
MEMORANDUM OF UNDERSTANDING

BETWEEN

PTT Exploration and Production Public Company Limited

AND

Chiang Mai University

21 September 2023

MEMORANDUM OF UNDERSTANDING

THIS MEMORANDUM OF UNDERSTANDING (“**MOU**”) is made into this 21st day of September 2023. (“**Effective Date**”)

BETWEEN

PTT Exploration and Production Public Company Limited (hereinafter referred to as “**PTTEP**”), a company registered and existing under the laws of Thailand and having its principal business address at 555/1 Energy Complex Building A, Floors 19th – 36th, Vibhavadi Rangsit Road, Chatuchak, Bangkok, Thailand

AND

Chiang Mai University (hereinafter referred to as “**CMU**”), a public university, established under University Act B.E. 2507, having its office at 239 Huay Keaw Road, Tambon Suthep, Mueang Chiang Mai District, Chiang Mai, Thailand 50200.

Hereinafter individually referred to as the “**Party**” and collectively referred to as the “**Parties**”.

WHEREAS:

1. PTTEP commits to maintain its social responsibility and sustainable development of both the company and Thailand. This commitment is expressed through a variety of activities, including educational support; and
2. PTTEP and CMU recognize the benefits to be realized by each party through the design and conduct of cooperative education and research; and
3. Both Parties agree to co-operate in particular to encourage the scholastic activities.

NOW, THEREFORE, the Parties hereby agree as follows:

1. DEFINITIONS

- 1.1. Unless the context requires otherwise, all capitalized terms used in this MOU shall have the meanings given to them below.

“**Affiliate**” means any Person who, directly or indirectly, is in Control of, is Controlled by, or is under the common Control with, that Party.

“**Background Information**” means all technical data, information (including Confidential Information), drawings, designs, operating experience and techniques and other knowledge in any form including Intellectual Property relating to technology possessed by each Party or its Affiliates prior to or as at the Effective Date of this MOU.

“**Background Intellectual Property**” shall have the meaning as stipulated in Clause 7.1.

“**Collaboration**” means the cooperation involving the participation and involvement of the Parties in relation to the collaboration including but not limited to education and teaching activities and Joint Research in pursuant to this MOU to explore avenues to collaborate for pedagogy, based on the strongest ability, areas of expertise, capabilities and resources of each Party in the areas of as specified in Appendix 1;

“**Commercial Purpose**” shall mean any income-generating (whether in money or in kind) purpose of any kind, whether direct or indirect; including, without limitation, the use, sale, offer for sale, marketing, distribution, importation and exportation of a product or of a process contains or derives from the Collaboration pursuant to this MOU, to producers, distributors, resellers, customers and/or end-users or any preparation thereof; as well as the license or sub-license to a third party of the right to use, sell, offer for sell, marketing, distribute, import and export of a product or of a process contains or derives from the Collaboration pursuant to this MOU, to producers, distributors, resellers, customers and/or end-users.

“**Confidential Information**” means any and all proprietary information of a Party, Affiliates of a Party, and/or customers of a Party; whether prior to or during the term of this MOU, that is not generally known to the public in whatever form or format,

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whether in tangible or intangible form, written or oral, whenever and however disclosed, presented, delivered, provided, or made available by one Party to the other Party in furtherance of this MOU. Confidential Information shall include (i) any marketing strategies, plans, financial information, or projections, operations, sales estimates, business plans and performance results relating to the past, present or future business activities of such Party and/or its Affiliates; (ii) plans for products or services, and customer or supplier lists; (iii) any knowledge, scientific or technical information, benchmark data, invention, design, process, procedure, formula, improvement, technology or method; (iv) any concepts, report, Results, Final Report new inventions, all patentable and non-patentable inventions including Foreground Intellectual Property, data, know-how, works-in-progress, designs, development tools, specifications, computer software, source code, object code, flow charts, databases, inventions, information and trade secrets; (v) any data or information resulting from the Confidential Information; and (vi) the terms and conditions of this MOU, as well as any information that a Party or Affiliates of a Party, as applicable, received from any third party and is obligated to treat as confidential.

