TENDER NO. No.57(55)2016-Pur/T-82 dated 14 October 2016
for hiring of vessel for Marine Multichannel and Ocean Bottom Seismic Data Acquisition for Imaging the Andaman Subduction zone.

Consequent upon Pre-Bid Conference held on 24.10.16, the following documents are attached.

1. Minutes of Pre-Bid Conference and Clarifications issued during Pre-Bid Conference

2. Modifications issued to Tender dated 14.10.2016

3. Modified Form of Commercial Bid – Annexure B (i)

4. Attendance sheet of Firms attended the Pre-Bid Conference

Bidders may go through the above clarifications and modifications and may submit their bid accordingly.

- Controller of Stores & Purchase

MINUTES OF PRE-BID CONFERENCE HELD ON 24.10.2016 AT CSIR – NGRI, HYDERABAD TO GIVE CLARIFICATIONS FOR ISSUES RAISED BY FIRMS AGAINST TENDER NO. No.57(55)2016-Pur/T-82 dated 14 October 2016 for hiring of vessel for Marine Multichannel and Ocean Bottom Seismic Data Acquisition for Imaging the Andaman Subduction zone.

The following attended the Conference.

From Technical & Purchase Committee (Services)

Dr. N. Purnachandra Rao, Chief Scientist	-Chairman
Dr T.Ramprasad, Chief Scientist, NIO, Goa	- External Expert
Dr. Ningthoujam Lachit Singh, Scientist, NCAOR, Goa	- External Expert
Dr. G. Ashok Babu, Sr. Principal Scientist	--Member
Shri S. Raju, Sr. Principal Scientist	--Member
Shri M. Tirupathi, Senior Technical Officer (3)	--Member
Dr. Kalachand Sain, Sr. Principal Scientist --	IO & Member
Dr. Satyavani, Senior Scientist --	Alt. IO & Member
Ms. M.Vijaya Kumari, COFA	--Member
Shri S. Gnanaprakasam COSP	--Member Convener

From Firms

1. M/s. Hind Geo Private Limited, Mumbai represented by Shri.Gautam Kar, General Manager & Head of Seismic Division.

2. M/s. Geo API Solutions Pvt.Ltd, Mumbai represented by Mr Ripan Tachak.
   Mr. Dmitri Iluskiy attended the Pre Bid Conference through Skype

The TPC has given detailed replies/clarifications after going through issues raised by the following firms.

1. M/s. Mage, Russia issues raised through e-mail dated 19.10.2016

2. M/s. Hind Geo Private Limited, Mumbai issues raised through e-mail letter dated 21.10.16

3. M/s. M/s. Geo API Solutions Pvt.Ltd, Mumbai issues raised through Letter No. GEOAPI/NGRI/001 dated 20.10.16

The replies / clarifications given are in the Annexure – I enclosed.

(N.SATYAVANI) (KALACHAND SAIN) (M.TIRUPATHI)

(S.RAJU) (G.ASHOK BABU) (S.GNANAPRAKASAM)

(M.VIJAYA KUMARI) (NINGTHOUJAM LACHIT SINGH) (T.RAM PRASAD)

(N.PURNACHANDRA RAO)
CHAIRMAN

Annexure I

Clarification issued during the Pre-Bid conference on 24.10.2016

Sl.No	Query	Reply
1.	How many copies of bid are to be submitted	Only one copy
2.	Is there a list of the recommended banks for the Bid Security receipt?	No specific list
3.	Should all the fees in a Commercial Bid be specified both in USD and also in Indian Rupees?	There is no specific restriction. The fees in the commercial bid should be either in USD or any other freely convertible currency.
4.	Source depth is specified as 10 m in Cl. 1.4, as 10-12 m in Cl. 5.5.1.2 and as 6-8 m in Ann. B (ii), Cl. 1. Please clarify.	The source depth is normally maintained between 6-8m and the streamer depth is maintained between 10-12m, below the sea surface. The source and receiver depths are to be modeled for highest peak to peak ratio and minimum bubble pulse for the source signal and source signal spectrum without any notch within the desired frequency band (5-125 Hz). The Vender may be informed that they should provide the models of the different source / receiver depths for the given Source configuration. This will help us to decide and maintain the source and streamer depths during the data acquisition.
5.	Is this possible to use cartridges IBM 3592 instead of 3590?	Any media available for recording onboard. Ultimately the Raw data and processed data and Deliverables should be on Hard Disks 2 copies, as specified in Annexure F.
6	Is this possible to use 24" thermal plotter for hard copies instead of 36"colour?	36" thermal plotter, as the objective of the work is to image deep earth structure.

