EXHIBIT G

ICC Arbitration No. 19869/MCP/DDA

In the matter of an arbitration under the Rules of Arbitration of the International Chamber of Commerce in force as from 1 January 2012 between:

The Ministry of Oil and Minerals of the Republic of Yemen (on its own behalf and/or for and on behalf of the Republic of Yemen) (Republic of Yemen)

Claimant

and

1. Canadian Nexen Petroleum Yemen (Republic of Yemen)
2. Consolidated Contractors (Oil & Gas) Company S.A.L. (Republic of Lebanon)
3. Occidental Peninsula, LLC (United States of America)
4. Occidental Peninsula II, INC (Federation of Saint Kitts and Nevis)

Respondents

Final Award

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Table of Abbreviations

Addendum and Decision dated 5 July 2017	*Addendum* and Decision
Masila Block 14	Block 14
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The Ministry of Oil and Minerals of the Republic of Yemen	Claimant
Canadian Nexen Petroleum East Al-Hajr Ltd	CNPE
Central Processing Facility	CPF
Environmental Resources Management	ERM
Enterprise Resource Planning	ERP
Factual Exhibit(s) of the Claimant-[number]	Exhibit(s) C-[#]
Factual Exhibit(s) of the Respondents-[number]	Exhibit(s) R-[#]
Legal Exhibit(s) of the Claimant-[number]	Exhibit(s) CL-[#]
Legal Exhibit(s) of the Respondents-[number]	Exhibit(s) RL-[#]
Expert Report(s)	EXR(s)
February 2019 hearing	final hearing
Field Operation Vehicles	FOV
Footnote	fn
Pound Sterling	GBP
ICC International Court of Arbitration	ICC Court
Rules of Arbitration of the International Chamber of Commerce in force as from 1 January 2012	ICC Rules
Secretariat of the ICC International Court of Arbitration	ICC Secretariat
Secretary General of the ICC International Court of Arbitration	ICC Secretary General
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Nexen Inc. (Parent company of the Respondent 1)	Nexen
Block 14 Operating Committee	OpCom
Page[s]	p[p].
Paragraph[s]	para[s].
Partial Award on Respondents' Threshold Legal Defenses dated 6 February 2017	Partial Award
Partial Dissenting Opinion of Mr. William Laurence Craig signed on 6 February 2017	Partial Dissenting Opinion
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Post-Hearing Brief[s] (first round) in respect of the hearing dated February 2019	PHB[s] (first round) 2019
Post-Hearing Brief[s] (second round) in respect of the hearing dated February 2019	PHB[s] (second round) 2019
Procedural Order[number]	PO[#]
Procedural hearing held on 9 June 2015	Procedural hearing
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First Amendment Agreement to Petroleum Exploration and Production Agreement for Masila Block 14	PSA Amendment
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Consolidated Contractors (Oil & Gas) Company S.A.L. (CCC Oil & Gas)	Respondent 2
Occidental Peninsula, LLC (Oxy I)	Respondent 3
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Amended Statement of Defense and Counterclaim dated 23 March 2018	ASoDCC
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Terms of Reference	ToR
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Witness Statement(s)	WS(s)
Republic of Yemen	Yemen

Table of Fact and Expert Witnesses

The Claimant's Fact Witnesses	
Mr. Abdulmomen Alaamdi (referring to SAP)	Mr. Alaamdi
Mr. Ameer Salem Alaidroos (referring to handover/transition of Block 14/PSA extension, Counterclaim)	Mr. Alaidroos
Mr. Nassr Al-Humidy (referring to well claims, environmental claims, facilities and equipment, missing data, SAP, handover/transition of Block 14/PSA extension, Good Oilfield Practice, Counterclaim)	Mr. Al-Humidy
Mr. Abdulbaset Abdulbaqi Wail AI-Huribi (referring to the PSA ratification process)	Mr. Al-Huribi
Mr. Hussein AI-Rashid Jamal Alkaff (referring to the status of the oil section in Yemen when the PSA was entered into and the reasons for entering into the PSA)	Mr. Alkaff
Mr. Mohammed AI-Mazhani (referring to the asset register)	Mr. Al-Mazhani
Mr. Khaled Ahmed Mubarak Bahumaish (referring to environmental claims)	Mr. Mubarak Bahumaish
Mr. Mohamed Binnabhan (referring to the well claims, environmental claims, facilities and equipment, missing data/data transfer, asset register, SAP, handover/transition of Block 14/PSA extension)	Mr. Binnabhan
The Claimant's Expert Witnesses	
Mr. Mohammed Ali Ahmed Al-Maqtari (referring to Yemen law)	Mr. Al-Maqtari
Mr. David Aron (referring to quantum)	Mr. Aron
Mr. Paul Isaac (referring to the asset register)	Mr. Isaac
Mr. Stephen Jewell (referring to the facilities and equipment, asset register, SAP, handover/transition of Block 14/PSA extension, and Good Oilfield Practice)	Mr. Jewell
Mr. Jonathan Larkin (referring to environmental claims)	Mr. Larkin
Mr. Richard Sands (referring to well claims and environmental claims)	Mr. Sands
The Respondents' Fact Witnesses	
Mr. Phil Milford (referring to handover/transition of Block 14/PSA extension)	Mr. Milford

Mr. Brendan O'Connor (referring to missing data/data transfer)	Mr. O'Connor
Mr. Christian Rasmussen (referring to the well claims)	Mr. Rasmussen
Mr. Donald Rettie (referring to the asset register and SAP)	Mr. Rettie
Mr. Kevin Tracy (referring to the well claims, environmental claims, facilities and equipment, missing data/data transfer, handover/transition of Block 14/PSA extension)	Mr. Tracy
The Respondents' Expert Witnesses	
Mr. Stuart Catterall (referring to the environmental claims, facilities and equipment, and Good Oilfield Practice)	Mr. Catterall
Mr. Bill Cline (referring to handover/transition of Block 14/PSA extension, Good oilfield practice)	Mr. Cline
Professor Nayla Comair-Obeid (referring to Lebanese law)	Prof. Comair-Obeid
Mr. John Connor (GSI Environmental) (joint report) (referring to well claims and environmental claims)	Mr. Connor
Mr. Mark Hemingway (GSI Environmental) (joint report) (referring to well claims and environmental claims)	Mr. Hemingway
Dr. Brun Hilbert (referring to well claims, environmental claims and Good Oilfield Practice)	Dr. Hilbert
Mr. Gerard Lagerberg (referring to quantum)	Mr. Lagerberg
Mr. Matthew Lindsay QC (referring to Canadian law)	Mr. Lindsay QC
Mr. Abdulla Luqman (referring to Yemen law)	Mr. Luqman

Chapter I. The Parties to the Arbitration

1. The Ministry of Oil and Minerals of the Republic of Yemen (on its own behalf and/or on behalf of the Republic of Yemen) ("Claimant") is the relevant contracting authority of the Yemeni Government in charge of the natural resources of the Republic of Yemen. The Claimant has its registered office at Al-Mualla, behind the PEPA office, Aden, the Republic of Yemen ("Yemen").

2. The Claimant has been assisted and represented in this arbitration by Mr. Benjamin Knowles, Ms. Darcy Beamer-Downie, Ms. Milena Szuniewicz-Wenzel, Mr. Iain Rowlands, Ms. Marie Germa, and Ms. Enas Al-Shaibi Clyde & Co LLP, St. Botolph Building, 138 Houndsditch, London EC3A 7AR, United Kingdom and by Ms. Rebecca Sabben-Clare QC, 7KBW Barristers, 7 King's Bench Walk, Temple, London EC4Y 7DS, United Kingdom.

3. Canadian Nexen Petroleum Yemen ("Respondent 1") is a general partnership incorporated and existing under the laws of Yemen. The Respondent 1 has its registered office at Suite 2300, 500 Centre Street SE, Calgary, Alberta T2G 1A6, Canada.

4. Consolidated Contractors (Oil & Gas) Company S.A.L. ("Respondent 2") is a company incorporated and existing under the laws of the Republic of Lebanon. The Respondent 2 has its registered office at Bir Hassan, Nicolas Sursock Street, Sabbagh & Khoury Building, 1st Floor, PO Box 11-2254 Riad El Solh, Beirut 1107 2100, the Republic of Lebanon.

5. Occidental Peninsula, LLC ("Respondent 3") is a company incorporated and existing under the laws of the State of California. The Respondent 3 has its registered office at Corporation Trust Centre, 1209 Orange Street, Wilmington, New Castle, Delaware 19801, United States of America.

6. Occidental Peninsula II, Inc ("Respondent 4") is a company incorporated and existing under the laws of the Federation of Saint Kitts and Nevis. The Respondent 4 forms part of Morning Star Holdings Limited, whose address is PO Box 556, Main Street, Charlestown, Nevis, Federation of Saint Kitts and Nevis.

7. The Respondents 1-4 initially authorized Three Crowns LLP of New Fetter Place, 8-10 New Fetter Lane, London EC4A 1AZ, United Kingdom and Freshfields Bruckhaus Deringer LLP of 65 Fleet Street, London EC4Y 1HS, United Kingdom to represent them in this arbitration.[1] On 4 April 2017, Three Crowns LLP informed the Claimant and the Arbitral Tribunal that "*going forward, all correspondence relating to this matter should be addressed only to Three Crowns LLP as counsel for the Respondents*". With respect to Three Crowns LLP, the

[1] Powers of Attorney dated 28 May, 29 May and 9 June 2014.

Respondents 1-4 have been assisted and represented by Mr. Constantine Partasides QC, Mr. Reza Mohtashami QC, Mr. Gaurav Sharma, Mr. Geoff Watt, Ms. Nastasja Suhadolnik, Ms. Katherine Jonckheere, and Mr. Anish Patel.

8. The Respondents 1-4 are hereinafter collectively referred to as the "Respondents".

9. The Claimant and the Respondents are hereinafter individually referred to as "a Party" and collectively as "the Parties", except as otherwise specifically stated.

Chapter II. The Arbitral Tribunal

10. The Claimant nominated as arbitrator Mr. William Laurence Craig. Mr. Craig's address is at 31 Avenue Pierre 1er de Serbie, 75782 Cedex 16, Paris, France. On 13 December 2013 the Secretariat of the ICC International Court of Arbitration ("ICC Secretariat") informed the Parties that Mr. Craig disclosed that he had recently served as an arbitrator in an ICC arbitration in which the Claimant was a party. The Secretary General of the ICC International Court of Arbitration ("ICC Secretary General") confirmed Mr. Craig's nomination in accordance with Article 13(2) of the Rules of Arbitration of the International Chamber of Commerce in force as from 1 January 2012 ("ICC Rules") on 28 January 2014.

11. The Respondents jointly nominated as arbitrator Professor Michael Pryles. Professor Pryles's address is Dispute Resolution Services Pty Ltd, Suite 304, 521 Toorak Road, Toorak, Victoria 3142, Australia. The ICC Secretary General confirmed Professor Pryles's nomination in accordance with Article 13(2) of the ICC Rules on 28 January 2014.

12. Pursuant to Article 12(5) of the ICC Rules, the co-arbitrators jointly nominated Professor Bernard Hanotiau as President of the Arbitral Tribunal. Professor Hanotiau's address is at Hanotiau & van den Berg, Avenue Louise 480 – Box 9, 1050 Brussels, Belgium. On 7 April 2014 the ICC Secretariat informed the Parties about Professor Hanotiau's disclosures in this arbitration. Namely that: (i) he was acting as chairman in an ICC arbitration in which Respondent 2 was a party; (ii) he was a co-arbitrator in a case in which the Claimant was a party, which was in abeyance since December 2010, and in which the Parties authorized the arbitrators to accept new cases involving the two parties; and that (iii) from 2005-2008 he acted as co-arbitrator in a case in which the Claimant was a party. On 5 May 2014 and in the absence of any comments by the Parties, the ICC Secretariat informed the Parties that, pursuant to Article 13(2) of the Rules, the ICC Secretary General confirmed Professor Bernard Hanotiau's nomination as President of the Arbitral Tribunal on 2 May 2014.

13. With the consent of the Parties expressed at the case management conference of 19 June 2014, the Arbitral Tribunal initially appointed Mr. Panagiotis Chalkias, an associate in the President's law firm, as administrative secretary to the Arbitral Tribunal. On 14 and 15 December 2018, the Parties confirmed their agreement with the Arbitral Tribunal's proposal to appoint Mr. Juan Camilo Jiménez Valencia, an associate in the President's law firm, as the new administrative secretary to the Arbitral Tribunal, considering Mr. Chalkias' departure from the President's law firm.

Chapter III. The PSA, the Arbitration Agreement and the Applicable Substantive Law

14. In the Partial Award on Respondents' Threshold Legal Defenses dated 6 February 2017 (the "Partial Award"), the Arbitral Tribunal explained in detail the PSA, the arbitration agreement and the applicable substantive law. It is incorporated by reference in this award. However, for ease of understanding, the Arbitral Tribunal will set out below an overview of the foregoing.

15. The present dispute arises out of and in connection with an Agreement for Petroleum Exploration and Production dated 15 September 1986 ("PSA"), which was concluded between the Yemeni "Ministry of Energy and Minerals,"[2] on the one hand, and "CanadianOxy Offshore International Ltd." and "Consolidated Contractors International Company S.A.L.", on the other hand.[3] CanadianOxy Offshore International Ltd. and Consolidated Contractors International Company S.A.L. assigned, whether directly or through other affiliated entities, their rights and obligations under the PSA to the Respondents.[4]

16. The PSA relates to petroleum exploration, development and production work in Masila Block 14 ("Block 14"), located in the eastern region of Hadhramout, Yemen. Block 14 consists of oil wells widely dispersed over 20 producing oilfields covering an area of 1,257 km²,[5] which feed through field pipes that are fitted with hydro-cyclones for water separation to a Central Processing Facility ("CPF").

17. The PSA was ratified by the Committee of the Supreme People's Assembly of the People's Republic of Yemen (otherwise known as South Yemen) on 15 March 1987, on which date the Committee issued Law No. 4 of 1987.[6] Thus, the "Effective Date" under the PSA was 15 March 1987, pursuant to Article 1.19 and 31.

18. Under Article 4.4 of the PSA, in the event of "*Commercial Discovery*", a term defined under Article 1.3 of the PSA as "*a discovery in the Contract Area of an accumulation or accumulations of Petroleum which CONTRACTOR ... decides to be worthy of being developed and exploited,*" the PSA's term was 20 years from the date of declaration of the "*first Commercial Discovery in the Contract Area*". That date was 17 December 1991[7] and

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[2] The facts related to the creation of the Claimant are set out hereinbelow in Chapter V.
[3] Exhibit C-1, Petroleum Exploration and Production Agreement.
[4] The facts related to the assignment of the rights and obligations under the PSA to the Respondents are set out in Chapter V of the Partial Award.
[5] Block 14 initially covered a much greater area, but it was subsequently reduced, through relinquishments, after Respondents declared "Commercial Discovery".
[6] Exhibit CL-2, Law No. 4 of 1987.
[7] Exhibit C-206, Notice of Commerciality, dated 17 December 1991.

oil production started in 1993. Despite the Parties' discussions to extend the 20-year term of the PSA, the PSA expired on 17 December 2011.

19. The Arbitral Tribunal's jurisdiction stems from Articles 27.1 and 27.2 of the PSA that read as follows:

"

ARTICLE XXVII

DISPUTES AND ARBITRATION

27.1 Any disputes arising between CONTRACTOR and MINISTRY in connection with the present Agreement shall be finally settled by arbitration and any judgment resulting therefrom shall be binding on the parties. Until the Convention on the Settlement of Investment Disputes between States and Nationals of Other States (hereinafter referred to as the "Convention") can be applied after its ratification of PDRY, arbitration shall be governed by Section 27.2 thirty (30) days after the ratification of the "Convention" by PDRY the settlement of any dispute shall be governed by Section 27.3.

27.2 Subject to the relevant rules of International Law:

(a) The arbitration shall be held in Paris, France, and conducted in accordance with the Rules of Conciliation and Arbitration of the International Chamber of Commerce. In the event of no provisions being made in these Rules in certain cases, the arbitrators shall establish their own procedure.

(b) The arbitration shall be initiated by either Party giving notice to the other Party that it elects to refer the dispute to arbitration and that such party (hereinafter referred to as the First Party) has appointed an Arbitrator who shall be identified in said notice. The other Party (hereinafter referred to as the Second Party) shall notify First Party in writing within forty five (45) days identifying the Arbitrator that it has selected.

(c) If the Second Party does not so appoint its Arbitrator, the First Party shall have the right to apply to the Court of Arbitration of the International Chamber of Commerce to appoint a second arbitrator. The two arbitrators shall within thirty (30) days select a third arbitrator, failing which the third arbitrator shall be appointed by the Court of Arbitration of the International Chamber of Commerce at the request of either party.

(d) The third arbitrator must be a citizen of a country other than the PDRY, Canada or Lebanon and a country which has diplomatic relations with the PDRY, Canada

and Lebanon and shall have no economic interest in the oil business of the PDRY nor of the signatories hereto.

(e) The parties shall extend to the Arbitration Board all facilities (including access to the Petroleum Operations) for obtaining any information required for the proper determination of the dispute. The absence or default of any party to the arbitration shall not be permitted to prevent or hinder the arbitration procedure in any or all of its stages.

(f) Pending the decisions or award, the operations or activities which have given rise to the arbitration need not be discounted. In the event the decision or award recognizes that the complaint was justified, provisions may be made therein for such reparation as may be appropriately made in favor of the complainant.

(g) Judgment in the award rendered may be entered in any Court having jurisdiction or application may be made to such Court for a judicial acceptance of the award and an order of enforcement, as the case may be.

(h) The provisions of this Agreement relating to arbitration shall continue in force notwithstanding the termination of this Agreement.

(i) The signatories base their relations with respect to this Agreement on the principles of good will and good faith. Taking into account their different nationalities, this Agreement for such arbitration shall be given effect and shall be interpreted and applied in conformity with principles of law common to the PDRY, Canada and Lebanon and in the absence of such common principles then in conformity with the principles of law normally recognized by nations in general, including those which have been applied by International Tribunals".

20. In the Partial Award, the Arbitral Tribunal "*unanimously decide[d] that the Settlement Agreement was a concluded agreement on the terms of Exhibit R-1 and that it was duly ratified by the three resolutions of the Supreme Economic Council and of the Council of Ministers of 25 and 26 June 1996*". The Settlement Agreement dated 10 March 1996 ("Settlement Agreement") was concluded between the Ministry of Oil and Mineral Resources, as represented by the Minister of Oil and Mineral Resources, and (i) Canadian Occidental Petroleum Yemen; (ii) Consolidated Contractors (Oil and Gas) S.A.L.; (iii) Occidental Peninsula Inc.; and (iv) Pecten Yemen Company ("Pecten").[8]

[8] Exhibit R-1, Settlement Agreement between: (i) the Ministry of Oil and Mineral Resources on behalf of the Government of the Republic of Yemen, represented by the Minister of Oil and Mineral Resources; (ii) Canadian Occidental Petroleum Yemen, Consolidated Contractors (Oil and Gas) S.A.L., Occidental Peninsula Inc., and Pecten Yemen, Company; and (iii) Canadian Occidental Petroleum Yemen, dated 10 March 1996.

21. On 22 March 2013, the Parties entered into a Standstill Agreement through which they attempted to reach an amicable settlement on the claims arising out of the performance of the Parties' obligations under the PSA ("Standstill Agreement").[9]

22. The Arbitral Tribunal's jurisdiction also stems from Clause 6.1 of the Standstill Agreement, which reads as follows:

> "***6 ARBITRATION AGREEMENT IN RELATION TO THE CLAIM***
>
> *6.1 The Parties hereby confirm that, following the termination of the Standstill Period or if the Parties agree that a Claim is not capable of amicable resolution and therefore is removed from the scope of this Agreement in accordance with Clause 2.2 of this Agreement, either of the Parties may refer such Claim to the exclusive jurisdiction of ICC Arbitration in Paris in accordance with Clause 27.2 of the PSA.*
>
> *6.2 For the avoidance of doubt, nothing in this Agreement shall be construed as a variation or amendment of the PSA*".

23. Regarding the issue of the applicable substantive law, the Claimant initially contended that the PSA was governed by Yemeni law on the basis of Articles 3.1 and 22.1 thereof. On the other hand, the Respondents initially argued that, pursuant to Article 27.2(i) of the PSA, the latter was governed by "*principles of law common to PDRY [Yemen], Canada and Lebanon and in the absence of such common principles then in conformity with the principles of law normally recognized by nations in general, including those which have been applied by International Tribunals*".

24. By virtue of Procedural Order No. 3 dated 26 August 2015 ("PO3"), which is incorporated by reference in this Award, the Arbitral Tribunal decided the issue of the applicable substantive law as follows:

> "*Consequently, in accordance with the terms of Article 27.2 (i) of the PSA, the PSA must be interpreted and applied as follows:*
>
> *- First, in conformity with the principles of law common to Yemen, Canada and Lebanon;*
> *- And in the absence of such common principles, in conformity with the principles of law normally recognized by nations in general, including those which have been applied by International Tribunals, which, in the opinion of the Arbitral Tribunal, would include international arbitral tribunals constituted under public or private law;*

[9] Exhibit C-12, Standstill Agreement, dated 22 March 2013.

- It is on the Parties to identify and demonstrate in their submissions to be filed in this arbitration which are the principles of law common to the abovementioned three countries or the principles of law normally recognized by nations in general, including those which have been applied by International Tribunals; and
- The Arbitral Tribunal will also take into consideration the principles of good will and good faith".

Chapter IV. Procedural History Relating to the Current Phase of the Proceedings

25. As mentioned above, the Arbitral Tribunal issued its Partial Award on 6 February 2017. The procedural history covering the period from the filing by the Claimant of the Request for Arbitration on 23 November 2013 to the issuance of the Partial Award is set out in detail in the latter and is incorporated by reference in this Award. However, for ease of reference, the Arbitral Tribunal will set out hereinafter the main steps undertaken by the Parties and the Arbitral Tribunal during the period preceding the issuance of the Partial Award.

26. Upon the Arbitral Tribunal's constitution, the Parties and the Arbitral Tribunal held a case management conference by way of telephone conference on 19 June 2014. At that conference call, the Parties and the Arbitral Tribunal finalized to a considerable extent the content of the Terms of Reference ("ToR") and Procedural Order No. 1 ("PO1").

27. The content and signing process of the ToR was completed on 10 July 2014. On 19 August 2014, the Arbitral Tribunal finalized and issued PO1, the procedural calendar of which provided for a hearing focusing on the issue of whether or not the Arbitral Tribunal would appoint one or more tribunal-appointed experts. That hearing was subsequently held to address other procedural matters, including document production and the Respondents' threshold legal defenses.

28. On 17 November 2014, the Claimant filed its Original Statement of Claim ("OSoC") accompanied by factual exhibits C-20 through C-212, legal exhibits CL-6 through CL-17, the witness statements ("WSs") of Mr. Binnabhan, Mr. Alaamdi, Mr. Al-Mazhani, Mr. Alkaff, Mr. Al-Humidy and Mr. Alaidroos, and the expert reports ("EXRs") of Mr. Larkin, Mr. Jewell, Mr. Sands, Mr. Aron[10] and Mr. Al-Maqtari.

29. On 11 March 2015, the Arbitral Tribunal issued the Amended PO1 to reflect certain changes to the procedural calendar.

30. On 13 March 2015, the Respondents filed the Original Statement of Defense and Counterclaim ("OSoDCC") accompanied by Annex 1, factual exhibits R-11 through R-351, legal exhibits RL-1 through RL-138, the WSs of Mr. Tracy, Mr. Rasmussen, Mr. Rettie, Mr. Milford and Mr. O'Connor[11], and the EXRs of Mr. Connor and Mr. Hemingway, Dr. Hilbert, Mr. Catterall, Mr. Lagerberg, Mr. Luqman, Prof. Comair-Obeid and Mr. Lindsay.

[10] By email dated 21 January 2019 the Claimant confirmed that Mr. Aron's report was withdrawn. However, its exhibits remain in the record as agreed by the Parties.

[11] By letter dated 30 January 2019 the Tribunal invited the Respondents to confirm by 1 February 2019 "that because Respondents have been unable to make Mr. Brendan O'Connor available for cross-examination, his witness statement is withdrawn, and he will not be present for the hearing". By emails dated 1, and 4 February 2019 the Respondents confirmed that Mr. Brendan O'Connor's witness statement was withdrawn from the

31. On 26 March 2015, the Arbitral Tribunal issued an updated version of Amended PO1 to incorporate the Parties' agreed new deadlines regarding the procedural calendar.

32. On 7 May 2015, the Respondents informed the Arbitral Tribunal that the Claimant had decided not to proceed with its application for one or more Tribunal-Appointed Experts.

33. On 9 June 2015, the Parties and the Arbitral Tribunal discussed the conduct of this arbitration at a procedural hearing that was held in Paris. The Arbitral Tribunal unanimously made the following decisions:[12]

- To bifurcate the proceedings and hear the Respondents' threshold legal defenses first and the remaining issues in dispute at a second phase of the arbitration;
- To immediately proceed with the document production phase, where the Parties would file narrower document production requests; and
- To determine the applicable substantive law in this case in a Procedural Order, after having received the Parties' relevant submissions.

34. On 12 June 2015, after having received the Parties' comments, the Arbitral Tribunal issued a further updated version of Amended PO1 setting out the procedural calendar until the hearing on the Respondents' threshold legal defenses ("TLD hearing").

35. On 13 July 2015, the Arbitral Tribunal issued Procedural Order No. 2 ("PO2"), whereby it decided on the Parties' narrower document production requests.

36. On 26 August 2015, the Arbitral Tribunal issued PO3, whereby it unanimously decided on the issue of the applicable substantive law.

37. On 23 November 2015, the Claimant filed the Statement of Defense on Threshold Legal Defenses ("SoDTLD") accompanied by factual exhibits C-231 through C-332, legal exhibits CL-23 through CL-38, the Second WS of Mr. Al-Humidy and the First WSs of Mr. Al-Huribi and Mr. Bahumaish.

38. On 11 December 2015, the Arbitral Tribunal issued Procedural Order No. 4 ("PO4"), whereby it decided that the Respondents should file legal evidence together with the Statement of Reply on Threshold Legal Defenses ("SoRTLD"), which could include expert legal testimony, only in rebuttal to the Claimant's legal evidence supporting its SoDTLD and that the Claimant should file legal evidence together with the Statement of Rejoinder on

record. However, as reflected in the Tribunal's correspondence dated January 30, 2019, the Parties agreed to maintain the exhibits referred to in its witness statement as part of the record.

[12] Procedural hearing transcript, 9 June 2015, at 130:6 until 138:21 and at 175:22 until 177:6.

Threshold Legal Defenses ("SoRjTLD"), which could include expert legal testimony, only in rebuttal to the Respondents' legal evidence supporting their SoRTLD.

39. On 4 March 2016, the Respondents filed the SoRTLD accompanied by Annex A entitled "Schedule of Threshold Legal Defenses" ("Annex A"), factual exhibits R-353 through R-468, legal exhibits RL-150 through RL-172 and the Second WS of Mr. Tracy.

40. On 15 April 2016, the Claimant filed the SoRjTLD accompanied by factual exhibits C-333 through C-338, legal exhibits CL-39 through CL-61 and the Third WS of Mr. Al-Humidy.

41. On 4 May 2016, the Arbitral Tribunal issued Procedural Order No. 5 ("PO5") reproducing the Parties' agreement on the various procedural matters regarding the TLD hearing, as set out in the Claimant's correspondence of 29 April 2016, and the Arbitral Tribunal's decision on the order of appearance of the Parties and their witnesses at the TLD hearing.

42. The TLD hearing was held in Paris from 16 to 19 May 2016. The following fact and expert witnesses testified at the TLD hearing:

- On behalf of the Claimant: Mr. Al-Humidy and Mr. Bahumaish, the Claimant's fact witnesses; and
- On behalf of the Respondents: Mr. Tracy, the Respondents' fact witness, and, Mr. Luqman, Prof. Comair-Obeid and Mr. Lindsay, the Respondents' legal expert witnesses.

43. On 30 June 2016, the Parties filed their Post-Hearing Briefs in respect of the TLD hearing ("PHBs TLD"). The Claimant's PHB TLD was accompanied by a Schedule, a transcribed copy of the PSA, as requested by the Arbitral Tribunal and agreed between the Parties, an amended chronology of documents regarding Exhibit R-1, Exhibit R-1, as amended by Exhibits C-312 and C-313 in both clean and track changes versions, and selected articles of the English translation to the Lebanese Code of Obligations and Contract, which were identified as Exhibit CL-62. The Respondents' PHB TLD was accompanied by legal exhibits RL-173 through RL-177, amended factual exhibit R-445, the filing of which was notified at the TLD hearing,[13] and an updated Schedule of Threshold Legal Defenses ("Updated TLD Schedule").

44. On 12 July 2016 and upon the Claimant's request, the Arbitral Tribunal invited the Respondents to re-serve their PHB TLD, without any reference to legal exhibits RL-173 to RL-177, by 15 July 2016. The Respondents did so on 13 July 2016.

[13] TLD hearing transcript, 17 May 2016, at 254:17 until 255:7.

45. On 24 January 2017, the ICC Secretariat informed the Parties that the ICC International Court of Arbitration ("ICC Court") had approved the draft award submitted by the Arbitral Tribunal on 15 December 2016.

46. On 8 February 2017, the ICC Secretariat sent to the Parties a courtesy copy of the Partial Award and Partial Dissenting Opinion of Mr. William Laurence Craig signed on 6 February 2017 ("Partial Dissenting Opinion"). The ICC Secretariat subsequently notified the Partial Award to the Parties on 8 February 2017.

47. On 1 March 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 12 January 2017, the ICC Court had extended the time limit for rendering the final award until 31 March 2017.

48. On 6 March 2017, the Claimant submitted an Application for Interpretation and Correction of the Partial Award dated 6 February 2017 ("Application") accompanied by supporting documents SD-1 through SD-10.

49. On 31 March 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 9 March 2017, the ICC Court had extended the time limit for rendering the final award until 28 April 2017.

50. On 4 April 2017, the Respondents submitted the Response to the Application ("Response") accompanied by Exhibits 1 through 8.

51. From 12 to 18 April 2017, the Parties filed a second round of submissions with respect to the Application.

52. On 2 May 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 13 April 2017, the ICC Court had extended the time limit for rendering the final award until 30 June 2017.

53. On 15 May 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 11 May 2017, the ICC Court had extended the time limit for submitting its draft decision on the Application until 19 June 2017.

54. On 19 June 2017, the ICC Secretariat informed the Parties that, on 15 June 2017, the ICC Court had approved the draft decision on the Application under Article 35 of the ICC Rules.

55. On 3 July 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 8 June 2017, the ICC Court extended the time limit for rendering the final award until 31 August 2017.

56. On 7 July 2017, the ICC Secretariat sent to the Parties a courtesy copy of the Arbitral Tribunal's *Addendum* and Decision dated 5 July 2017 ("*Addendum* and Decision"), and subsequently notified the *Addendum* and Decision on the same date.

57. On 14 July 2017, the Arbitral Tribunal invited the Parties to confer with each other and attempt to agree on the procedure to be followed, including the procedural calendar regarding the subsequent phase of this arbitration, by 2 August 2017.

58. On 16 August 2017 and following two extensions of time granted to the Parties, the Respondents informed the Arbitral Tribunal that, despite their attempts, the Parties had been unable to reach agreement on the procedure to be followed for the remainder of this arbitration. As a result, the Respondents submitted their procedural proposal, including their suggested procedural timetable, for the Arbitral Tribunal's consideration. In addition, the Respondents filed a Submission on Costs Following the Threshold Legal Defenses Phase accompanied by Exhibits 1 through 6.

59. On 25 August 2017, the Claimant filed its comments on the Respondents' Submission on Costs Following the Threshold Legal Defenses Phase and proposal regarding the procedural timetable. The Claimant further presented its own procedural proposal and timetable.

60. On 30 August 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 10 August 2017, the ICC Court had extended the time limit for rendering the final award until 31 October 2017.

61. On 1 September 2017, the Respondents provided comments on the Claimant's letter of 25 August 2017 and procedural proposal.

62. On 6 September 2017, the Claimant filed its final comments on the Respondents' Submission on Costs Following the Threshold Legal Defenses Phase and on the Parties' differing procedural proposals.

63. On 13 September 2017 and considering that the conference call between the Arbitral Tribunal and the Parties that had been scheduled on that date to discuss the pending procedural issues had to be cancelled, the Arbitral Tribunal invited the Parties to simultaneously file additional submissions on the issue of the procedure to be followed for the remainder of this arbitration by 15 September 2017.

64. The Parties did so on that date. The Respondents' submission was accompanied by Attachments A through E.

65. On 21 September 2017, the Arbitral Tribunal issued Procedural Order No. 6 ("PO6"), whereby it dismissed the Respondents' request that it make a decision on costs regarding the completed Threshold Legal Defenses phase at that stage of the proceedings and adopted the Claimant's procedural approach and proposed timetable, as set out in the Claimant's letter dated 25 August 2017 and as reflected in draft Procedural Order No. 7, which was attached to the Arbitral Tribunal's communication. The Arbitral Tribunal further invited the Parties to agree on the specific dates to be inserted into the procedural timetable of that draft Procedural Order No. 7 by 6 October 2017.

66. On 11 October 2017 and following two short extensions of time granted to the Parties, the Claimant informed the Arbitral Tribunal that the Parties had agreed on the procedural timetable to be inserted into draft Procedural Order No. 7.

67. On 13 October 2017, the Arbitral Tribunal issued Procedural Order No. 7 ("PO7") containing the procedural timetable relating to the current phase of this arbitration.

68. On 31 October 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 12 October 2017, the ICC Court had extended the time limit for rendering the final award until 30 November 2017.

69. On 9 November 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on the same day, the ICC Court had decided to readjust the advance on costs and to increase it from USD 1,160,000 to USD 1,480,000.

70. On 23 November and 11 December 2017, the ICC Secretariat acknowledged receipt of the Parties' payments and confirmed that the readjusted advance on costs had been entirely paid by the Parties.

71. On 30 November 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 9 November 2017, the ICC Court had extended the time limit for rendering the final award until 31 May 2019.

72. On 8 December 2017, the Claimant filed its Amended Statement of Claim ("ASoC"), in both clean and track changes versions, accompanied by factual exhibits C-339 through C-349, legal exhibits CL-62 through CL-80 and the Second EXR of Mr. Jewell.