“**Control**” over a Person means:

- (i) ownership or control, either directly or indirectly, of more than fifty percent (50%) of the equity share capital, voting rights, or the like, of the Person;
- (ii) direct or indirect control or power to control the composition of, or direct or indirect power to appoint more than fifty percent (50%) of, the members of the board of directors, executive management, or other equivalent or analogous body of the Person; or
- (iii) entitlement to receive more than fifty percent (50%) of any, but not necessarily all, income or capital distribution made by the Person (either upon declaration of dividends, liquidation, winding-up, dissolution, or otherwise);

and “**Controls**” and “**Controlled**” shall be construed accordingly.

“**Effective Date**” means the date on which this MOU is duly made by the Parties as specified in the first page of this MOU;

“**Final Report**” means the final written report detailing all of the Results obtained pursuant to the Collaboration and/or Joint Research in pursuant to this MOU;

“**Foreground Intellectual Property**” means all technical data, information, drawings, designs, operating experience, procedures, algorithms, models or computer codes, and techniques and other knowledge in any form including Intellectual Property which are obtained or developed, created, written, prepared or discovered by or on behalf of either Party or jointly arising from and during the performance of a Collaboration in relation to this MOU but shall exclude Background Intellectual Property;

“**Intellectual Property**” means any of the following rights in, and in relation to, for their full term (including any extensions or renewals thereof) and wherever in the world enforceable:

- (i) all patents and patent applications (including provisionals, divisionals, continuations, continuations-in-part, requests for continued examination, reissues and patents and patent applications derived therefrom, and any post-grant proceeding certificates) both domestic and foreign; and all inventions, discoveries and any other inventive rights of a nature similar to the foregoing, both domestic and foreign, whether patentable or not (collectively, “Patents”);
- (ii) all trademarks, service marks and any applications or registrations attributed thereto, both domestic and foreign, together with the good will of the business in connection with which such marks are used and which is symbolized by the marks;
- (iii) all copyrights and any copyright applications or registrations attributed thereto both domestic and foreign and whether such works are published or unpublished, and any other rights of a nature similar to the foregoing whether protected under domestic or foreign law, including the Berne Convention (collectively, “Copyrights”);
- (iv) all know-how, trade secrets, confidential or proprietary information, software, technical information, data, process technology, plans and drawings, whether conceived or reduced to writing or practiced domestically or

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- internationally, moral rights, performers' rights, broadcast rights, and any other ancillary rights thereto, rights in databases, topography rights, utility models, including the benefit of all registrations of, applications to register, and the right to apply for registration of, any of the foregoing items; and
- (v) All rights in internet web sites and internet domain names, whether domestic or foreign.

“**Joint Research**” means the research and development and/or study collaboration jointly conducted by the Parties in the area of research as stipulated in Appendix I;

“**MOU**” means this Memorandum of Understanding and any Appendixes attached to it including any variation, amendment or supplement in writing as may be agreed by the Parties from time to time;

“**Person**” means a person, including a natural person, a firm, a partnership, a body corporate, an association, an organization, and a trust, whether or not having a separate legal entity;

“**Project Manager**” means head of working team appointed by PTTEP who shall provide guideline and monitor the Collaboration and Joint Research of this MOU and having the qualifications and/or experience to perform the Joint Research; including its respective successors or replacements which is assigned by a Party and informed to the other Party in writing;

“**Proposal**” means a definitive proposal(s) between the Parties for teaching activities and Joint Research that are executed according to and within the scope of this MOU;

“**Results**” mean any and all tangible and intangible results and conclusions pertaining to Joint Research to be agreed upon by the Parties in accordance to the Joint Research; including, but not limited to, inventions, improvements, modifications, adaptations, reproductions, working papers, all interim and any draft reports issued prior to the Final Report;

1.2 Interpretation

Save to the extent that the context or the express provisions of this MOU otherwise require:

- (a) Words importing the singular include the plural and vice versa.
- (b) All headings specified herein are for convenience only and shall not affect interpretation of this MOU.
- (c) A reference to a Clause or Appendix is a reference to a clause or Appendix of this MOU as well as their amendments or replacements further to this MOU, unless expressly indicated otherwise herein.
- (d) All Appendixes hereto and their replacements/updates are an integral part of this MOU. In the event of a conflict or inconsistency between any part in the MOU and any of the Appendixes, the MOU shall at all times prevail to the extent of such conflict or inconsistency.
- (e) References to "hereof", "herein" or "hereto" or other words of similar import shall be read as references to this MOU.
- (f) A day is a calendar day and is to be interpreted as the period of time commencing at midnight and ending twenty-four (24) hours later.
- (g) A reference to a Party includes successor(s) and permitted assign(s) of the Party.
- (h) The words "include", "including", "for example", or "such as" are not to be interpreted as words of limitation and when such words introduce an example, they do not limit the meaning of the words to which the example relates, or to examples of a similar kind.
- (i) the term "in writing" includes:
 - (i) a written instrument signed by the Parties;
 - (ii) a notice or communication given in accordance with Clause 11;
 - (iii) any form of electronic communications and signatures
- (j) any reference to a date or time is a reference to that date or time in accordance to where the Project will be executed. No rule of construction

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applies to the detriment of any Party by reason of that Party having control and/or was responsible for the preparation of this MOU or any part thereof.

2. STATEMENT OF INTENT

- 2.1. This MOU is intended to outline the present understanding of the terms contemplated between the Parties in defining the scope of the Collaboration, the Parties' roles, rights and responsibilities in relation to the Collaboration.
- 2.2. The Parties have expressed their desire to establish and record in this MOU, the areas of possible and potential Collaboration, which shall comprise but not limited to the following activities:
- i. Co-operation in educational and teaching activities in the areas as specified in **Appendix I.**
 - ii. Organization of Joint Research, joint field excursion, conferences and seminars; and
 - iii. Other activities as mutually agreed upon by both Parties.
- 2.3. Each of the identified areas of Collaboration shall be captured and formalised in a Proposal between the Parties and/or their respective Affiliates.
- 2.4. **Each Party agree to be responsible for its own costs and expenses** incurred to it in respect of any research and development and any activities in relation to this MOU.

3. DURATION

This MOU shall become effective from the Effective Date of this MOU and shall continue in effect for a period of five (5) years unless earlier terminated or extended in writing by the Parties in accordance to the provisions of this MOU.

4. PRINCIPLE OF CO-OPERATION

The Parties shall endeavour in good faith to implement this MOU and shall

cooperate with each other with due diligence, efficiency and in conformity with sound scientific, management and financial practice to achieve the objective of this MOU throughout the term of this MOU.

5. NATURE OF MOU

5.1. This MOU represents the good faith, understanding and statement of intention of the Parties to proceed further with the Collaboration and as such shall not have any legal binding effect, except for Clause 1, 3, 5, 7, 8, 9, 10, 11, 12 and 13 which shall be legally binding and enforceable against the Parties.

5.2. Nothing contained herein shall create or be deemed to create an association, joint venture, partnership or principal and agent relationship between the Parties hereto. Neither Party shall have the right, power or authority to enter into any agreement or commitment, assume any obligation or responsibility, or act on behalf of the other Party.

5.3. The Appendix(es) to this MOU shall forms as an integral part of this MOU.

6. DECISION MAKING AND WORKING TEAM

6.1. In order to monitor and facilitate the Collaboration in pursuant to this MOU, either Party shall appoint at least three (3) persons from their part to form as a working team, and both Parties agree that working team shall be authorized:

- (a) to consider all matters for the best benefit for each Parties;
- (b) to perform all tasks in good faith and use its best effort for the success of the Collaboration according to the agreed scope of intent and purpose as specified in this MOU;
- (c) to review the overall quality of the Collaboration and to propose actions to enhance the Collaboration; and
- (d) to propose, consider and approve new Proposals.