	Clause No. of Bidding Document	Remarks/ Changes / modifications Proposed	Remarks / CSIR-NGRI Response
1	Page 3 ….Data are to be collected along a 400 km-long seismic line, plus or minus 20%...	Profile is very short and if it will be reduce by 20%, than will be no monetary basement to carry out that job. We Propose : *data have to be collected along a 400 km-long seismic line, plus ~~or minus~~ 20%*	The sentence modified as : ..... data have to be collected along a 400km long seismic line.
2	Page 3 (ii) Pre-Stack depth migration of MCS data and Traveltime tomography of OBS data, to be carried out at CSIR-NGRI	Profile is short and processing can be done fast: *Pre-Stack depth migration of MCS data as well as Traveltime tomography of OBS data may to be carried out at ship during the ship way back from Andaman to Port and port call for custom clearance & demobilization or at CSIR-NGRI* 2- It should be clarified which Tomography should be carried out: first break or multilayered?	Data can be processed onboard while the vessel returns to port of demobilization (Chennai) with no additional days of ship charter and the rest of the work to be carried out at CSIR-NGRI. The first break and multi-layered tomography are to be carried out.
3	Page 3 …source and receiver intervals 25 m for MCS survey;… Page 43 Shot Interval : 50 m Page 59 Shot Interval 50 m	Source interval should be fixed as 50m everywhere for MCS survey	The source interval is now modified as 100m, both for MCS and OBS surveys.

4	Page 3 …50m source interval, 5.0-7.5 km OBS interval for wide-angle seismic survey… Page 43 shooting to be carried out at a spacing of 100m	Shooting interval for OBS survey has to be 100m minimum to provide 40 sec record length. Note that 50 m shooting interval with ship speed of 4,0 knots provides the record length of 25 seconds only ! We would recommended to increase shooting interval for OBS survey up to 150 meters in order to decrease the noise level for more clear view and identification of weak wide angle reflections from top and base of subducting oceanic plate at OBS data. Dense shooting interval you already have for MCS survey which should map upper part of the studied crust	Shot interval is fixed at 100m.
5	Page 5 2.6……. Documentary proof related to the works carried out by the bidder in the field of subduction imaging to be provided.	Change from "subduction" to the "Earth crust" Documentary proof related to the works carried out by the bidder in the field of Earth crust imaging to be provided.	The sentence is modified as: Documentary proof related to the works carried out by the bidder in the field of deep earth structure imaging to be provided.
6	Page 13 (iv) The bidder should provide a letter of having possession of 75 OBS.	Take in account 400km profile and maximum OBS interval 7.5km it will be enough 55 OBS + spare 5. Total 60 nos. (iv) The bidder should provide a letter of having possession of minimum 60 OBS.	Conditions specified in the tender document are to be adhered to.

7	Page 25 4.4.13 undertakes to provide and make available space for up to ten of the Client's representatives	Maximum 8 places on ship can be provided for extra crew. This amount should be comprises OBS crew. So reasonable amount of Client personal should be restricted to 3 persons including Indian cook.	Accommodation for 4 personnel from CSIR-NGRI is to be provided (excluding cook).
8	Page 38 5.1.5 As a result of onboard evaluation of the seismic reflection records the CSIR-NGRI Representative may vary the line co-ordinates and lengths to better address the Survey objectives. Such variations may result in relocation of all or part of a Survey Line and/or Survey Line extension or curtailment. However, even with such variations, the total line traverses are expected to be within the range of plus or minus 20% of the estimated ~400 line km of survey.	N/A as it is only one line, which coordinates have to be defined 15 days prior mobilization.	The MCS and OBS surveys are to be carried out simultaneously and the coordinates will be provided 15 days prior to the start of survey.
9	Page 38 5.1.6 The locations and the number of OBSs to be deployed shall be determined based on a preliminary assessment of the reflection data as the survey progresses, but the total number of OBSs to be deployed should be ~75. OBS will be deployed with a spacing of 5-7.5 km.	We propose to make OBS deployment will be done simultaneously with MCS progress. 5.1.6 The locations and the number of OBSs to be deployed shall be determined before MCS survey.	The line coordinates, the number of OBS to be deployed and the OBS locations will be provided 15 days prior to the start of the survey.

10	Page 39 5.2.1 The Service Provider shall conduct precise positioning, seismic reflection and refraction data acquisition and onboard preliminary data processing services. Post cruise Pre-stack Depth Migration, traveltime tomography, Preliminary Interpretation and Documentation of data should be carried out by the Service Provider at CSIR-NGRI.	This clause should be added by : The Pre-stack Depth Migration can be done on the ship as well as traveltime tomography of OBS data .	Data can be processed onboard while the vessel returns to port of demobilization (Chennai) with no additional days of ship charter and the rest of the work to be carried out at CSIR-NGRI.
11	Page 42 Clause 5.5.1.2 Minimum pressure : 2500 psi	Should be change on: Minimum pressure: 2000 psi.	The minimum pressure is to be maintained at 2000psi, during the survey.
12	Page 43-44 Clause 5.5.1.4 Ocean Bottom Seismometer Surveys	Clause should be added Minimum pressure: 2000 psi. The service provider should try to keep pressure above this value as much as possible for OBS shooting.	The service provider should keep the pressure above 2000psi during the survey.
13	Page 45 5.7.2 ……; the storage capacity of the OBS units for more than 3 months continuously.	Should be 5.7.2 ……; the storage capacity of the OBS units for more than 2,5 months continuously.	Modified as '..... the storage capacity of the OBS units for 2.5 months continuously'.