73. On 21 December 2017, the Respondents sent a letter to the Arbitral Tribunal, whereby they complained about the content of the ASoC and the related attempts of the Claimant to circumvent the findings set out in the Partial Award. The Respondents added that they would address the Arbitral Tribunal after the filing of the Amended Statement of Defense and Counterclaim ("ASoDCC") in March 2018 to discuss the most efficient way in which the

remaining steps in this arbitration, which included a document request phase and a full second round of submissions and evidence, would be undertaken. The Respondents also raised the issue of costs, which the Respondents stated would increase significantly if the remaining steps in this arbitration continued unaffected by the Partial Award. The Respondents stated that they would revert to the Arbitral Tribunal on the issue of costs following the filing of the ASoDCC.

74. On 8 January 2018, the Claimant noted that there was no application made in the Respondents' letter of 21 December 2017 and suggested not to respond in detail. The Claimant added that, for the record, it disagreed with the Respondents' allegations contained in that letter and reserved all of its rights.

75. On 23 March 2018, the Respondents filed the ASoDCC, in both clean and track changes versions, accompanied by factual exhibits R-469 through R-486, the Third WS of Mr. Tracy and the First EXR of Mr. Cline. The ASoDCC was also accompanied by a letter, where the Respondents (i) requested that the Arbitral Tribunal issue, at that juncture, procedural directions confirming the identity of the claims that no longer survived the Partial Award and (ii) submitted that a further case management conference between the Parties and the Arbitral Tribunal was needed to discuss the next steps of the proceedings. The Respondents further clarified that they were seriously considering the need to file an application for security for costs, given the amount of their legal and other costs and the overall instability in Yemen. By virtue of a second letter of even date, the Respondents requested the Arbitral Tribunal's confirmation that their reliance upon the Partial Award in a second ICC arbitration that the Claimant had commenced against the Respondents would not be inconsistent with the confidentiality provision in the ToR in these arbitral proceedings.

76. On the same date, the Claimant referred to Professor Hanotiau's 31 March 2014 Statement of Acceptance, Availability, Impartiality and Independence, where Professor Hanotiau disclosed that he had been appointed as an arbitrator in an UNCITRAL case involving the Government of Yemen and stated that this arbitration had been in abeyance since December 2010. The Claimant noted that it was apprised that this case was no longer in abeyance and that it appeared that there was an issue in that case regarding the authority of the lawyers to represent Yemen and whether or not Yemen was in fact participating in that arbitration. As a result, the Claimant requested that Professor Hanotiau update his disclosure in this arbitration "*in order that our client may consider its position accordingly*".

77. On 27 March 2018, the Arbitral Tribunal acknowledged receipt of the Respondents' ASoDCC and accompanying letters. The Arbitral Tribunal stated that it needed considerable time to review the ASoDCC, the Respondents' letters and the Claimant's forthcoming comments before it could decide on the Respondents' requests set out in those letters and noted that, in any event, it was not available for a case management conference in the

following two weeks. The Arbitral Tribunal added that it would revert to the Parties with its procedural directions once it had received the Claimant's comments.

78. On 28 March 2018, Professor Hanotiau responded to the Claimant's request dated 27 March 2018 regarding the disclosure about the pending UNCITRAL case. Professor Hanotiau explained that he had made a disclosure at the beginning of this arbitration, and reiterated that considering that the UNCITRAL case has been suspended for years, the then Chairman of the Arbitral Tribunal had asked the Parties that the members of the Arbitral Tribunal could be free from any conflict and could therefore accept to sit as arbitrators in other cases involving the same parties. This was accepted by the Parties on 14 March 2012 and 1 April 2012 respectively. Professor Hanotiau added that once an arbitrator has accepted a mandate, he has a duty to perform that mandate until its completion. Furthermore, he considered that no further disclosure was necessary (when the case resumed), taking into consideration the confidentiality of the UNCITRAL arbitration. Finally, Professor Hanotiau stated that it appeared that Yemen had been kept informed, through its lawyers, of the recent developments in the UNCITRAL case, in which a new Chairman had been appointed.

79. On 6 April 2018, the Claimant sent to the Arbitral Tribunal three letters:

a. The first one regarding the confidentiality provision of the ToR in this arbitration and the Respondents' request to disclose the Partial Award in the second ICC arbitration initiated by the Claimant against the Respondents;
b. The second one addressing the Respondents' comment that that they were seriously considering the need to file an application for security for costs; and
c. The third one commenting on the Respondents' requests that the Arbitral Tribunal issue, at that juncture, procedural directions confirming the identity of the claims that no longer survived the Partial Award and that a further case management conference between the Parties and the Arbitral Tribunal be held to discuss the next steps in these proceedings.

80. On 13 April 2018, the Respondents replied to the Claimant's three letters dated 6 April 2018, whereby they reiterated their request for a case management conference to discuss how the proceedings should move forward, arguing that many of the Claimant's claims had been dismissed in the Partial Award and should not be re-pleaded, and commented on the issue of confidentiality.

81. On 20 April 2018, the Claimant filed its final comments in three separate letters dealing with the issues of security for costs, confidentiality, and the Respondents' request that the Arbitral Tribunal issue directions at that stage as to which of the Claimant's claims had survived the Partial Award.

82. On 24 April 2018, the Respondents stated that they did not deem it necessary to address the points raised in the Claimant's final comments, unless the Arbitral Tribunal directed otherwise.

83. On 25 April 2018, the Arbitral Tribunal informed the Parties that it was considering their requests and that it would revert with its decisions and/or directions.

84. On 2 May 2018, the Arbitral Tribunal referred to the Respondents' intention to file an application for security for costs, as expressed in their letter dated 13 April 2018, and noted there was no formal application addressed to the Arbitral Tribunal and that, as a result, it did not have to decide on any request in this respect.

85. On the same date, the Arbitral Tribunal informed the Parties of its decision, and reasons, to dismiss the Respondents' request that the Arbitral Tribunal issue, at that juncture, procedural directions confirming the identity of the Claimant's claims that no longer survived the Partial Award and convene a new case management conference to discuss next steps. The Arbitral Tribunal also noted that there was a procedural timetable in place, the one set out in PO7, which continued to be applicable.

86. On 3 May 2018, the Arbitral Tribunal issued Procedural Order No. 8 ("PO8"), whereby it decided to reject the Respondents' request to confirm that their reliance upon the Partial Award in the second ICC arbitration would not be inconsistent with the confidentiality provision in the ToR in these arbitral proceedings. It stated that the question of whether the Partial Award, including the Dissenting Opinion and the *Addendum* and Decision, could be disclosed in the second ICC arbitration was to be decided by the second ICC arbitral tribunal.

87. On 1 June 2018, the Claimant sent to the Arbitral Tribunal the Parties' joint requests for document production.

88. On 22 June 2018, the Arbitral Tribunal issued Procedural Order No. 9, whereby it decided on the Parties' document production requests.

89. On 19 July 2018, the Respondents wrote to the Arbitral Tribunal on behalf of the Parties to seek its confirmation that the Parties could proceed with the experts' meetings in the period from 21 December 2018, when the Respondents would file the Statement of Rejoinder on the Claim and Statement of Reply on the Counterclaim ("SoRjSRCC"), to 11 February 2019, when the hearing would start. This would amend PO7, which provided that the experts' meetings would commence after the first round of the Parties' written submissions.

90. On 20 July 2018, the Arbitral Tribunal confirmed that it had no objection to the Parties' proposal to change the timing of the expert meetings. The Arbitral Tribunal further stressed

that the Parties and their experts were expected to work together so as to avoid any last-minute requests for extension of time, with the ultimate aim to maintain the dates for the February 2019 hearing ("final hearing").

91. On 26 September 2018, the Claimant filed the Statement of Reply and Defense to Counterclaim ("SoRDCC") accompanied by factual exhibits C-350 through C-445, legal exhibits CL-81 through CL-92, the 2WS of Mr. Binnabhan, the 1EXR of Mr. Isaac, the 2EXR of Mr. Sands and the 3EXR of Mr. Jewell.

92. On 4 December 2018, the Arbitral Tribunal informed the Parties that Mr. Panagiotis Chalkias, the then-current administrative secretary to the Arbitral Tribunal would be leaving the President's law firm. As a result, the Arbitral Tribunal proposed to appoint Mr. Juan Camilo Jiménez Valencia, an associate in the President's law firm, as administrative secretary to the Arbitral Tribunal. The Tribunal attached to its email Mr. Jiménez Valencia's *curriculum vitae* and Statement of Independence and Impartiality and confirmed that Mr. Jiménez Valencia would act in accordance with the relevant part of the ICC Note to Parties and Arbitral Tribunals on the Conduct of the Arbitration under the ICC Rules of Arbitration dated 30 October 2017. Finally, the Arbitral Tribunal stated that it intended to have Mr. Jiménez Valencia attend the final hearing.

93. On 14 and 15 December 2018, the Parties confirmed their agreement with the Arbitral Tribunal's proposal to appoint Mr. Juan Camilo Jiménez Valencia as the new administrative secretary to the Arbitral Tribunal.

94. On 17 December 2018, the Arbitral Tribunal sent to the Parties a letter regarding the arrangements for the final hearing.

95. On 21 December 2018, the Respondents filed the SoRjSRCC accompanied by factual exhibits R-487 through R-534, the Second WSs of Mr. Milford and Mr. Rettie, the Fourth WS of Mr. Tracy and the Second EXRs of Mr. Catterall, Mr. Cline and Dr. Hilbert.

96. On 4 January 2019, the Parties notified the Arbitral Tribunal of the names of the witnesses to be cross-examined at the final hearing.

97. On 11 January 2019, the Parties sent the Tribunal their agreements and disagreements in relation to the way in which the final hearing should be conducted.

98. On 17 January 2019, the Tribunal sent the Parties its second letter in relation to the hearing arrangements. In this letter the Tribunal, *inter alia,* confirmed that the experts were allowed to make short presentations in lieu of direct examination and that no pre-hearing conference call was required.

99. On 23 January 2019, the Parties sent an email to the Arbitral Tribunal in relation to their preferences with respect to cross-examination bundles.

100. On 24 and 25 January 2019, the Parties sent subsequent emails to the Arbitral Tribunal expressing new areas of disagreement in relation to how to conduct the final hearing.

101. On 26 January 2019, the Arbitral Tribunal sent to the Parties its third letter in relation to the hearing arrangements. In this letter the Tribunal, *inter alia,* allowed: (i) short presentations of the Environmental Experts who were not called for cross-examination; (ii) the demonstrative exhibit (3-D Model of the wells) of Mr. Sands (the Claimant's Technical Expert); and each Party to use either a common hearing bundle, or individual cross-examination bundles, as they preferred. The Tribunal also requested the Parties to try to agree on a hearing schedule by 28 January 2019.

102. On 28 and 29 January 2019, the Parties sent several separate emails to the Tribunal with their proposals in relation to the hearing schedule.

103. On 30 January 2019, the Arbitral Tribunal sent to the Parties its fourth letter in relation to the hearing arrangements. In this letter the Tribunal, *inter alia;* (i) invited the Respondents to confirm by 1 February 2019 that because Respondents were unable to make Mr. Brendan O'Connor available for cross-examination, his witness statement was withdrawn and he would not be present for the hearing; (ii) decided that there would be no cross-examination of the Environmental Experts (as they were not initially called for cross-examination); and (iii) decided on the order of appearance of the experts in the final hearing.

104. On 1 February 2019 the Parties provided the agreed hearing schedule.

105. On 1 and 4 February 2019 the Respondents confirmed that Mr. Brendan O'Connor would not be attending the hearing, hence its witness statement was withdrawn from the record.

106. On 3, 4, 6, February 2019, the Parties exchanged several unsolicited emails regarding the exchange of demonstrative exhibits (including experts' presentations), and the joint experts' reports (which were not ready).

107. On 6 February 2019, the Tribunal decided that: (i) the experts should continue to work on their joint experts' reports and finalize them as soon as possible; and (ii) the Parties were invited to discuss and agree on a further date in which they would exchange demonstrative exhibits.

108. On 6 February 2019, the Claimant alleged that the exchange of demonstrative exhibits had not taken place because the experts' joint memoranda was not ready, which affected the

Claimant's rights. On 6 and 7 February 2019 the Parties continued to exchange emails regarding this matter.

109. On 7 February 2019 the Tribunal sent an email to the Parties stating that it did not "*consider that delaying a few hours the exchange of demonstrative exhibits [would] impact on either the parties' preparation for the forthcoming hearing*". Additionally, the Tribunal instructed the Parties to continue to work on their joint experts' reports and finalize them on 7 February at 15:00, and exchange demonstrative exhibits immediately thereafter.

110. On 7 February 2019, the Parties requested from the Tribunal the authorization to commence the exchange of demonstrative exhibits as there was only one joint expert's memorandum to be finalized (Messrs. Jewell, Catterall and Cline). The Tribunal granted the Parties' request the same day.

111. On 8 February 2019, the Parties filed the joint experts' memoranda of Mr. Sands/ Dr. Hilbert and Mr. Larkin / Mr. Hemingway.

112. On 9 February 2019, the Parties filed the joint experts' memoranda of Mr. Jewell/Mr. Catterall/Mr. Cline.

113. The final hearing was held in Paris from 11 to 15 February 2019.

114. At the beginning of the hearing, the Chairman reminded the Parties, as he has already done in the past, that he was also co-arbitrator in a case involving a telecom company and the State of Yemen; that the case was suspended for many years and for that reason, upon the request of the Chairman, the arbitrators had been freed by the parties from any conflict and that this was the reason why he could accept the case. Moreover, following the disclosure by the Parties that the Respondents had been taken over by CNOOC, the Chairman also disclosed that he was chairman in Hong Kong of a case involving CNOOC.

115. During the hearing, the following fact and expert witnesses testified:

- On behalf of the Claimant: the Claimant's fact witnesses, Mr. Binnabhan, Mr. Alaamdi, and Eng., Al Humidy; and the experts, Mr. Sands, Mr. Larkin, Mr. Jewell, and Mr. Isaac.
- On behalf of the Respondents: the Respondents' fact witnesses, Mr. Tracy, Mr. Rasmussen, Mr. Milford, and Mr. Rettie, and Respondents' experts, Mr. Hilbert, Mr. Hemingway, Mr. Cline and Mr. Catterall.

116. On 20 February 2019, the Tribunal sent to the Parties a letter in relation to the post-hearing issues. In this letter the Tribunal, *inter alia;* (i) set forth the agreed dates for filing the two rounds of post-hearing briefs (30 April 2019 and 7 June 2019); (ii) requested an updated

hearing bundle; and (iii) invited the Parties to agree upon the form, length and nature of the cost submissions by 23 April 2019.

117. On 7 March 2019, the Tribunal requested that the Parties agree to file the second round of post-hearing briefs on 27 May 2019, as it had scheduled its first deliberation session to take place on 8 June 2019.

118. On 8 March 2019, the Respondents confirmed its agreement with the Tribunal's request but in the light of a UK bank holiday proposed to submit the second round of post-hearing briefs either on the 24 or 28 May 2019.

119. On 15 March 2019, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 14 March 2019, the ICC Court had decided to readjust the advance on costs and to increase it from USD 1,480,000 to USD 2,000,000.

120. On 15 March 2019 the Claimant propose to submit the second round of post-hearing briefs either on the 24 May 2019.

121. On 30 April 2019 the Parties submitted their first round of post-hearing briefs. They submitted their second round of post-hearing briefs on 24 May 2019.

122. On 23 May 2019, the ICC Secretariat informed the Parties and the Arbitral Tribunal that the advance on costs had been paid by the Parties.

123. On 29 May 2017, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 9 May 2017, the ICC Court had extended the time limit for rendering the final award until 30 September 2019.

124. On 14 June 2019 the Parties filed their submissions on costs.

125. On 30 September 2019, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 12 September 2019, the ICC Court had extended the time limit for rendering the Final Award until 31 October 2019.

126. On 31 October 2019, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 10 October 2019, the ICC Court had extended the time limit for rendering the Final Award until 29 November 2019.

127. On 21 November 2019, the Tribunal declared the proceedings closed as per Article 27 of the ICC Rules.

128. On 29 November 2019, the ICC Secretariat informed the Parties and the Arbitral Tribunal that, on 14 November 2019, the ICC Court had extended the time limit for rendering the Final Award until 31 December 2019.

129. On 30 December 2019, the ICC Secretariat informed the Arbitral Tribunal that, on 12 December 2019, the ICC Court had extended the time limit for rendering the Final Award until 31 January 2020.

130. On 31 January 2020, the ICC Secretariat informed the Arbitral Tribunal that, on 16 January 2020, the ICC Court had extended the time limit for rendering the Final Award until 28 February 2020.

Chapter V. The Parties and other Related Entities

131. In Chapter V of the Partial Award the Arbitral Tribunal clarified who were the Parties to this arbitration, how the Respondents acquired their interest in the PSA, and who were the other related entities. It is incorporated by reference in this Award. The Arbitral Tribunal will therefore limit itself to an overview of the same.

132. The PSA was concluded by the "Ministry of Energy and Minerals" on behalf of the People's Democratic Republic of Yemen, which was known as South Yemen.

133. On 22 May 1990, the People's Democratic Republic of Yemen united with the Yemen Arab Republic, which was known as North Yemen, to create the Republic of Yemen, which is the current official name of the country. The parties to the PSA Amendment agreed that all references in the PSA to the People's Democratic Republic of Yemen were to be replaced by references to Yemen.[14]

134. Following the unification of Yemen, the "Ministry of Energy and Minerals", the original party to the PSA, was merged with the corresponding Ministry from the Yemen Arab Republic to form the new "Ministry of Oil and Mineral Resources of the Republic of Yemen". That new Ministry was later renamed the "Ministry of Oil and Minerals", which is the current name of the Claimant.

135. The Claimant is the relevant contracting authority of the Yemeni Government in charge of the natural resources of the country and is responsible for entering into production sharing agreements and supervising their performance.

136. Other relevant entities involved on behalf of the Claimant or its predecessors include the Petroleum Exploration and Production Authority ("PEPA"), which is the current name of the advisory department of the Claimant. PEPA was formerly known as the Petroleum Exploration and Production Board ("PEPB") and PEPB's predecessor was the Petroleum Exploration Department ("PED"). The role of PEPA has been to advise the Claimant on technical matters and to oversee exploration and production activity in Yemen.[15]

137. According to the Claimant, PetroMasila, the operator of Block 14 as of the PSA's expiry on 17 December 2011, is another emanation of the Yemeni State. Yemen receives the benefit

[14] Exhibit C-3, First Amendment Agreement to Petroleum Exploration and Production Agreement for Masila Block 14, dated 6 November 1999; Exhibit R-73, First Amendment Agreement to Petroleum Exploration and Production Agreement for Masila Block 14, dated 7 October 2002.

[15] Exhibit CL-13, Republican Decree No. 204 of 1997 Concerning the Establishment of the Petroleum Exploration & Production Board.

of all oil revenue that it earns from that block and meets all of its costs.[16] As a result, PetroMasila's costs since the expiry of the PSA are costs incurred by the Claimant and all liabilities arising from Block 14 remain with the Claimant. Consequently, for the purposes of this arbitration, the Claimant contends that no distinction should be made between Yemen, the Claimant and PetroMasila.

138. However, the Respondents point out that the Claimant's sole proof that costs incurred by PetroMasila since the PSA's expiry are costs incurred by the Claimant is a vague reference made by its own witness, Mr. Binnabhan, to the exclusion of any documentary evidence. According to the Respondents, the Claimant has yet to prove that costs incurred by PetroMasila are costs incurred by the Claimant. In case the Claimant fails to do so, the Arbitral Tribunal should find that the Claimant cannot raise claims regarding costs that have been incurred by PetroMasila, which is a separate legal entity that has existed only since the end of 2011.

139. With respect to the Respondents, as indicated above, the original signatories to the PSA on behalf of the "Contractor", as defined therein, assigned, whether directly or through other affiliated entities, their rights and obligations under the PSA to the Respondents. It is undisputed that the interests in the PSA were initially held by CanadianOxy Offshore International Ltd., which held a 60% interest, and Consolidated Contractors International Company S.A.L., which held a 40% interest and that the Respondents thereafter acquired their respective interests in the PSA.[17]

140. In light of the above, the Respondent 1 currently has a 52% interest in the PSA, the Respondent 2 a 10% interest, the Respondent 3 an 18% interest and the Respondent 4 a 20% interest. The Respondent 1 was the appointed "Operator" from 2001 and had the active conduct of petroleum operations at Block 14 on behalf of the "Contractor". However, the other contracting party to the PSA, Consolidated Contractors International Company S.A.L., and its assignees were severally liable for the performance of the PSA. Therefore, the Arbitral Tribunal refers to the Respondents jointly, except where a distinction between the Respondents is deemed necessary.

[16] 1WS of Mr. Binnabhan, para. 20.
[17] See, Partial Award, para. 155.

Chapter VI. Factual Background of the Dispute and Abridged Parties' Positions Regarding the Dispute

Section I. Factual Background to the Dispute

141. In the present chapter, the Arbitral Tribunal provides a brief summary of the factual background of the dispute. For the purposes of the Tribunal's analysis, the Tribunal has relied on the entire record before it, including the Parties' written submissions and oral pleadings. To the extent that some developments included in the Parties' submissions are not reproduced in this Award, they must be considered subsumed in the Tribunal's analysis.

142. The present dispute concerns a series of events related to the performance and termination of the PSA.

I. The execution and assignment of the PSA

143. On 15 September 1986 the PSA was concluded between the Yemeni "Ministry of Energy and Minerals," of South Yemen on the one hand, and "CanadianOxy Offshore International Ltd." and "Consolidated Contractors International Company S.A.L.", on the other hand.[18]

144. CanadianOxy Offshore International Ltd. and Consolidated Contractors International Company S.A.L. assigned their rights and obligations under the PSA to the Respondents. The Tribunal transcribes below the relevant paragraphs of the Partial Award which illustrates this process:

> "*With respect to Respondent 1: (a) CanadianOxy Offshore International Ltd. transferred a 30% interest in the PSA to Canadian Occidental Petroleum Limited on 1 January 1992, (b) Canadian Occidental Petroleum Limited assigned its 30% interest in the PSA to Canadian Occidental International Petroleum Corporation on 15 November 1994, (c) Canadian Occidental International Petroleum Corporation assigned its 30% interest in the PSA to Canadian Occidental Petroleum Yemen on 1 December 1994, (d) CanadianOxy Offshore International Ltd. assigned its remaining 22% interest in the PSA to Canadian Occidental Petroleum Yemen on 15 December 1994 and (e) Canadian Occidental Petroleum Yemen changed its name to the current name of Respondent 1 on 3 December 2000;*
>
> *With respect to Respondent 2: Consolidated Contractors International Company S.A.L. transferred a 10% interest in the PSA to Respondent 2 on 25 October 1992;*
>
> *With respect to Respondent 3: (a) Consolidated Contractors International Company S.A.L. assigned a 10% interest in the PSA to Occidental Yemen Inc on 9 September 1991,*

[18] Exhibit C-1, Petroleum Exploration and Production Agreement.

(b) CanadianOxy Offshore International Ltd. transferred an 8% interest in the PSA to Occidental Yemen Inc on 13 September 1991, (c) Occidental Yemen Inc assigned its 18% interest in the PSA to Occidental Peninsula, Inc. on 1 November 1991 and (d) Occidental Peninsula converted to a limited liability corporation, which is the current status of Respondent 3, on 6 December 2006; and

With respect to Respondent 4: (a) Consolidated Contractors International Company S.A.L. assigned its remaining 20% interest in the PSA to Pecten Yemen Company ("Pecten") on 27 July 1990 and (b) Pecten assigned its 20% interest in the PSA to Respondent 4 on 11 August 1998".[19]

145. Following the unification of Yemen, the "Ministry of Energy and Mincrals", was merged with the corresponding Ministry from the Yemen Arab Republic to form the new "Ministry of Oil and Mincral Resources of the Republic of Yemen", which is the current Claimant.

146. The Claimant, and the Respondents agree that after this scrics of events, they are the sole parties to the PSA.[20]

147. The Respondent 1 was the appointed operator from 2001 and had the active role of conducting petroleum operations in Block 14, during the term of the PSA.[21]

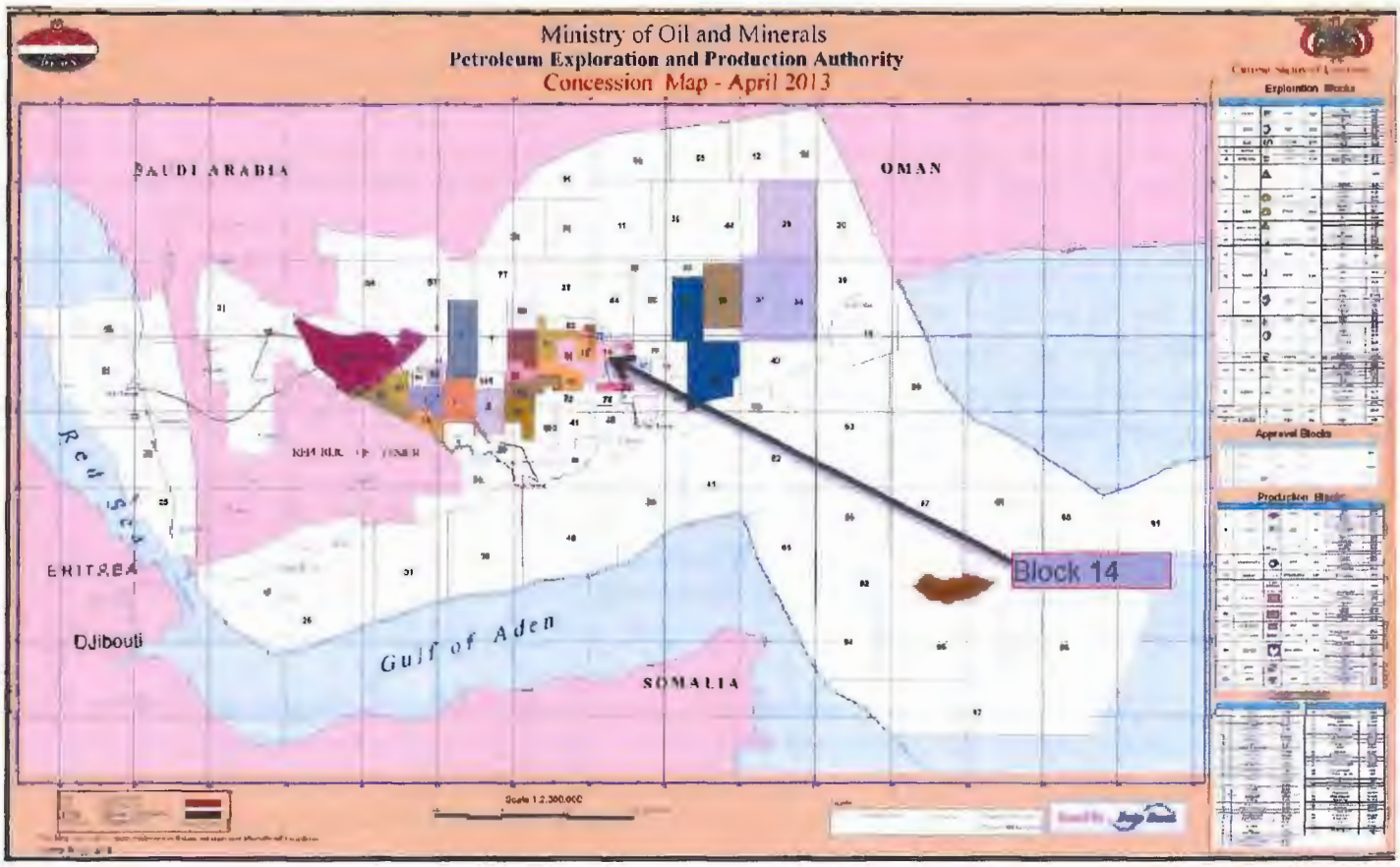
II. The Block 14

148. The PSA involved petroleum exploration, development and production work in Block 14, which is located in the eastern region of Hadhramout, Yemen.[22]

149. An illustration of Block 14's location is presented below.

[19] Partial Award, para. 155.
[20] ASoDCC, para. 26; SoRDCC, para. 75.
[21] Partial Award, para. 156.
[22] ASoDCC, para. 29; SoRDCC, para. 83.

Figure 1. Block 14[23]



150. The initial exploration and appraisal phase on Block 14 took place between 1987, when the PSA came into effect, and 17 December 1991, when commerciality was declared.[24]

151. Over the course of the PSA, Respondent 1 drilled over 640 wells within Block 14.[25] Oil from those wells was collected through gathering pipelines, separated from produced water and delivered for further processing at the CPF.[26]

152. Pursuant to Article 4.4 of the PSA, the term of said agreement continued for 20 years after commerciality was declared, and expired on 17 December 2011.

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[23] Exhibit C-2, Ministry of Oil and Minerals PEPA Concession Map, dated April 2013.
[24] Exhibit C-206, Notice of Commerciality, 17 December 1991.
[25] The Tribunal notes that the Parties do not agree upon the exact number of wells drilled by the Respondent 1. The Claimant asserts that Respondent 1 drilled 646, whereas the Respondents contend that they were 642. The Tribunal does not require to make a determination in relation to this issue, as will be evident in the well claims sub-section.
[26] ASoDCC, paras. 33-34; SoRDCC, para. 83.

III. The fiscal regime of the PSA

153. The Respondents were required to pay all of the exploration costs under the PSA. Exploration costs were only recoverable provided that Block 14 proved to be commercial.[27]

154. Article 9 of the PSA provides the cost recovery regime, as summarized below:

> *"9.1 Cost Recovery*
> *Subject to the auditing provisions of this Agreement, CONTRACTOR, shall recover all costs and expenses not excluded by the provisions of this Agreement, or the Accounting Procedure in respect of all the Exploration, Development, and related operations hereunder to the extent of and out of a maximum of forty percent (40%) per annum of all Crude Oil produced and saved (...)*
>
> *(a) All Operating Expenses, incurred and paid after the initial Commercial Production, which for the purposes of this Agreement shall mean the date on which the first regular shipment of Crude Oil is made, shall be recoverable in the Financial Year in which such Expenses are incurred (...)*
>
> *(b) Exploration Expenditures, including those accumulated prior to the commencement of initial Commercial Production shall be recoverable on a straight-line basis at the rate of twenty-five percent (25%) per annum of the amount of the original Expenditures starting in the later of the Financial Year in which such Expenditures are incurred and paid or the Financial Year in which initial Commercial Production commences.*
>
> *(c) Development Expenditures, including those accumulated prior to the commencement of initial Commercial Production, shall be recoverable on a straight-line basis at the rate of sixteen and sixty seven hundredths percent (16.67%) per annum of the amount of the original Expenditures starting in the later of the Financial Year in which such Expenditures are incurred and paid or the Financial Year in which initial Commercial Production commences. (...)".*[28]

155. The Parties agree that the issues in relation to the application of the financial regime of the PSA are the subject of another ICC arbitration. The Tribunal notes that it was requested not to make any determinations in this regard.[29]

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[27] ASoDCC, para. 43; SoRDCC, para. 90.
[28] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 9.
[29] SoRDCC, para. 87; SoRjSRCC, para. 59.

IV. The PSA and Good Oilfield Practice

156. One of the key concepts in this arbitration proceeding is that of Good Oilfield Practice. The Parties' experts agree that Good Oilfield Practice "*is an expression widely used in the petroleum industry to refer to good practice*".[30]

157. The Parties' experts further agree that the term does not appear in the PSA. However, they agree that the PSA referred to several synonyms of Good Oilfield Practice, such as *inter alia* "*generally accepted standards of the petroleum industry*".[31] The Parties' experts agree that the PSA did require the Respondents to comply with Good Oilfield Practice.[32]

158. Article 8.1 of the PSA provides an obligation to conduct petroleum operations according to Good Oilfield Practice, as illustrated below:

> "*8.1 CONTRACTOR shall conduct Petroleum Operations diligently in accordance with rules as may be prescribed and in accordance with* ***generally accepted standards of the petroleum industry****. ...*".[33]

159. Mr. Stuart Catterall, the Respondents' expert, has defined Good Oilfield Practice as those practices which are generally accepted to be good, safe, and efficient in carrying out oilfield operations.[34] The Parties' experts agree that this is a valid definition.[35]

V. The operational framework of the PSA

160. Article 3.4 of the PSA provides that the Respondent 1 was solely responsible for the development of Block 14:

> "*CONTRACTOR shall provide all technical and financial resources required for Petroleum Operations hereunder and shall carry out such operations at its sole cost and risk (...)*".[36]

161. Pursuant to Article 7.4 of the PSA, the Respondent 1 was to prepare and submit the Work Program and Budgets ("WP&Bs") to the Block 14 Operating Committee ("OpCom"), each year for its approval. The OpCom consisted of representatives of both the Claimant and the

[30] Joint EXR of Mr. Jewell, Mr. Cline, and Mr. Catterall, para. 2.
[31] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.1.
[32] Joint EXR of Mr. Jewell, Mr. Cline, and Mr. Catterall, paras 5-6.
[33] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.1.
[34] 1EXR of Mr. Catterall, para. 22.
[35] Joint EXR of Mr. Jewell, Mr. Cline, and Mr. Catterall, para. 1.
[36] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 3.4.

Respondent 1. These WP&Bs comprised the Respondent 1's exploration, development, production and operational program for the year, and their estimated costs.

162. Pursuant to Article 15.6 of the PSA, once costs were actually incurred, they were recorded in Statements of Activities ("SOAs"). According to Article 15.7 of the PSA, the Claimant had a period of 24 months from the end of the calendar year to which such SOA relates, to raise any objections towards such costs. If during such period the Claimant did not raise any objections in relation to an SOA, such SOA was presumed to be true and correct.[37]

163. PEPA is the current name of the advisory department of the Claimant. The role of PEPA has been to advise the Claimant on technical matters and to oversee exploration and production activity in Yemen.[38]

164. Republican Decree No. 204 of 1997, provided PEPB (now PEPA) a range of powers including, "*[d]irect field/technical supervision and monitoring of oil exploration and production activities and the supporting oil services [and] [d]iscussion of workplans and budgets of the exploration and production operations and proposing of remarks to the Minister for approval and follow up*".[39]

165. The Tribunal observes that the extent of the actual oversight by the OpCom and PEPA to the Respondent 1's petroleum operations in Block 14 is a disputed issue.[40]

166. Throughout the course of the PSA the Respondent 1 developed a set of operating standards, policies, and procedures regarding Block 14, which were detailed in the Environmental Management System ("EMS"). The EMS was originally developed by the Respondent 1 in the mid-1990s and its content evolved throughout the PSA's term.