6.2 Each Party shall promptly notify the other Party in writing of any change in the member of the working team.

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7. INTELLECTUAL PROPERTY RIGHTS

- 7.1. Unless it is expressly provided otherwise herein, the Party shall own all rights, title, and interests in and to the Intellectual Property of such Party or its Affiliates which are or have been developed independently or existing before or as of the Effective Date of this MOU (“**Background Intellectual Property**”).
- 7.2. Unless otherwise agreed in writing, each Party agrees that it will not use the other Party's Background Intellectual Property for any purpose other than for the performance of its obligations hereunder.
- 7.3. **No Transfer of Intellectual Property**
Unless expressly provided otherwise herein, no title to any proprietary or Intellectual Property Rights of any Party is transferred to the other Party or Parties hereto.
- 7.4. The Results and/or Final Reports including any Intellectual Property which are obtained or developed, created, written, prepared or discovered from and during the performance of a Collaboration and/or Joint Research in relation to this MOU but shall exclude Background Intellectual Property (“**Foreground Intellectual Property**”); shall be solely owned by PTTEP.

8. TERMINATION

- 8.1. This MOU may be terminated:
- a) without cause at any time by either Party by giving the other Party fourteen (14) days prior written notice; or
 - b) upon any breaches to any binding provisions of this MOU (as listed in Clause 5.1) and the breaching Party fails to remedy such breach within thirty (30) days from the date received written notice notifying such breach from the non-breaching Party, the non-breaching Party may, at its sole option, terminate this MOU without further notification to the breach Party.
- 8.2. **Surviving Clauses**
This Clause 8.2 (Surviving Clauses), Clause 9 (Confidentiality Obligation), Clause 10 (Representation and Liability) and Clause 12 (Governing Law and Dispute

Resolution) shall survive the expiration and/or termination of this MOU.

9. CONFIDENTIALITY OBLIGATION

9.1. During the term of this MOU and at all times thereafter, each Party ("**Recipient**") will:

- (a) hold all Confidential Information disclosed from the other Party ("**Disclosing Party**") in strict confidence;
- (b) refrain from using or permitting others to access and/or use the Disclosing Party's Confidential Information in any manner or for any purpose not expressly permitted or required by this MOU;
- (c) refrain from disclosing or using, or permitting others to disclose or use, any of the Disclosing Party's Confidential Information to or for any third party unless express written consent from the Disclosing Party is firstly obtained, which will be determined on a case-by-case basis;
- (d) not publicly announce or disclose the existence of this MOU including its terms and conditions, or advertise or release any publicity regarding the Joint Research, Results, and/or the Final Report without the prior written consent of the other Party which shall not be unreasonably withheld or delayed; and
- (e) limit access to the Disclosing Party's Confidential Information to the officers, directors, employees, representatives, agents, and Affiliates of the Recipient (as applicable) who have a reasonable need to know basis in order to perform and fulfill the Recipient's obligations hereunder.

9.2. Both Parties shall ensure that any Recipient, to whom the Confidential Information is disclosed to, which includes but not limited to, directors, officers, employees, affiliates, agents, or other representatives of the Parties (including attorneys, accountants and financial advisors) who need to know such Confidential Information for the purpose of this MOU, undertakes to comply with the confidentiality obligations equivalent to the terms and conditions specified under this MOU unless such person is a professional who is by laws required to keep strict confident the information received from its clients/customers. Each Party shall be responsible for

any breach of the terms of this Clause 9 by any of its Recipients as if such Party were the party that had breached such terms.

9.3. The foregoing restrictions on disclosure and use of Confidential Information shall not apply with respect to any Confidential Information to the extent that it:

- (a) was or becomes publicly known through no wrongful act or omission of the Recipient;
- (b) was lawfully known to the Recipient before the disclosure from the Disclosing Party;
- (c) is independently developed by the Recipient without the use or reference of the Confidential Information of the Disclosing Party;
- (d) becomes lawfully known to the Recipient, without confidential or proprietary restriction, from a source other than the Disclosing Party that does not owe a duty of confidentiality to the Disclosing Party with respect to such Confidential Information; or
- (e) is disclosed by the Recipient to the extent that the Recipient is legally compelled to disclose such Confidential Information under the applicable law, rules of stock exchange, governmental order, decree or any regulations. Provided that the Recipient shall; if permissible by law, make all reasonable efforts to give prompt written notice to the Disclosing Party prior to such disclosure, and shall limit the disclosure of Confidential Information to the extent as so required by law.