14	Page 45 5.7.4 The OBS units shall be deployed where requested by the CSIR-NGRI representative (s) onboard.	Due to remark 9 – N/A	The locations for the OBS deployment shall be provided prior to the survey.
15	Page 46 5.7.5 The OBS units must be capable of recording the seismic signal from the air gun array at the maximum offset of 250 km. The charge size should be appropriate for recording the MCS data with streamer length of 12 km and OBS data upto maximum 250 km distance	N/A as Service provider could not change the technical parameters fixed by Customer.	Accepted
16	Page 46 5.7.6 There should not be loss of two consecutive OBS units at any point of time during the length of the survey.	Should be: the acceptance of data will be approved by final data processing.	In case of loss and/or non recording of data in two or more consecutive OBS units, a repeat shooting along the line for recording at locations with OBS loss / non recording, has to be carried out, without any additional cost to CSIR-NGRI.
17	Page 49 5.10 Shipboard Interpretation Preliminary shipboard interpretation of the seismic data will be performed by experts to guide slight changes in the design for OBS experiments.	N/A as OBS positions have to be fixed prior MCS process.	The locations for the OBS survey will be provided prior to the commencement of the survey.

18	Page 66 Payment Payment will be made in 3 phase as under: 1. Mobilization charges: After completion of Mobilization and on start of Data Acquisition. 2. Data Acquisition Charges / Processing Charges – will be paid on completion of Data acquisition and processing as per the schedule of requirement. 3. Demobilization charges: after completion of demobilization	We request Payment should be done as per table 1. Mobilization charges: After completion of Mobilization and on start of Data Acquisition. 2. MCS&GM Data Acquisition/onboard processing Charges 3. Demobilization charges: after completion of ship demobilization 4. OBS data acquisition, onboard processing, interpretation	Payment will be made in 3 phase as under: 1. 20% of the contract value will be paid on mobilization and on the start of the Data Acquisition 2. 40% of the contract value will be paid on completion of the data acquisition and on completion of onboard data processing. 3. Final 40% of contract value will be paid on demobilization and after successful handing over of all the deliverable as specified in Annexure 'F'.
19	Service tax :- Tender Document has no details of Service tax applicable on this Contract.	Please clarify NGRI as exemption of Service tax for Scientific projects.	No, there is no exemption and it has to be shown separately in the price bid.

Parapraph no/ Clause	Statement	Clarification sought	CSIR-NGRI Response/Remarks
1.4 (iii)	Pre-stack depth migration of MCS data and travel time tomography of OBS data, to be carried out at CSIR-NGRI	Will it be possible to carry out the stated job at company's processing centre in Mumbai	No. Data can be processed onboard while the vessel returns to port of demobilization (Chennai) with no additional days of ship charter and the rest of the work to be carried out at CSIR-NGRI.
1.4 (iv)	Preliminary interpretation & Documentation of data sets, to be done at CSIR-NGRI	1. Please clarify the meaning of preliminary interpretation? 2. We understand that final interpretation of GM data including preparation of maps, interpretation of OBS data including time tomography etc are to be carried out at company's office in Mumbai. Is it correct?	1. Preliminary Interpretation means the onboard interpretation according to the specifications given in clause 5.9.1.2 2. No, this is not correct. Data can be processed onboard while the vessel returns to port of demobilization (Chennai) with no additional days of ship charter and the rest of the work to be carried out at CSIR-NGRI.
1.4 (iv)	…..source and receiver intervals 25 m for MCS survey; 50 m source interval, 5.0-7.5 km OBS interval …..	Is source interval for MCS survey 25 m or 50 m? To achieve a record length of 20 sec, source interval for MCS survey need to be 50 m for a vessel speed around 4.5-4.6 knot. Towing the streamer at a lesser speed may create balancing problem. Under 5.5.1.3, it is mentioned Shot interval as 50 m, which appears to be correct.	The shot interval is now modified to 100m both for the MCS and OBS survey. (based on the ship speed and length of data)
1.7	The successful bidder must ensure that the personnel and equipment are ready to commence the survey in the area by 01/03/2017	If the company is ready will it be permitted to commence the survey before 01/03/2017 with due intimation to NGRI?	The date of commencement of the survey has been advanced to 15/02/2017. However, it is agreeable to CSIR-NGRI if the service provider is willing to start the survey even before this date.
1.8	Bidders must undertake to	Time is too short for completion of	The completion date remains the same,