167. The aim was to conduct operations on Block 14 in compliance with the standards defined in the EMS as "*those environmental management practices widely accepted by responsible operators in the International Petroleum industry as appropriate for protection of environmental quality*"[41]

168. The sources of the Respondents' operation standards included (i) National and International Laws, Conventions and Codes, such as relevant Yemeni legislation and international conventions, (ii) the laws and industry standards of Nexen's home province, in the form of

[37] Exhibit C-1, Petroleum Exploration and Production Agreement, Annex D, Article I.3.
[38] Exhibit CL-13, Republican Decree No. 204 of 1997 Concerning the Establishment of the Petroleum Exploration & Production Board.
[39] Exhibit CL-13, Republican Decree No. 204 of 1997 Concerning the Establishment of the Petroleum Exploration & Production Board.
[40] ASoDCC, paras. 52-62; SoRDCC, paras. 121-133.
[41] Exhibit C-211, Canadian Oxy Report: Environmental Management System.

the Alberta Energy and Utilities Board regulations ("Alberta Guidelines"), and (iii) relevant industry practice, as reflected in practices widely accepted by responsible operators in the International Petroleum industry, including industry forums, government regulatory body guidelines and international and technical standards.[42]

169. Throughout the PSA, Block 14 produced over 1 billion of barrels of oil.[43]

VI. Extension discussions, transition planning, and PSA's expiry

170. On 23 June 2009, during an OpCom meeting, the Claimant's representative stated that the *"government [*was*] looking for Nexen's extension proposal*".[44]

171. During the following months the Claimant, the Respondent 1, PEPA, and the OpCom discussed the future of Block 14 after the PSA's expiry on 17 December 2011.[45]

172. On 23 November 2009, Nexen issued the first version of the Project Charter, which was a handover plan, prepared in case the PSA was not extended.[46] Several other versions were issued in the following months.

173. On 15 March 2010, Nexen issued the fifth version of the Project Charter which included the following stages:[47]

- Stage 1 – Establish project direction;
- Stage 2 – Identify key operations and business issues;
- Stage 3 – Roll out a transition plan to department heads;
- Stage 4 – Complete detailed department plans;
- Stage 5 – Implement transition plan;
- Stage 6 – Post-handover and close out.

174. On 1 May 2010, the Respondent 1 sent a letter to the Claimant requesting a 5-year extension to the PSA.[48]

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[42] ASoDCC, para. 74; SoRDCC, paras. 141-142.
[43] ASoDCC, para. 40; SoRDCC, para. 140.
[44] Exhibit C-123, Minutes of Masila Block 14 Operating Committee meeting, p. 2.
[45] Exhibit C-173, Letter from Contractor to PEPA and Ministry of Oil and Minerals proposing a discussion regarding the possibility of an extension to the PSA.
[46] Exhibit R-194, Yemen Masila Block 14 Handover, Project Charter, Revision 1.
[47] Exhibit C-373, Block 14 Plan for Assessing and Resolving Operational and Business Risk 2010-2017, Project Charter (Version 5).
[48] Exhibit C-175, Letter from Contractor to Ministry of Oil and Minerals requesting an extension of the PSA.

175. On 8 August 2010, the Respondent 1 and PEPA held a meeting to discuss technical details of the extension proposal.[49]

176. On 4 October 2010, the Respondent 1 submitted a new extension proposal to the Claimant.[50]

177. On 10 November 2010, the Claimant issued a Ministerial order directing to constitute a team to study the extension proposal.[51]

178. On 7 February 2011, the Respondent 1 sent an updated five-year extension proposal to the Claimant.[52]

179. On 1 June 2011, as part of the Project Charter, Nexen developed a transition plan for Block 14.[53]

180. On 26 July 2011, the Respondent 1 and the Claimant held a meeting to discuss the extension proposal.[54]

181. On 13 August 2011, the Claimant submitted a letter to the Respondent 1 pointing out that the extension proposal was under consideration by the Supreme Economic Council.[55]

182. On 31 October 2011, the Claimant notified the Respondent 1 that its extension proposal had been rejected.[56]

183. On 22 November 2011, PetroMasila was formally established by Council of Minister's Resolution No. 244 of 2011.[57]

184. On 17 December 2011, the PSA expired, and PetroMasila effectively took over the petroleum operations of Block 14.

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[49] Exhibit C-176, Letter from Contractor to PEPA outlining issues discussed at 8 August 2010 meeting between PEPA and the Contractor, p. 1.
[50] Exhibit C-177, Letter from Contractor to Ministry of Oil and Minerals presenting offer CNPY-L311/1010.
[51] Exhibit C-180, Ministerial Order No. 70 of 2010 on Appointing a Team to meet the Representatives of Canadian Nexen Petroleum Yemen, Block (14), Al Masila Area, Hadhramaut Governorate.
[52] Exhibit C-188, Letter from Contractor to Minister of Oil and Minerals presenting new offer (CNPY-L048/0211).
[53] Exhibit C-432, Tab 3, Yemen Masila Block 14 Transition Plan for Handover (Rev 1.6).
[54] Exhibit C-189, Letter from Contractor to Minister of Oil and Minerals proposing a schedule for PSA extension negotiations, p. 1.
[55] Exhibit R-246, Letter from the Ministry to CNPY, p. 1.
[56] Exhibit C-192, Letter from Minister of Oil and Minerals to Contractor giving notice not to extend the PSA after 17 December 2011.
[57] Exhibit C-63, Resolution No. 244 of 2011, p. 2.

VII. The 2011 MLU strikes

185. On 8 May 2011, the Respondent 1 sent a letter to the Claimant informing that the Masila Labor Union ("MLU") had notified that they were to commence a full strike action at midnight, which would cause the shut-down of operations in Block 14.[58]

186. On 23 May 2011, Respondent 1 sent a letter to the Claimant asserting that *inter alia,* the MLU strike was constituting a *force majeure* event under the PSA.[59]

187. On June 12, 2011, the Claimant replied to Respondent 1's letter arguing that there was no basis to assert the evidence of a *force majeure* event, since the company was now experiencing regular production rates.[60]

188. On 21 November 2011, the Respondent 1 sent a letter to the Claimant asserting that the May 8's declaration of *force majeure* remained in effect. It further mentioned an additional MLU strike on September 3-11, 2011.[61]

189. On 10 December 2011, the Claimant replied to the Respondent 1's letter, once more rejecting the declaration of *force majeure*.[62]

190. On 4 November 2011, Nexen sent a letter to the Vice President of Yemen in relation to the Claimant's decision not to extend the PSA. In that letter Nexen argued that Block 14 was under *force majeure* conditions, as notified on 8 May 2011.[63]

Section II. Abridged Parties' Positions Regarding the Dispute

191. The Arbitral Tribunal provides a succinct summary of the Parties' positions in relation to the dispute. A more detailed summary of the facts and arguments relied upon by the Parties is presented under each head of claim in Chapter VII of this Award.

Sub-section I. The Claimant's overview of the case

192. According to the Claimant, all facilities and equipment, including the wells, waste management facilities, and the other items which are the subject of the facilities and

[58] Exhibit R-2, Letter from Canadian Nexen Petroleum Yemen (CNPY) to the Minister of Oil and Minerals (the Minister) dated 8 May 2011.
[59] Exhibit R-3, Letter from CNPY to the Minister dated 23 May 2011.
[60] Exhibit C-14, Letter from Ministry to Contractor re Continuation of Force Majeure dated 12 June 2011.
[61] Exhibit R-6, Letter from CNPY to the Minister and the Chairman of PEPA dated 21 November 2011.
[62] Exhibit R-10, Letter from the Chairman of PEPA to CNPY dated 10 December 2011.
[63] Exhibit R-7, Letter from Nexen Inc. to the Vice President of the Republic of Yemen, H.E. Abd- Rabbu Mansour Hadi dated 4 November 2011.

equipment claims, should have been transferred over to it in good working order, in a condition that complied with Good Oilfield Practice and in a condition safe for the environment in the Block.[64]

193. In addition, the Claimant claims that the Respondents should have transferred to it all data generated by their oil operations in original format, the SAP system, an asset register and a close out Environmental Impact Assessment ("EIA").[65]

194. In essence, the Claimant argues that in breach of these obligations, the wells, waste management facilities and other items were handed over in a substandard condition, and that the Respondents did not transfer or provide the other items and records to which the Claimant is entitled.[66]

195. Furthermore, the Claimant contends that these claims have not been affected by the Partial Award, and are not time-barred, nor have they been settled. According to the Claimant these were problems that existed at the end of the PSA, and involved new breaches of duty by the Respondents on and after 22 March 2010.[67]

196. Finally, in relation to the Respondents' counterclaim, the Claimant submits that said counterclaim fails to meet the criteria set forth under Article 25 of the PSA.[68] Concretely, the Claimant contends that the MLU strikes on 2011 were not *force majeure* events, and did not cause a delay or failure to perform an obligation under the PSA.[69]

Sub-section II. The Respondents' overview of the case

197. The Respondents contend that pursuant to the Partial Award, and *Addendum* and Decision, 90% of the Claimant's claims are time-barred or have been settled.[70]

198. According to the Respondents only the following claims remain at this stage of the arbitration:[71]

(i) a claim in relation to one allegedly inadequately cemented well drilled after 22 March 2010;

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[64] Claimant's PHB (first round) 2019, para. 7.
[65] Claimant's PHB (first round) 2019, para. 8.
[66] Claimant's PHB (first round) 2019, para. 9.
[67] Claimant's PHB (first round) 2019, para. 13.
[68] SoRDCC, para. 830.
[69] SoRDCC, paras. 842-859.
[70] Respondents' PHB (first round) 2019, para. 6.
[71] Respondents' PHB (first round) 2019, para. 13.

(ii) a claim in relation to one Vertical Pumping System ("VPS") well drilled after 22 March 2010;
(iii) a claim in relation to eight wells drilled after 22 March 2010 for which well cellars were not installed;
(iv) a claim in relation the operation of an incinerator at the CPF;
(v) a claim for an EIA upon expiry of the PSA;
(vi) a claim in relation to the condition of facilities and equipment at the expiry of the PSA, to the extent it is not time-barred;
(vii) a claim for allegedly missing data;
(viii) a claim for an asset register; and
(ix) the SAP claim.

199. Furthermore, the Respondents contest the merits of each of the Claimant's claims as presented in Chapter VII of the Award.

200. Essentially, the Respondents contend that wells, waste management facilities, and the other items subject to the Facilities and Equipment claims were handed over in good working order. Additionally, they submit that they were under no obligation to: (i) submit an EIA at the expiry of the PSA to the Claimant; (ii) transfer a SAP system to the Claimant; or (iii) deliver an asset register to the Claimant. Furthermore, they maintain that there is no missing data, as they delivered all the data to the Claimant.

201. Finally, the Respondents claim that the Claimant breached Article 25 of the PSA by not allowing an extension thereof, so as to enable the Respondents to recover their profit oil share of the lost production resulting from the MLU strikes on May and September 2011.[72]

[72] SoRjSRCC, para. 287.

Chapter VII. The Parties' Prayers for Relief

Section I. The Claimant's prayers for relief

202. As identified in the OSoC,[73] the Claimant's initial prayers for relief are as follows:

"Accordingly, the Ministry claims:

(1) Specific performance of all of the Contractor's obligations under the PSA;

(2) Damages arising from the deficient design of wells and the Contractor's deficient drilling practices in a total sum of at least US$686,487,000;

(3) Alternatively to (2) in whole or in part, the cost of proper abandonment of all wells drilled by the Contractor in a total sum of at least US$686,487,000;

(4) Damages for water lost from the Mukalla aquifer in the sum of at least US$ 32m;

(5) Damages for known environmental damage in the sum of at least US$ 34.6m;

(6) Damages for breach of the Contractor's duties in respect of facilities and equipment in a total sum of at least US$$37,308,523.14;

(7) Specific performance of the Contractor's obligation to provide all data and documentation to the Ministry, alternatively damages in lieu in a total sum of at least US$ 1.95m in respect of the Asset Register and a sum of at least US$ 11m in respect of some of the Missing Data.

(8) Specific performance of the Contractor's obligation to provide access to the SAP system upon expiry of the PSA, alternatively damages in respect of the cost of an alternative system in the sum of at least US$ 9,637,513 or as may be assessed;

(9) Further or alternatively to some or all of these heads of damage, damages reflecting: (i) the diminution in value to the Ministry of the Block as at 18 December 2011 caused by any or all of the foregoing breaches of PSA; and/or (ii) loss of production and/or loss of profitability from Block 14 after 18 December 2011;

[73] SoC, para. 379.

(10) A declaration that the Contractor is liable to indemnify the Ministry against any further consequences of environmental pollution caused by the Contractor which are discovered after the conclusion of this arbitration;

(11) A declaration that the Contractor is liable to indemnify the Ministry against any liability that it has incurred or may incur to third parties in respect of their breach(es) of the PSA and/or applicable laws (including but not limited to the Environmental Protection Law (Law No. 26 of 1995) and any costs of defending itself against the claim or proceedings brought by any such third party;

(12) Interest, alternatively damages reflecting repair costs and/or replacement costs as at the date of the Award, alternatively damages reflecting the time value of money;

(13) All costs and expenses (including, but not limited to, costs payable to the ICC, legal fees and expenses and expenses of experts, consultants and others) incurred by the Ministry in connection with this arbitration.

The Ministry will also ask the Tribunal to:

(1) Grant interim relief inter alia in the form of an interim order for a list of missing data;

(2) Make directions for determination or consideration of the issues by one of more joint experts;

(3) Further or alternatively to (2), direct that assessment of the environmental damage and production interruption claims be deferred to a later hearing;

(4) Declare that its award is immediately enforceable".

203. As identified in the ASoC,[74] the Claimant's prayers for relief are as follows:

"*Accordingly, the Ministry claims:*

(1) Specific performance of all of the Contractor's obligations under the PSA;

(2) Damages arising from the deficient design of wells and the Contractor's deficient drilling practices as detailed below or as may be assessed:

[74] ASoC, para. 443.

(i) US$218,816,000 (to repair 208 wells at US$1.052m per well); and/or

(ii) US$56,576,000 (to enter and install production packers in 208 wells at US$0.272m per well); or US$6,240,000 (to install production packers in 208 wells at US$30,000 per packer if the packer is installed at the same time as the repairs detailed in (i)); and/or

(iii) US$14,144,000 (to re-enter and install production packers in the 52 wells repaired by the Contractor at US$0.272m per well); and/or

(iv) US$4,943,000 (repair of 47 VPS wells at US$107,000 per well); and/or

(v) US$49,040,000 (installation of well cellars on 347 wells at US$800,000 per well);

(3) Damages for water lost from the Mukalla aquifer at an annual rate of between US$2m to US$4.5m and the Ministry claims as a minimum US$2m per year from year 2010 to the date of the Award or such other period as the Tribunal shall determine;

(4) Damages for known environmental damage in the sum of at least US$ 22.4m;

(5) Damages for breach of the Contractor's duties in respect of facilities and equipment in a total sum of at least US$ 37,308,523.14 or as may be assessed;

(6) Specific performance of the Contractor's obligation to provide all data and documentation to the Ministry, alternatively damages in lieu in a total sum of at least US$ 1.95m in respect of the Asset Register and a sum of at least US$ 11m in respect of some of the Missing Data.

(7) Specific performance of the Contractor's obligation to provide access to the SAP system upon expiry of the PSA, alternatively damages in respect of the cost of an alternative system in the sum of at least US$ 9,637,513 or as may be assessed;

(8) Further or alternatively to some or all of these heads of damage, damages reflecting: (i) the diminution in value to the Ministry of the Block as at 18 December 2011 caused by any or all of the foregoing breaches of PSA; and/or (ii) loss of production and/or loss of profitability from Block 14 after 18 December 2011;

(9) A declaration that the Contractor is liable to indemnify the Ministry against any further consequences of environmental pollution caused by the Contractor which are discovered after the conclusion of this arbitration;

(10) A declaration that the Contractor is liable to indemnify the Ministry against any liability that it has incurred or may incur to third parties in respect of their breach(es) of the PSA and/or applicable laws (including but not limited to the Environmental Protection Law (Law No. 26 of 1995) and any costs of defending itself against the claim or proceedings brought by any such third party;

(11) Interest, alternatively damages reflecting repair costs and/or replacement costs as at the date of the Award, alternatively damages reflecting the time value of money;

(12) All costs and expenses (including, but not limited to, costs payable to the ICC, legal fees and expenses and expenses of experts, consultants and others) incurred by the Ministry in connection with this arbitration.

(13) The Ministry will also ask the Tribunal to declare that its award is immediately enforceable.

(14) Order any other relief that the Tribunal considers appropriate".

204. As identified in the SoRDCC,[75] the Claimant's prayers for relief are as follows:

"*The Ministry is entitled to, and hereby claims, the following relief in respect of its claims:*

a. In respect of the ***well claims****, the Ministry seeks damages as follows:*

i. US$218,816,000 being the cost of repairing 208 wells (at US$1.052m per well); and / or

ii. US$56,576,000 being the cost of entering and installing production packers in 208 wells (at US$0.272m per well); and / or

iii. US$6,240,000 being the cost of installing production packers in 208 wells (at US$30,000 per packer if the packer is installed at the same time as the repairs detailed in (i)); and / or

iv. US$14,144,000 being the cost of re-entering and (sic) installling production packers in the 52 wells repaired by the Contractor (at US$0.272m per well); and / or

[75] SoRDCC, para. 443.

v. US$4,943,000 being the cost of repairing 42 VPS wells (at US$107,000 per well); and / or

vi. US$49,040,000 being the cost of repairing 613 wells, by the installation of well cellars (at US$80,000 per well); and / or

vii. US$2m to US$4.5m being the value of water lost from the Mukalla aquifer.

*b. Damages of US$70,000 representing the cost of the detailed **EIA** conducted by Al Safa Environmental & Technical Services LLC.*

*c. Damages in respect of the Ministry's **NORM** claim, as follows:*

i. US$1,309,000 being the costs of re-entering and making safe the three NORM wells; and / or

ii. US$2,000,000 being the costs of cleaning up and disposing of the NORM contaminated equipment left behind by the Contractor at the end of the PSA.

*d. Damages in respect of the Ministry's **waste management** claims, as follows:*

i. US$3,800,000 being the cost of replacing the CPF incinerator); and / or

ii. US$13,600,000 being the cost of installing certain other facilities which should have been installed by the Contractor and the cost of treating waste present at handover; and / or

iii. US$2,850,000 being the cost of conducting remediation work upon sludge ponds.

e. Damages of US$33,636,888.09 in respect of the Ministry's facilities and equipment claims.

*f. In respect of the Ministry's **data** claim:*

i. An order that the Contractor deliver to the Ministry the missing data listed in Exhibit C-75; and / or

ii. Damages to a maximum of US$11m, being the costs of data reacquisition, in lieu of any data not delivered by the Contractor.

g. In respect of the Ministry's asset register claim:

i. An order that the Contractor deliver to the Ministry an asset register; and / or

ii. Damages from US$2.15m to US$2.55m, being the costs of compiling a replacement asset register, in lieu of any failure of the Contractor to deliver an asset register.

h. Damages of US$9,204,631.84 representing the Ministry's actual losses caused by the Contractor's breaches in relation to ***SAP****, alternatively:*

i. Damages of US$7.07m representing the value in 2011 of the US$3m cost recovered by the Contractor for the SAP system in 2002; or
ii. Damages of US$13.78m representing the value in 2018 of the US$3m cost recovered by the Contractor for the SAP system in 2002.

i. ***Interest****, alternatively damages reflecting repair costs and/or replacement costs as at the date of the Award, alternatively damages reflecting the time value of money; and / or*

j. ***All costs and expenses*** *(including, but not limited to, costs payable to the ICC, legal fees and expenses and expenses of experts, consultants and others) incurred by the Ministry in connection with this arbitration; and / or*

k. The Ministry will also ask the Tribunal to declare that its award is ***immediately enforceable****; and / or*

l. Order ***any other relief*** *that the Tribunal considers appropriate.*

In respect of the Contractor's counterclaim, the Ministry is entitled to and seeks:

a. An order that the Ministry is not in breach of the PSA; and / or

b. An order that no damages are payable to CNPY as a result of the Contractor's counterclaim".

205. As identified in its PHBs,[76] the Claimant's prayers for relief are as follows:

[76] Claimant's PHB (first round) 2019, paras. 656-670.

"For the reasons and in the circumstances set out above, the Ministry asks the Tribunal to find that the Contractor is in breach of the PSA in multiple respects.

The Ministry is entitled to, and hereby claims, the following relief.

In respect of the ***Well claims****:*

a. The Ministry's primary well claim is for:

i. USD218,816,000 being the cost of repairing 208 wells; and/or

ii. USD56,576,000 being the cost of entering and installing production packers in 208 wells (alternatively USD6,240,000 on the basis the packers were to be installed at the same time as repairs); and/or

iii. USD14,144,000 being the cost of re-entering and installing production packers in 52 wells already repaired by the Contractor; and/or

iv. USD2,000,000 to USD4,500,000 per annum for the loss of water from the Mukalla aquifer on and after March 2010. As at April 2019, the value of this claim is between USD18,000,000 and USD40,500,000; and/or

v. USD4,943,000 being the cost of repairing 42 VPS wells which were needed as at 11 December 2011; and/or

vi. USD49,040,000 being the cost of repairing wells by the installation of well cellars.

b. The Ministry's alternative well claim is for:

i. USD8,882,471 being the cost of well repairs and installation of cathodic protection incurred by PetroMasila; and/or

ii. USD8,512,000 being the cost of monitoring injector and production wells (7 years); and/or

iii. USD12,820,000 being the cost of the canola replenishment that the Contractor did not carry out in 2011 and for 7 years since 2011; and/or

iv. USD2,000,000 to USD4,500,000 per annum for the loss of water from the Mukalla aquifer on and after March 2010. As at April 2019, the value of this claim is between USD18,000,000 and USD40,500,000; and/or

v. USD421,000 being the cost of HPS unit that was installed pending repair of the VPS wells.

In respect of the ***NORM claim****:*

a. USD1,309,000 being the cost of re-entering and making safe the three NORM wells; and/or

b. USD2,000,000 being the cost of cleaning up and disposing of the NORM-contaminated equipment left behind by the Contractor at the end of the PSA.

In respect of the ***Waste Management*** *claims:*

a. USD3,800,000 being the cost of replacing the CPF incinerator; and/or

b. USD13,600,000 being the cost of installing certain other facilities which should have been installed by the Contractor and the cost of treating waste present at the expiry of the PSA; and/or

c. USD2,850,000 being the cost of conducting remediation work upon sludge ponds.

USD70,000 representing the cost of the detailed ***EIA*** *conducted by Al Safa Environmental & Technical Services LLC.*

USD33,636,888.09 in respect of the ***Facilities and Equipment*** *claims.*

In respect of the ***Data*** *claim:*

a. An order that the Contract deliver to the Ministry the missing data listed in Exhibit C-75; and/or

b. Damages to a maximum of USD11,000,000, being the costs of data reacquisition, in lieu of any of any data not delivered by the Contractor.

In respect of the ***Asset Register*** *claim:*

a. An order that the Contractor deliver to the Ministry an Asset Register; and/or

b. Damages from USD2,150,000 to USD2,550,000 being the costs of compiling a replacement Asset Register, in lieu of any failure of the Contractor to deliver an Asset Register.

Damages of USD9,204,631.84 representing the Ministry's actual losses caused by the Contractor's breaches in relation to ***SAP****, alternatively:*

a. Damages of USD7,070,000 representing the value in 2011 of the USD3,000,000 cost recovered by the Contractor for the SAP system in 2002; or

b. Damages of USD13,780,000 representing the value in 2018 of the USD3,000,000 cost recovered by the Contractor in 2002.

Interest *at the rate of 5% per annum from the date of the expiry of the PSA, alternatively damages reflecting repair costs and/or replacement costs as at the date of the Award in the amount of 20% of the claim value.*

All ***costs and expenses*** *(including, but not limited to, costs payable to the ICC, legal fees, expenses and expenses of experts, consultants and others) incurred by the Ministry in connection with this arbitration.*

The Ministry will also ask the Tribunal to declare that its award is ***immediately enforceable****.*

Order such ***other relief*** *that the Tribunal considers appropriate.*

In respect of the Contractor's ***counterclaim****, the Ministry is entitled to and seeks:*

a. An order that the Ministry is not in breach of the PSA; and/or

b. An order that no damages are payable to the Contractor as a result of the Contractor's counterclaim". [internal citations omitted]

Section II. The Respondents' prayers for relief

206. As identified in the SoDCC and ASoDCC,[77] the Respondents' initial prayers for relief are as follows:

> "*[T]he Respondents respectfully request the Tribunal to:*
>
> *(a) DISMISS the Claimant's claims in their entirety;*
>
> *(b) ORDER the Claimant to pay damages to the Respondents for breach of Article 25.1 of the PSA;*
>
> *(c) ORDER the Claimant to pay the costs of this arbitration on a full indemnity basis, including the fees and expenses of the Tribunal, the ICC's administrative costs and the costs of the Respondents' legal representation and expert assistance; and*
>
> *(d) ORDER any other relief that the Tribunal considers appropriate*".

207. The Respondents have not amended their prayers for relief in the SoRjSRCC or in their PHBs.[78]

[77] SoDCC, para. 724; ASoDCC, para. 708.
[78] SoRjSRCC, para. 288.

Chapter VIII. Discussion

208. The Tribunal will begin by addressing the effect of the Partial Award on the Claimant's claims (**Section I**). The Tribunal will provide some general observations that will be applicable in the claim by claim analysis to determine whether or not each specific claim has been time-barred or settled pursuant to the Partial Award.

209. Thereafter the Tribunal will analyze the Claimant's Wells Claims (**Section II**), which include: (**I**) the cost of repairing 208 production wells; (**II**) the cost of installing production packers in 260 wells; (**III**) the loss of water in the Mukalla aquifer; (**IV**) the cost of repairing the VPS wells; and (**V**) the cost of installing well cellars. Before addressing the merits of these claims, the Tribunal will undertake a rigorous analysis to determine whether or not these claims are time-barred.

210. Subsequently the Tribunal will examine the Claimant's Other Environmental Claims (**Section III**), which include: (**I**) the EIA claim; (**II**) the NORM claims; and (**III**) the Waste Management claims. The Tribunal will commence by determining whether or not some of these claims have been time-barred or settled pursuant to the Partial Award.

211. Afterwards the Tribunal will study the Claimant's Facilities and Equipment claims (**Section IV**) wherein it will analyze the twenty-six individual claims brought by the Claimant.

212. Consecutively the Tribunal will address the Claimant's Data and Asset Register claims (**Section V**) which are not subject to a time-bar or settlement defense. The Tribunal will address in order: (**I**) the Data claims; and then (**II**) the Asset Register claim.

213. The Tribunal will then address the Claimant's SAP claim (**Section VI**), and will finally examine the Damages claimed (**Section VII**).

214. Lastly, the Tribunal will analyze the merits of the Respondents' Counterclaim (**Section VIII**).

Section I. The Effect of the Partial Award on the Claimant's Claims

Sub-section I. The Respondents' position regarding the effect of the Partial Award

I. The Respondents' position regarding the general effect of the Partial Award

215. The Respondents argue that as a consequence of the Partial Award, only nine claims valued at approximately USD 62 million remain to be determined by the Tribunal.[79]

216. They contend that during the initial phase of the arbitration, the Claimant categorized its claims as follows: (i) original breach claims, based on alleged historic breaches, in some cases dating back several decades; (ii) continuing breach claims, based on alleged breaches that continued throughout the life of the PSA; and (iii) end-of-PSA claims that the Claimant asserted arose from abandonment and related duties upon the expiry of the PSA.[80]

217. The Respondents submit that the Tribunal determined in the Partial Award that: (i) the claims based on original breaches, to the extent they arose before 22 March 2010, were time-barred; (ii) the claims based on continuing breaches, to the extent they first arose before 22 March 2010, were time-barred; and (iii) end-of-PSA claims based on the Respondents' abandonment and reclamation related duties at the expiry of the PSA, had been settled.[81]

218. In this respect, the Respondents argue that the Partial Award made the following rulings in relation to the time-bar defense:

(i) In respect of the Claimant's original breach claims:[82]

a. Well design claims: The claims regarding the Respondents' first well designs, as set out in GDP1, GDP1.1 and GDP2, which did not provide for cement across the Mukalla and Harshiyat aquifers were time-barred pursuant to the three-year/ten-year limitation period;[83]
b. "Inadequately cemented wells" claims: The claims regarding the Respondents' failure to achieve 100% cementation with respect to the wells drilled after 2001 were time-barred pursuant to the three-year/ten-year limitation period, because those wells had been drilled before 22 March 2003, except for one inadequately cemented well drilled after 22 March 2010;[84]
c. Drilling fluids claims:[85] The claims regarding the Respondents' use of drilling fluids and unlined mud ponds were time-barred pursuant to the three-year/ten-year limitation

[79] Respondents' PHB (first round) 2019, para. 14.
[80] Respondents' PHB (first round) 2019, para. 27.
[81] Respondents' PHB (first round) 2019, para. 30.
[82] ASoDCC, para. 171.
[83] Partial Award, paras. 730, 733.
[84] Partial Award, paras. 741-742.
[85] The Tribunal observes that the Claimant no longer maintains these claims, including in relation to the eight wells drilled after March 2010. The paras. 214-223 of the OSoC, have been deleted and do not appear in the ASoC.

period, (except for eight wells drilled after 22 March 2010), because those wells had been drilled before 22 March 2003;[86]

d. LOTs and FITs claims:[87] The claims regarding the Respondents not performing LOTs or FITs were time-barred pursuant to the three-year/ten-year limitation period;[88]

e. VPS design claims: The claims regarding the VPS well design which used only a single metal barrier at the bottom of the VPS well, were time-barred pursuant to the three-year/ten-year limitation period, because those wells had been drilled before 22 March 2003, except for one VPS well drilled after 22 March 2010;[89]

f. Well cellar claims: The claims regarding the absence of well cellars were time-barred pursuant to the three-year/ten-year limitation period, because those wells had been drilled before 22 March 2003, except for eight wells drilled after 22 March 2010;[90]

g. NORM claims: The claims regarding the Respondents' NORM management practices were time-barred pursuant to the three-year/ten-year limitation period, except in relation to the Respondents' practice of canisterisation, which occurred at the end of the PSA's term;[91]

h. Injection of produced water into the Harshiyat claim:[92] The claims regarding the Respondents' injection of produced water into the Harshiyat were time-barred pursuant to the three-year/ten-year limitation period, considering that the Respondents' practice ceased in 1999;[93]

i. EIA claims: The claims regarding the Respondents' initial EIA undertaken prior to oil operations were time-barred pursuant to the three-year/ten-year limitation period.[94] The Claimant's claim in relation to the EIA at the PSA's expiry survived the Partial Award;[95]

j. Groundwater monitoring facilities and practices claims:[96] The claims regarding the Respondents' groundwater monitoring facilities and practices were time-barred pursuant to the three-year/ten-year limitation period, considering that the Respondents' groundwater monitoring facilities and practices were in place prior to 2003, except for the claim in relation to the Terminal produced water infiltration gallery system that was installed in 2004 (for which the ten year limitation period did not elapse);[97]

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[86] Partial Award, paras. 754-755.
[87] The Tribunal observes that the Claimant does not maintain separate monetary claims in this respect. SoRDCC, para. 408.
[88] Partial Award, paras. 763-764.
[89] Partial Award, paras. 772-773.
[90] Partial Award, paras. 783-784. The Respondents further contend that the correct number of wells drilled after 22 March 2010 is five not eight, because three wells were side-track wells.
[91] Partial Award, paras. 793-794.
[92] The Tribunal observes that the Claimant no longer maintains these claims. The para. 242 of the OSoC, has been deleted and do not appear in the ASoC.
[93] Partial Award, paras. 805-806.
[94] Partial Award, paras. 818-819.
[95] Partial Award, para. 820.
[96] The Tribunal observes that the Claimant no longer maintains these claims. The paras. 281-286 of the OSoC, have been deleted and do not appear in the ASoC.
[97] Partial Award, paras. 827-830.

k. Waste management facilities and practices claims: The claims regarding the Respondents' waste management facilities and practices were time-barred pursuant to the three-year/ten-year limitation period, except for the claim in relation to the CPF incinerator that was installed in 2009, and inspected on July 2010;[98] and
l. Seismic misfires claim:[99] The claims regarding the presence of seismic misfires were time-barred pursuant to the three-year/ten-year limitation period;[100]

(ii) In respect of the Claimant's continuing breach claims:

a. The claims regarding acts that occurred before 22 March 2010 were time-barred, "*even if those claims were based on continuing duties, as the failure to comply with such duties was only a consequence of the initial wrongful act*";[101] and
b. The claims regarding acts that occurred after 22 March 2010 were time-barred, to the extent that those duties and breaches "*were a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010*".[102]

219. The Respondents also underline that the Partial Award ruled that the Settlement Agreement was a concluded agreement duly ratified by Yemen and that its Clause 9 released the Respondents from any dismantlement, abandonment and reclamation claims; that accordingly the following claims had been settled:[103]

a. The claim of USD 124,480,000 related to the abandonment costs of 311 inadequately cemented wells.[104]
b. The claims of USD 124,944,000 related to the abandonment costs of 323 adequately cemented wells;[105] USD 9,060,000 related to the re-abandonment costs of 5 improperly abandoned wells;[106] and USD 1,309,000 related to the re-abandonment of 3 wells into which NORM-contaminated equipment was disposed.
c. The claim of USD 2,850,000 related to the remediation of sludge ponds.