9.4 Chiang Mai University shall not use the Results, the Final Report and/or any data or information in relation to the Collaboration or Joint Research under this MOU, whether in whole or in part, for Commercial Purpose without prior written consent of PTTEP.

9.5 Notwithstanding Clause 9.4 above, Chiang Mai University shall be able to publish the Results and/or the Final Report in relation to the Collaboration or Joint Research under this MOU, whether in whole or in part, solely for academic purpose only. Provide that Chiang Mai University shall provide prior written notice of thirty (30) days to PTTEP.

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10. Representations and Liability

- 10.1 Any and all data and information including but not limited to Confidential Information, Result, and/or the Final Report under this MOU are provided to the Recipient on an "as-is" basis, the Disclosing Party makes no representations or warranties of any kind either express or implied, as to the accuracy or completeness including but not limited to warranties of merchantability or fitness for a particular purpose.
- 10.2 Neither party shall be liable for special, indirect or consequential damages from or arising out of this MOU. No failure or delay by the Disclosing Party in exercising any right, power or privilege hereunder shall operate as a waiver thereof nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any other right, power or privilege hereunder.
- 10.3 The Recipient agrees to indemnify the Disclosing Party for any costs and expenses, including legal expenses, the Disclosing Party may incur in connection with the enforcement of this MOU.

11. NOTICES

- 11.1. All notices, correspondence, and documents sent by a Party either by email, registered mail or hand delivery to another Party shall be deemed to be duly received by the other Party if it is sent to the building or address of the other Party specified in Clause 11.3 below. If sent by email, two (2) hours after the time sent (as recorded on the device from which the sender sent the email) unless the sender receives an automated message the email has not been delivered, but without prejudice to the validity of the original notice if received.
- 11.2. If a Party changes its address from the address provided in Clause 11.3 below, the Party changing its address shall promptly give a written notice thereof to the other Party. Otherwise, the address is deemed unchanged and any notices, correspondences, and documents sent to the Party's former address shall be deemed to be given even if they are not actually received by the Party.

11.3. Notices to the Parties shall be sent to:

PTT Exploration and Production Public Company Limited:

Attention: Subsurface Technical Solutions Division manager

Tel. No. : +66(0)2 5374000

Fax. No. : +66(0)2 5374444

Address : 555/1 Energy Complex Building A, 19th - 36th floor

Vibhavadi Rangsit, Chatuchak, Bangkok 10900 Thailand

E-mail : GST@pttep.com

Chiang Mai University :

Attention: Head of Geological Sciences Department

Tel. No. : +66 (0) 53 943417

Address : 239 Huay Keaw Road, Tambon Suthep, Mueang Chiang Mai

District, Chiang Mai, Thailand 50200

E-mail : weerapan.s@cmu.ac.th

12. GOVERNING LAW AND DISPUTE RESOLUTION

12.1. This MOU shall be governed by and construed in accordance with the laws of Thailand.

12.2. In the event of any dispute between the Parties in relation to the fulfillment of their contractual obligations including any disagreement amongst the working team hereunder may refer a dispute to senior managements of both Parties for their decision.

12.3. Any dispute which cannot be amicably resolved by senior managements within thirty (30) days period shall be referred to and finally resolved by arbitration in accordance with the Arbitration Rules of the Thai Arbitration Institute ("**TAI Rules**"), Office of the Judiciary, applicable at the time of submission of dispute to arbitration. The arbitral tribunal shall consist of three (3) arbitrators. Each Party shall, within thirty (30) days

of notice of submission to arbitration, be entitled to select one (1) arbitrator and the two (2) arbitrators selected by the Parties shall mutually agree on a third arbitrator, falling to agree on the third arbitrator appointment within sixty (60) days of notice of submission to arbitration, the third arbitrator shall be appointed under the TAI Rules.