	complete all aspects of the surveys …….. by 20/03/2017	interpretation and documentation job. Can it be extended by one more month say up to 20/04/2017. Data acquisition may be completed by 20/03/2017.	in view of advancement of the date of commencement of the survey.
1.9	Tenders should be received by 11:30 a. m on 11/11/2016	Whether any soft copy of the tender document to be submitted or only hard copies required to be submitted.	No. The tender has to be submitted in Hard Copy ONLY.
2.27	Bid Security: Bidders are requested to submit EMD valid for 135 days from date of opening of Part – I Technical Bid ….. the successful bidder is required to extend the validity of the EMD for a further period till the formal contract is signed	But at paragraph 2.23 it is mentioned that offers with validity of acceptance for less than 180 days will not be considered. Therefore whether initial EMD validity period will be for 135 days or 180 days from date of opening of technical bid, please clarify.	Bid has to be valid for 90 days from the date of opening of Part-I (Technical bid) and EMD has to be valid for 135 days from the date of opening of Part-I (Technical bid).
2.39.1	The Technical bids shall be provided in one sealed envelope ……	Please clarify whether one copy of technical bid is sufficient or need another copy in duplicate. Commercial bids need to be submitted in duplicate as mentioned in 2.39.4	One copy each of Technical Bid (Part-I) and commercial Bid (Part-II) is sufficient.
2.49	Once the technical evaluation is completed, the price bids of only those bidders who are found technically acceptable will be opened …..	Please clarify whether any communication will be made to the unsuccessful bidders also or not.	Communication will be made to the unsuccessful bidders also.
4.4.13	Undertakes to provide and make available space for up to ten of the Client's representatives…..	Ten is very much on the higher side. Due to limited space generally two client representatives are accommodated in a seismic vessel. If requested for more, some representatives may have to be accommodated in shared cabins.	Accommodation for 4 personnel from CSIR-NGRI is to be provided (excluding cook).
5.1.4	The seismic reflection and refraction data are to be	Will it be only one line or different lines crossing each other? Can we have a copy	The survey is to be carried out along one line only. There are no cross lines.

	collected along one seismic line of ~400 line km, ……	of the area showing line orientation and end coordinates?	The line coordinates will be given to the service provider 15 days prior to the commencement of survey.
5.5.1.2 & 5.5.1.3	Source depth: 10-12 m; Streamer depth: 10 m	If both source and streamer are towed at same depth, noise levels will increase. Generally streamers are towed at a depth around 2 m deeper than the source. To maintain a streamer depth of 10 m, source should be towed at 8 m. In Annexure B (ii), source depth is mentioned as 6-8 m, which appears to be correct.	The service provider has to submit the modeling results for various source receiver configurations, with source depth varying between 6-8m and receiver depth varying between 8-10m, so that there is (i) highest peak to peak ratio, (ii) minimum peak to bubble pulse ratio and (iii) absence of notch in the source spectrum which contains frequencies between 5-125Hz.
5.7.2	…… the storage capacity of the OBS units for more than 3 months continuously	Why is it required to have a storage capacity of more than 3 months when the entire OBS survey is likely to be completed within a week? Does NGRI intend to keep the OBS for three months on the sea surface for passive recording?	This is to ensure that the OBS units have sufficiently big and dependable battery life and robustness.
Annexure B (i)	Mob / Demob fee (lumpsum)	Whether there is any cap on Mob/Demob fees (e.g. it should not exceed 2% of total contract value etc)	No cap on Mob/Demob.
B3	Fees for special processing	What is special processing? Is it different from processing sequences mentioned at 5.9.1.2 to be performed onboard? a. Prestack depth migration of MCS data – Is it to be quoted lumpsum or per line km? b. Traveltime Tomography of OBS data (lumpsum) – Understood c. Preliminary interpretation and documentation of data – Do we have	Yes, special processing is different from onboard processing and involves pre-stack depth migration of the MCS data and the travel time (first break and multi-layered) tomography of the OBS data. a,b,c to be quoted in lumpsum only.

		to quote lumpsum?	
Annexure E	Payment	Whether Service Tax to be separately with each invoice and will be reimbursed by NGRI?	No, there is no exemption and this component has to be shown separately in the price bid.

MINUTES OF TPC MEETINGS HELD
ON 25 & 26.10.2016 AT CSIR – NGRI, HYDERABAD
for hiring of vessel for Marine Multichannel and Ocean Bottom Seismic Data Acquisition for Imaging the Andaman Subduction zone.

The following attended the meeting.