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[98] Partial Award, paras. 842-843.
[99] The Tribunal observes that the Claimant no longer maintains these claims. ASoC, para. 380.
[100] Partial Award, paras. 852-853.
[101] *Addendum* and Decision, para. 118.
[102] *Addendum* and Decision, para. 118.
[103] ASoDCC, para. 176; Partial Award, para. 620.
[104] The Tribunal observes that the Claimant no longer maintains these claims. The para. 247.1 of the OSoC, has been deleted and does not appear in the ASoC.
[105] The Tribunal observes that the Claimant no longer maintains these claims. The para. 247.2 of the OSoC, has been deleted and does not appear in the ASoC.
[106] The Tribunal observes that the Claimant no longer maintains these claims. The para. 212 of the OSoC, has been deleted and does not appear in the ASoC.

d. The claim of USD 15,550,000 related to the cost of abandoning sections of the MOL, redundant flow lines, surface facilities and disused borrow pits.[107]

220. Moreover, the *Addendum* and Decision clarified that post-March 2010 breaches could only be maintained to the extent that they were not continuations of duties and breaches which existed prior to 22 March 2010.[108]

221. Consequently, according to the Respondents, in addition to the Counterclaim, the following claims are the only ones that remain at this stage of the arbitration: (i) a claim in relation to one allegedly inadequately cemented well drilled after 22 March 2010; (ii) a claim in relation to one VPS well drilled after 22 March 2010; (iii) a claim in relation to eight wells drilled after 22 March 2010 for which well cellars were not installed; (iv) a claim in relation the operation of an incinerator at the CPF; (v) a claim for an EIA upon expiry of the PSA; (vi) a claim in relation to the condition of facilities and equipment at the expiry of the PSA, to the extent it is not time-barred; (vii) a claim for allegedly missing data; (viii) a claim for an asset register; and (ix) a SAP claim.[109]

222. According to the Respondents, the Claimant attempts to ignore the Partial Award, and the *Addendum* and Decision, as it seeks to resuscitate claims that the Tribunal has already dismissed.[110]

223. By way of example, the Respondents refer to the ASoC, where the Claimant maintains *inter alia*:[111]

- The claims in respect of cementing policy, corrosion, and "*inadequately cemented wells*" in respect of 208 wells.[112] However, these claims were dismissed in the Partial Award, except in relation to a single well that was drilled on Block 14 after 22 March 2010;[113]
- The VPS design claims in relation to 47 wells.[114] However, the Tribunal dismissed these claims in the Partial Award, except in relation to one VPS well that was drilled after 22 March 2010;[115] and

[107] The Tribunal observes that the Claimant no longer maintains these claims. The para. 305 of the OSoC, has been deleted and does not appear in the ASoC.
[108] ASoDCC, para. 184.
[109] Respondents' PHB (first round) 2019, para. 13.
[110] ASoDCC, para. 183.
[111] ASoDCC, para. 186.
[112] ASoC, para. 279.
[113] Partial Award, paras. 732, 741.
[114] ASoC, paras. 294-299.
[115] Partial Award, para. 772.

- The well cellar claims in relation to 347 wells.[116] However, these claims have been dismissed in the Partial Award, except for eight wells that were drilled after 22 March 2010.[117]

224. Hence, the vast majority of the claims pursued on the basis of a continuing failure to repair and/or maintain assets in good working order, have been dismissed and are *res judicata*.[118] It is the Respondents' case that any alleged breaches of this continuing obligation that existed after 22 March 2010 are continuations of alleged breaches existing before 22 March 2010.[119]

225. Consequently, according to the Respondents, the only claims that survived the Partial Award would be those based on breaches arising out of new deteriorations of the conditions of assets that occurred for the first time after 22 March 2010.[120]

II. The Respondents' position regarding the handover obligation

226. The Respondents assert that in light of the abovementioned arguments in Sub-section (**I**) above, the Claimant could only circumvent the Partial Award by claiming that a handover obligation (to repair *inter alia* the wells) arose at the PSA's expiry.[121] However, the Claimant's reliance in this respect on Article 8 and Article 18.1 of the PSA is misplaced.

227. Article 18.1(b) of the PSA, provides:

> "*Title to fixed and movable assets shall by virtue of this provision transfer gradually from CONTRACTOR to MINISTRY at the end of each year in the percentage that the cost of the particular asset is recovered by CONTRACTOR pursuant to Section IX during such year. If not already vested in MINISTRY, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the time of termination of this Agreement, with all such assets being in good working order, normal wear and tear accepted. The Book Value of the Assets acquired or created during each Calendar Year shall be communicated by CONTRACTOR to MINISTRY within sixty (60) days after the end of such year*".[122] [emphasis added].

228. According to the Respondents, Article 18.1 of the PSA cannot support the Claimant's claims as it only imposes an obligation as to the condition of assets that have not already been cost

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[116] ASoC, paras. 300-307.
[117] Partial Award, para. 783. The Respondents further contend that the correct number of wells drilled after 22 March 2010 is five not eight, because three wells were side-track wells.
[118] Respondents' PHB (first round) 2019, para. 11.
[119] Respondents' PHB (first round) 2019, para. 38.
[120] Respondents' PHB (first round) 2019, para. 11.
[121] Respondents' PHB (first round) 2019, para. 46.
[122] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1.

recovered, and whose title has not already been transferred to the Claimant.[123] The Respondents add that the vast majority of the assets were cost recovered long before the expiry of the PSA, and that the Claimant has not identified the limited facilities and equipment that had not been so cost recovered.[124]

229. The Respondents explain that the above does not mean that assets that had been cost recovered could be allowed to deteriorate. According to the Respondents, Article 8.1 of the PSA was a separate obligation by which all materials, equipment and facilities needed to be kept in good working order until the expiry of the PSA.[125] However, Article 8 is a continuing obligation that existed throughout the PSA.[126] It is the Respondents' case that (i) relying on Article 8 of the PSA would amount to characterizing any handover obligation as a continuing obligation; and (ii) continuing obligations that existed before and after 22 March 2010 did not survive the Partial Award as explained in paragraph 224 above.[127]

230. As illustrated by the Respondents' counsel during the final hearing:

> *"Does that mean that in 2001 you can let it go to pot thereafter? Of course that isn't our case, because there's another obligation. The other obligation is the general obligation at 8.1 every day of the PSA to maintain diligently the assets. Now, that obligation, and the reason why they can't rely on that obligation is that the continuing obligation. That is the obligation, as we saw on the earlier slides, you found did not alter the time bar analysis, because that obligation was the same the day before the 22 March 2010 as it was the day after, so that isn't enough for them to evade your time bar decision. They need to identify a new obligation that is fresh subsequently and that is not continuing from before, and 8.1 cannot be that".*[128] [emphasis added].

Sub-section II. The Claimant's position regarding the effect of the Partial Award

I. The Claimant's position regarding the general effect of the Partial Award

231. The Claimant argues that it is only maintaining claims which have not been time-barred by the Partial Award, and which do not relate to abandonment, dismantlement or reclamation, and thus, have not been settled.[129] According to the Claimant, the claims quantified in the

[123] Respondents' PHB (first round) 2019, para. 52.
[124] Respondents' PHB (first round) 2019, para. 12 a.
[125] Respondents' PHB (first round) 2019, para. 53.
[126] ASoDCC, para. 208; SoRjSRCC, para. 93 a.
[127] ASoDCC, para. 208.
[128] Respondents' Opening Statements, Transcript of the final hearing, day 1, p. 123 line 20 to p. 124, line 8.
[129] SoRDCC, para. 174.

OSoC were in excess of USD 800 million, whereas its current claims went down to over half of that sum, therefore, the Partial Award is not being ignored.[130]

232. The Claimant does not agree with the way the Respondents categorized its initial claims into (i) original breach claims; (ii) continuing breach claims; and (iii) end-of-PSA claims.[131] However, for ease of reference:

- In relation to the original breach claims, the Claimant declares that it does not pursue any claims which depend upon a breach of contract that occurred prior to 22 March 2010.[132]

- In relation to the continuing breach claims, the Claimant points out that it does not allege that the consequences of breaches continued throughout the life of the PSA; its case is that ongoing obligations gave rise to a claim when breached, on or after 22 March 2010.[133] According to the Claimant, the Respondents had an obligation to comply with ongoing duties, therefore, a breach of a past duty does not entitle the Respondents to breach the duty again thereafter.[134]

- In relation to the end-of-PSA claims, the Claimant confirms that the claims for abandonment are not maintained.[135] It submits that the Partial Award limited the scope of Clause 9 of the Settlement Agreement to "*the work necessary upon termination or cancellation under the Masila block (14) PSA with respect to dismantlement, abandonment, and reclamation*"[136]. Therefore, according to the Claimant, Clause 9 of the Settlement Agreement did not cover ongoing operational and repair costs arising from petroleum operations, remediation, or post closure monitoring.[137]

233. The Claimant further contends that the Respondents' selected extracts of the Partial Award do not to take into consideration the *Addendum* and Decision.[138] According to the Claimant, as per the *Addendum* and Decision, the following claims survived the Partial Award:

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[130] Claimant's Opening Statements, Transcript of the final hearing, day 1, p. 9, lines 1 to 8.
[131] SoRDCC, para. 179.
[132] SoRDCC, para. 179 b.
[133] SoRDCC, para. 179 c.
[134] SoRDCC, para. 186.
[135] SoRDCC, para. 179 d.
[136] Exhibit R-1, Settlement Agreement between: (i) the Ministry of Oil and Mineral Resources on behalf of the Government of the Republic of Yemen, represented by the Minister of Oil and Mineral Resources; (ii) Canadian Occidental Petroleum Yemen, Consolidated Contractors (Oil and Gas) S.A.L., Occidental Peninsula Inc., and Pecten Yemen Company; and (iii) Canadian Occidental Petroleum Yemen.
[137] ASoC, para. 202.
[138] SoRDCC, para. 190-192.

> *"123. For the foregoing reasons:*
> *(i) The Arbitral Tribunal unanimously decides to grant Claimant's request for interpretation in relation to paragraphs 901 and 910(viii) of the Partial Award and it accordingly clarifies that these paragraphs do not dismiss Claimant's following claims that will also be heard at the subsequent phase of this arbitration only to the extent that they do not relate to claims for or in respect of abandonment, dismantlement and reclamation costs:*
> *(a) Claims for breach of duty to comply with good oilfield practice, in relation to which the duty to act existed on or after 22 March 2010 and the breach was committed on or after 22 March 2010;*
> *(b) Claims for breach of duty of good faith, in relation to which the duty existed on or after 22 March 2010 and the breach was committed on or after 22 March 2010;*
> *(c) Claims for breach of duties that arose at the time of the handover of Block 14 on 17 December 2011; and*
> *(d) Any other claims that are not otherwise expressly addressed in the Partial Award and are not subject to Respondents' Settlement Agreement and time-bar defences".*[139]

234. The Claimant challenges some of the examples provided by the Respondents, regarding claims that according to them, should not be maintained in this stage of the proceeding:

- In relation to the inadequately cemented wells, the Claimant asserts that it does not maintain a claim caused by the well design (lack of complete cementation) as a breach of the PSA, however, if a policy was put in place to remedy, and such policy was breached after 22 March 2010, such claim should be actionable.[140]

- In relation to the VPS claims, the Claimant submits that the Respondents recognized the design defect; and monitored and repaired those wells when they failed. It is the Claimant's case that the Respondents acknowledged that they needed to fix the wells prior to handover to leave the field in good working order, in accordance with Good Oilfield Practice.[141]

235. The Claimant adds that it is not trying to circumvent the findings of the Partial Award and *Addendum* and Decision. According to the Claimant, it does not pursue any claims that depend upon a breach of contract that occurred before 22 March 2010 or a consequence of a breach committed early in the PSA that continued throughout the PSA's term. The Claimant contends that it is pursuing claims based on obligations that did not come to an end on 22 March 2010 and breaches that arose thereafter.[142]

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[139] *Addendum* and Decision para. 123.
[140] SoRDCC, para. 181 a.
[141] SoRDCC, para. 181 b.
[142] SoRDCC, para. 211.

236. In short, the Claimant submits that the Tribunal should answer the following questions in relation to each head of claim:

> "*did the Contractor owe a duty to the Ministry on or after 22 March 2010 as alleged, 22 March 2010 is the date because of your rulings on time bar, it's the start date for claims we're able to make. If so, did the Contractor breach the duty? What are the financial consequences of that? And then the last bullet asks whether the claim is won in respect of dismantlement, reclamation or abandonment. That question arises in view of your finding that a Settlement Agreement was concluded in 1996 in respect of those matters. So to put it the other way around, we have to establish a breach after 22 March 2010, which is not in respect of a settled matter. If we can do that, we succeed. If we can't, we don't*".[143] [emphasis added].

II. The Claimant's position regarding the handover obligation

237. In relation to the handover obligation, in its ASoC the Claimant argued that Good Oilfield Practice "*gives rise to obligations prior to the end of the PSA and at the time of the handover*".[144] Additionally, Mr. Jewell, the Claimant's expert stated as follows:

> "*In my opinion, an obligation to resolve all outstanding issues does arise particularly at the end of the PSA*"[145]

238. With respect to the source and nature of the Respondents' obligation to repair *inter alia* the wells at the PSA's expiry, the Claimant has clarified in its PHB that it relied on Article 8 and Article 18.1 of the PSA.[146] The relevant part of the PHB reads as follows:

> "*The Ministry's case in relation to the condition of facilities and equipment required at the end of the PSA (and at all prior times) **is not built upon some abstract, disputed concept of handover obligations**. It applies the express terms of Article 8 and Article 18.1 of the PSA*"[147] [emphasis added].

239. Article 8.1 of the PSA as translated by the Claimant provides that:[148]

> "*8.1 CONTRACTOR shall conduct Petroleum Operations diligently in accordance with rules as may be prescribed and in accordance with generally accepted standards of the petroleum industry. CONTRACTOR'S activities shall be designed to achieve the efficient*

[143] Claimant's Opening Statements, Transcript of the final hearing, day 1, p. 10, line 17 to p. 11, line 7.
[144] ASoC, para. 142.
[145] 3EXR of Mr. Jewell, para. 30.
[146] Claimant's PHB (first round) 2019, paras. 7, 27, 32 b, 79, 88.
[147] Claimant's PHB (first round) 2019, para 27.
[148] The Tribunal has decided in paragraph 269 that the correct translation of the last words of Article 8.1 of the PSA should be "are kept in good working order".

and safe Exploration for, and production of, Petroleum and to maximize the ultimate economic recovery of Petroleum from the Contract Area. CONTRACTOR shall ensure that all materials, equipment and facilities used in Petroleum Operations comply with generally accepted engineering norms, are of proper and accepted construction, and are kept in optimal working order." [149]

240. According to the Claimant, Article 8.1 of the PSA entails three different obligations:

"Firstly, to conduct operations in accordance with good oilfield practice; secondly to design operations to achieve efficient and safe exploration and production, and to maximise ultimate economic recovery; thirdly, to ensure all materials, equipment and facilities used comply about engineering norms will of proper and accepted construction and are kept in optimal working order".[150]

241. Article 8.2 of the PSA further provides that:

"8.2 CONTRACTOR shall:
(a) take all proper measures, according to generally accepted methods in use in the oil industry, to prevent loss or waste of Petroleum above or under the ground in any form during drilling, producing, gathering and distributing or storing operations. MINISTRY has the right to prevent any operation on any well that it reasonably expects would result in loss or damage to the well or the field;
(b) prevent damage to any adjacent Petroleum, water-bearing formations, and other natural resources;
(c) prevent non-intentional entrance of water into Petroleum formations;
(d) take all necessary precautions to prevent pollution of or damage to the environment; [...]".[151]

242. According to the Claimant, under Article 8.2 of the PSA the Respondents were obligated not to cause environmental damage. In essence, The Respondents were required to: (i) prevent damage to any adjacent petroleum and water-bearing formations and other natural resources; (ii) prevent non-intentional entrance of water into petroleum formations, and (iii) take all necessary precautions to prevent pollution and prevent damage to the environment.[152] It is the Claimant's position that the "*language of Article 8 is entirely that of ongoing obligations, which applied throughout the PSA*",[153] and that consequently the Respondents' obligations

[149] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.
[150] Claimant's opening statement, Transcript final hearing, day 1, p. 21, lines 15 to 21.
[151] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.
[152] Claimant's opening statement, Transcript final hearing, day 1, p. 30, lines 10 to 23.
[153] Claimant's PHB (first round) 2019, para. 29; See also Claimant's PHB (first round) 2019, para. 40.a ("*The obligation to comply with good oilfield practice arose throughout the PSA*").

related to Good Oilfield Practice arose when the PSA entered into force, and continued to apply throughout the 20-year term of the PSA.[154] According to these allegations the Respondents "*having complied with the three prevent principles and having kept the materials, equipment and facilities in optimal working order under Article 8.1 must hand them over to the Ministry in good working order, normal wear and tear accepted*".[155] This was not the case: at the expiry of the PSA, Block 14 was unsafe, not operable in accordance with Good Oilfield Practice and with significant liabilities, which Yemen had to face.[156]

243. Further, according to the Claimant, under Article 18.1 of the PSA, the Respondents were also to hand over all the materials equipment and facilities in good working order at the end of the PSA.[157] As explained by the Claimant: "*The contractor is the custodian of those materials and equipment and facilities, which, as they are cost recovered, belong to Yemen, and possession is transferred to Yemen or a new operator at the end of the PSA at the latest. The contractor is entitled to use these materials, equipment and facilities whilst it is the contractor, but must hand them over in good working condition at the end of the PSA, if not before*".[158]

Sub-section III. The Arbitral Tribunal's preliminary observations

244. It is clear that the Parties are in disagreement as to which claims have been dismissed by the Tribunal in the Partial Award. In order to make this determination, the Tribunal will commence by (**I**) individualizing the claims in which the Parties are in disagreement as to whether or not they have been dismissed by the Partial Award. Thereafter the Tribunal will determine the test that it will apply in the claim by claim analysis in relation to: (**II**) the time-bar defense; and (**III**) the settlement defense. Finally, the Tribunal will address (**IV**) the issue of the alleged handover obligation invoked by the Claimant together with the correct interpretation of Articles 8 and 18 of the PSA.

I. The claims in which the Parties are in disagreement as to whether or not they have been dismissed by the Partial Award

245. Specifically, the Parties' dispute concerns the following claims advanced by the Claimant:[159]

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[154] Claimant's PHB (first round) 2019, para. 40 a.
[155] Claimant's PHB (first round) 2019, para. 30; Claimant's opening statement, Transcript final hearing, day 1, p. 31, lines 1 to 6.
[156] ASoC, para. 16.
[157] ASoC, para. 189 (3); SoRDCC, para. 10 (c) (ii).
[158] Claimant's PHB (first round) 2019, para. 28; Claimant's opening statement, Transcript final hearing, day 1, p. 22, lines 17 to 25.
[159] The Tribunal refers to the exact characterization of the Claimant's claims as they appear in the Claimant's Opening Presentation for the final hearing.

I. In relation to the time-bar defense:

A. The cost of repairing 208 production wells;[160]
B. The cost of installing production packers in 260 production wells;[161]
C. Loss of water from the Mukalla aquifer;[162]
D. The cost of repairing the VPS wells;[163]
E. The cost of installing well cellars;[164]
F. The NORM-contaminated equipment claim;[165] and
G. The waste management facilities claim.[166]

II. In relation to the settlement defense:

A. The NORM canisterisation claim;[167] and
B. The sludge ponds claim;[168]

246. The Tribunal incorporates by reference the *verbatim* Partial Award, *Addendum* and Decision, and PO6 into the present Award.

247. The Tribunal will first analyze its rulings in relation to Respondents' time-bar defense.

II. The Tribunal's rulings regarding the time-bar defense

248. The first phase of the arbitration dealt with the Respondents' threshold legal defenses. During this phase of the arbitration, the Tribunal undertook a detailed claim by claim analysis of all of the Claimant's claims that were subject to *inter alia*, the time-bar defense.

249. As a result of the claim by claim analysis set forth in the Partial Award, the Tribunal ruled as follows:

"*910 For the foregoing reasons:*
(...)

[160] Respondents' PHB (first round) 2019, para. 13, except for one allegedly "inadequately cemented" well drilled after 22 March 2010.
[161] Respondents' PHB (first round) 2019, para. 125, except for one allegedly "inadequately cemented" well drilled after 22 March 2010.
[162] SoRjSRCC, para. 119, except for the water loss from one well from December 2009 to December 2018.
[163] Respondents' PHB (first round) 2019, para. 13, except for one VPS well drilled after 22 March 2010.
[164] Respondents' PHB (first round) 2019, para. 13, except for five wells drilled after 22 March 2010.
[165] ASoDCC, para. 464.
[166] ASoDCC, para. 521.
[167] ASoDCC, para. 468.
[168] ASoDCC, para. 521.

(iv) The Arbitral Tribunal unanimously decides that the UNIDROIT Principles are applicable in respect of Respondents' time-bar defence;
(v) The majority of the Arbitral Tribunal decides that the following claims of Claimant are time-barred in accordance with the limitation periods under Article 10.2 of the UNIDROIT Principles:
(a) Inadequately cemented wells claims (SoC, paras. 146-207), except in relation to the one inadequately cemented well that was drilled on Block 14 after 22 March 2010;
(b) Use of crude oil and other additives in water-based drilling fluids claims (SoC, paras. 214-223), except in relation to the use of biocide and corrosion inhibitor in Respondents' water-based drilling fluids claims regarding the eight wells that were drilled on Block 14 after 22 March 2010;
(c) LOTs and FITs claims (SoC, paras. 224-227);
(d) VPS design claims (SoC, paras. 228-232), except in respect of the one VPS well that was drilled on Block 14 after 22 March 2010;
(e) Well cellars claims (SoC, paras. 233-236), except in respect of the eight wells drilled on Block 14 after 22 March 2010;
(f) NORM claims (SoC, paras. 237-241 and 266-280), except in relation to the specific claim regarding Respondents' practice of canisterisation;
(g) Injection of produced water into the Harshiyat claim (SoC, para. 242);
(h) EIA claim (SoC, paras. 261-265), except in relation to Claimant's claim that Respondents 'appear not to have commissioned or conducted any detailed environmental assessment at handover';
(i) Groundwater contamination claims (SoC, paras. 281-286);
(j) Waste management claims (SoC, paras. 287-303), except in respect of the claim regarding the CPF incinerator that was installed in 2009; and
(k) Seismic misfires claim (SoC, paras. 312-317).

(...)

(viii) The majority of the Arbitral Tribunal decides to reserve for the subsequent phase of this arbitration the determination of ***only*** *the Parties' following claims and counterclaim:*
(a) The above-mentioned claims of Claimant that have not been defeated by Respondents' time-bar and waiver/estoppel defences, as listed in decision (vii);
(b) Claimant's third-party claims (SoC, paras. 318-320);
(c) Claimant's remaining facilities and equipment claims (SoC, paras. 322-331);
(d) Claimant's documentation and data claim (SoC, paras. 332-345);
(e) Claimant's Asset Register claim (SoC, paras. 346-355); and
(f) Claimant's SAP claim (SoC, paras. 356-369); and
(g) Respondents' counterclaim (SoDC, paras. 697-723)".[169] [emphasis added].

250. The Claimant filed an application for interpretation and correction of the Partial Award, which the Tribunal granted partially. The relevant parts of the *Addendum and Decision* provided as follows.

[169] Partial Award, para. 910.

> *"116. Having considered the Parties' positions and arguments on the Application, the Arbitral Tribunal finds that 'there is a need of clarification of the [Partial] Award or a need to improve such wording which would enable the parties to fully understand what the Arbitral Tribunal meant in its decision.' This need arises from the word "only" used in paragraph 910(viii) of the Partial Award and from the unclear effect of the findings set out in paragraphs 901 and 910(viii) of the Partial Award on Claimant's claims.*
>
> *117. (...) The Arbitral Tribunal did not intend to and did not decide on Claimant's claims that, by their own nature and effect, are not and cannot be subject to Respondents' threshold legal defences.*
>
> *118. (...) In its claim-by-claim analysis set out in paragraphs 693-853 of the Partial Award, the Arbitral Tribunal decided that Claimant's claims for breach relating to acts that occurred before 22 March 2010 were time-barred, even if those claims were based on continuing duties, as the failure to comply with these duties was only a consequence of the initial wrongful act and did not give rise to a continuing breach. The Arbitral Tribunal also decided that Claimant's claims for breach related to acts that occurred on or after 22 March 2010 were not time-barred. However, the Arbitral Tribunal did not decide on any claims for breach based on duties that are alleged to have arisen on or after 22 March 2010 and on breaches that Respondents allegedly committed on or after 22 March 2010. To the extent that these claims are based on duties and breaches arising on or after 22 March 2010 and not on a continuation of Respondents' duties and original wrongful acts existing before 22 March 2010, they are not and cannot be defeated by Respondents' threshold legal defences, with the exception of the Settlement Agreement defence".*[170] [emphasis added].

251. The Tribunal further clarified in the *Addendum* and Decision that:

> *"120 In reaching the above conclusions, the Arbitral Tribunal is not reversing its findings in the Partial Award. It only clarifies the scope of its findings in respect of Claimant's claims for breach based on duties and breaches that are alleged to have arisen on or after 22 March 2010 and which are not and cannot be time-barred and waived/estopped and are not subject to Respondents' Settlement Agreement defence. It is of course on Claimant to establish that those claims for breach do indeed relate to duties and breaches arising on or after 22 March 2010 and not to Respondents' duties and original wrongful acts that existed before 22 March 2010, in relation to which the Arbitral Tribunal's findings in the Partial Award have res judicata effect".*[171] [emphasis added].

252. Finally, after concluding the threshold legal defense phase of the arbitration, the Tribunal issued PO6, wherein it indicated as follows:

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[170] *Addendum* and Decision, paras. 116-118.
[171] *Addendum* and Decision, para. 120.

"One important caveat that the Arbitral Tribunal puts forward at this stage is that Claimant should avoid circumventing the findings of the Partial Award and Addendum and Decision in its Amended Statement of Claim, by re-pleading claims that have been clearly dismissed as a result of the completed Threshold Legal Defences phase".[172]

253. On the basis of the above, the Tribunal will, in the following sections of this Award, in its claim by claim analysis of the Claimant's claims set forth in paragraph 245 above, determine whether or not such claims are based on duties and breaches arising on or after 22 March 2010 and not on a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010.[173]

III. The Tribunal's rulings regarding the settlement defense

254. As a result of its claim by claim analysis of all of the Claimant's claims that were subject to the settlement defense, the Tribunal decided as follows in its Partial Award.

"910 For the foregoing reasons:
(i) The Arbitral Tribunal unanimously decides that the Settlement Agreement was a concluded agreement on the terms of Exhibit R-1 and that it was duly ratified by the three resolutions of the Supreme Economic Council and of the Council of Ministers of 25 and 26 June 1996;
(ii) The majority of the Arbitral Tribunal decides that Clause 9 of the Settlement Agreement released Respondents from any dismantlement, abandonment and reclamation claims regarding the period up to the expiry of the PSA's term on 17 December 2011 and that, as a result, the following claims of Claimant have been settled through the Settlement Agreement:
(a) The claim of US$ 124,480,000 related to the abandonment costs of 311 'inadequately cemented wells' (SoC, paras. 141-142);
(b) The claims of US$ 124,944,000 related to the abandonment costs of 323 'adequately cemented wells' (SoC, paras. 243-250), US$ 9,060,000 related to the reabandonment costs of 5 'improperly abandoned wells' (SoC, paras. 208-213) and of US$ 1,309,000 related to the re-abandonment of 3 wells into which NORM contaminated equipment was disposed (SoC, paras. 237-241);
(c) The claim of US$ 2,850,000 related to the remediation of sludge ponds; and
(d) The claim of US$ 15,550,000 related to the cost of abandoning sections of the MOL, redundant flow lines, surface facilities and disused borrow pits".[174]

255. On the basis of the above, the Tribunal will, in the following sections of this Award, in its claim by claim analysis of the Claimant's claims set forth in paragraph 245 above, determine whether or not such claims are identical to the ones that the Tribunal dismissed as settled in the Partial Award.

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[172] Procedural Order No. 6, dated 21 September 2017.
[173] *Addendum* and Decision, paras. 116-118.
[174] Partial Award, para. 910.

IV. The Tribunal's observations regarding Articles 8 and 18 of the PSA and the alleged handover obligation

256. In its ASoC, the Claimant argued the existence of new obligations to repair *inter alia,* the wells, which arose at the time of the handover of Block 14.[175] Specifically, the Claimant contended that "*Good Oilfield Practice also gives rise to obligations prior to the end of the PSA and at the time of the handover*".[176]

257. Further in the SoRDCC, the Claimant continued to allege the existence of an independent obligation at the time of the handover.[177] In particular, the Claimant relied on the expert evidence of Mr. Stephen Jewell[178] who asserted that in his opinion "*an obligation to resolve all outstanding issues does arise particularly at the end of the PSA. Good Oilfield Practice (and common sense) would dictate that such shortfalls are identified, discussed and resolved (…)*".[179] [emphasis added].

258. The Claimant also argued in its SoRDCC that the obligation to repair *inter alia,* the wells, was a continuing obligation.[180] This was also supported by the expert evidence of Mr. Stephen Jewell[181] who asserted that "*if equipment is not in good working order at the point of handover then there would be a continuing obligation on the outgoing party to rectify this (…)*".[182]

259. In its PHB the Claimant clarified its position to the source of the obligation:

> "*The Ministry's case in relation to the condition of facilities and equipment required at the end of the PSA (and at all prior times) is not built upon some abstract, disputed concept of handover obligations. It applies the express terms of Article 8 and Article 18.1 of the PSA*".[183] [emphasis added].

260. According to the Respondents, Article 8 of the PSA is a continuing obligation that existed throughout the PSA.[184] They therefore contend that (i) relying on Article 8 of the PSA would amount to characterizing any handover obligation as a continuing obligation; and (ii)

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[175] ASoC, paras. 13, 18, 23,
[176] ASoC, para. 142.
[177] SoRDCC, para. 243, 304 footnote No. 127.
[178] SoRDCC, para. 246.
[179] 3EXR of Mr. Jewell, para. 30.
[180] SoRDCC, para. 234 c.
[181] SoRDCC, para. 246.
[182] 3EXR of Mr. Jewell, para. 30; 2EXR of Mr. Jewell, para. 40.
[183] Claimant's PHB (first round) 2019, para. 27.
[184] ASoDCC, para. 208; SoRjSRCC, para. 93 a.

continuing obligations that existed before and after 22 March 2010 did not survive the Partial Award.[185]

261. Furthermore, it is the Respondents' case that Article 18.1 of the PSA cannot support the Claimant's claims as it only imposes an obligation as to the condition of assets that have not already been cost recovered, and whose title has not already been transferred to the Claimant.[186] The Respondents add that the vast majority of the assets were cost recovered long before the expiry of the PSA, and that the Claimant has not identified the limited facilities and equipment that had not been so cost recovered.[187]

262. Taking into consideration the Parties' positions, it is essential to determine the scope of both Articles 8 and 18 of the PSA.

A. Article 8 of the PSA

263. The Tribunal will first address an issue of translation of Article 8.1 and will then deal with the nature of the obligation that it contains.

1. The correct translation of Article 8.1 of the PSA

264. Article 8.1 of the PSA (as submitted by the Claimant) reads as follows:

> "*8.1 CONTRACTOR shall conduct Petroleum Operations diligently in accordance with rules as may be prescribed and in accordance with generally accepted standards of the petroleum industry. CONTRACTOR'S activities shall be designed to achieve the efficient and safe Exploration for, and production of, Petroleum and to maximize the ultimate economic recovery of Petroleum from the Contract Area. CONTRACTOR shall ensure that all materials, equipment and facilities used in Petroleum Operations comply with generally accepted engineering norms, are of proper and accepted construction, and are kept in* ***optimal working order***". [188] [emphasis added].

265. Moreover, the relevant part of Article 18.1(b) of the PSA, provides as follows:

> "*If not already vested in MINISTRY, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the time of termination of this Agreement, with all such*

[185] ASoDCC, para. 208.
[186] Respondents' PHB (first round) 2019, para. 52.
[187] Respondents' PHB (first round) 2019, para. 12 a.
[188] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.

assets being in ***good working order****, normal wear and tear accepted*".[189] [emphasis added].

266. Since an early stage of the proceedings, the Respondents have argued that the Claimant relies on an inaccurate translation of the PSA in alleging that the Respondents' obligation under Article 8.1 was to maintain facilities and equipment in "optimal working order". According to the Respondents, the Arabic word used to describe the obligation is the same word that appears in Article 18.1(b), and is more accurately translated into "good", rather than "optimal".[190]

267. On the other hand, the Claimant, without objecting to the Respondents' argument, has asserted that the "*linguistic differences between these two translations is ultimately irrelevant because the evidence shows that the Contractor failed to ensure that facilities and equipment were even in 'good working order' at the expiry of the PSA*".[191]

268. Furthermore, in the joint expert report of Messers Jewell, Catterall and Cline (both Parties' technical experts) the experts agreed that optimal working order is "*not a term that they had encountered before in the oil industry*".[192]

269. The Tribunal is satisfied to apply the corrected version of Article 8.1 of the PSA as presented by the Respondents for the following reasons: (i) Article 29 of the PSA clarifies that the language of the contract is Arabic, and that the English version shall be used to construe or interpret it; (ii) the Claimant recognized at the final hearing that in Arabic the same word is used to describe both "optimal" and "good";[193] (iii) the Claimant has not objected to the correction of the translation since the beginning of the arbitration; (iv) the Claimant has used the term "optimal working order" and "good working order" interchangeably throughout its submissions; (v) both Parties' experts, which ample experience in oilfield operations, have never before encountered the concept of "optimal working order" in the industry; and (vi) the Tribunal would not consider reasonable to apply a different standard under Articles 8.1 and 18.1(b) of the PSA.

270. Therefore, the Tribunal will apply "good working order", as the standard to test the status of the facilities and equipment under Article 8.1 of the PSA.

271. The Claimant's expert, Mr. Jewell, has defined "good working order" as follows:

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[189] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1.
[190] ASoDCC, para 578.
[191] SoRDCC, para. 684.
[192] JEXR of Mr. Jewell, Mr. Catterall and Mr. Cline, p. 3.
[193] Opening Statement of the Claimant, Transcript of the final hearing, day 1, p. 24, lines 10 to 12.

"*The term 'good working order' is very commonly used in the Oil and Gas industry, and elsewhere, to describe the preferred state of all equipment in a facility which is operating effectively and efficiently.*

If an item of industrial plant or machinery is considered to be in 'good working order' then it should be capable of performing all of the functions for which it has been designed, within the specifications defined when it was originally manufactured.

Plant or machinery in 'good working order' generally needs to be maintained in order to keep it functioning within specification and so would be expected to be regularly serviced (and repaired where necessary) in accordance with the manufacturers recommendations".[194] [emphasis added].

