the services of such person in relation to the work to be performed in fulfillment of this requirement and to submit such person's resume to the Contracting Authority.

During the bid evaluation, the Bidder must upon the request of the Contracting Authority provide a copy of such written permission, in relation to any or all non-employees proposed. The Bidder agrees that failure to comply with such a request may lead to disqualification of the Bidder's proposal from further consideration.

Date	Signature	Print Name
	-	
for:		(Name of Proposing Party)

Education/Experience Certification

We certify that all statements made with regard to the education and the experience of individuals proposed for completing the subject work are accurate and factual, and we are aware that Geoscience BC reserves the right to verify any information provided in this regard and that untrue statements may result in the proposal being declared non-responsive.

Should a verification by Geoscience BC disclose untrue statements, Geoscience BC shall have the right to treat any contract resulting from the Bid as being in default and to terminate it accordingly. Failure to include this representation and warranty with the Bid by executing the signature block immediately following this paragraph shall render the bid non-responsive.

Date	Signature	Print Name
	-	
for:		(Name of Proposing Party)

ANNEX "F": PREPARATION OF PROPOSALS

1. General Comments

- The proposal should be concise.
- Do not use filler pages and unnecessary attachments.
- Each proposal will be evaluated solely on its own merit.
- When preparing a proposal, you should do so in conjunction with the stated Evaluation and Selection Criteria (Annex "D") against which your proposal will be evaluated
- The restatement of the technical requirements with a statement to the effect of "Intent to Perform" does not reveal the Bidder's understanding of the task nor an ability to carry it out.

2. Technical, Management and Price Proposals

2.1 Submission of Proposal

When responding, your proposal is to be submitted on or before the time stated on the first page of this RFP.

2.2 Technical Proposal

Your attention is drawn to Annex "D", against which the technical aspects of the acquisition will be evaluated. General requirements, line locations, line lengths, technical specifications and deliverable items are described in Annex "A". The regional data will be acquired using the parameters sets specified in section 3.2 of Annex "A".

The successful contractor will be invited to become involved in "fine tuning" the acquisition parameters. Your technical proposals should be concise and should address, but not necessarily be limited to, the following points:

- 2.2.1 A description of the survey organization and methodology to fulfill the minimum requirements specified in Annex "A", including data and system quality control procedures.
- 2.2.2 Details of the equipment, including all items listed in section 1.1.1 of Annex "D", to be used for the proposed survey.
- 2.2.3 A description of the work program which you intend to subcontract, if applicable.
- 2.2.4 State your request or recommendations, if any, for deviations from the requirements; specify the reasons for such deviations.
- 2.2.5 Identify the key personnel who will be assigned to these requirements, showing experience, education and qualifications and their participation in each task.
- 2.2.6 Outline the facilities, background and experience of your organisation, particularly as they refer to these requirements. Include any technical literature or brochures.
- 2.2.7 Identify any proprietary information that you propose to use in the program.
- 2.2.8 The work plan, wherever possible, is to include go/no-go decision points for all tasks, which are to be identified as part of your technical proposal.

2.3 Price Proposal

The price proposals should consist of the following for 350-400 km of data acquisition according to parameters specified in section 3.1.1 of Annex "A":

- 2.3.1 Firm Price for Mobilization of seismic survey crew to the survey area in Nechako basin.
- 2.3.2 Firm Price for Demobilization after completion of the field work from Nechako basin.
- 2.3.3 Estimated charges for permits and accessibility.
- 2.3.4 Firm Price Per Recording Hour for initial noise tests in the field. Total estimated time for initial noise tests will be approximately 5 hours.
- 2.3.5 Firm Price Per Recording Hour for noise tests and experimental acquisition at the request of the Contracting Authority as may be required due to changing geological conditions. Total estimated time for these tests is approximately 5 hours.
- 2.3.6 Firm Price for any mobilization and demobilization additional to that required to conduct the proposed regional survey shown in Figure 1 of Annex "A", in order to move the crew to alternate or additional survey lines. Total estimate of such mobilization-demobilization is 5 hours.
- 2.3.7 Firm Price Per Kilometer for seismic data acquisition. Prices should be quoted for acquisition in accordance with each of the acquisition parameter sets detailed in section 3.2 of Annex "A". Prices must include all mobilization and demobilization costs for movements within and between survey lines, and standard roll-on and roll-off at the ends of each line. The method for mobilisation between the northern and southern lines should be discussed in the management plan if it is considered to represent a significant additional cost to the survey.
- 2.3.8 Firm Price for all deliverable items as specified in section 3.5 of Annex "A".
- 2.3.9 Sales Tax and duties: Various items in your cost proposal maybe subject to various taxes, customs duties, etc., and this charge must be included in the prices with the exception of Goods and Services Tax (GST).
- 2.3.10 Goods and Services Tax (GST): The GST is **<u>not</u>** to be included in the price quoted by the Bidder. The total amount of GST is to be shown separately.

2.4 Management Proposals

Comprehensive Management Plans shall be submitted as part of the technical proposal. These Plans should address, but not necessarily be limited to the following points:

- a) Specify how you propose to control the management of the project and identify the project manager who will be responsible for overall control.
- b) Specify how you propose to control management of subcontracts, as applicable.
- c) Specify how you will respond to health, safety and environmental emergency situations that might occur during the survey.
- d) Specify any problems in mobilisation between seismic lines that represent a significant additional cost to the survey.

2.5 Method of Payment

Progress and final payments will be made by Geoscience BC on a proportionate basis to be determined at contract award.

Progress claims may be submitted on a monthly basis for data acquired in that month. The Contracting Authority or their delegate will take steps to verify the field data by detailed scanning of the field records and by processing selected tapes. If there are no obvious problems with the field data, the monthly progress payments will be initiated immediately after the data have been verified or within one month of initial receipt of the progress claim, whichever is earlier. Payments for mobilization may be included in the first progress payment. The progress payments for the acquisition of data will included payments for item 2.3.1 and 2.3.3 to 2.3.7 inclusive, less a 10% holdback. Progress payments will not exceed 90% of the total contract value for acquisition.

The final payment for acquisition of data shall be made after all deliverables specified in section 3.5 of Annex "A" have been received and accepted by the Nechako Project Leader.

The progress and final payments for the acquisition contract will only be made provided that:

- a) The Contractor submits promptly to Geoscience BC a fully completed claims for progress and final payments that include the following:
 - a. charges for work supported by receipts, vouchers etc.;
 - b. holdback of 10% of the total contract value for a progress claim;
 - c. net amount payable after deduction of the holdback for a progress claim (including GST on the full claimed amount);
- b) the progress and final claims are accompanied by interim and final reports respectively.
- c) the final reports are accepted by the Contracting Authority, and no data acquisition deficiencies are identified during processing of the data;
- d) the progress and final claims are approved by Geoscience BC.

The acquisition contractor shall certify an original and three (3) copies of each claim and forward the original and two copies to Geoscience BC, and one copy to the Contracting Authority.