Dr. N. Purnachandra Rao, Chief Scientist	-Chairman
Dr T.Ramprasad, Chief Scientist, NIO, Goa	- External Expert
Dr. Ningthoujam Lachit Singh, Scientist, NCAOR, Goa	- External Expert
Dr. G. Ashok Babu, Sr. Principal Scientist	--Member
Shri S. Raju, Sr. Principal Scientist	--Member
Shri M. Tirupathi, Senior Technical Officer (3)	--Member
Dr. Kalachand Sain, Sr. Principal Scientist --	IO & Member
Dr. Satyavani, Senior Scientist --	Alt. IO & Member
Ms. M.Vijaya Kumari, COFA	--Member
Shri S. Gnanaprakasam COSP	--Member Convener

The TPC met on 25.10.2016 at 2.30 p.m and on 26.10.2016 at 12.00 Noon. Based on the discussions had with the following firms who had attended the Pre-Bid Conference,

1. M/s. Hind Geo Private Limited, Mumbai
2. M/s. Geo API Solutions Pvt.Ltd, Mumbai

feed back from external experts and also considering the operational requirements, the TPC has made modifications to the tender documents.

The modifications are given in the annexure.

(N.SATYAVANI) 26/10/16 (KALACHAND SAIN) 26/X/16 (M.TIRUPATHI) 26/X/2016

(S.RAJU) 26/10/16 (G.ASHOK BABU) 26/10/2016 (S.GNANAPRAKASAM) 26/X/16

(M.VIJAYA KUMARI) 26/X/16 (NINGTHOUJAM LACHIT SINGH) 26/10/16 (T.RAM PRASAD) 26/10/16.

(N.PURNACHANDRA RAO)
CHAIRMAN

Annexure II

Modifications to the tender document made by CSIR-NGRI.

Page number & Clause number	Existing version	Modified version
Pg.3 Clause 1.1	CSIR-National Geophysical Research Institute referred (NGRI), invites tenders for consideration of awarding the work of marine geophysical surveys in parts of the Andaman offshore region.	CSIR-National Geophysical Research Institute referred (NGRI), invites tenders for consideration of awarding the work of marine geophysical surveys in parts of the Andaman - Nicobar offshore region.
Pg.3 Clause 1.3	The long-offset seismic reflection, wide-angle seismic refraction data and marine gravity and magnetic data are to be collected along a 400 km-long seismic line, plus or minus 20%, and at water depths between 25 and 5000 m.	The long-offset seismic reflection, wide-angle seismic refraction data and marine gravity and magnetic data along with bathymetry are to be collected along a 400 km-long seismic line at water depths between 25 and 5000 m.
Pg. 3 Clause 1.4	tow depth streamer/airgun 10 m,	tow depth streamer (8-10m)/airgun (6-8m),
Pg. 3 Clause 1.4	source and receiver intervals 25 m for MCS survey; 50m source interval, 5.0-7.5 km OBS interval for wide-angle seismic survey.	Source and receiver intervals are 100m and 25m respectively for the MCS survey; 100m source interval, 5.0-10km OBS interval for wide-angle seismic survey.
Pg.3 Clause 1.5	However, even with such variations, the total line km are expected to be within a range of plus or minus 20% of the estimated 400 line km for each survey (MCS, OBS,G&M).	However, even with such variations, the total length will be 400 lkm of bathymetry, MCS, OBS, G/M , with 150km offset shooting at both the ends of the line.
Pg.4: Clause 1.6	The locations and the number of OBS to be deployed shall be determined by CSIR-NGRI or its representative(s) onboard as the survey progresses, but the total number of OBS to be deployed shall be around 75.	The locations and the number of OBS to be deployed shall be informed to the service provider 15 days prior to the commencement of survey, but the total number of OBS to be made available onboard should be 75.
Pg.6 Clause 1.7	The successful bidder must ensure that the personnel and equipment are ready to commence the survey in the area by 01/03/2017.	The successful bidder must ensure that the personnel and equipment are ready to commence the survey in the area by **15/02/2017**.
Pg.6 Clause 2.6	Documentary proof related to the works carried out by the bidder in the field of subduction imaging to be	Documentary proof related to the works carried out by the bidder in the field of imaging of deep earth