272. The Respondents' expert, Mr. Catterall, has defined "good working order" as follows:

"*Good working order is a common term within the oil and gas industry and is used to describe a piece of equipment or system that is working safely, reliably and according to its original design specification.*
In addition to working safely, reliably and to its design specification, for an item to be considered in good working order there should be a reasonable expectation that it will not fail imminently. Generally speaking, an item may still be considered in good working order even though it has not been maintained, provided it is still operating within its specification. An item would not be considered in good working order if an inspection or survey demonstrated an immediate requirement for repair to avoid failure".[195] [emphasis added].

273. The Tribunal notes that in their joint expert report, Mr. Jewell and Mr. Catterall agreed with each other's definitions and descriptions of good working order, and also agreed that "*it is the actual condition of the equipment that is important to determine that it is in good working order*".[196]

2. The nature of the obligation contained in Article 8 of the PSA

274. In its PHB, the Claimant has reaffirmed that the Respondents' obligations under Article 8 of the PSA and Good Oilfield Practice were continuing obligations, and not obligations that arose at the end of the PSA:[197]

[194] 1EXR of Mr. Jewell, paras. 58-60.
[195] 1EXR of Mr. Catterall, paras. 48-49.
[196] JEXR of Mr. Jewell, Mr. Catterall and Mr. Cline, p. 2.
[197] Claimant's PHB (first round) 2019, paras. 27-29, 32-33, 40a, 54.

> *"The language of Article 8 is entirely that of ongoing obligations, which applied throughout the PSA".*[198] [emphasis added].
>
> *"The Contractor's own documents show that it understood that it was under ongoing obligations to keep facilities and equipment in good working order, which complied with good oilfield practice, and which prevented pollution/environmental damage"*[199] [emphasis added].
>
> *"It is common ground that the PSA contained terms which imposed an ongoing obligation on the Contractor to comply with good oilfield practice".*[200] [emphasis added].
>
> *"**Ongoing nature of the duty**: The obligation to comply with good oilfield practice arose throughout the PSA. For example, Mr Cline said: '[a]n operator's obligation in this respect is one that continues day-to-day during the term of a production sharing agreement'"*[201] [emphasis added].

275. The Tribunal agrees that the Respondents' obligation under Article 8 is a continuing obligation. However, it cannot be invoked to circumvent and nullify the findings of the Partial Award. It must be applied taking into due consideration the decisions made in that award in terms of time-bar as will be further examined below.[202]

B. Article 18.1 of the PSA

276. The Claimant specifically relies on Article 18.1(b) of the PSA,[203] which provides:

> *"Title to fixed and movable assets shall by virtue of this provision transfer gradually from CONTRACTOR to MINISTRY at the end of each year in the percentage that the cost of the particular asset is recovered by CONTRACTOR pursuant to Section IX during such year. **If not already vested in MINISTRY**, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the time of termination of this Agreement, with all such assets being in good working order, normal wear and tear accepted. The Book Value of the Assets acquired or created during each Calendar Year shall be communicated by CONTRACTOR to MINISTRY within sixty (60) days after the end of such year".*[204] [emphasis added].

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[198] Claimant's PHB (first round) 2019, para. 29; See also Claimant's PHB (first round) 2019, para, 40.a (*"The obligation to comply with good oilfield practice arose throughout the PSA"*).
[199] Claimant's PHB (first round) 2019, para. 32.
[200] Claimant's PHB (first round) 2019, para. 36.
[201] Claimant's PHB (first round) 2019, para. 40 a.
[202] ASoDCC, paras. 240-241; SoRjSRCC, paras. 11-118; Respondents' PHB (first round) 2019, paras. 62-68.
[203] Claimant's PHB, para. 27.
[204] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1.

277. According to the Claimant, under Article 18.1 of the PSA, the Respondents were to hand over all the materials equipment and facilities in good working order at the end of the PSA.[205] By contrast, the Respondents submit that Article 18.1 of the PSA cannot support the Claimant's claims as it only imposes an obligation as to the condition of assets that have not already been cost recovered, and whose title has not already been transferred to the Claimant.[206] The Respondents add that the vast majority of the assets were cost recovered long before the expiry of the PSA, and that the Claimant has not identified the limited facilities and equipment that had not been so cost recovered.[207]

278. The Tribunal recalls that in its Partial Award it noted that:

> "*Claimant has not contested Respondents' argument that Article 18.1(b) of the PSA applies only to facilities and equipment that had not been cost recovered by the time of the PSA's expiry, whereas the vast majority of facilities and equipment had been cost recovered*".[208]

279. The Tribunal is of the view that the language of Article 18.1(b) of the PSA is clear. The Claimant's interpretation that Article 18.1(b) applies to "all assets"[209] contradicts the clear language of that article. The Tribunal agrees with the Respondents that Article 18.1(b) only imposes an obligation (to be in good working order) as to the condition of "all assets" that had not already been cost recovered, and whose title had not already been transferred to the Claimant. If the article is read in full, it is clear that the words "*if not already vested in MINISTRY*" condition the obligation for the assets to be in good working order.

C. The alleged handover obligation

280. It results from the clear text of Article 18 of the PSA, that it cannot be interpreted as supporting a specific obligation to deliver in good working order at the expiry of the PSA, the assets which have been cost recovered and whose title has therefore passed to the Claimant. There is only an obligation under Article 18 to deliver in good working order, wear and tear excepted, the facilities and equipment that have not been cost recovered.

281. This notwithstanding, the Claimant, in order to try to circumvent the Partial Award, has attempted to invoke the existence of a handover obligation which derogates from Article 18 and survives the time bar, on the basis of good faith and Good Oilfield Practice. Good faith

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[205] ASoC, para. 189 (3); SoRDCC, para. 10 (c) (ii).
[206] Respondents' PHB (first round) 2019, para. 52.
[207] Respondents' PHB (first round) 2019, para. 12 a.
[208] Partial Award, para. 687.
[209] ASoC, para. 189 (3); SoRDCC, para. 10 (c) (ii).

is a standard of interpretation of existing obligations. It is generally admitted that it cannot be the source of obligations not addressed in the relevant agreement, even more so where this would contravene the terms of existing provisions of the agreement *i.e.,* Article 18 of the PSA. Nor can Good Oilfield Practice be the source of this alleged handover obligation. For such a practice to be considered an unstated contractual obligation, the Claimant should be able to prove that it is accepted by most participants in the industry. The Claimant was not able to give a single example of a PSA in which such an unstated handover obligation was admitted by the parties to exist. Moreover, the Claimant's industry expert, Mr. Jewell, has confirmed that he has never encountered such an obligation.[210] The Tribunal also notes that the Parties' contemporaneous documents do not contain a single reference to such an unstated handover obligation.

282. Moreover, the Tribunal considers that the Claimant, by its conduct, has denied the existence of such a handover obligation. The documentary record attests that towards the end of the PSA, the Claimant consistently demanded that the Respondents reduce their expenditure in operating Block 14.[211]

283. In any case, as stated in paragraph 259 above, the Claimant indicated in its PHBs that its case is not based on the existence of a handover obligation, but on Articles 8 and 18 of the PSA.

Section II. Wells Claims

Sub-section I. The Claimant's Wells claims

284. The Claimant's well claims are divided into the following categories: (**I**) the cost of repairing 208 wells; (**II**) the cost of entering and installing production packers in 260 wells; (**III**) the loss of water in the Mukalla aquifer; (**IV**) the cost of repairing the VPS wells; and (**V**) the cost of installing well cellars.[212]

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[210] Cross-examination of Mr. Jewell, Transcript of the final hearing, day 5, p. 22, lines 3-7, p. 37, lines 5-17, p. 76, lines 21-23.

[211] Exhibit R-163, Letter from PEPA to CNPY, dated 21 December 2008; Exhibit R-166, Letter from PEPA to CNPY, dated 27 January 2009; Cross-examination of Mr. Al-Humidy, Transcript of the final hearing, day 2, p. 129 line 4, to p. 132, line 2; Cross-examination of Mr. Binnabhan, Transcript of the final hearing, day 1, p. 204, line 11 to p. 205, line 8.

[212] Claimant's PHB (first round) 2019, para. 73. The Tribunal notes that this is the latest representation of the Claimant's claims in in this arbitration. This enumeration of the Claimant's claims is in accordance with what was pleaded by the Claimant during the final hearing, Claimant's Opening Hearing Presentation, part 2, slide 19. Additionally, this confirms the Claimant's assertion that "*for the avoidance of doubt, the Ministry makes no separate claim for damages in respect of abandonment costs or the failure to perform Formation Leak-Off Tests or Formation Integrity Tests.*" SoRDCC, para. 389, which were initially argued in this arbitration. The Tribunal will only analyze the Claimant's well claims that it continues to pursue.

I. The Claimant's claim regarding the cost of repairing 208 production wells

285. The Claimant submits that well integrity is a critical issue in the construction of a well, as it seeks to prevent the unplanned escape of hydrocarbons from the well. Additionally, when wells are drilled, it is essential to prevent the loss of water from the aquifers, and preserve their purity.[213]

286. According to the Claimant, throughout the PSA, the Respondents drilled 311 production wells which were not adequately cemented throughout the full length of the casings, and thus the casings were not correctly isolated from the aquifers.[214] The Claimant submits that 206 production wells were drilled according to the first and second versions of the General Drilling Programs ("GDPs"), which did not provide for a full cementation design, while a further 105 production wells were drilled according to the third version of the GDP (which provided for full cementation) but were in practice not fully cemented.[215] According to the Claimant, it was only after the Respondents implemented the sixth version of their GDP in June 2009, that the thirteen wells drilled thereafter had a fully cemented production casing, from the bottom of the casing to surface level.[216]

287. The Claimant contends that, without the proper cementation of the outer part of the production casing, the ½" of steel casing offers only inadequate protection against pollution, as it is highly susceptible to corrosion. It submits that corrosion is caused by the following factors: (i) the lack of cement, which means that the external wall of the casing is exposed to the contents of the annulus between the 12 ¼" hole and the 9 5/8" casing; (ii) the contents of the annulus are corrosive and an air/water interface lies in the annulus, which creates an area of highly oxygenated and corrosive water; (iii) the water in the annulus has high levels of chloride, another corrosive agent; and (iv) the juxtaposition of water in the annulus and the steel casing creates an electrolytic cell.[217]

288. The Claimant argues that, given that out of these 311 production wells, the Respondents repaired 52, suspended 30, and hydrocarbon abandoned 21, there were 208 production wells which were required to be repaired at the PSA's expiry.[218]

289. Throughout the second phase of the arbitration, the Claimant argued that: (i) the Respondents' designs of the production wells breached the PSA because the outer part of the

[213] ASoC, paras. 206-207.
[214] ASoC, para. 216; 1EXR of Mr. Sands, para. 85;
[215] ASoC, para. 235; 1EXR of Mr. Sands, paras. 82-83.
[216] ASoC, para. 239.
[217] ASoC, para. 232.
[218] 1EXR of Mr. Sands, para. 96. The Claimant has not identified how many of the 208 production wells which allegedly require to be protected were drilled pursuant to the first two versions of the GDP, and which were drilled according to the third version of the GDP.

production casing was not properly cemented from the Harshiyat formation to the bottom of the surface casing;[219] (ii) the Respondents failed to repair the production wells which had corrosion issues;[220] and (iii) that, as at 22 March 2010, and at the end of the PSA, the production wells were not in good working order, and in compliance with Good Oilfield Practice because they were experiencing corrosion.[221]

290. The Claimant has indicated since its SoRDCC that it is not requesting damages for the design breach, but only for the Respondents' failure to repair corrosion from the production wells.[222] It has also clarified in its first PHB that its well claims are based on Article 8 and Article 18.1(b) of the PSA, and that in light of these articles the Respondents should have transferred the production wells in good working order and/or in a condition that complied with Good Oilfield Practice.[223] According to the Claimant, the Wells claims arise in two ways: "*[f]irstly the obligation at all times during the PSA, to maintain the wells in good working order* [Article 8 of the PSA]; [and]*additionally, at the time of the expiry of the PSA, the express obligation under Art 18 to handover assets in good working order*".[224]

291. The Claimant considers that its Wells claims are not time-barred as they are based on the Respondents' failure to restore the well integrity and repair the production wells by the end of the PSA.[225] It added in its first PHB that its claims are not time-barred as they are claims for breaches of obligations that in accordance with the *Addendum* and Decision arose on or after 22 March 2010;[226] furthermore, that the Tribunal's analysis in the Partial Award was based on the evidence of a wrongful well design and the wells design claims have been withdrawn.

292. On the other hand, the Claimant contends that the Respondents were aware of the corrosion affecting the production wells and cognizant of their obligation to repair them. In particular, the Claimant refers to a presentation made by the Respondents to PEPA in November 2001, where they recognized that the casings for new wells should be fully cemented, and that casings for existing wells, which were not fully cemented, should be monitored, protected and repaired.[227]

293. The Claimant further argues that in internal correspondence in 2011, the Respondents recognized the need to repair the casings of the production wells that were leaking, but failed

[219] ASoC, paras. 230, 237; SoRDCC, paras. 344, 377.
[220] SoRDCC, para. 345.
[221] Claimant's PHB (first round) 2019, para. 96.
[222] SoRDCC, paras. 343-344.
[223] Claimant's PHB (first round) 2019, paras. 7, 27, 79, 88.
[224] Claimant's PHB (first round) 2019, para. 88 c.
[225] SoRDCC, para. 344.
[226] Claimant's PHB (first round) 2019, para. 89.
[227] SoRDCC, paras. 371, 372 c.

to do so.[228] The Claimant contends that Mr. Tracy, the Respondents' witness, admitted that six casings were found to be leaking in 2011, and the Respondents failed to repair them.[229]

294. According to the Claimant, the Respondents' well integrity program was not a proper cure against the ongoing corrosion issues. The only steps taken by the Respondents were: (i) the installation of cathodic protection from 2002; (ii) the use of canola oil from 2004; and (iii) repairing production casings only when the failure was detected throughout pressure testing.[230]

295. The Claimant submits that at the end of the PSA, 208 production wells had failed, or were expected to fail soon thereafter. The Respondents never made the required reparations.[231] The cost of these repairs amounts to USD 1,052,000 per well, or USD 218,816,000 for the 208 wells.[232] Furthermore, since the handover of Block 14 to PetroMasila and up to January 2014, a further twelve wells were diagnosed with this condition, which PetroMasila has had to repair.[233]

296. Finally, the Claimant's fallback position is that it is entitled to damages in respect of the Respondents' failure to implement their own well integrity program. It is the Claimant's case that in breach of Articles 8 and 18.1(b) of the PSA, the wells were not in good working order in so far as the well integrity program was not implemented during 2011.[234] The Claimant argues that the Respondents were in default of their well integrity program as: (i) they failed to pressure test the production wells in 2011; (ii) they had to repair the wells with known casing perforations in 2011; (iii) they failed to install cathodic protection to all wells; and (iv) they failed to renew the canola oil annually.[235] The Claimant claims USD 29,553,471 in its fallback claim.[236]

II. The Claimant's claim regarding the cost of installing production packers in 260 wells

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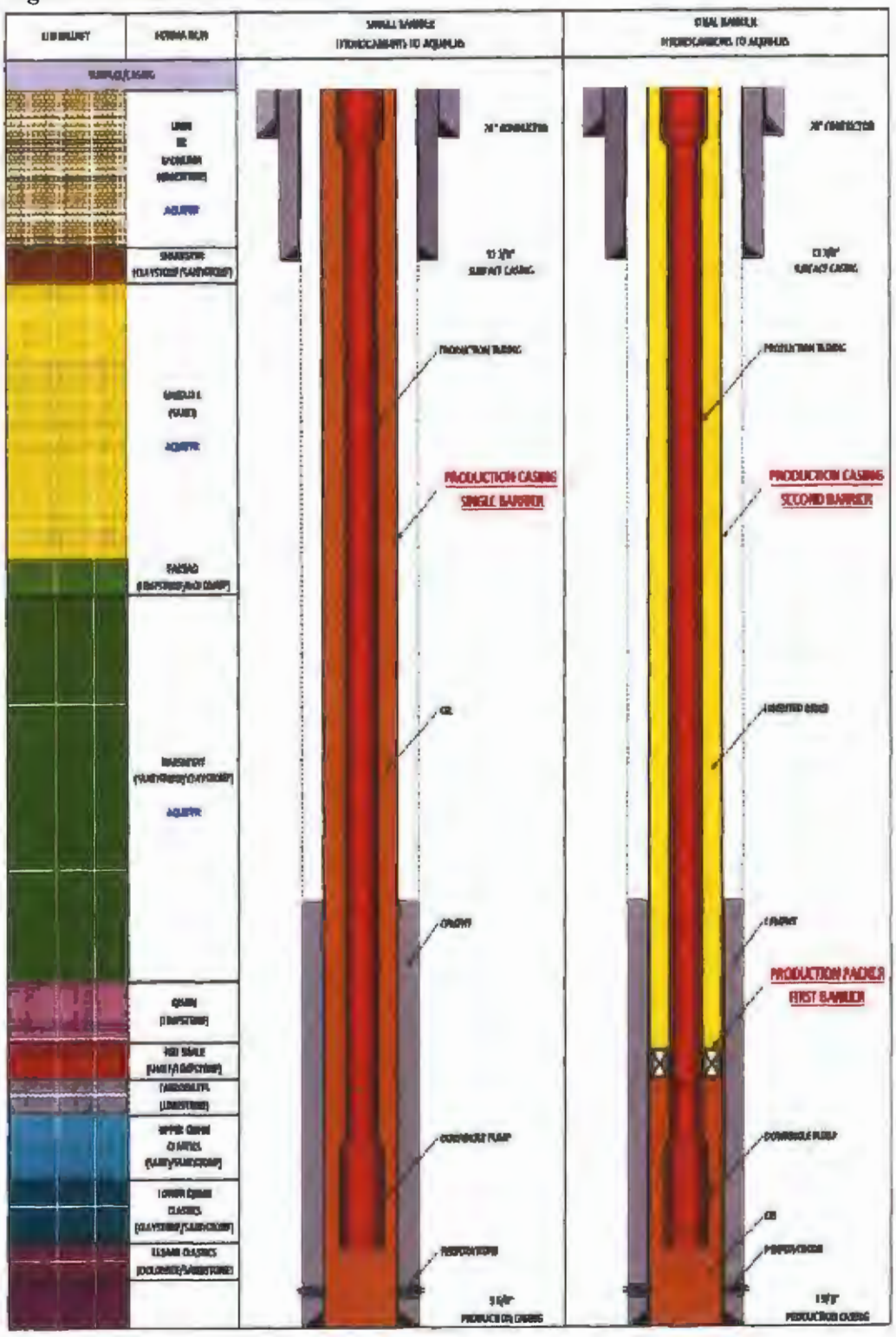
[228] SoRDCC, para. 384.
[229] Claimant's PHB (first round) 2019, para. 127.
[230] Claimant's PHB (first round) 2019, para. 106.
[231] Claimant's PHB (first round) 2019, para. 114.
[232] 1EXR of Mr. Sands, para. 95; SoRDCC, para. 390 a; Claimant's PHB (first round) 2019, para. 73 a.
[233] SoRDCC, para. 352.
[234] Claimant's PHB (first round) 2019, paras. 99, 117.
[235] Claimant's PHB (first round) 2019, para. 117.
[236] Claimant's PHB (first round) 2019, para. 143. The Claimant's request for damages is not consistent throughout the PHB: (i) in paragraph 99 it requests for a minimum of USD 8,221,471; (ii) in paragraph 143 it claims for 29,553,471 (USD 5,501,471 for casing repairs, USD 8,512,000 for monitoring, USD 3,120,000 for the installation of cathodic protection, and USD 12,820,000 for canola oil); and (iii) in paragraph 658 it claims for USD 30,214,471 (USD 8,882,471 for repairs and cathodic protection, USD 8,512,000 for monitoring, and USD 12,820,000 for canola oil).

297. The Claimant submits that its Production Packers claim is based on the same facts as the Production Wells claim presented above in Section (I).[237] It clarifies that this has always been a separate head of claim.[238]. In its view, all the 260 production wells needed to be fitted with a downhole production packer, to create a second barrier, as appears in the diagram below:[239]

[237] Claimant's PHB (first round) 2019, para. 144.
[238] Claimant's PHB (second round) 2019, para. 35.
[239] ASoC, para. 286; SoRDCC, para. 393.

Figure 2. Production Packers.[240]



[240] 1EXR of Mr. Sands, p. 74.

298. According to the Claimant, this claim was not addressed during the threshold legal defenses stage of the arbitration, and therefore, it is not affected by the Partial Award.[241]

299. The Claimant contends that the double barrier is of paramount importance. It bases its claim entirely on Good Oilfield Practice.[242]

300. Mr. Sands, the Claimant's expert first opined that without production packers in the production wells, the oil would flow up the 9 5/8" production casing, –as evidenced in Figure 2 above in orange– and therefore, if there were a leak in the casing due to corrosion, the oil could leave the casing, and pollute the aquifers.[243]

301. In his second expert report Mr. Sands opined that the lack of production packers could lead to water loss from the aquifers, as follows: "*if the 9 5/8" outside diameter production casing were to leak, drinking quality water would flow from the aquifer and down into the hydrocarbon reservoir with irreversible loss of the ground water until the barrier was repaired. (…). To operate wells with this inherent risk is not GOP*".[244]

302. The Claimant argues that the Respondents should pay for the cost of: (i) entering and installing production packers in the 208 production wells mentioned in Sub-section (**I**); and (ii) re-entering and installing production packers in the 52 wells already repaired by the Respondents during the PSA.

303. According to the Claimant, the cost of this work amounts to USD 272,000 per well. Considering that there are 208 wells that require repairs, the total dual barrier installation costs would amount to USD 56,576,000. However, the Claimant recognizes that this amount could be reduced if the production packers are installed at the same time as the repairs detailed in Sub-section (**I**) are carried out.[245] If this were to be the case, the cost would amount to USD 30,000 per well.

304. In addition to the above, the Claimant argues that there were 52 production wells that the Respondents repaired, but on which production packers were not installed during those repairs. Therefore, it is the Claimant's case that these 52 wells would need to be re-entered and production packers installed at a cost of USD 272,000 per well.[246]

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[241] ASoC, para 286, footnote No. 190.
[242] SoRDCC, para. 394.
[243] 1EXR of Mr. Sands, section 8.1.
[244] 2EXR of Mr. Sands, para. 93.
[245] ASoC, para. 288; SoRDCC, para. 390; Claimant's PHB (first round) 2019, para. 147.
[246] ASoC, para. 289; SoRDCC, para. 390; Claimant's PHB (first round) 2019, para. 73 c.

III. The Claimant's claim regarding the loss of water in the Mukalla aquifer

305. The Claimant argues that this claim is for the water lost down the open annuli of the unrepaired (uncemented) production wells from March 2010 onwards.[247]

306. The Claimant argues that the design of the Respondents' production wells is such that water would have started to move from the Mukalla formation to the Harshiyat as soon as they were constructed.[248]

307. The Claimant's case is based on Article 8 of the PSA by which the Respondents were required to prevent damage to water formations or other natural resources.[249]

308. The Claimant's expert, Mr. Larkin, explains that the movement of water would have been considerable. He estimates that about 7,000,000 m³ of water per year would have been lost from the Mukalla aquifer, equivalent to 4% of its annual recharge.[250]

309. In light of the Partial Award, the Claimant requests an amount between USD 2 million and USD 4.5 million per year (equal to the value of the water lost) for the period after March 2010,[251] but does not precisely specify the amount claimed.

310. It finally submits that the Loss of Water claim will only arise, if and to the extent that the Tribunal accepts its case that the Respondents should have repaired the production wells by fully cementing the outer parts of the casings.[252]

IV. The Claimant's claim regarding the cost of repairing the VPS wells

311. The Claimant explains that throughout the PSA the Respondents drilled 47 VPS wells. These were relatively shallow wells (around 300 feet deep), within the Umm er Radhuma aquifer, and were used to maintain the pressure of produced water in the produced water system.[253]

312. Throughout the second phase of the arbitration, the Claimant has argued that: (i) the Respondents' design of the VPS wells breached the PSA because only a single barrier separates the produced water from the Umm er Radhuma aquifer;[254] (ii) the Respondents failed to repair, and consequently handed over, VPS wells with well integrity issues at the

[247] Claimant's PHB (first round) 2019, para. 150.
[248] SoRDCC, para. 405; 1EXR of Mr. Sands, para. 106.
[249] SoRDCC, para. 407.
[250] 1EXR of Mr. Larkin, p. 23.
[251] Claimant's PHB (first round) 2019, para. 151.
[252] Claimant's PHB (first round) 2019, para. 150.
[253] ASoC, para. 294; Claimant's PHB (first round) 2019, para. 162.
[254] ASoC, para. 295.

end of the PSA, in breach of Articles 8 and 18 of the PSA and Good Oilfield Practice;[255] and (iii) as at 22 March 2010, and at the end of the PSA, the VPS wells were not in good working order, in compliance with Good Oilfield Practice, and did not prevent pollution.[256] The Claimant submits that it is not requesting damages for the design breach, but only for the Respondents' failure to address the deterioration of the VPS wells.[257]

313. As clarified in the first round of PHBs, the Claimant bases its claim on Article 8 and Article 18.1(b) of the PSA. In its reading, these texts required that Respondents transfer the wells, at the end of the PSA, in good working order, in a condition that complied with Good Oilfield Practice.[258]

314. According to the Claimant, the claim is not time-barred as it is based on the fact that the Respondents failed to restore well integrity and repair the VPS wells by the end of the PSA.[259] The Claimant argues that the wells claims arise in two ways: "*[f]irstly the obligation at all times during the PSA, to maintain the wells in good working order* [Article 8 of the PSA]; [and]*additionally, at the time of the expiry of the PSA, the express obligation under Art 18 to handover assets in good working order*". [260] In the Claimant's view, the Respondents were in breach of Article 8 of the PSA as at 22 March 2010 and as at 11 December 2011, as a result of their failure to keep the wells in good working order.[261]

315. On the merits of the claim, according to the Claimant, the VPS wells started to fail in 2008 and the Respondents should have implemented a plan to repair them.[262] The Claimant adds that the Respondents acknowledged their obligation to repair several wells in their WPBs of 2009 (eighteen wells), 2010 (eighteen wells), 2011 (six wells), and also in the 2012 provisional WPB.[263] However, the Claimant argues that, by the end of the PSA, the Respondents had only addressed the integrity of five wells.[264] Thus, all other 42 VPS wells had integrity issues.[265] Moreover, the Claimant contends that six VPS wells failed during the term of the PSA, which according to its expert, Mr. Sands, is a high rate of failures.[266]

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[255] SoRDCC, para. 412.
[256] Claimant's PHB (first round) 2019, para. 166.
[257] SoRDCC, paras. 415, 425.
[258] Claimant's PHB (first round) 2019, paras. 7, 27, 32 b, 79, 88.
[259] SoRDCC, para. 415.
[260] Claimant's PHB (first round) 2019, para. 88 c.
[261] Claimant's PHB (first round) 2019, para. 88 c.
[262] SoRDCC, paras. 427, 428.
[263] SoRDCC, paras. 429, 431.
[264] The Claimant refers to 3 wells that were repaired in 2011, 1 abandoned in 2004, and 1 shut-in in 2009, for a total of 5 wells. SoRDCC, para. 432.
[265] Claimant's PHB (first round) 2019, para. 181.
[266] 2EXR of Mr. Sands, para. 100.

316. The Claimant submits that when the VPS wells started to fail, the Respondents disregarded their recommendations, guidelines, and WPBs, and repaired only three out of 47 VPS wells in 2011.[267]

317. The Claimant adds that, during 2011, the Respondents pressure tested only six out of the 47 VPS wells,[268] and three of those required repairs.[269] The Claimant disputes the accuracy of Mr. Tracy's oral evidence, according to which the Respondents pressure tested all the wells but did not record such information under Exhibit R-289. In particular, the Claimant argues that: (i) Mr. Tracy's witness statement refers to Exhibit R-289 as the relevant evidence regarding the condition and testing of VPS wells; (ii) the Respondents have not disclosed any other document in that regard; and (iii) Exhibit R-289 states that it is updated as at 14 December 2011.[270]

318. It is the Claimant's case that if the Respondents had pressure tested all the VPS wells in 2011, they would have detected the failures found by PetroMasila in the following years.[271] The Claimant submits that PetroMasila repaired two VPS wells (VPS Sunah-46, and Qatab-15) from 2012 to 2014, and was pondering whether to repair or abandon VPS-Haru 8, which the Respondents suspended since 2007.[272]

319. The Claimant argues that, taking into consideration that one VPS well was abandoned in 2004, one was shut-in in 2009, and three were repaired in 2011, all the other 42 VPS wells require repair or replacement.[273] It submits that the cost of repairing these wells amounts to USD 107,000 per well.[274] Alternatively, it requests USD 421,000 for the cost of installing a Horizontal Pumping System unit ("HPS"), which it did, in order to limit the risks associated with potentially leaking VPS wells, pending reparations.[275]

V. The Claimant's claim regarding the cost of installing well cellars

320. The Claimant argues that the Respondents: (i) breached the PSA and Good Oilfield Practice by failing to take adequate steps to identify and repair the corrosion on the surface casing of the wells in Block 14;[276] and (ii) should have installed well cellars in 2010 and 2011 in

[267] SoRDCC, para. 419.
[268] The Claimant's argument in relation to the pressure test of only 6 VPS wells out of 47 was not raised in the OSoC, ASoC, or SoRDCC. It was first advanced in the final hearing, and in the Claimant's PHB.
[269] Claimant's PHB (first round) 2019, para. 174.
[270] Claimant's PHB (first round) 2019, para. 179.
[271] Claimant's PHB (first round) 2019, para. 180.
[272] SoRDCC, para. 434.
[273] SoRDCC, para. 432; 1EXR of Mr. Sands, paras. 181-183.
[274] 1EXR of Mr. Sands, para. 182.
[275] Claimant's PHB (first round) 2019, para. 183 c.
[276] ASoC, para. 304.

response to the corrosion detected in 2009 in Block 14.[277] In essence, the Claimant contends that 613 wells were not in good working order, and not in compliance with Good Oilfield Practice, as at 22 March 2010, and as at 11 December 2011, because they lacked well cellars.[278]

321. As stated in paragraph 238 above, the Claimant submits that pursuant to Article 8 and Article 18.1(b) of the PSA, the Respondents should have transferred the wells in good working order, and in a condition that complied with Good Oilfield Practice. [279]

322. The Claimant argues that the wells claims arise in two ways: "*[f]irstly the obligation at all times during the PSA, to maintain the wells in good working order* [Article 8 of the PSA]; [and]*additionally, at the time of the expiry of the PSA, the express obligation under Art 18 to handover assets in good working order*". [280] In the Claimant's view, the Respondents were in breach of Article 8 of the PSA as at 22 March 2010 and as at 11 December 2011, as a result of their failure to keep the wells in good working order.[281]

323. It is the Claimant's position that its claim is not time barred, as the obligation to install well cellars in the wells arose after 22 March 2010.[282] The Claimant contends that the Respondents identified corrosion in the surface casing of 3 wells (Heijah 6, Heijah 10, and Tawila 1)[283] in 2009, but failed to remedy it.[284] In its view, the Respondents' obligation to install well cellars arose in 2010 and 2011 in response to the corrosion found in 2009.[285]

324. According to Mr. Sands, the Claimant's expert, "*[t]he consequence of not having well cellars was that catastrophic corrosion of the 13 3/8" diameter surface casing occurred from the outside of the casing immediately below surface, thereby removing one of the well barriers for hydrocarbon flow to atmosphere and rendering the well unsafe for continued operations*". He concludes that "*installation of cellars is recommended on all 'at risk' wells*".[286]

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[277] Claimant's PHB (first round) 2019, para. 191.
[278] Claimant's PHB (first round) 2019, para. 187.
[279] Claimant's PHB (first round) 2019, paras. 7, 27, 32 b, 79, 88.
[280] Claimant's PHB (first round) 2019, para. 88 c.
[281] Claimant's PHB (first round) 2019, para. 88 c.
[282] SoRDCC, para. 449; Claimant's PHB (first round) 2019, para. 89.
[283] 1EXR of Mr. Sands, para. 189.
[284] SoRDCC, para. 442; 1WS of Mr. Rasmussen, para. 97.
[285] SoRDCC, para. 53; Claimant's PHB (first round) 2019, paras. 186, 191.
[286] 1EXR of Mr. Sands, paras. 188 and 197.

325. The Claimant contends that after the PSA's expiry, PetroMasila identified corrosion at the wellhead of Heijah 6,[287] and two additional wells,[288] and subsequently repaired the wells.[289]

326. It also submits that cellars need to be installed on all wells. The Claimant's expert estimates the cost at USD 80,000 per well, and USD 49,040,000, for a total of 613 wells.[290] Alternatively, the Claimant contends that if only repaired costs are recoverable, the Claimant's fallback claim is for the three wells repaired, amounting to USD 240,000.[291][292]

Sub-section II. The Respondents' position in relation to the Claimant's Wells claims

I. The claim for the cost of repairing 208 production wells

327. The Respondents first point out that in the Partial Award, the Arbitral Tribunal found that the Claimant's inadequately cemented wells claim is time-barred, except in respect of one production well that was drilled after 22 March 2010.[293] They add that this decision is *res judicata.*[294]

328. The Respondents further contend that Article 18.1(b) of the PSA does not apply to the majority of the assets of Block 14, including the wells, because those assets were cost recovered long before the expiry of the PSA.[295]

329. Moreover, they submit that Article 8.1 of the PSA evokes a continuing obligation. According to the Respondents, any breach of the obligation to keep the wells in good working order arising after 22 March 2010 is a continuation of the breach that arose when the wells were designed and constructed, decades before March 2010. Thus, any such claim for breach is also time-barred.[296] The Respondents add that the Claimant "*has never contested that it knew of the corrosion issue that arose in 2001 in relation to the Block 14 wells*".[297]

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[287] Exhibit C-443, Photographic Evidence of Petromasila's Repairs on the Heijah 6 Well.
[288] The Claimant has not identified these wells.
[289] Exhibit C-442, Heijah -6: Casing Repair and WSO, dated 3 August 2012; SoRDCC, para. 442.
[290] Claimant's PHB (first round) 2019, para. 192; 1EXR of Mr. Sands, para. 196.
[291] Claimant's PHB (first round) 2019, para. 193.
[292] In the ASoC, the Claimant requested alternatively that the Respondents "*should pay for a thorough inspection and testing of all at risk wells and to the extent any of the wells are identified as not being at risk, the Claimant's well cellar claim should be reduced by a proportionate amount*" ASoC, para. 307. This alternative is not pursued in the SoRDCC, nor in the Claimant's PHB, and it is absent from the Claimant's updated request for relief in those submissions. The Tribunal concludes that the Claimant no longer pursues this alternative claim.
[293] ASoDCC, paras. 153 a, b; SoRjSRCC, para. 155; Respondents' PHB (first round) 2019, paras. 79, 82, 83.
[294] Respondents' PHB (first round) 2019, para. 79.
[295] SoRjSRCC, para. 96; Respondents' PHB (first round) 2019, para. 86.
[296] Respondents' PHB (first round) 2019, para. 86.
[297] Respondents' PHB (first round) 2019, para. 43.