- 12.4. Nothing in this Clause 12 shall affect the right of any Party to seek equitable relief and/or provisional orders, including temporary restraining orders and temporary or preliminary injunctive relief, from any court of competent jurisdiction in respect of Intellectual Property Rights or Confidential Information or to protect public health or safety. Such equitable relief shall be in addition to any and all other remedy available at law to such Party.

13. MISCELLANEOUS

13.1. Waiver and Consent

- (a) No waiver of any provision or condition of this MOU shall be effective unless it is made in writing and signed by or on behalf of the Party giving the waiver.
- (b) Any consent granted under this MOU shall be effective only if given in writing and signed by the consenting Party and then only in the instance and for the purpose for which it was given.

13.2. Amendments

This MOU may be varied or amended by mutual agreement in writing by the Parties. The said variation and amendment shall be deemed to be part of this MOU and to the extent expressly stated to be binding, shall bind the Parties accordingly.

13.3. Severability

If any provision of this MOU is held by a court of competent jurisdiction to be illegal, invalid or unenforceable in any respect under the laws of any jurisdiction, then such provision shall (so far as it is invalid or unenforceable) be given no effect and shall be deemed not to be included in this MOU, but without invalidating any of the remaining provisions of this MOU. Any provision of this MOU held invalid or

unenforceable only in part or degree will remain in full force and effect to the extent not held invalid or unenforceable. The Parties shall then use best commercially reasonable endeavors to replace the invalid or unenforceable provision(s) by a valid and enforceable substitute provision the effect of which is as close as possible to the intended effect of the invalid or unenforceable provision.

13.4. Counterparts

This MOU may be signed in counterparts, each of which will be deemed an original, and all such counterparts together constituting one and the same MOU.

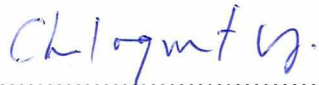
(Signature page is followed)

IN WITNESS WHEREOF the Parties have hereto set their hands on the day and year first above written.

for and on behalf of

PTT Exploration and Production Public Company Limited

Signed by



.....
(Chalongrut Ya-anan)

**EVP, Geosciences, Subsurface,
and Exploration Group**

In the presence of

Witness:



.....
(Suppakarn Thanatit)

**SVP, Geosciences, Reservoir Engineering
and Corporate Technical Division**

In the presence of

Witness:

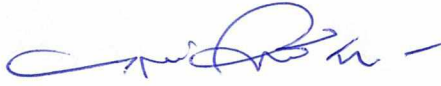


.....
(Kamonporn Inraikhing)

VP, Subsurface Technical Study Department

for and on behalf of
Chiang Mai University

Signed by:

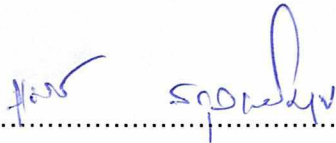


.....
(Distinguished Prof. Dr. Torranin Chairuang Sri)

Dean, The Faculty of Science

In the presence of

Witness:



.....
(Asst. Prof. Dr. Sumet Sakulsermsuk)

**Assistant Dean for Research and
International Relations, The Faculty of Science**

In the presence of

Witness:



.....
(Asst. Prof. Dr. Weerapan Srichan)

**Head of the Department of Geological Sciences,
The Faculty of Science**

APPENDIX I

AREAS OF COLLABORATION

The parties wish to avenues to collaborate for pedagogy, based on the strongest ability and capabilities of each Party in areas specified below:

1. Structural geology
2. Sedimentology and stratigraphy
3. Geochemistry
4. Seismic processing
5. Quantitative interpretation
6. Petrophysics
7. Reservoir simulation
8. Enhanced oil recovery
9. Geomechanics
10. Well testing
11. Data analytics