	provided	structure in the last two years as on the date of tender opening to be provided.
Pg.8 Clause 2.23	Offers with validity of acceptance for less than 180 days will not be considered.	Offers with validity of acceptance for less than 90 days will not be considered.
Pg.13 Technical Capability	The ship offered for data acquisition may be inspected by a team, constituted by the Director, CSIR-NGRI.	The ship offered for data acquisition will be inspected by a 3 member team, constituted by the Director, CSIR-NGRI, at the cost of the successful bidder.
Pg.13 Clause 2.41	....ready to commence the survey by 01/03/2017.	....ready to commence the survey by **15/02/2017**
Pg.20 Clause 3.21	TOTAL COST = Mobilization cost + (MCS gross per line kilometer cost * 400) + (cost for acquisition, processing and documentation of seismic refraction data using OBS at 75 locations) + fees for the special processing + cost for acquiring the gravity and magnetic data + standby charges per day + demobilization cost.	**TOTAL COST =** Mobilization cost (including travel time from port of mobilization* to survey area)+(MCS acquisition and onboard processing per line kilometer cost x 400) + (cost for acquisition and processing of OBS data per unit x 60 locations) + fees for the pre-stack depth migration of MCS data (lumpsum)+ fees for travel time tomography of OBS data (lumpsum) + cost for acquisition and processing the G/M and bathymetry data (lumpsum) + standby charges per day (to be quoted for one day)+demobilization cost (including the travel time from survey area to port of demobilization) + cost of interpretation and documentation of MCS and OBS data + Remuneration payable to the Agent/Representative, if any + service tax. **The Annexure B(i) (form of commercial bid modified & attached)** *: port of mobilization is Chennai
Pg.25 Clause 4.4.13	undertakes to provide and make available space for up to ten of the Client's representatives during the entire survey period, and to provide boarding & lodging, and voice, facsimile and data communication facilities on the survey vessel to these personnel at no extra cost to CSIR-NGRI; and	undertakes to provide and make available space for up to four of the Client's representatives during the entire survey period, and to provide boarding & lodging, and voice, facsimile and data communication facilities on the survey vessel to these personnel at no extra cost to CSIR-NGRI; and
Pg.38 Clause 5.1.1	This Section provides specifications of the requirements for conducting marine geophysical	This Section provides specifications of the requirements for conducting marine geophysical

	surveys in the Andaman region.	surveys in the Andaman - Nicobar offshore region.
Pg.38 Clause 5.1.3	(iii) special processing of MCS data and Traveltime tomography of OBS data	(iii) special processing of MCS data and Traveltime (first break and multi-layered) tomography of OBS data
Pg.38 Clause 5.1.4	The seismic reflection and refraction data are to be collected along one seismic line of ~400 line km, plus or minus 20%, and at water depths between 25 m and 5000 m	The seismic reflection and refraction data are to be collected along one seismic line of ~400 line km, and at water depths between 25 m and 5000 m
Pg.38 Clause 5.1.5	However, even with such variations, the total line traverses are expected to be within the range of plus or minus 20% of the estimated ~400 line km of survey	However, even with such variations, the total line length is expected to be ~400 line km.
Pg.38 Clause 5.1.6	OBS will be deployed with a spacing of 5-7.5 km. Gravity and Magnetic data are also to be acquired along the line.	OBS will be deployed with a spacing of 5-10 km, with an offset shooting of 150km at both the ends of the 400lkm profile. Gravity, Magnetic and bathymetry data are also to be acquired along the line.
Pg.38 Clause 5.1.7	Work flow should be seismic reflection onboard data processing, gravity and magnetic data processing and OBS deployment.	Work flow given in 5.9.1.2 should be followed for onboard seismic reflection data processing. Gravity, magnetic and bathymetry data processing as per standard.
Pg.39 Clause 5.2.1	Travel-time tomography	Travel time (first break and multi-layered) tomography
Pg.42 Clause 5.5.1.2	Source depth :10-12m Minimum pressure:2500psi Frequency Band: 5125Hz The air pressure in the lines to the air guns immediately prior to shot firing shall be nominally 2500 psi, or not less than 98% of the nominal specified pressure. The air gun shall be towed within the depth range of	Source depth: 6-8m Minimum pressure: 2000psi Frequency Band: 5-125Hz The air pressure in the lines to the air guns immediately prior to shot firing shall be minimum 2000 psi. If the pressure drop is less than 2000psi for consecutive 10 shots, then the shooting for that part has to be repeated, at no additional cost to CSIR-NGRI. The air gun shall be towed within the depth range of 6-