330. According to the Respondents, the only production well claim that remains is related to Camaal 104. They contend that: (i) this well was drilled according to the sixth version of the GDP; (ii) there is no evidence of corrosion, hydrocarbon leakage, or water loss from that well; and (iii) PetroMasila has never claimed that this well requires repairs.[298]

331. The Respondents refer to the testimony of their expert, Mr. Hilbert, who confirmed that the Respondents' first well design, and in particular the cement program, complied with Good Oilfield Practice at the time.[299]

332. They submit that during the early 2000s, they identified a potential corrosion issue on a limited number of wells, but they subsequently addressed it through a comprehensive corrosion management program. This program included placement of oil layers within specific annular spaces, cathodic protection, and an extensive program of corrosion monitoring, testing and repairs.[300] The Respondents' expert opined that the Respondents' corrosion measures were consistent with Good Oilfield Practice.[301]

333. The Respondents add that their corrosion management program proved to be highly effective, as there were only a small number of casing failures after these measures had been introduced and the rate at which they occurred slowed significantly. According to the Respondents, in any event, casing repairs are part of normal oilfield operations that any operator needs to undertake.[302]

334. The Respondents further contend that in 2011 they pressure tested all of the production wells that required to be pressure tested according to their testing and repair program.[303] They point out that for the first time at the final hearing the Claimant argued that they had failed to regularly pressure test the production wells.

335. The Respondents dispute the Claimant's argument that they ever admitted to being required to make the type of repairs that the Claimant argues. They only admit that they were aware that in the event a casing leak occurred, they had to repair it.[304]

336. Finally, the Respondents submit that the Claimant's expert, Mr. Sands, did not present a cost estimate for individual wells, but only a generic repair program for 208 wells, which is not

[298] PHB (first round) 2019, para. 83.
[299] ASoDCC, para. 365.
[300] ASoDCC, para. 377; SoRjSRCC, para. 156 b.
[301] ASoDCC, para. 383.
[302] ASoDCC, para. 382.
[303] Respondents' PHB (first round) 2019, para. 91.
[304] SoRjSRCC, para. 170 a.

based on contracts, invoices, or any other verifiable information.[305] They also add that PetroMasila's cost estimates are lower than Mr. Sands' suggested amount.[306]

337. Finally, in relation to the Claimant's fallback claim, they first argue that this claim was presented for the first time in the Claimant's first PHB. According to the Respondents, there is no evidence that they have failed to follow their corrosion management program, or of any environmental damage in Block 14.[307] Furthermore, they contend that if the Claimant's fallback position is that such a program was in accordance with Good Oilfield Practice, any costs to implement it after the PSA's expiry, constitute normal repair and maintenance costs that should be incurred by PetroMasila.[308]

II. The claim for the cost of installing production packers

338. The Respondents contend that it is for the first time at the final hearing that the Claimant argued that the claim for the cost of installing production packers was an independent head of claim, and not a part of the Claimant's Production Wells claims.[309]

339. According to the Respondents, the Claimant's arguments in respect of the production packers were part of their dismissed Production Wells claims, with the exception of a claim in relation to Camaal 104, which is the only production well that was drilled after 22 March 2010.[310]

340. The Respondents refer to their expert evidence in order to demonstrate that their well design and cementing policy was consistent with Good Oilfield Practice.[311] Their expert, Mr. Hilbert, opined that it is not industry practice for production wells to have production packers. He also referred to countries such as the United States, Saudi Arabia, and Oman, where production wells do not have production packers. [312]

341. The Respondents submit that they considered whether production packers were necessary, and determined that they should only be installed in injection wells, not in production wells.[313] They consider that production packers are not necessary in production wells because of the hydrostatic head differences between the producing zones and the aquifers.[314]

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[305] Respondents' PHB (first round) 2019, para. 115 c.
[306] Respondents' PHB (first round) 2019, para. 115 d.
[307] Respondents' PHB (second round) 2019, para. 25.
[308] Respondents' PHB (second round) 2019, para. 25.
[309] Respondents' PHB (first round) 2019, paras. 123, 125.
[310] SoRjSRCC, para. 119; Respondents' PHB (first round) 2019, para. 123.
[311] ASoDCC, paras. 343-367; SoRjSRCC, para. 331.
[312] Respondents' PHB (first round) 2019, para. 126 c; 1EXR of Mr. Hilbert, para. 7.53.
[313] Respondents' PHB (first round) 2019, para. 126 a.
[314] Respondents' PHB (first round) 2019, para. 126 b.

Indeed, the difference in the pressures would not allow the hydrocarbons to flow upwards the casing as represented in Mr. Sands' expert report, in Figure 2, in paragraph 297 above. This would prevent the hydrocarbons from escaping the casing through a potential leak and mixing with the aquifers.[315]

342. In the same vein, the Respondents add that even if there were a leak in the production casing, and water could enter, the water would flow down the casing, and the ESP would suck both the hydrocarbons and the water to surface, preventing the aquifers from being contaminated by oil.[316]

III. The Loss of Water claim

343. The Respondents argue that there has been no loss of water from the Mukalla aquifer, as evidenced by the records of water levels.[317]

344. According to the Respondents, any hypothetical calculation of water loss shall take into consideration the following mitigating factors that are present in the wells: (i) swelling clays; (ii) bridging; (iii) filter cake formation; and (iv) the presence of drilling mud and solids in the annulus.[318] The Respondents' arguments in connection with each one of those factors are detailed below.

345. First, according to the Respondents, there are swelling clays in the confining layers between the Mukalla and the Harshiyat aquifers. The Respondents submit that when the clays are exposed to water or drilling muds, they swell and expand into the narrow wellbore annulus, reducing or eliminating the area of the opening between the well casing and the surrounding aquitards.[319]

346. Second, the Respondents argue that formation material will naturally collapse from the side of the borehole in a manner that partially or completely blocks the annular space in the wells that lack a cement seal.[320]

347. Third, the Respondents contend that, as the low permeability filter cake formed by the drilling fluids builds on the borehole walls, it seals these walls and impedes the flow of water into or out of the surrounding aquifer.[321]

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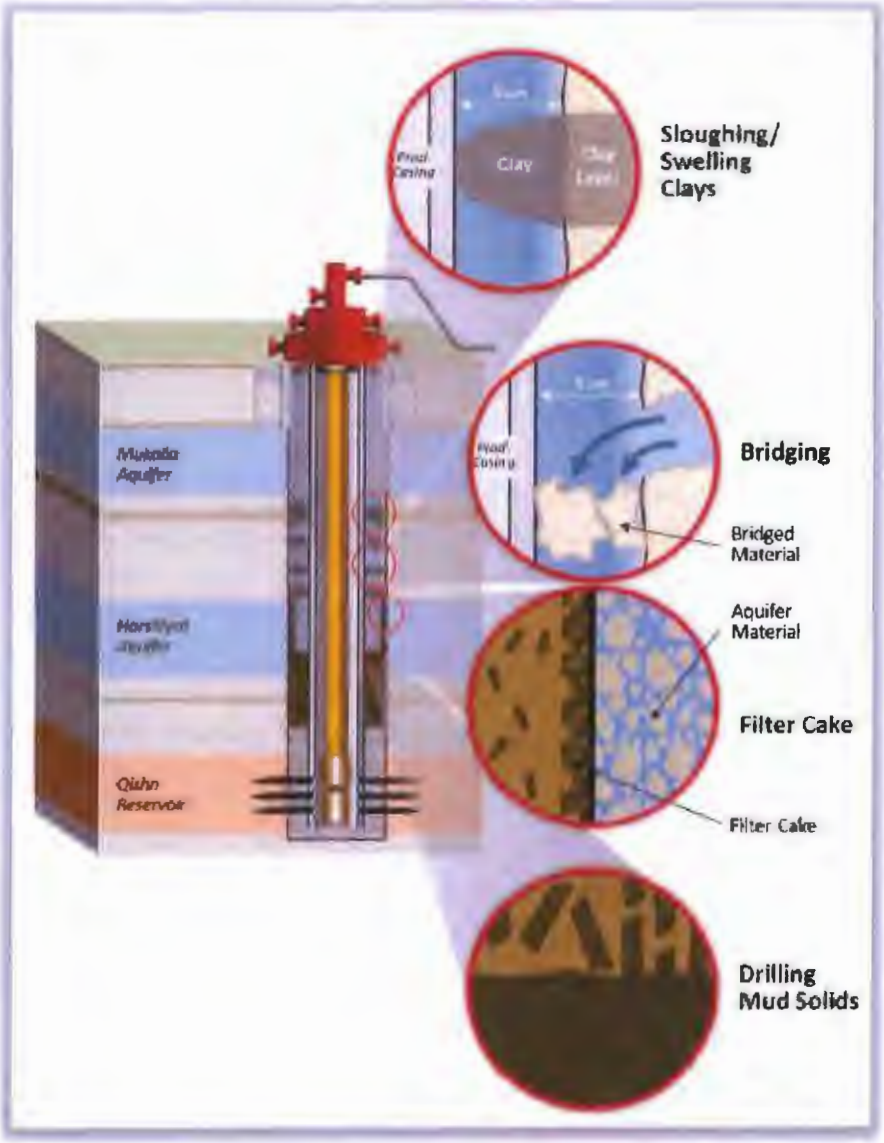
[315] ASoDCC, para. 395.
[316] ASoDCC, para. 395.
[317] ASoDCC, para. 371.
[318] ASoDCC, para.369; SoRjSRCC, para. 159.
[319] ASoDCC, para.369 a.
[320] ASoDCC, para.369 b.
[321] ASoDCC, para.369 c.

348. Fourth, the Respondents submit that during drilling, the open space within the wellbore is filled with drilling mud, which remains in the annular space following installation of the well casing. According to the Respondents, the presence of this mud would impede water flow into and down the annulus.[322]

349. According to the Respondents, the diagram designed by their expert, explains the mitigation factors.

Figure 3. Mitigating Factors.[323]



[322] ASoDCC, para.369 d.
[323] 1EXR of GSI Environmental, p. 76.

350. According to the Respondents, even assuming an over-estimated amount of drainage from the Mukalla into the Harshiyat aquifer, (which should take into account the mitigating factors explained above) the maximum leakage volume would be only 0.02% of the annual recharge of the Mukalla aquifer. [324]

351. Therefore, the Respondents argue that there has not been any water loss from the Mukalla to the Harshiyat aquifer and no such loss is expected in the future. [325]

IV. The VPS Wells claim

352. The Respondents first submit that in the Partial Award, the Arbitral Tribunal found that the Claimant knew or ought to have known since November 2001 that the Respondents' VPS well design used only a single metal barrier at the bottom of the well and, on that basis, determined that the VPS well claim was time-barred, except in respect of one VPS well that was drilled after 22 March 2010.[326] The Respondents add that this decision is *res judicata.*[327]

353. According to the Respondents, in an effort to circumvent the Partial Award, the Claimant re-formulates its VPS claim, from a breach regarding the design of the VPS wells, to an alleged failure to repair all VPS wells on Block 14.[328]

354. The Respondents further contend that Article 18.1(b) of the PSA does not apply to the majority of the assets of Block 14, including the wells, because those assets were cost recovered long before the expiry of the PSA.[329]

355. Moreover, Article 8.1 of the PSA evokes a continuing obligation. According to the Respondents, any breach of the obligation to keep the wells in good working order arising after 22 March 2010 is a continuation of the breach that arose when the wells were designed and constructed, decades before March 2010, which means that the claim based on this breach is time-barred.[330]

356. The Respondents submit that the only VPS claim that remains is related to the Sunah 36 VPS well, and in this respect, they contend that: (i) its design followed Good Oilfield Practice; (ii) it was equipped with cathodic protection for corrosion control; (iii) it was regularly

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[324] ASoDCC, para. 372; 1EXR of GSI Environmental, p. 78.
[325] ASoDCC, para. 373; 1EXR of GSI Environmental, p. 80.
[326] ASoDCC, para. 423; SoRjSRCC, para. 180; Respondents' PHB (first round) 2019, paras. 130, 133.
[327] Respondents' PHB (first round) 2019, paras. 130, 133.
[328] SoRjSRCC, para. 184.
[329] Respondents' PHB (first round) 2019, para. 153.
[330] ASoDCC, para. 449; Respondents' PHB (first round) 2019, para. 153.

pressure tested, to check the integrity of the casing; and (iv) there is no evidence suggesting that it was corroded, or that it required repairs, or that it presents a risk to the aquifers.[331]

357. The Respondents further argue that all VPS wells were equipped with cathodic protection for corrosion control and were regularly pressure tested. According to the Respondents, if a leak was suspected by reason of a decrease in pressure, the well was shut-in for evaluation, and repaired, if necessary.[332]

358. The Respondents dispute that they admitted to being held by an obligation to repair the VPS wells in their WPBs of 2009-2012.[333] According to the Respondents: (i) the VPS repairs that appeared in the WPBs were repairs to the VPS pumps, not the VPS casings;[334] and (ii) in any event, there would be no breach of the PSA for failing to carry out the work contemplated in a WPB.[335]

359. The Respondents add that during the PSA only six wells experienced casing failures (Heijah 36 VPS, Tawila 65 VPS, Tawila 83 VPS, Qataban 15 VPS, Haru-8 VPS and Tawila 59-1 VPS), which were identified by the pressure tests. The Respondents claim that they repaired four (Heijah 36 VPS, Tawila 65 VPS, Tawila 83 VPS, Qataban 15 VPS), suspended one (Haru-8 VPS) and abandoned Tawila 59-1 VPS.[336] The Respondents further submit that there is no evidence of environmental damage in relation to these failures.[337]

360. According to the Respondents, it is for the first time at the final hearing that the Claimant contended that the Respondents had failed to regularly pressure test the VPS wells throughout the PSA and that only six VPS wells were tested in 2011. They submit that all the VPS wells were pressure tested on an annual basis, and that, if the document which demonstrates this is not in the record it is because the argument was only raised by the Claimant at the final hearing.[338]

361. The Respondents confirm that all of the VPS wells were pressure tested in 2011, and that only three failed the test (Heijah 36 VPS, Tawila 65 VPS, and Tawila 83 VPS). All three were repaired between June and September 2011.[339]

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[331] PHB (first round) 2019, para. 131.
[332] ASoDCC, para. 436; SoRjSRCC, para. 181.
[333] SoRjSRCC, para. 188.
[334] 4EXR of Mr. Tracy, para. 48.
[335] SoRjSRCC, para. 188.
[336] ASoDCC, para. 437; SoRjSRCC, para. 181; 1WS of Mr. Tracy, para. 268; 4WS of Mr. Tracy, para. 50; SoRjSRCC, para. 187; Respondents' PHB (first round) 2019, para. 135 c.
[337] Respondents' PHB (first round) 2019, para. 143.
[338] Respondents' PHB (first round) 2019, para. 137 a.
[339] Respondents' PHB (first round) 2019, para. 137 b.

362. According to the Respondents there is no evidence that additional VPS wells required repairs by the end of the PSA, or that any damage was caused, or could potentially have been caused.[340] Accordingly there is no reason to repair all the VPS wells that the Claimant requests.[341]

363. The Respondents finally submit that since the PSA's expiry, PetroMasila has adopted the same repair program as implemented by them, and has only repaired two VPS wells in the seven years that followed. Moreover, the Claimant has not presented any evidence in relation to the repairs undertaken by PetroMasila, or the costs of such repairs.[342]

V. The Well Cellar claim

364. The Respondents first note that in the Partial Award, the Arbitral Tribunal found that the Claimant knew or ought to have known of the absence of well cellars since the late 1990s at the latest and, on that basis, determined that the Claimant's well cellar claim was time-barred, except in relation to eight wells.[343] The Respondents add that this decision is *res judicata.*[344]

365. They further contend that Article 18.1(b) of the PSA does not apply to the majority of the assets of Block 14, including the wells, because those assets were cost recovered long before the expiry of the PSA.[345]

366. Moreover, Article 8.1 of the PSA evokes a continuing obligation. According to the Respondents, any breach of the obligation to keep the wells in good working order arising after 22 March 2010 is a continuation of the breach that arose when the wells were designed and constructed, decades before March 2010, which makes any claim based on such breach time-barred.[346]

367. The Respondents accept that, as identified by Mr. Sands, corrosion was found in 2009 in the surface casings of Heijah 6, Heijah 10 and Tawila 1. However, these were three old wells that were subsequently repaired.[347] Moreover, they took action to sample other wells thereafter, and no corrosion was observed in any other wells drilled by them.[348]

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[340] SoRjSRCC, para. 182; Respondents' PHB (first round) 2019, paras. 138, 144.
[341] ASoDCC, para. 444; SoRjSRCC, para. 183; Respondents' PHB (first round) 2019, para. 144.
[342] SoRjSRCC, para. 189.
[343] ASoDCC, para. 445. The Respondents further contend that 3 wells (Tawila 007, Heijah 66 and Camaal 52) out of those 8 wells, were side-track wells, (re-entry wells), therefore, only 5 wells were indeed drilled after 22 March 2010. ASoDCC footnote 250, 677.
[344] Respondents' PHB (first round) 2019, para. 151.
[345] Respondents' PHB (first round) 2019, para. 153.
[346] ASoDCC, para. 449; Respondents' PHB (first round) 2019, para. 153.
[347] ASoDCC, para. 460; SoRjSRCC, para. 19; 1WS of Mr. Rasmussen, para. 97.
[348] SoRjSRCC, para. 196; Respondents' PHB (first round) 2019, para. 158 b.

368. The Respondents further contend that well cellars are not required as a matter of Good Oilfield Practice.[349] Additionally, there is no evidence to support Mr. Sands' assumption that all the wells in Block 14 could be subject to corrosion.[350]

369. Finally, the Respondents note that despite claiming to have repaired three wells after the PSA's expiry,[351] the Claimant's evidence only shows repair works regarding one well.[352]

Sub-section III. The Arbitral Tribunal's Analysis

370. As already mentioned, the Claimant advances the following claims regarding the wells in Block 14: (**I**) claims for the cost of repairing of 208 production wells; (**II**) claims for the cost of installing production packers in 208 wells; (**III**) claims for the loss of water from the Mukalla aquifer; (**IV**) claims for the cost of repairing in relation to 47 VPS wells; and (**V**) claims for the cost of installing well cellars.

371. The Tribunal will successively address in detail each of those claims. Before doing so, the Tribunal will make an introductory remark with respect to the Claimant's repeated objection concerning the procedure.

372. The Claimant once again asserts in its PHB that the Tribunal, in the first phase of the arbitration "*could not fairly determine issues of time-bar without understanding what the allegations of breach actually were*".[353] This is not correct. From the moment the Tribunal had decided to bifurcate the procedure, the Parties had ample opportunity to fully present their case as they wished by way of submissions, documents, witness statements, expert reports, and they did so. The Tribunal heard the Parties and their witnesses at a hearing which took place from 16 to 19 May 2016, gave them the opportunity to file post-hearing briefs, and issued its Partial Award on the basis of the whole record. If the Claimant considers today that it should have presented its case differently, it is its sole responsibility. The Tribunal considers that due process has been fully complied with.

I. Cost of repairing of 208 production wells

373. The Claimant has argued throughout the arbitration that: (i) **the Respondents' designs of the production wells breached the PSA** because the outer part of the production casing was not properly cemented from the Harshiyat formation to the bottom of the surface casing;[354]

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[349] ASoDCC, para. 457; 1EXR of Dr. Hilbert, para. 7.103.
[350] ASoDCC, para. 461; SoRjSRCC, para. 199, referring to 1EXR of Mr. Sands, para. 194.
[351] SoRDCC, para. 442.
[352] SoRjSRCC, para. 200; Claimant's PHB (first round) 2019, para. 158 c.
[353] Claimant's PHB (first round) 2019, para. 96 c.
[354] ASoC, paras. 230, 237; SoRDCC, paras. 344, 377.

(ii) **the Respondents failed to repair the production wells which had corrosion** issues;[355] and (iii) that as at 22 March 2010, and at the end of the PSA, **the production wells were not in good working order**, and in compliance with Good Oilfield Practice because they were experiencing corrosion issues.[356]

374. The Tribunal recalls that the Claimant has indicated that it was not pursuing a claim in respect of the design breach, but only in relation to the Respondents' alleged failure to repair the corrosion from the production wells.[357] As detailed in paragraph 290 above, the Claimant submits that, pursuant to Article 8 (including Good Oilfield Practice) and Article 18.1(b) of the PSA, the Respondents should have repaired 208 production wells prior to the PSA's expiry.[358]

375. Under the following sub-sections, the Tribunal will analyze: (A) the 208 Production Wells claim under Article 18.1(b) of the PSA; and (B) the 208 Production Wells claim under Article 8 of the PSA and Good Oilfield Practice

A. The Production Wells claim based on Article 18.1(b) of the PSA

376. Article 18.1(b) of the PSA provides as follows:

> "*Title to fixed and movable assets shall by virtue of this provision transfer gradually from CONTRACTOR to MINISTRY at the end of each year in the percentage that the cost of the particular asset is recovered by CONTRACTOR pursuant to Section IX during such year. If not already vested in MINISTRY, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the time of termination of this Agreement, with all such assets being in good working order, normal wear and tear accepted. The Book Value of the Assets acquired or created during each Calendar Year shall be communicated by CONTRACTOR to MINISTRY within sixty (60) days after the end of such year*".[359] [emphasis added].

377. The Tribunal refers to its reasoning in relation to Article 18.1(b) of the PSA set forth in paragraphs 276 to 279 above. Specifically, the Tribunal has established that, in order for a Claimant's claim based on Article 18.1(b) of the PSA to succeed, the Claimant has to establish that a specific asset, in this case, the production wells, was not already cost recovered at the PSA's expiry.

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[355] SoRDCC, para. 345.
[356] Claimant's PHB (first round) 2019, para. 96.
[357] SoRDCC, paras. 343-344.
[358] SoRDCC, para. 333; Claimant's PHB (first round) 2019, para. 98.
[359] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1.

378. The Respondents argue that Article 18.1(b) of the PSA does not apply to the majority of the assets of Block 14, including the wells, because those assets were cost recovered decades before the expiry of the PSA.[360] By contrast, the Claimant has remained silent in this respect. It has not established that all or part of the wells that are referred to in its claim were not cost recovered.

379. In light of the foregoing, the Tribunal concludes that Article 18.1(b) of the PSA cannot offer a valid basis in support of the Claimant's Production Wells claim. At the expiry of the PSA title to the wells had passed to the Claimant, and the Respondents had therefore no remaining obligations under Article 18.1 (b) when the PSA expired. The Tribunal has also determined that the alleged handover obligation invoked by the Claimant did not exist. It remains therefore to determine whether taking into consideration the Tribunal's decisions on time-bar, the Respondents had remaining obligations on the basis of Article 8 of the PSA after 22 March 2010.

B. The Production Wells claim based on Article 8 of the PSA and Good Oilfield Practice

380. As already mentioned above, Article 8 of the PSA provides as follows:

> *"8.1 CONTRACTOR shall conduct Petroleum Operations diligently in accordance with rules as may be prescribed and in accordance with generally accepted standards of the petroleum industry. CONTRACTOR'S activities shall be designed to achieve the efficient and safe Exploration for, and production of, Petroleum and to maximize the ultimate economic recovery of Petroleum from the Contract Area. CONTRACTOR shall ensure that all materials, equipment and facilities used in Petroleum Operations comply with generally accepted engineering norms, are of proper and accepted construction, and are kept in good working order."*[361] [emphasis added].
>
> *"8.2 CONTRACTOR shall:*
> *(a) take all proper measures, according to generally accepted methods in use in the oil industry, to prevent loss or waste of Petroleum above or under the ground in any form during drilling, producing, gathering and distributing or storing operations. MINISTRY has the right to prevent any operation on any well that it reasonably expects would result in loss or damage to the well or the field;*
> *(b) prevent damage to any adjacent Petroleum, water-bearing formations, and other natural resources;*
> *(c) prevent non-intentional entrance of water into Petroleum formations;*

[360] Respondents' PHB (first round) 2019, para. 86.
[361] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.

(d) take all necessary precautions to prevent pollution of or damage to the environment; [...]".[362] [emphasis added].

381. The Claimant expressly states that it "*does not pursue a claim for the deficient design of the wells drilled by the Contractor per se. (...), [T]he Ministry's damages claim is for the fact that the Contractor, having drilled wells, had a responsibility for maintaining the integrity of those wells throughout and at every stage of their lifecycle and handing over those wells with their integrity maintained*".[363]

382. Under the following sub-sections, the Tribunal will: (1) determine whether or not the Claimant's production wells claim is the same claim as the production wells claim pursued in the OSoC; (2) determine whether or not the Claimant's production wells claim is time-barred; (3) analyze the merits of the Claimant's production wells claim to repair certain specific wells by the end of the PSA; and (4) address the issue of quantum in relation to four production wells

1. Whether or not the Claimant's Production Wells claim is the same as the production wells claim pursued in the OSoC

383. The Claimant's Production Wells claim, as formulated in the OSoC, was based on inadequate design, and failure to repair and maintain the wells in good working order.[364]

384. In relation to the design, the Claimant argued during the first phase of the arbitration that the production wells built under GDP1 and GDP2 were deficient as the outer part of the production casing was not properly cemented. In particular, the Claimant contended that 206 production wells were drilled according to the first and second versions of the GDP, which were flawed designs since they lacked full cementation throughout the entire outer part of the casings.[365] Additionally, while a further 105 production wells were drilled according to the third version of the GDP (which provided for full cementation), when they were built, they were not fully cemented.[366]

385. The Claimant argues that given that out of these 311 production wells, the Respondents repaired 52, suspended 30, and hydrocarbon abandoned 21, 208 production wells were built to an inadequate design, or in practice were inadequately cemented.[367]

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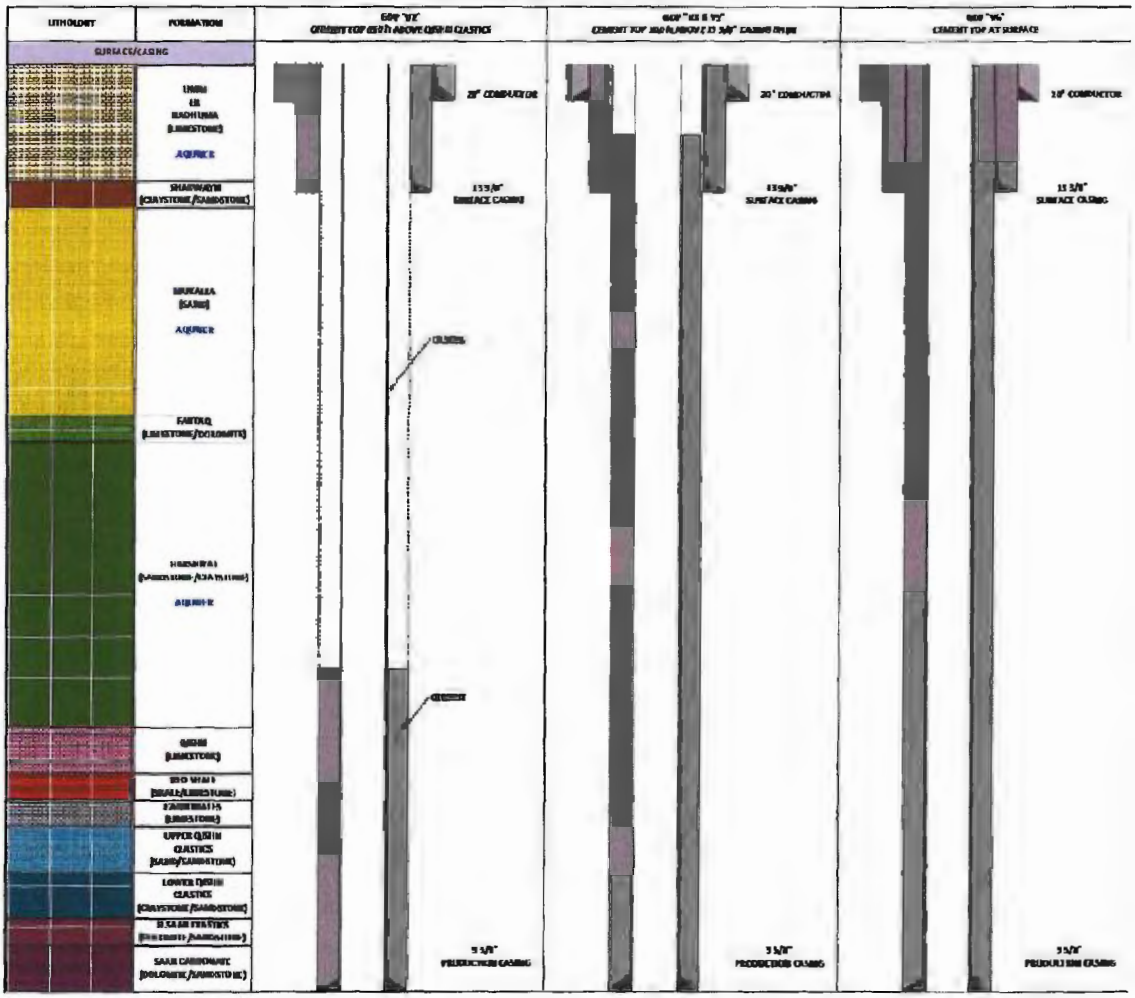
[362] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.
[363] SoRDCC, para. 346.
[364] Claimant's PHB (first round) 2019, para. 91 a.
[365] ASoC, para. 235; 1EXR of Mr. Sands, paras. 82-83.
[366] ASoC, para. 235; 1EXR of Mr. Sands, paras. 82-83.
[367] OSoC, para. 165; ASoC, para. 235.

386. The Tribunal presents the Claimant's expert representation of the GDPs below, to illustrate the Claimant's argument.

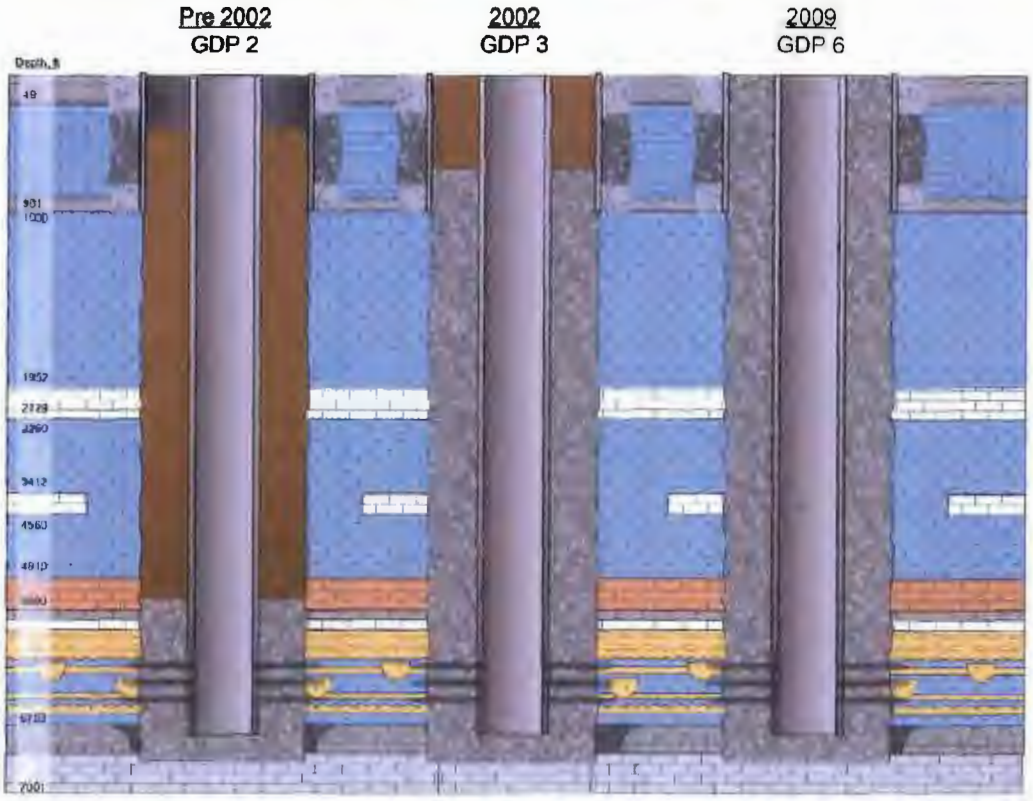
Figure 4. Mr. Sands' GDP versions two, three, and six.[368]



387. The Tribunal further reproduces the Respondents' expert representation of the GDPs, which is the same as the one presented by Mr. Sands, to illustrate the expert's agreement.

[368] 1EXR of Mr. Sands, p. 28.

Figure 5. Mr. Hilbert's' GDP versions two, three, and six.[369]



388. In relation to the repairs, the Claimant also argues that the Respondents were required to repair the corrosion from which these wells were suffering.[370] In the Claimant's own words, "*remedial steps must repair the wells in a way which will remove the risk of corrosion and future leaks*".[371]

389. Second, although the Claimant has indicated that, since the Partial Award, it is not requesting damages for the design breach, but only for the Respondents' failure to repair corrosion from the production wells,[372] the issue of the design remains closely associated with the repairs that it claims. In particular, the Tribunal observes that the Claimant has maintained its arguments in relation to the design issues in its ASoC,[373] SoRDCC,[374] and PHBs.[375]

[369] 1EXR of Mr. Hilbert, p. 39.
[370] OSoC, paras. 148, 171, 180-184; ASoC, paras. 217, 241, 277-279.
[371] OSoC, para. 183; ASoC, para. 278.
[372] SoRDCC, paras. 343-344; Claimant's PHB (first round) 2019, para. 91 a.
[373] ASoC, paras. 216, 218, 227-235, 236-241.
[374] SoRDCC, paras. 344, 348, 353, 356, 359, 371, 377.
[375] Claimant's PHB (first round) 2019, paras. 86, 102, 104.