	10-12m with the following parameters during the surveys	8m with the following parameters during the surveys
Pg.42 Clause 5.5.1.3	Streamer depth:10m Shot Interval:50m	Streamer depth:8-10m Shot Interval : 100m
Pg.43 Clause 5.5.1.4	75 OBS deployments on the same line: shooting to be carried out at a spacing of 100m and OBS spacing is to be 5-7.5 km Shooting Interval :50m	60-75 OBS deployments on the same line: shooting to be carried out at a spacing of 100m and OBS spacing is to be 5-10 km Shooting Interval:100m
Pg.45 Clause 5.7.1	The seismic reflection and Ocean Bottom Seismometer (OBS) surveys shall be conducted separately.	The seismic reflection and Ocean Bottom Seismometer (OBS) surveys shall be conducted simultaneously.
Pg 45 Clause 5.7.2	The 4-C OBS surveys shall comprise profiles of 75 OBS along the seismic line. The units should be capable of continuously acquiring and storing seismic data; the storage capacity of the OBS units for more than 3 months continuously	The 4-C OBS surveys shall comprise one profile of 60-75 OBS along the seismic line. The units should be capable of continuously acquiring and storing seismic data; the storage capacity of the OBS units for 2.5 months continuously. The calibration test reports as per 5.8.6 to be handed over to CSIR-NGRI prior to the data acquisition.
Pg.45 Clause 5.7.4	The OBS units shall be deployed where requested by the CSIR-NGRI representative (s) onboard.	The OBS units shall be deployed at locations provided by CSIR-NGRI. Estimated OBS landing location is to be provided to CSIR-NGRI.
Pg. 46 Clause 5.7.5	The OBS units must be capable of recording the seismic signal from the air gun array at the maximum offset of 250 km	The OBS units must be capable of recording the seismic signal from the air gun array at the maximum offset of 250 km; and an offset shooting of 150km has to be carried out at both the ends of the profile.
Pg. 46 Clause 5.7.6	There should not be loss of two consecutive OBS units at any point of time during the length of the survey.	In case of loss and/or non recording of data in two or more consecutive OBS units, a repeat shooting along the line for recording at locations with OBS loss / non recording has to be carried out, without any additional cost to CSIR-NGRI. Loss of 10% of the total number of deployments is acceptable by CSIR-NGRI.

Pg.48 Clause 5.8.8	More than eight percent of the traces are bad or with more than four adjacent bad traces or more than three bad traces in eight adjacent traces. Reduction by more than 10% of either volume or normal operating pressure of air	More than eight percent of the traces are bad or with more than four adjacent bad traces or more than three bad traces in each eight adjacent traces. Reduction either by more than 10% of air gun volume for more than half an hour or the operating pressure less than 2000psi
Pg.48 Clause 5.8.9	Loss of more than twenty percent (20%) of array volume Pressure drop of more than ten (5) percent of normal operating pressure	Loss of more than ten percent (10%) of array volume Pressure drops to less than 2000psi
Pg.55 A18	Place of the processing centre in India where the geophysical & navigation data are proposed to be processed.	DELETED
Pg 56. ANNEXURE B(i); B1	The fees for recording the far-field signature (once, before the start of the surveys) and synthetic modeling of far-field signature should be provided separately.	DELETED
Pg.57 B1.1	Mobilisation fee (lumpsum)	Mobilisation fee, including the travel days from port of mobilization* to survey area(lumpsum) *: Port of mobilization is Chennai
Pg 56. ANNEXURE B(i); B1.1	Recording of far-field signature	DELETED
Pg.57 B2	Demobilisation fee (lumpsum)	Demobilisation fee, including the travel days from survey area to the port of mobilization(lumpsum)
Pg.58 B3	Standby Charges, per day	Standby Charges, per day, to be quoted for one day
Pg.58: B4		Two new rows to be added after B4 B5. Service Tax (plus applicable cess) B6. Grand Total
Pg.59 Annexure B(ii)	1. MCS Source Specifications Minimum Pressure: 2500psi	1. MCS Source Specifications Minimum Pressure: 2000psi

	2. Streamer Details Streamer depth: 10m Shot Interval: 50m 3.OBS No of OBS: 75 Shooting interval:50m 6. Ship Details should be able to provide accommodation for 10 CSIR-NGRI personnel	2. Streamer Details Streamer depth: 8-10m Shot Interval: 100m 3.OBS No of OBS: 75 Shooting interval:100m 6. Ship Details should be able to provide accommodation for 4 CSIR-NGRI personnel (excluding cook)
Pg. 66 Payment	Payment will be made in 3 phase as under: 1. Mobilization charges: After completion of Mobilization and on start of Data Acquisition. 2. Data Acquisition Charges / Processing Charges – will be paid on completion of Data acquisition and processing as per the schedule of requirement. 3. Demobilization charges: after completion of demobilization.	Payment will be made in 3 phase as under: 1. 20% of the contract value will be paid on mobilization and on the start of the Data Acquisition 2. 40% of the contract value will be paid on completion of the data acquisition and on completion of onboard data processing. 3. Final 40% of contract value will be paid on demobilization and after successful handing over of all the deliverable as specified in Annexure 'F'.
Pg. 68 Annexure 'F' F5 Data Sets deliverables	The Contractor shall, together with the Operational Field Report submit two copies of all tapes containing the raw and processed navigation.....'.	The Contractor shall, together with the Operational Field Report submit two copies of all hard disks containing the raw and processed navigation.....'. To Add on Pg.69 before Navigation Processing Deliverables G & M Data: 1. Two copies of the acquired gravity and magnetic data in ASCII format 2. Gravity and magnetic data processing report (2

		sets)
Pg.69 Data Interpretation	Time and depth sections for each of the seismic reflection profiles	Unmigrated / Migrated Time and depth sections of the seismic reflection profile. Gravity, Magnetic models with bathymetry and velocity models (from OBS).

ANNEXURE 'B(i)'

Modified FORM OF PRICE BID (To be submitted)

Tender for: Marine Multichannel and Ocean Bottom Seismic Data Acquisition for Imaging the Andaman Subduction Zone

Note

- Price bid should be submitted in separate covers in accordance with the specifications given in Section 5
- The payment will be based upon the costs quoted herein.
- Bidders should quote the rates strictly in accordance with the formats given below failing which their offer shall be rejected.
- For the purpose of computation of Rate for geophysical data acquisition, the line length is defined as the product of the number of shot fired and the shot point interval.
- The data acquisition and processing rates shall be inclusive of all costs of all surveys viz., seismic reflection and refraction surveys including navigation and echo sounding.

B1 MOBILISATION

Shall include all activities required by the Contractor to meet his obligations prior to the start of the tendered work, and shall include but not be limited to the mobilization of the vessel, equipment and personnel to the survey site, calibration of the onboard equipment and other incidentals, and acceptance by CSIR-NGRI that all systems are checked and operating within the Specifications and capable and ready for the surveys. However, the evaluation of the bids will be done on the basis of formula detailed at 3.21 of the Tender Document.

B1.1 MOBILISATION FEES

Details	**MOBILISATION FEES IN US DOLLARS / EQUIVALENT INDIAN RUPEES**
Mobilisation fee, including the travel days from port of mobilization* to survey area (lumpsum) * port of mobilization is Chennai	

B2 DEMOBILISATION

Shall include all activities required by the Contractor to meet his obligations subsequent to the Last chargeable shot on the last Survey Line, and shall include, but not be limited to the demobilization of the vessel, equipment and personnel from the Survey site.

B2.1 DEMOBILISATION FEES

Details	DEMOBILISATION FEES IN US DOLLARS / EQUIVALENT INDIAN RUPEES
Demobilisation fees, including the travel days from the survey area to the port of demobilization (lumpsum)	

B3 OPERATION FEES

Shall include all charges related to acquisition, processing and documentation of seismic reflection and refraction data as detailed in this Tender Document as well as for handing over the final products to CSIR-NGRI.
Standby charges shall be paid at the daily rate pro-rated to nearest quarter of an hour subject to the conditions of the Agreement in the document.

	Unit rate in US Dollars / Equivalent Indian Rupees		
	Unit Rate	*no of units*	*Total*
Rate per line km. of seismic reflection surveys including data acquisition, processing and interpretation onboard as per the details provided in the Tender Document		x 400	
Rate per deployment of OBS, including data acquisition, processing, interpretation and documentation as per the details provided in the Tender Document		x 60	
Rate for Special processing, interpretation and documentation of seismic data as per the details provided in the Tender Document to be carried out at CSIR-NGRI. a. Prestack depth migration of MCS data (lumpsum)			
b. Traveltime Tomography of OBS data (lumpsum)			
c. Cost of interpretation and documentation of MCS and OBS data (lumpsum)			

Cost for acquisition and processing the G/M and bathymetry data (Lumpsum)
Standby Charges, per day , to be quoted for one day
B4 Details of the nature and extent of services to be provided by the Indian Agent/ representative of an overseas bidder on behalf of the bidder and the remuneration to be provided to him in Indian currency
B5. Service Tax (plus applicable cess)
B6. Grand Total (B1 + B2 + B3 + B4 + B5)

Date: Signature of the bidder
Name and full address

END OF ANNEXURE 'B(i)'

CSIR - NATIONAL GEOPHYSICAL RESEARCH INSTITUTE
(Council of Scientific & Industrial Research)
UPPAL ROAD, HYDERABAD-500 007,(AP), INDIA

ATTENDENCE SHEET FOR THE PRE-BID MEETING

Tender No. 57(55)2016-PUR/T-82 dated 14/10/2016

Hiring of Vessel with necessary equipments to carry out large offset Multichannel Seismic (MCS) and Wide Angle Ocean Bottom Seismic (OBS) Data Acquisition & processing across the Andaman Subduction Zone

The following Bidders have attended for the Pre-bid meeting held on 24/10/2016 – 10.30 a.m. at Committee Room – Gas Hydrate Building, CSIR-NGRI, Uppal Road, Hyderabad.

Sl. No.	Name & Designation	Company Name & Address	Contact Telephone No. with e-mail
1	RIPAN JACHAK COMMERCIAL EXECUTIVE	GEO API MUMBAI.	9099533777 ripan7@yahoo.com
2	GAUTAM KAR General Manager	Hind. Geo Pvt Ltd	9819940426 kar.gautam@hindgeo.in