390. For instance, the Claimant maintained two sections in its ASoC entitled "*CNPY's Deficient Well Design*"[376] and "*The Design breached the PSA*".[377] When referring to the diagram illustrated above as Figure 4, the Claimant affirmed that:

> "*The following diagram shows, from left to right, (i) the* ***'GDP Version 2' well design which the Ministry say was deficient*** *and in breach of the PSA; (ii) the revised design, 'GDP Version 3', introduced by the Contractor from 2001 but not always implemented; and (iii) the Contractor's final well design, in force from 2009 ('GDP Version 6')*".[378] [emphasis added and internal citations omitted].

391. Additionally, in the SoRDCC, the Claimant contended that:

> "*Whilst it is the case that* ***the corrosion of the production casings identified by the Contractor could have been avoided, had there been a better well design*** *(there is evidence that this was the case, especially following the Tribunal's determinations in the Partial Award), the Ministry's primary case is that this does not matter*".[379] [emphasis added].

> "*Given* ***the failure in the well design and construction, which allowed the external corrosion of the 9 5/8" diameter production casing to occur****, it is the evidence of Richard Sands that the Contractor was wholly responsible for addressing the well issues*".[380] [emphasis added].

392. Moreover, Mr. Sands, in his second expert report, presented with the SoRDCC, opined that:

> "***A root cause of the corrosion mechanisms described above is a failure in the well design*** *on the early wells drilled in the Block.* ***The failure is that cement is not placed on the outside of the 9 5/8" diameter production casing*** *(...)*".[381]

393. Furthermore, in the first round of PHBs, the Claimant argued that:

> "*The Contractor considered then, and it was common ground in the arbitration, that the corrosion was principally caused by contact between water in the Harshiyat and Mukalla aquifers and the exterior surface of the steel production casing.* ***Because the casing was not cemented, the water was in direct contact with the steel***".[382] [emphasis added].

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[376] ASoC, paras. 227-235.
[377] ASoC, paras. 236-241.
[378] ASoC, para. 229.
[379] SoRDCC, para. 353.
[380] SoRDCC, para. 377.
[381] 2EXR of Mr. Sands, para. 26.
[382] Claimant's PHB (first round) 2019, para. 104.

394. It results from the above that for the Claimant it is the lack of cementation that led to the corrosion that, in its view, the Respondents should have repaired.

395. Third, the Claimant relies heavily on Mr. Sands' testimony.[383] According to Mr. Sands, by 2014, twelve wells had already been diagnosed with corrosion,[384] while all wells should be repaired as they could suffer from corrosion[385] due to their deficient design:

> "(...) ***it is clear that the well design adopted to this date was inadequate*** *and the casing corrosion issue was the catalyst for a well design change, which was incorporated into Version 3 of the GDP in November 2001 (Exhibit 15). However, as discussed in my report above,* ***around 311 wells have inadequate cement jobs on the outside of the 9 5/8" production casing and as such are susceptible to catastrophic corrosion***".[386] [emphasis added].

396. Fourth, albeit the Claimant is purportedly only requesting damages for the Respondents' failure to repair corrosion from the production wells,[387] the nature of the repairs sought consists of corrections to the production well design, and cementing the outer area of the production casing. The Claimant's expert, Mr. Sands, explains the nature of the repairs in the following way:

> *"I have provided an option for a repair programme in Exhibit 28, which prepares the wells for abandonment later in the well's life.* ***It involves perforating the 9 5/8" diameter production casing and circulating or forcing cement into the un-cemented area outside the casing****. This area outside the casing is referred to as the 12 ¼" hole by 9 5/8" casing annulus*".[388] [emphasis added].

397. Moreover, although the Claimant argues that the Respondents identified six production wells with leaking casings which should have been repaired by the PSA's expiry, it requests for repairs in all wells and this, whether or not there is evidence of actual failure.[389] The Claimant's case, as it was advanced in the final hearing, and thereafter in its PHB, is that "*at the end of the PSA the well casings either had failed (but this had not been detected because the Contractor had not carried out pressure tests as it should have) or were expected to fail imminently*".[390]

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[383] Claimant's PHB (first round) 2019, para. 167.
[384] 1EXR of Mr. Sands, para. 86; 2EXR of Mr. Sands, para. 64.
[385] 1EXR of Mr. Sands, para. 96; 2EXR of Mr. Sands, para. 35.
[386] 1EXR of Mr. Sands, para. 92.
[387] SoRDCC, paras. 343-344; Claimant's PHB (first round) 2019, para. 91 a.
[388] 1EXR of Mr. Sands, para. 95.
[389] Claimant's PHB (first round) 2019, para. 143 a.
[390] Claimant's PHB (first round) 2019, para. 114.

398. Thus, the Tribunal is persuaded that, although the Claimant has declared that it had allegedly withdrawn its design claim, it has not withdrawn it in substance, since: (i) the Claimant argues that the cause of the corrosion of the wells was the inadequate design of the production wells or the failure to abide by the correct design set forth in the GDP3; (ii) the Claimant requests a repair program regarding 208 production wells, while the record only includes evidence of failure in six wells; and (iii) the repair requested consists of a change in the design of the production wells *i.e.*, to introduce cement in the outer part of the casing, which is currently uncemented.

399. Based on the considerations outlined above, the Tribunal finds that there is no difference of substance between, on the one hand, the Claimant's current claim regarding production wells, and, on the other hand, Claimant's old claim in relation to production wells. They are one and the same claim. The Claimant has just tried to resurrect the time-barred claim by formulating it in different terms.

400. Having reached this conclusion, the Tribunal will now determine if the Claimant's production wells claim pursuant to Article 8 of the PSA and Good Oilfield Practice, is time barred.

2. Whether or not the Claimant's production wells claim is time-barred

401. In the Partial Award, the Tribunal analyzed the Claimant's production wells claim divided in the following categories; (i) first well design claims: in relation to the wells which were built before the third version of the GDP; and (ii) inadequately cemented wells claims: regarding the wells constructed after the third version of the GDP, but which were in practice not fully cemented.

402. In relation to the first well design claims, the Tribunal decided in its Partial Award that:

> "*706. With respect to Claimant's first well design claims, the Arbitral Tribunal agrees with Respondents' position that Claimant was aware or ought to be aware of the facts underlying its claims, i.e. that Respondents' GDP1, GDP1.1 and GDP2 did not provide for cement across the Mukalla and Harshiyat aquifers, since mid-2001 at the latest.*
>
> *(...)*
>
> *721. Regarding the issue of corrosion, the Arbitral Tribunal finds that Respondents have successfully demonstrated that Claimant was informed in 2001 that corrosion had been found in the old wells and that cement repairs would be carried out to restore casing integrity.*

722. Mr. Tracy explained at the TLD hearing that Respondents discussed with PEPA different repair options following the discovery of corrosion and that the fact that the old wells were not cemented to surface was a contributing factor, but not the only cause of corrosion. (...) In any event, Mr. Tracy was taken to two documents that were distributed to PEPA as well, the first one being a casing corrosion logging and cathodic protection evaluation programme dated 20 August 2000 and the second one being a production engineering weekly report dated 11 March 2001, where the corrosion issue was discussed and Claimant was informed that Respondents were in the process of preparing recommendations in that respect (Exhibits R-392 and R-398, p. 4). Therefore, Claimant's complaint that, whereas they knew about the corrosion issue already in February 2001, Respondents informed Claimant of the same only in November 2001 does not hold water.

(...)

*725. In addition, the Arbitral Tribunal notes that the minutes of the 11 November 2001 meeting, which several PEPA representatives attended, confirm that the corrosion issue was related to Respondents' first well design, pursuant to which the 9 5/8" production casing was not cemented to surface, **that only the old wells with corrosion problems would be repaired** and that the new wells would be cemented to surface so as to attempt to prevent corrosion. (...)*

(...)

729. Similarly, the Arbitral Tribunal finds that Respondents have successfully established that Claimant was aware or ought to be aware of the relationship between the corrosion issue and their initial cementing practice and of Respondents' preferred solution to proceed with cathodic protection, given that cementing to surface was not in and of itself sufficient, since November 2001 at the latest. (...)

(...)

732. Consequently, the Arbitral Tribunal finds that Claimant's first well design claims are time-barred in accordance with the three-year limitation period under Article 10.2 of the UNIDROIT Principles, considering that Claimant was aware or ought to be aware of Respondents' initial cementing practice since mid-2001 at the latest and of the relationship between the first well design and the corrosion issue since November 2001 at the latest and that the Standstill Agreement that interrupted the running of that limitation period was concluded on 22 March 2013."[391] [emphasis added and internal citations omitted].

403. In relation to the inadequately cemented wells claims, the Tribunal recalls the following extracts of its Partial Award:

[391] Partial Award, paras. 706, 721, 722, 725, 729, 732.

"*734. Claimant has also brought forward a claim in respect of a further 105 wells that were drilled by Respondents after 6 June 2001 and that were inadequately cemented, despite having been drilled in accordance with an adequate well design (EXR of Mr. Sands, paras. 81 and 83).*

(...)

*736. **The Arbitral Tribunal further notes that, after having been referred to Respondents' draft presentation of 1 April 2005, Mr. Al Humidy confirmed at the TLD hearing that Claimant knew as of April 2005 that cementing the post-2001 wells to surface was not 100% successful, but only 80% successful**. Mr. Tracy testified at the TLD hearing that Claimant was aware that Respondents had decided to use canola oil to deal with the subsequent corrosion issue that arose in May 2002 (Exhibit R-81, p. 15, and R-116, p. 8). **Mr. Al Humidy confirmed at the TLD hearing that he was aware that there was a second corrosion issue that arose after 2001**.*

(...)

740. The fact that Claimant has raised the inadequately cemented wells claims as claims for breach of a continuing duty of Respondents to abide by Articles 8.1 and 8.2 of the PSA, Good Oilfield Practice and good faith, by keeping the wells in optimal working order and disclosing to Claimant their failure to do so, does not have an impact on the Arbitral Tribunal's analysis. As stated in the Commentary on Article 14(1) of the International Law Commission's Articles on the Responsibility of States for Internationally Wrongful Acts, "[a]n act does not have a continuing character merely because its effects or consequences extend in time. It must be the wrongful act as such which continues." (Exhibit RL-152, p. 60, para. 6). Here, Respondents' wrongful act was the drilling of the post-2001 wells, without achieving 100% cementation. That act occurred at a specific point in time and the failure to keep those wells in optimal working order and to inform Claimant of that failure is only a consequence of the initial wrongful act, which does not lead to the creation of a new breach every day that the initial wrongful act is not remedied.

741. Consequently, the Arbitral Tribunal finds that Claimant's inadequately cemented wells claims in respect of all wells drilled prior to 22 March 2010 are time-barred in accordance with the three-year limitation period under Article 10.2 of the UNIDROIT Principles, except in relation to the one inadequately cemented well that was drilled on Block 14 after 22 March 2010, considering that Claimant was aware or ought to be aware of the facts underlying its inadequately cemented wells claims since April 2005 at the latest and that the Standstill Agreement that interrupted the running of that limitation period was concluded on 22 March 2013". [392] [emphasis added and internal citations omitted].

[392] Partial Award, paras. 734, 736, 740, 741.

404. In other words, in the Partial Award, the Tribunal found that the Claimant's production wells claims (first well design claims and inadequately cemented wells claims) were time-barred, except in relation to one inadequately cemented well drilled after 22 March 2010.

405. The Tribunal reached the above conclusion for the following reasons. In relation to the wells constructed under the first design, the Tribunal concluded that the Respondents successfully demonstrated that the Claimant "*was informed in 2001 that corrosion had been found in the old wells and that cement repairs would be carried out to restore casing integrity*".[393] In relation to the wells constructed under the third version of the GDP, the Tribunal ruled that "*Mr. Al Humidy confirmed at the TLD hearing that he was aware* [since April 2005] *that there was a second corrosion issue that arose after 2001*".[394]

406. The Tribunal recalls that, in the OSoC, the Claimant not only advanced a design claim, but also argued that the Respondents were required to repair the corrosion from which these wells were suffering,[395] and that in the Partial Award, the Tribunal specifically identified the claims that were time-barred, and went as far as enumerating the paragraphs in which those claims were advanced, as follows:

> "*(v) The majority of the Arbitral Tribunal decides that the following claims of Claimant are time-barred in accordance with the limitation periods under Article 10.2 of the UNIDROIT Principles:*
>
> *(a) Inadequately cemented wells claims* ***(SoC, paras. 146-207)****, except in relation to the one inadequately cemented well that was drilled on Block 14 after 22 March 2010*".[396] [emphasis added].

407. Paragraphs 146 to 207 of the OSoC represented the entire section of the production well claims, including both the design claim, and the failure to repair corrosion claim.[397]

408. This notwithstanding, the Claimant argues that its current claim cannot be time-barred since the Tribunal's analysis in the Partial Award was based on the assumption that there was a wrongful act when the wells were drilled; and that by contrast, its current claim is not based

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[393] Partial Award, para. 721. The Claimant confirms this finding in its ASoC, para. 250, SoRDCC, para. 372 c, and cites Exhibit R-59, PowerPoint presentation entitled "PEPA Presentation", dated 11 November 2011, to that effect.

[394] Partial Award, para. 736. The Claimant confirms this finding in its ASoC, para. 252, and cites Exhibit R-116, PowerPoint presentation entitled "Masila Casing Integrity Update", dated 3 April 2005, to that effect.

[395] OSoC, paras. 148, 171, 180-184; ASoC, paras. 217, 241, 277-279.

[396] Partial Award, para. 910 (v).

[397] The claims in relation to the need to repair corrosion were addressed in the following paragraphs of the OSoC: "148, 171, 180-184". The Tribunal ruled that the claims set forth under paragraphs 146 to 207 were time-barred.

on the design of the wells.[398] The Tribunal cannot accept this distinction, which it finds artificial in light of the substance of the Claimant's claims as presented to the Tribunal.

409. Indeed, the Partial Award addressed both design and repair issues. In other words, the Tribunal not only analyzed when the Claimant was aware or ought to have been aware that the wells were not being constructed with a full layer of cement on the outer part of the production casing, but also determined when the Claimant was aware of the corrosion issues that were affecting the production wells, *i.e.*, when the general obligation to repair the wells would have arisen.

410. With respect to the scope of the Partial Award, and more precisely, what claims are not affected thereby, the Tribunal further refers to paragraphs 248 to 253, and 256 to 283, above where it sets out the effect of the Partial Award, in light of the *Addendum* and Decision. As the latter made clear, the Partial Award did not declare time-barred any claim based on duties and breaches arising on or after 22 March 2010, inasmuch as they were not a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010.[399]

411. Consequently, a two-prong test must be applied in order to determine whether the Claimant's claims are time-barred. Thus, they are not time-barred if; (i) they are based on duties and breaches arising on or after 22 March 2010; and (ii) they are not a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010.

412. Before analyzing the two-prong test, the Tribunal recalls the following provision of its *Addendum* and Decision:

> *"It is of course on Claimant to establish that those claims for breach do indeed relate to duties and breaches arising on or after 22 March 2010 and not to Respondents' duties and original wrongful acts that existed before 22 March 2010, in relation to which the Arbitral Tribunal's findings in the Partial Award have res judicata effect".*[400]

a. First prong of the time-bar test:

413. The Claimant argues, in relation to the first prong of the test, that "*these claims are not time-barred because they are ones for breach of obligations which obligations arose, and which breaches occurred, on and after 22 March 2010*".[401]

414. By contrast, the Respondents contend that the breach of the obligation to keep the wells in good working order "*is simply the continuation of the same alleged continuing breach that*

[398] Claimant's PHB (first round) 2019, para. 95.
[399] *Addendum* and Decision, paras. 116-118.
[400] *Addendum* and Decision, para. 120.
[401] Claimant's PHB (first round) 2019, para. 89; SoRDCC, para. 89.

arose when these wells were originally designed and constructed"[402] and that the Claimant "*has never contested that it knew of the corrosion issue that arose in 2001 in relation to the Block 14 wells*".[403]

415. The Tribunal notes, as developed in paragraphs 405 to 409 above, that corrosion was found in 2001,[404] as was concluded in the Partial Award.[405] On the other hand, it is clear that new corrosion took place after 22 March 2010. The fundamental issue to decide is therefore to what extent the Respondents had to proceed to repairs, taking into consideration the decisions taken in the Partial Award.

b. Second prong of the time-bar test:

416. The issue here is to determine, taking into consideration the Partial Award, what were the Respondents' remaining obligations after 22 March 2010. The Tribunal considers that it was the obligation to maintain the wells in good working order as required by Article 8 of the PSA. Taking into consideration the Partial Award, this obligation could not be an obligation –that was time-barred– to restore the integrity of the wells, as proposed by the Claimant, that is, redo the full cementing of the wells, but taking into consideration the existing design and construction, to maintain the wells in good working order, that is, in the first place, to repair the wells in case of new deteriorations, and in particular of casing leaks. This obligation has been recognized by the Respondents,[406] and that is indeed what they allege to have done.

417. The issue to address is therefore to what extent the Respondents have duly fulfilled their obligation after 22 March 2010.

418. The Claimant answers this question in the negative. It argues that, by the end of the PSA the production well casings had failed, or were expected to fail imminently. However, according to the Claimant, this had not been detected because the Respondents did not pressure test all the wells in 2011. [407] The Respondents dispute this and contend that in 2011 they pressure tested all the wells that required to be pressure tested based on their testing and repair program.[408] The Tribunal also notes that the argument according to which the Respondents failed to pressure test the production wells in 2011 was first raised by the Claimant during the final hearing.

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[402] Respondents' PHB (first round) 2019, para. 86.
[403] Respondents' PHB (first round) 2019, para. 43.
[404] ASoC, paras. 250, 252; Exhibit R-59, PowerPoint presentation entitled "PEPA Presentation", dated 11 November 2001; Exhibit R-116, PowerPoint presentation entitled "Masila Casing Integrity Update", dated 3 April 2005.
[405] Partial Award, paras. 721, 736.
[406] ASoC, para. 264; SoRDCC, para. 384; Claimant's PHB (first round) 2019, paras. 32, 84-86; Exhibit C-427, Internal emails from Bob Stephens re Repair issue, dated 19 September 2011.
[407] Claimant's PHB (first round) 2019, para. 114.
[408] Respondents' PHB (first round) 2019, para. 91.

419. Moreover, the Claimant does not argue that **specific** production wells were found to be leaking, or to be damaged, or that they were not repaired by the Respondents. The Claimant limits itself to a generic allegation.

420. The Tribunal notes in this respect that:

- The Claimant has admitted that in the seven years after PetroMasila hand over operations, only nine casing failures have occurred in Block 14 *i.e.,* one percent of the wells on Block 14, and five percent of all the blocks in operation;[409]
- As confirmed by the Sands' Schedule relied upon by the Claimant, PetroMasila's view in 2014 –having the benefit of Mr. Sands' first report– was that only three wells required repairs,[410] and no evidence has been submitted that these wells have been repaired;
- It also appears that in the seven years after PetroMasila took over Block 14, it has only allegedly undertaken repairs in twelve wells. No proof has however been submitted that these works had been performed. The only evidence presented by the Claimant indeed consists of cost estimates.[411]

421. The only evidence of lack of repairs by the Respondents is contained in Mr. Tracy's admission that the Respondents should have repaired six wells which failed prior to the PSA's expiry:

> *"Q. If we look at the top of the page, we'll see that there are six wells in relation to which repairs were outstanding. And we see that because the "Action required" column says "repair" or "abandon", "suspend" and then four of them "repair". Those are wells in which casing leaks were identified by Nexen during the PSA, but which weren't repaired, aren't they?*
> *A. The last well on that list, Tawila 45, was in the last stages of its repair on December 17. So we've kind of counted that as repaired. The ones above it were not repaired during the PSA.*
> *Q. Those were loose ends at the end of PSA on any view, weren't they?*
> *A. They were. They were on the servicing schedule for January."*[412] [emphasis added].

422. The Tribunal observes that this list of six wells that required repairs includes only four production wells in which the Respondents identified severe corrosion after 22 March 2010:

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[409] Respondents' PHB (first round) 2019, para. 113.
[410] Respondents' PHB (first round) 2019, para. 114; C-196, Tab 58, All Block 14 wells cement tops.
[411] Respondents' PHB (first round) 2019, para. 117; C-444, Petromasila's Repairs.
[412] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 190, lines 8-21.

(i) Deelun 1; (ii) Camaal 10; (iii) S Hemiar 01; and (iv) E Sunah 01.[413] The remaining two wells are a VPS and a produced water disposal well, which are not part of this claim.[414]

423. The Tribunal will examine in the following subsection the merits of the Claimant's claim to repair certain production wells by the end of the PSA.

c. Conclusion

424. The Tribunal finds that the Claimant has been unable to demonstrate the existence of an independent obligation for the Respondents to deliver the assets, including the wells, in good working order, at the expiry of the PSA, at handover.

425. The only basis for the Claimant's claim can be the obligation under Article 8 of the PSA, and in accordance with Good Oilfield Practice to keep the wells in good working order during the life of the PSA.

426. In this respect, the Tribunal considers that the obligation to **prevent** corrosion issues, arose when corrosion was found in 2001, and is the same obligation before and after 22 March 2010. Thus, the Tribunal finds that it is time-barred according to the decisions taken in the Partial Award[415] and the *Addendum* and Decision.[416]

427. Indeed, what the Claimant claims in reality is for the Respondents to **restore the integrity** of the wells, that is, to cement them all the way as they should allegedly have done at the time of their drilling to **prevent corrosion**. This is clear from its submissions:

> "*As the Ministry made clear in its ASoC, the Contractor's breaches did not just occur at the time the wells were designed and drilled (if those designs were deficient), but rather there is an **ongoing duty** to maintain the integrity of all of the wells throughout the lifecycle*".[417] [emphasis added].

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[413] Exhibit, R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011. The Respondents identified that the following wells were leaking in 2011: Camaal 10, S Hemiar 01, and E-Sunah 01. The Respondents further identified that Deelun 1 was leaking on 22 July 2010, Exhibit R512, CNPY Excel Spreadsheet "Wellbore Integrity Status ALL Masila Wells", dated 17 December 2011, row 124.

[414] Exhibit, R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011. The list of six wells included Haru-8 VPS and Tawila 45 PM/PWD. The first one is a VPS well, which will be addressed on the VPS section of the Award, and the latter is a produced water disposal well, for which no claim is advanced in this arbitration. The Tribunal has understood both acronyms as identically presented in the Parties' experts reports (1EXR of Mr. Sands, para. 66 and 1 EXR of Mr. Hilbert, para. 7.10).

[415] Partial Award, paras. 732, 741.

[416] *Addendum* and Decision, paras. 116-118.

[417] SoRDCC, para. 344.

"There is a great deal of documentary and witness evidence on the record which confirms the existence of ***the Contractor's ongoing duties*** *to maintain the integrity of the wells. The over-arching point is that the Contractor's well integrity programme, introduced and implemented from 2005–2011, was an explicit recognition that the Contractor had* ***ongoing maintenance obligations/obligations*** *and had to take all necessary precautions to prevent environmental damage and pollution, which required them to maintain the integrity of the wells*"[418] [emphasis added].

428. However, this claim is definitely time-barred. Except for the only production well drilled after 22 March 2010, the only remaining obligation of the Respondents after that date was to maintain the wells in good working order, that is, to correct the new deterioration of the condition of assets that occurred for the first time after 22 March 2010 and were not continuation of breaches that occurred before 22 March 2010, and within these limits, proceed to repairs in the case of casing leaks. This is an obligation that the Respondents have recognized, and this is also what they have done, except in relation to four production wells, as will be determined below.

3. The merits of the Claimant's claim to repair certain production wells by the end of the PSA

429. The Tribunal will therefore consider the merits of the production well claim in relation to: (i) one production well that was drilled after 22 March 2010; (ii) four wells which allegedly required to be repaired in 2011; and (iii) will address the Claimant's allegations concerning the insufficiency of the repairs performed by the Respondents

a. The production well drilled after 22 March 2010

430. The Claimant argues that five production wells were drilled after 22 March 2010.[419] By contrast, the Respondents contend that only one production well was drilled after 22 March 2010, i.e., Camaal 104.[420]

431. The Tribunal recalls that the issue was decided in the Partial Award after considering both Parties' submissions and pleadings in the first hearing. The Tribunal ruled that there was only one production well which was drilled after 22 March 2010.[421] The decision was confirmed in the *Addendum* and Decision as follows:

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[418] Claimant's PHB (first round) 2019, para. 83.
[419] SoRDCC, para. 411
[420] Cross-examination of Mr. Sands, Transcript of the final hearing, day 4, p. 79 lines 4-17; 2WS of Mr. Tracy, para. 51, footnote 85; C-196, Tab 58, All Block 14 wells cement tops, pp. 10, 21, general row 643 of the document, and row 49 of each individual page.
[421] Partial Award, para. 910 (v) (a).

"*Ex abundanti cautela, the Arbitral Tribunal agrees with Respondents' position that Claimant had the opportunity to rebut Respondents' evidence on the number of wells drilled after 22 March 2010 and the number of inadequately cemented wells that were drilled after 22 March 2010, but failed to do so*".[422] [emphasis added and internal citations omitted].

432. The Claimant does not argue particularly that Camaal 104 had a failure, or that it required repairs. The Claimant's argument is that the production casing of this well (referring to all the wells in general that were under the same circumstances) was not fully cemented and thus needed to be repaired.

433. In contrast, the Respondents contend that: (i) Camaal 104 was constructed under the sixth version of the GDP which provided full cementation to surface; (ii) there is no evidence of corrosion; and (iii) PetroMasila considered, before the commencement of the arbitration, that this well did not require repairs.[423]

434. First, the Tribunal notes that the Claimant's expert, Mr. Sands, has confirmed that Camaal 104 was drilled according to the sixth version of the GDP:

"*Were you aware that it was the contractor's much more recent well design, GDP6, that was used for the drilling of Camaal 104?*
A. Yes".[424]

435. Mr. Sands has never criticized the sixth version of the GDP[425] as being prone to corrosion. This was confirmed during his cross-examination:

"*Q (...) This is the well design, Members of the Tribunal, that started to be used in the later years, GDP6, and we see it's a very considerable document, and of the 116 pages I'm going to turn your attention to page 15. Pagination is at the top, page 15, which talks of cement design. We'll see there under the heading "9 and 5 eighths intermediate production casing", reference to the 9 and 5 eighths casing string cemented with, at this point, LiteCRETE cement lead slurry to surface, yes?*
A. Yes, I can see that.
Q. So this later design did prescribe cementing to surface using LiteCRETE cement, yes?
A. It did.
Q. So your essential criticisms of the GDP2 and earlier GDPs are not relevant to the wells designed pursuant to GDP6, like this one, yes?

[422] *Addendum* and Decision, para. 110.
[423] Respondents' PHB (first round) 2019, para. 83.
[424] Cross-examination of Mr. Sands, Transcript of the final hearing, day 4, p. 80 lines 8-11.
[425] 1EXR of Mr. Sands, para. 80; ASoC, para. 239.

A. That's correct".[426] [emphasis added].

436. This is of paramount importance,[427] because the Claimant has repeatedly argued that the cause of the corrosion was that the production casing was not cemented to the surface.[428]

437. Second, the Claimant has not argued or adduced evidence to demonstrate that Camaal 104 presented corrosion issues which required to be repaired.

438. Third, the Tribunal considers that the Respondents have sufficiently demonstrated that, in 2014, PetroMasila was of the view that Camaal 104 did not require any repairs. Indeed, during his cross-examination Mr. Sands testified:

> "*Q. And under the heading "PE specialist", which is the next column in green, we see two sub columns which says "Wells repaired" and "Well required repair", yes?*
> *A. Correct.*
> *Q. Now, if we just run our finger down the "Well required repair" document, Mr Sands, this is a document generated in 2014 by PetroMasila, although they refer to it as the Sands schedule. It's notable to me that we see "Well repairs required" with an entry "No no no no" again and again and again. Do you see that?*
> *A. I do.*
> *Q. And that means no repair required according to what was filling in this table, yes?*
> *A. Yes*".[429] [emphasis added].

> "*Q. Okay, that's fine. Let's go back to our favourite Camaal 104 well, which is page 10. You'll see highlight -- well, it's number 643 on page 10, you'll see the number 643, Camaal 104. It tells us when it was drilled, July 2010, which is why it was after the 22 March 2010 date, Members of the Tribunal. And if we work our way all the way across, we need to find out the various entries for Camaal 104 that pertains to whether it was requiring repair according to PetroMasila, yes? I'm going to ask you, if you turn to page 21, you'll see around about line 49, I'm representing to you that that is the continuation of the Camaal 104 line, and our friends opposite will correct me if I'm wrong about this.* ***But if we work our way all the way across to the "Well requires repair" column, we see a no, don't we?***
> *A. Was that a question to me?*
> *Q. Yes.*
> *A.* ***Yes, we do****.*
> *Q. What we do know, Mr Sands, is that* ***the Ministry's PetroMasila has not only indicated that it only saw three wells requiring repair a year into this arbitration, but it has actually***

[426] Cross-examination of Mr. Sands, Transcript of the final hearing, day 4, p. 80 line 15 to p. 81 line 7.
[427] SoRDCC, paras. 343-344.
[428] SoRDCC, paras. 353, 377; Claimant's PHB (first round) 2019, para. 104; 2EXR of Mr. Sands, para. 26.
[429] Cross-examination of Mr. Sands, Transcript of the final hearing, day 4, p. 110 lines 4-17.

adopted an approach to well management that is entirely consistent with that by only repairing those wells that failed pressure containment test, yes?
*A. **I believe that's the case***".[430] [emphasis added].

439. The exhibit referred to during Mr. Sands's cross-examination (initially presented by the Claimant as an exhibit to Mr. Sands' first expert report), marks Camaal 104 as a well that did not require repairs by the PSA's expiry.[431]

440. In light of the above, the Tribunal dismisses the Claimant's claim in relation to Camaal 104.

b. The four production wells that allegedly failed in 2011

441. The Claimant argues that the Respondents recognized during the final hearing that they had the obligation to repair six production wells which failed in 2011. The Respondents have remained silent in this regard.

442. The Tribunal notes in the first place that the Respondents' witness, Mr. Tracy, acknowledged during his cross-examination that the Respondents should have repaired six wells which failed prior to the PSA's expiry:

"Q. If we look at the top of the page, we'll see that there are six wells in relation to which repairs were outstanding. And we see that because the "Action required" column says "repair" or "abandon", "suspend" and then four of them "repair". Those are wells in which casing leaks were identified by Nexen during the PSA, but which weren't repaired, aren't they?
*A. The last well on that list, Tawila 45, was in the last stages of its repair on December 17. So we've kind of counted that as repaired. **The ones above it were not repaired during the PSA.***
*Q. **Those were loose ends at the end of PSA on any view, weren't they?***
*A. **They were.** They were on the servicing schedule for January."*[432] [emphasis added].

443. However, reviewing the document which was referred to at the final hearing, the Tribunal is convinced that two of the six wells were not production wells.[433] Haru 8 VPS is a VPS well, and Tawila 45 PM/PWD is a produced water disposal well.[434] The four production wells

[430] Cross-examination of Mr. Sands, Transcript of the final hearing, day 4, p. 112 line 2 to p. 113 line 3.
[431] C-196, Tab 58, All Block 14 wells cement tops, pp. 10, 21, general row 643 of the document, and row 49 of each individual page.
[432] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 190, lines 8-21.
[433] Exhibit R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011, item 1.
[434] Exhibit R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011, item 1. The Tribunal has understood both acronyms as identically presented in the Parties' experts reports (1EXR of Mr. Sands, para. 66 and 1 EXR of Mr. Hilbert, para. 7.10).

which the Respondents should have repaired before the PSA's expiry are: (i) Deelun 1; (ii) Camaal 10; (iii) S Hemiar 01; and (iv) E Sunah 01.[435]

444. Having reviewed the evidence in the record, the Tribunal is persuaded that Camaal 10, and S Hemiar 01, are wells that PetroMasila claims it repaired after the PSA's expiry.[436]

445. On the other hand, PetroMasila has not itself listed Deelun 1 and E Sunah 01 as wells that were repaired, or wells that required repairs.[437] However, Mr. Tracy's admission that these wells failed in 2011, and should have been repaired by the Respondents, carries more weight than PetroMasila's own record.

446. Therefore, the Tribunal agrees with the Claimant that the Respondents should have repaired four production wells at the PSA's expiry, on account of corrosion issues that had been identified in 2011 under Article 8 of the PSA.

c. Were the repairs otherwise made by the Respondents after 22 March 2010 satisfactory?

447. The Claimant argues that in breach of Articles 8 and 18.1(b) of the PSA, the wells were not in good working order in so far as the well integrity program devised by the Respondents was not implemented during 2011. On the other hand, the Respondents contend that there is no evidence that they have failed to follow their corrosion management program. Furthermore, they argue that if the Claimant's fallback position is that such a program was following Good Oilfield Practice, the costs to implement it after the PSA's expiry should be borne by PetroMasila.

448. The Claimant argues that the Respondents were in default of their well integrity program as: (i) they failed to pressure test the production wells in 2011; (ii) they had to repair the wells with known casing perforations in 2011; (iii) they failed to install cathodic protection to all wells; and (iv) they failed to renew the canola oil annually.

449. As a preliminary remark, the Tribunal agrees with the Respondents that the Claimant raised for the first time a USD 29,553,471 fallback claim in its post hearing brief.

450. In any case, the Tribunal will dismiss the Claimant's fallback claim for the reasons set forth below.

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[435] Exhibit R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011, items 2-6.

[436] C-196, Tab 58, All Block 14 wells cement tops. Camaal 10, p. 1, general row 35, p. 12, row 35; S Hemiar 01, p. 1. row 26, p. 12, row 26.

[437] C-196, Tab 58, All Block 14 wells cement tops. Deelun 1, p. 1, general row 11, p. 12, row 11; E Sunah 01, p. 1. row 1, p. 12, row 1.

451. First, the allegation that the Respondents did not pressure test all the production wells in 2011 was raised by the Claimant for the first time at the hearing. The Claimant has the burden of proof of this allegation and did not satisfy it.

452. Second, the Claimant has failed to demonstrate that the wells were not in good working order.

453. As stated by the joint expert report of Messers Jewell, Catterall and Cline (both Parties' technical experts) "*it is the actual condition of the equipment that is important to determine that it is in good working order*".[438] In this sense, the Tribunal considers that even if the Respondents would have failed to implement their well integrity program in 2011 (including installation of cathodic protection and the use of canola oil), this alone would be the insufficient to demonstrate that the wells were not kept in good working order at the PSA's expiry.

454. There is simply no evidence for the Tribunal to conclude that the production wells were not in good working order. In relation to the actual condition of the production wells, the Claimant only adduced evidence regarding specific production wells that failed and needed to be repaired before the PSA's expiry. In this regard the Tribunal refers to its analysis in Sub-section (**I / B / 3 / b**) above, in paragraphs 441 to 446.

455. Third, the Tribunal notes that the majority of the damages claimed in the Claimant's fallback claim concern monitoring the production wells and replenishing the canola oil each year for seven years, since the PSA's expiry.[439] However, the Claimant has failed to submit any argument to explain why the Respondents should bear the costs of monitoring the production wells and replenishing the canola oil each year, for seven years, after the PSA's expiry.

456. In light of the above, the Tribunal dismisses the Claimant's fallback claim.

4. Quantum

457. The Tribunal will now quantify the damages to which the Claimant is entitled as a consequence of the Respondents' failure to repair four wells.

458. Mr. Sands, the Claimant's expert, has presented a repair program to rectify corrosion in the wells.[440] According to Mr. Sands, the repair costs amount to USD 1,052,000 per well.[441]

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[438] JEXR of Mr. Jewell, Mr. Catterall and Mr. Cline, p. 2.
[439] Claimant's PHB (first round) 2019, para. 658(b)(ii and iii).
[440] Exhibit C-196, Tab 28, Repair programme for wells with failed 95/8 production casing.
[441] 1EXR of Mr. Sands, para. 95; 2EXR of Mr. Sands, para. 77.

459. The Claimant argues that since the Respondents' expert did not put forward any alternative costing, Mr. Sands' evidence should be taken by the Tribunal as a reasonable estimate of the costs to repair the wells.[442] Furthermore, the Claimant submits that PetroMasila's cost estimates for repairing wells after the PSA's expiry cannot be compared to Mr. Sands' estimates as they did not follow all of Mr. Sands' proposed steps in his work program.[443]The Claimant also submits that PetroMasila's estimates were nonetheless substantial amounts, and were in line with the costs incurred by the Respondents in 2011.[444]

460. Mr. Hilbert, the Respondents' expert, opines that Mr. Sands' estimates are very high compared to the Respondents' estimates for the same work.[445]

461. The Respondents point out that Mr. Sands did not present a cost estimate for individual wells, but a generic repair program for 208 wells, which is not based on contracts, invoices, or any other verifiable information.[446] They add that PetroMasila's cost estimates are substantially lower than Mr. Sands' suggested amount.[447]

462. The Tribunal first notes that if PetroMasila repaired Camaal 10, and S Hemiar 01,[448] the Claimant should have been able to present evidence of the specific costs incurred to undertake those repairs. However, the costs incurred by PetroMasila are only broadly described by Mr. Binnabhan's first witness statement,[449] without the Claimant adducing evidence of incurred costs for individual wells.

463. Having reviewed the evidence in the record, the Tribunal finds that there is a 2012 cost estimate by PetroMasila regarding the casing leak repair of Camaal 10.[450] According to this document, PetroMasila estimated the repair costs of this well at USD 148,876.[451] The Tribunal considers that PetroMasila's specific cost estimates for Camaal 10, at the time of the relevant events, are more reliable than Mr. Sands' general cost estimates prepared for the purpose of this arbitration.

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[442] Claimant's PHB (first round) 2019, paras. 138-139.
[443] Claimant's PHB (first round) 2019, para. 140 a.
[444] Claimant's PHB (first round) 2019, para. 140 b.
[445] 1EXR of Mr. Hilbert, para. 7.13 c. The Respondents have not presented their own estimates for the Tribunal to make the comparison.
[446] Respondents' PHB (first round) 2019, para. 115 c.
[447] Respondents' PHB (first round) 2019, para. 115 d.
[448] C-196, Tab 58, All Block 14 wells cement tops. Camaal 10, p. 1, general row 35, p. 12, row 35; S Hemiar 01, p. 1. row 26, p. 12, row 26.
[449] 1WS of Mr. Binnabhan, paras. 90-95.
[450] Exhibit C-444, PetroMasila's Repairs, p. 146.
[451] Exhibit C-444, PetroMasila's Repairs, p. 146.

464. While the steps taken by PetroMasila were not the same as the ones proposed by Mr. Sands, the Tribunal is satisfied that PetroMasila chose what it considered to be the best option to address the casing leak, and the cost of such repairs represents a good measure of the damages to which the Claimant is now entitled.

465. Therefore, the Tribunal finds the Claimant's claim in relation to Camaal 10 founded, in the amount of USD 148,876.

466. The Tribunal will now determine the cost of repairing the other three wells, namely: Deelun 1, S Hemiar 01, and E Sunah 01.

467. For these wells, as for the Camaal 10 well, the Claimant has only submitted Mr. Sands' repair estimate of USD 1,052,000 per well,[452] which has been criticized by the Respondents. However, the Respondents have not put forward an alternative calculation.

468. At the final hearing, Mr. Sands' testified as follows:

> *"Q. It's very different from your round number of a million a well, isn't it?*
> *A. I just need to take some time to see whether they've done the same work.*
> *Q. Well, it's repair work that PetroMasila thought was appropriate for that well?*
> *A. Yes, for that particular well.*
> *Q. What that suggests to us is you don't just come up with round numbers and apply it to 311 wells, isn't that right?*
> *A. Yes, I think the -- every well is different and --*
> *Q. Indeed. So let me ask you --*
> *A. So if I can just – MS SABBEN-CLARE: Please let him finish.*
> *A. Yes. Every well is different but there is not the opportunity for me as an expert witness to look through 311 wells. You know, I simply don't have there sufficient information or agreement with other people when I do look at what needs to be done to agree that work scope. The cost that I have put in is a general repair procedure which will take the well through to replacement of isolation on the outside of the current production casing, because I believe that's required and it also allows for re-perforation -- sorry, re—it allows for a casing string to be run inside the current casing string.*
> *Q. You're not in a position to give a reliable cost estimate for each of the individual wells that you're proposing should be reworked, are you?*
> *A. For each individual well, no. No this is a blanket work programme which I've suggested and, you know, the thing to do with any well is to take it on its merits, look at what needs doing and do that, and, who knows, you might find some wells need more doing to them than I've already quoted."* [453] [emphasis added].

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[452] 1EXR of Mr. Sands, para. 95; 2EXR of Mr. Sands, para. 77.
[453] Cross-examination of Mr. Sands, Transcript of the final hearing, day 4, p. 122, line 13 to p. 122, line 22.

469. The Tribunal considers that, taking into consideration that the Claimant's claim was initially for 208 wells, individual calculations per well would have been fairly burdensome for the Claimant's expert to undertake. It is common practice in international arbitration to address large quantum issues as general estimates, insofar as the process to obtaining such amount is reliable.

470. In this sense, the Tribunal recalls a further extract of Mr. Sands' cross-examination, in relation to his cost estimates:

> "*Q. And we have a breakdown of time that various tasks will take and then, if we look at the second page, this is the one page that the ministry has offered in support of its proposition that each well, if it were to be repaired in the way you said, would cost just over 1 million and this is how you arrive at your figure of just over 1 million per well, yes?*
> *A. That's correct.*
> *Q. Mr Sands, these are just numbers on a page, aren't they?*
> *A. Well, clearly they've been put on a page. I don't understand what you're trying to --*
> *Q. Well, there's no reference to actual estimates, actual contracts or actual invoices, is there?*
> *A. No, this is my -- this is my estimation of what it will cost to do. This is not related to the contracts in Yemen and not related to prices in 2011. They were done in 2014*".[454]
> [emphasis added].

471. However, having reviewed the referenced document, the Tribunal notes that it does not refer to contracts, or invoices. Indeed, the three-page document does not have a single reference to support the conclusion that repairing each well would cost USD 1,052,000.[455]

472. The Tribunal therefore considers that Mr. Sands' general cost estimate is not satisfactory evidence for demonstrating the cost of repairs of the production wells.

473. On the other hand, at the final hearing the Respondents mentioned two examples of PetroMasila's own cost estimates for repairing production wells that were leaking. These were documents put in the record by the Claimant. They show that, in August 2012 PetroMasila estimated that the repairs of Heijah 6 would amount to USD 643,515,[456] and, in January 2013, calculated that the repairs of Tawila 10 would amount to USD 262,097.[457] Within the same exhibit, PetroMasila estimated the cost of repairing the production well Tawila 46 in September 2013, at USD 216,313.[458]

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[454] Cross-examination of Mr. Sands, Transcript of the final hearing, day 4, p. 118, line 19 to p. 119, line 10.
[455] Exhibit C-196, Tab 28, Repair programme for wells with failed 95/8 production casing.
[456] Exhibit C-444, Petromasila's Repairs, p. 108.
[457] Exhibit C-444, Petromasila's Repairs, p. 1.
[458] Exhibit C-444, Petromasila's Repairs, p. 78.

474. An additional indication of the cost of repairing production wells can be found in the Respondents' WPB for 2011, where the Respondents anticipated a cost of USD 325,000[459] for a casing.

475. Although the Tribunal acknowledges that the cost to repair each well, may well vary, it considers that PetroMasila's estimates are in line with the amounts estimated by the Respondents in 2011.

476. Therefore, the Tribunal decides that the Claimant's claim in relation to Deelun 1, S Hemiar 01, and E Sunah 01, is duly justified, in the amount of USD 325,000, for each well.

II. Cost of installing production packers in 260 wells

477. Under the following sub-sections, the Tribunal will analyze: (A) whether the Production Packers claim is a separate head of claim from the claim to repair 208 production wells; (B) whether the Production Packers claim is time-barred pursuant to the Partial Award; and (C) the merits of the Claimant's Production Packers claim in relation to a specific production well.

A. Whether the Production Packers claim is a separate head of claim

478. According to the Respondents, the Claimant argued for the first time at the final hearing that this was an independent head of claim, and not a part of the Claimant's Production Wells claim referred to in Sub-section (I) above. On the other hand, the Claimant contends that although its Production Packers claim is based on the same facts as such claim, it insists that this has always been a separate head of claim.

479. The Tribunal considers that the Claimant's Production Packers claim is a separate head of claim, as explained below.

480. From a formal point of view, since the OSoC, the Claimant pleaded the Production Packers claim (in paragraphs 205 to 207 of the OSoC) within the same section of its Production Wells claim (in paragraphs 146 to 204 of the OSoC) running from paragraphs 146 to 207 of the OSoC. However, even the table of contents was clear that these were two separate heads of claim denominated "*(1) Inadequate cementing of the 9 5/8" production casing / inadequate barriers between Hydrocarbons and the Acquifers*",[460] as appears below:

[459] Exhibit R-213, 2011 Work Program and Budget, dated 16 October 2010, p. 26.
[460] OSoC, p. 2.

481. Moreover, in its ASoC, the table of contents continued to show two separate heads of claim denominated "*(1) Inadequate cementing of the 9 5/8" production casing / inadequate barriers between Hydrocarbons and the Aquifers*",[461] as appears below.

482. Furthermore, the Claimant's claims initially related to different production wells.

483. On the one hand, the Production Wells claim has always referred to the alleged need to repair 208 production wells as explained in Sub-section (**I**) above. As evidenced by the expert report of the Claimant's expert, Mr. Sands:

> "*Given that of the 311 wells with inadequate cementation on the outside of the 9 5/8" diameter production casing are susceptible to catastrophic corrosion, 52 had been repaired by the end of the PSA, 30 were classed as suspended and 21 as hydrocarbon abandoned at the end of the PSA,* ***repair is potentially required on around*** *(311 minus 52 minus 30 minus 21 =)* ***208 wells***".[462] [emphasis added].

[461] ASoC, p. 2.
[462] 1EXR of Mr. Sands, para 96.

484. The Production Packers claim initially related to 374 production wells as evidenced by the expert report of Mr. Sands, and the OSoC:[463]

> *"In my opinion, all hydrocarbon production wells where a single barrier exists should be converted to dual barrier wells to mitigate environmental risk.* ***I believe that this applies to 374 oil production wells*** *with a total budget cost of 374 x US$ 0.272 MM = US$ 101.728 MM".*[464] [emphasis added].

485. Finally, as explained in paragraph 290 above, the Claimant's Production Wells claim is based on Article 8 (including Good Oilfield Practice) and Article 18.1(b) of the PSA. On the contrary, as detailed in paragraph 299 above, the Claimant's Production Packers claim is based solely on Good Oilfield Practice.

486. The Tribunal is therefore convinced that the Production Wells claim and the Production Packers claim are separate heads of claim.

B. Whether the Production Packers claim is time-barred pursuant to the Partial Award

487. Having concluded that the Production Packers claim is an individualized head of claim, the Tribunal's first task is to determine whether it is time-barred pursuant to the Partial Award.

488. The Tribunal observes that the Claimant argued in its ASoC, that its Production Packers claim had not been explored or addressed during the threshold legal defenses stage of the arbitration.[465] On the other hand, the Respondents argue that the Production Packers claim was dismissed by the Partial Award, with the exception of the claim concerning one production well that was drilled after 22 March 2010.[466]

489. The Tribunal considers that the Production Packers claim is time-barred pursuant to the Partial Award, except in relation to one production well that was drilled after 22 March 2010, as will be explained below.

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[463] Although initially the Claimant's Production Packers claim related to 374 production wells as shown in paragraph 207 of its OSoC, in the ASoC, it narrowed the claim to 260 production wells.
[464] 1EXR of Mr. Sands, para 252.
[465] ASoC, para 286, footnote No. 190.
[466] SoRjSRCC, para. 119; Respondents' PHB (first round) 2019, para. 123.

490. In the first place, the Respondents explicitly argued during the initial phase of the arbitration that the claim in relation to the production packers was time-barred:[467] [emphasis added].

ANNEX A TO STATEMENT OF REPLY ON RESPONDENTS' THRESHOLD LEGAL DEFENCES DATED 4 MARCH 2016

SCHEDULE OF THRESHOLD LEGAL DEFENCES

Claim by the Ministry	Amounts claimed by the Ministry	Time-bar (UNIDROIT Principles 3-year limitation period and 10-year long stop limitation period[1])	Waiver and estoppel	Settled pursuant to the 1996 Settlement Agreement
"Inadequately cemented wells" Wells drilled in accordance with the Contractor's first well design The Ministry alleges that the Contractor failed to cement the full length of the 9 5/8" production casing on 206 wells, in breach of Articles 8.1 and 8.2 of the PSA. Wells drilled in accordance with subsequent well designs that were allegedly inadequately cemented The Ministry alleges that the Contractor failed to cement adequately 105 wells that were intended to be drilled in accordance with subsequent well designs, in breach of Articles 8.1 and 8.2 of the PSA.	US$272,500,000 for future repair costs." US$124,480,000 for abandonment costs of allegedly "inadequately cemented wells" (overlap with abandonment claim). US$101,728,000 to fit 374 wells with downhole production packers. At least US$32,000,000 for water lost from the Mukalla aquifer.	First well design claims, that relate to wells drilled between 1992 and 6 June 2001 in accordance with a design the Ministry has been aware of since 1992, expired at the latest: • Taking account of the Ministry's knowledge, on 6 June 2004. • Regardless of the Ministry's knowledge, on 6 June 2011. In any event, the claims came into existence more than 3 years before the filing of the Request for Arbitration. Subsequent "inadequate cementing" claims, that relate to wells drilled from mid-2001 onwards which the Ministry was aware contemporaneously were "inadequately cemented," have expired: • Regardless of the Ministry's knowledge, for those wells drilled prior to 23 November 2003. • Taking account of the Ministry's knowledge, for those wells drilled prior to 23 November 2010. No wells were "inadequately cemented" after 23 November 2010. As a result, all claims relating to the "inadequately cemented wells" are time-barred.	The Ministry evinced a clear intention not to exercise its rights in respect of practices it was aware of and did nothing about since at least 1992 (with respect to the first well design wells) and at least 2001 (with respect to the subsequent wells allegedly "inadequately cemented"). In reliance on the Ministry's inaction, the Contractor continued its practices to its detriment. As a result, all claims for the "inadequately cemented wells" have been waived, and the Ministry is estopped from raising them.	See the comments under 'Abandonment of wells' below, which apply equally to the Ministry's claim for "increased" abandonment costs as part of its "Inadequately cemented wells" claims.

491. Additionally, the Partial Award specifically dealt with the Production Packers claim under the header "(i) inadequately cemented wells claims (SoC, paras. 146-207)", as can be evidenced below:

> "***The Parties are in agreement that the following claims of Claimant are potentially subject to Respondents' time-bar defence: (i) inadequately cemented wells claims (Soc, paras. 146-207)***, *(…)*
> *According to Claimant, Respondents' well designs GDP1 and GDP2 that were used until mid-2001 and their inadequately implemented subsequent well designs breached Articles 8.1 and 8.2 of the PSA because the wells affected were not cemented over the full length of the 9 5/8" production casing, thereby failing to isolate and protect against pollution the Mukalla and Harshiyat aquifers (EXR of Mr. Sands, paras. 77-97). (…), Claimant seeks as repair costs for 208 wells US$ 272.5 million,* ***as costs for fitting 374 wells with downhole production packers US$ 101,728,000*** *and as costs of lost water approximately US$ 32 million to US$ 73 million that are increased annually at a rate of US$ 2 million to US$ 4.5 million*".[468] [emphasis added and internal citations omitted].

[467] SoRTLD, p. 111.
[468] Partial Award, paras. 694-696.

492. Furthermore, the Partial Award explicitly ruled that the Production Packers claim was time-barred, except in relation to one production well, as explained in the following paragraphs.

493. The Tribunal recalls that the Claimant argued the need to install the production packers as a consequence of the Respondents' alleged breach to properly cement the production wells. The Claimant pleaded its case in the OSoC as follows:

> "***As discussed above, the Contractor's deficient well design means that there is only a single barrier of steel between hydrocarbons and the aquifers***. *The position is illustrated by Figure 25 of Mr. Sands's report.*
> ***This, too, requires remedial work***".[469] [emphasis added].

494. Taking into consideration that the Production Wells claim, and the Production Packers claim related to issues of design regarding the production wells, the Tribunal analyzed them both under the header "(i) inadequately cemented wells claims (SoC, paras. 146-207)", as explained in paragraph 491 above.

495. The Tribunal analyzed such header in the Partial Award under the following categories: (i) first well design claims, in relation to the wells which were built before the third version of the GDP; and (ii) inadequately cemented wells claims, regarding the wells constructed after the third version of the GDP.

496. In relation to the first well design claims, the Tribunal refers to the following extracts of its Partial Award:

> *"706. With respect to Claimant's first well design claims, the Arbitral Tribunal agrees with Respondents' position that Claimant was aware or ought to be aware of the facts underlying its claims, i.e. that Respondents' GDP1, GDP1.1 and GDP2 did not provide for cement across the Mukalla and Harshiyat aquifers, since mid-2001 at the latest. (...)*
>
> *710. In light of that long lapse of time and of any evidence to the contrary adduced by Claimant, the Arbitral Tribunal is satisfied that the unsigned letter dated 25 May 1992 proves that Respondents did send their GDP1 to PEPA's predecessor in 1992. (...)*
>
> *717. Considering the above and Claimant's failure to rebut Respondents' evidence in respect of the contemporaneous transmittal of their GDP2 to Claimant or PEPA, the Arbitral Tribunal concludes that Respondents did send their GPD2 to Claimant or PEPA around mid-2001 at the latest. (...)*
>
> *728. In light of the foregoing, the Arbitral Tribunal finds that Respondents have successfully established that Claimant was aware or ought to be aware of Respondents'*

[469] ASoC, paras 286-287.

initial practice of not cementing the 9 5/8" production casing to surface since mid-2001 at the latest. (...)

732. Consequently, the Arbitral Tribunal finds that Claimant's first well design claims are time-barred in accordance with the three-year limitation period under Article 10.2 of the UNIDROIT Principles, considering that Claimant was aware or ought to be aware of Respondents' initial cementing practice since mid-2001 at the latest and of the relationship between the first well design and the corrosion issue since November 2001 at the latest and that the Standstill Agreement that interrupted the running of that limitation period was concluded on 22 March 2013."[470] [emphasis added and internal citations omitted].

497. In relation to the inadequately cemented wells claims, the Tribunal refers to the following extracts of its Partial Award:

"734. Claimant has also brought forward a claim in respect of a further 105 wells that were drilled by Respondents after 6 June 2001 and that were inadequately cemented, despite having been drilled in accordance with an adequate well design (EXR of Mr. Sands, paras. 81 and 83). (...)

736. The Arbitral Tribunal further notes that, after having been referred to Respondents' draft presentation of 1 April 2005, Mr. Al Humidy confirmed at the TLD hearing that Claimant knew as of April 2005 that cementing the post-2001 wells to surface was not 100% successful, but only 80% successful. Mr. Tracy testified at the TLD hearing that Claimant was aware that Respondents had decided to use canola oil to deal with the subsequent corrosion issue that arose in May 2002 (Exhibit R-81, p. 15, and R-116, p. 8). (...)

740. The fact that Claimant has raised the inadequately cemented wells claims as claims for breach of a continuing duty of Respondents to abide by Articles 8.1 and 8.2 of the PSA, Good Oilfield Practice and good faith, by keeping the wells in optimal working order and disclosing to Claimant their failure to do so, does not have an impact on the Arbitral Tribunal's analysis. (...) Here, Respondents' wrongful act was the drilling of the post-2001 wells, without achieving 100% cementation. That act occurred at a specific point in time and the failure to keep those wells in optimal working order and to inform Claimant of that failure is only a consequence of the initial wrongful act, which does not lead to the creation of a new breach every day that the initial wrongful act is not remedied.

741. Consequently, the Arbitral Tribunal finds that Claimant's inadequately cemented wells claims in respect of all wells drilled prior to 22 March 2010 are time-barred in accordance with the three-year limitation period under Article 10.2 of the UNIDROIT Principles, except in relation to the one inadequately cemented well that was drilled on Block 14 after 22 March 2010, considering that Claimant was aware or ought to be

[470] Partial Award, paras. 706, 710, 717, 728, 732.

aware of the facts underlying its inadequately cemented wells claims since April 2005 at the latest and that the Standstill Agreement that interrupted the running of that limitation period was concluded on 22 March 2013". [471] [emphasis added and internal citations omitted].

498. In essence, in the Partial Award, the Tribunal found that the Claimant's Production Packers claim (both first well design claims and inadequately cemented wells claims) was time-barred, because the Claimant was aware, or ought to be aware about the design issues before 22 March 2010, except in relation to one inadequately cemented well drilled after 22 March 2010.

499. The Tribunal did not only rule that the complete inadequately cemented wells claim (of which the Production Packers claim was part of) was time-barred, but went as far as enumerating the paragraphs of the claims that had been time-barred, as follows:

"*910 For the foregoing reasons:*
(…)
(v) The majority of the Arbitral Tribunal decides that the following claims of Claimant are time-barred in accordance with the limitation periods under Article 10.2 of the UNIDROIT Principles:
(a) ***Inadequately cemented wells claims (SoC, paras. 146-207)****, except in relation to the one inadequately cemented well that was drilled on Block 14 after 22 March 2010;*".[472] [emphasis added].

500. Taking into consideration that the Production Packers claim was pleaded in paragraphs 205 to 207 of the OSoC, it is clear that the Partial Award explicitly ruled that this claim was time-barred.

501. Having concluded that the Production Packers claim was time-barred pursuant to the Partial Award, the Tribunal's second task is to determine whether the Claimant has amended its Production Packers claim after the issuance of the Partial Award, and if such amendment may have an effect on the issue of time-bar.

502. The Tribunal considers that the minor amendment in the Claimant's Production Packers claim is not sufficient to evade the rulings of the Partial Award, for the reasons set forth below:

503. First, unlike in the Production Wells claim set forth in Sub-section (**I**) above, the Claimant has not argued that it is not requesting damages for the design breach, but for the Respondents' failure to repair the wells on or after 22 March 2010. Therefore, the Tribunal

[471] Partial Award, paras. 734, 736, 740, 741.
[472] Partial Award, para. 910.

does not need to analyze the *Addendum* and Decision under this claim, like it did in Sub-section (I) above.

504. Second, the basis of the Production Packers claim, –before and after the Partial Award– has remained the deficient well design. It is clear from the redline version of the ASoC that the deficient well design is the basis of this claim, as presented below:[473]

> *Need for Dual Barrier*[190]
>
> 286. ~~205.~~ As discussed above, the Contractor's deficient well design means that there is only a single barrier of steel between hydrocarbons and the aquifers. The position is illustrated by Figure 25 of Mr. ~~Sand~~Sands's report.
>
> 287. ~~206.~~ This, too, requires remedial work. All of the production wells needed to be fitted with a downhole production packer, to create a second barrier.[~~115~~191]
>
> 288. ~~207.~~ The cost of this work is approximately US$0.272m per well~~, or US$101,728m to fit all of the 374 production wells with suitable barriers.~~[~~116~~]

505. This is further confirmed by Mr. Sands' first expert report, which the Claimant has used in order to support its Production Packers claim, as follows:

> "247. *Further to the previously described potential for aquifer contamination, there is also risk of fresh water aquifer contamination during production* ***as a result of the unsuitable well design adopted by the Operator****. This would be a direct breach of the PSA requirement to 'prevent damage to any adjacent Petroleum, water-bearing formations, and other natural resources'. (…)*
>
> *250.* ***Had the potential for aquifer contamination been rigorously risk assessed at the well design stage, I believe than an un-monitored single barrier would not have been proposed****. Typically, a second tested barrier can be provided by a downhole production packer. (…)*
>
> *251.* ***In my opinion, this was a further failing in a well designed for production operations with a high potential for aquifer contamination****. I believe this element of the design was driven by cost. I estimate that the cost saved was in the order of US$ 0.040 MM per well, which includes the cost of a packer and inhibited brine".*[474] [emphasis added].

[473] OSoC, paras 205-207; ASoC, paras. 286-288.
[474] 1EXR of Mr. Sands, paras. 247, 250-251.

506. The Tribunal notes that Mr. Sands' second expert report –which was issued after the Partial Award–, further demonstrates that the basis of this head of claim is the well design, and that the remedy is to modify such design:

> "*94. **The well design which incorporates a production packer** with inhibited fluid in the annulus above the packer provides a void (the space between the production tubing and production casing or 'production annulus') to monitor for barrier failure and additionally provides mitigation against internal corrosion of the production casing.*
>
> *95. **I recommend that production packers are installed to provide a second barrier**, and a void between the barriers to allow monitoring of the barrier integrity*".[475] [emphasis added].

507. Third, the only amendment to this claim after the issuance of the Partial Award, was the number of production wells to which it relates to, which is insufficient to affect the ruling regarding time-bar.

508. The Tribunal notes that before the Partial Award, the claim concerned the installation of production packers in 374 production wells.[476] Mr. Sands, in his first expert report at paragraph 66, opined that there were 374 production wells in Block 14. Therefore, the claim (that was dismissed) related to the totality of the production wells.

509. The Claimant in its ASoC, (after the Partial Award) simply narrowed its claim, which thereafter concerned only the installation of production packers in 260 production wells.[477]

510. The Tribunal considers that given that the Partial Award expressly ruled that the claim regarding the installation of production packers in 374 production wells was time-barred, except in relation to one production well that was drilled after the 22 March 2010, the mere fact of narrowing the number of production wells to which the claim relates to, does not affect the ruling on time-bar.

511. In light of the above, the Tribunal confirms that the Claimant's Production Packers claim is time-barred pursuant to the Partial Award, except in relation to one production well that was drilled after 22 March 2010.

C. Merits of the Production Packers claim in relation to Camaal 104

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[475] 2EXR of Mr. Sands, paras. 94-95.
[476] OSoC, para. 207.
[477] ASoC, paras. 288-289.

512. As explained in detail in paragraphs 430 to 440 above, the production well that was drilled after 22 March 2010 is Camaal 104.[478]

513. Before entering into the merits of the claim, the Tribunal must determine if Camaal 104 is part of the 260 production wells concerning the Claimant's Production Packers claim. The Tribunal is convinced that indeed it is the case since Claimant's Production Packers claim concerns the 208 production wells relating to the Production Wells claim analyzed in Sub-section (**I**) above,[479] plus an additional 52 production wells which were repaired by the Respondents, but in which production packers were not installed.[480]

514. As evidenced in Sub-section (**I / B / 3**) above, Camaal 104 is one of those 208 production wells included in the Production Wells claim.

515. Having established that Camaal 104 is part of the 260 production wells concerning the Claimant's Production Packers claim, the Tribunal will now analyze the merits of the claim in relation to this well.

516. The Claimant argues that the installation of production packers is necessary to create a dual barrier between the hydrocarbon bearing reservoirs and aquifers with drinking quality water, as a matter of Good Oilfield Practice.[481] By contrast, the Respondents contend that it is not even an industry practice for the production wells to have production packers.[482]

517. Mr. Hilbert, the Respondents' expert, opines that he has experience and knowledge of operations, procedures, and regulations in relation to packer-less production wells in Texas, California, Louisiana, Pennsylvania, West Virginia, Saudi Arabia, and Oman.[483] On the other hand, Mr. Sands, the Claimant's expert, admits that he has experience regarding production wells without production packers, but opines that the practice must be considered in light of the geology of Block 14.[484]

518. The Tribunal observes that the two main arguments raised by the Claimant to support the need for production packers in the production wells are that: (i) if the 9 5/8" casing were to leak due to corrosion, the oil could flow up, and contaminate the aquifers; and (ii) if the 9

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[478] Cross-examination of Mr. Sands, Transcript of the final hearing, day 4, p. 79 lines 4-17; 2WS of Mr. Tracy, para. 51, footnote 85; C-196, Tab 58, All Block 14 wells cement tops, pp. 10, 21, general row 643 of the document, and row 49 of each individual page; *See also,* Partial Award, para. 741, footnote No. 144.
[479] ASoC, para. 288.
[480] ASoC, para. 289.
[481] SoRDCC, para. 394.
[482] Respondents' PHB (first round) 2019, para. 126.
[483] 1EXR of Mr. Hilbert, para. 7.53.
[484] 2EXR of Mr. Sands, para. 91.

5/8" casing were to leak, drinking quality water would flow from the aquifers down into the hydrocarbon reservoir with irreversible loss of water until the casing was repaired.

519. Under the following sub-sections, the Tribunal will analyze both arguments as follows: (1) potential contamination of aquifers; and (2) potential loss of water.

1. Potential contamination of aquifers

520. According to the Claimant, the lack of production packers in the production wells, which means that there is a single barrier between the oil reservoir and the aquifers, creates a risk of polluting them, which is not Good Oilfield Practice.

521. Mr. Sands, the Claimant's expert, opines that without production packers in the production wells, the oil would flow up the 9 5/8" production casing, –as evidenced in Figure 2, at paragraph 297 above– and therefore, if there were a leak in the casing due to corrosion, the oil could leave the casing, and pollute the aquifers (Umm er Radhuma,[485] Mukalla, and Harshiyat).[486]

522. The Tribunal considers that the Respondents have successfully demonstrated that this cannot occur in the vast majority of the wells in Block 14, and specifically in Camaal 104, due to the specific geology in Block 14, as will be explained below.

523. Both Parties' experts agree that the key concept to determine whether or not the oil could potentially flow from the reservoir up through the production casing is the hydrostatic head pressure.[487]

524. As explained by the Respondents' environmental expert, GSI Environmental, fluids will only flow from a higher to a lower hydrostatic head pressure:

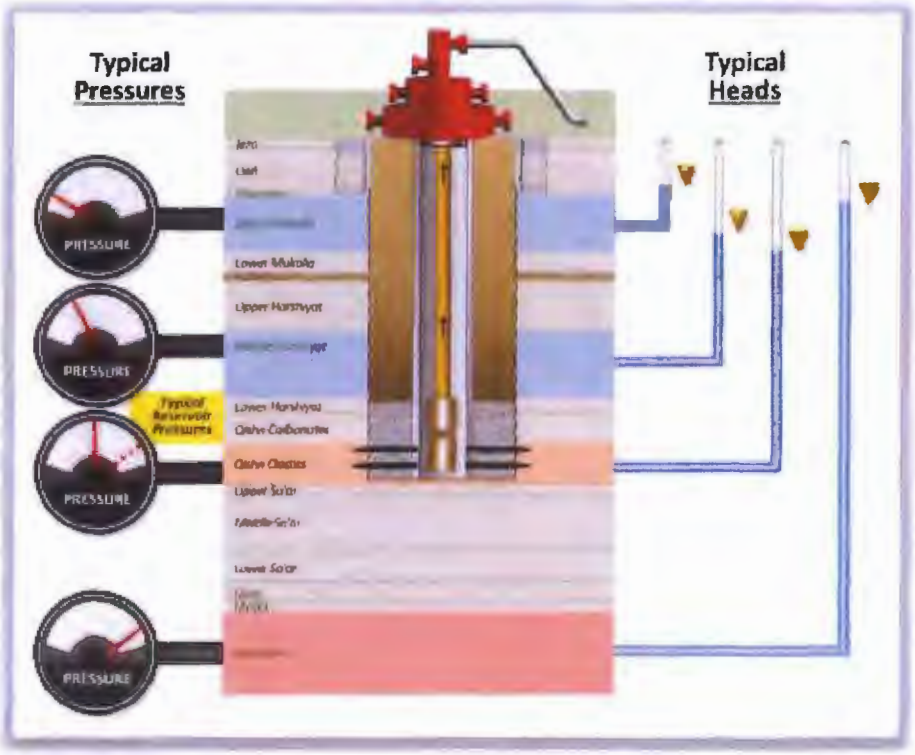
> "*The concept of hydrostatic head, which is an expression of both fluid pressure and the elevation of the formation that contains the fluid, is discussed in Section 3.0.* ***The significance of this concept, with respect to this discussion, is that fluids will always flow from higher to lower hydrostatic heads.*** *If the aquifer hydrostatic heads are higher than the producing formation hydrostatic heads, then fluids cannot and would not flow from the producing zone to the aquifer*".[488] [emphasis added].

[485] Regarding this aquifer, there was in fact a double barrier. Outside of the production casing there was the surface casing reinforcing the protection to this aquifer. 1EXR of GSI Environmental, p. 247.
[486] 1EXR of Mr. Sands, section 8.1.
[487] 1EXR of Mr. Hilbert, para 7.54; 2EXR of Mr. Sands, para. 92; 1EXR of GSI Environmental, para. 247.
[488] 1EXR of GSI Environmental, p. 48.

525. The Tribunal notes that after a well by well analysis, the Respondents' expert determined that typically the hydrostatic head pressure in Block 14 is higher in the aquifers than in the oil reservoir, as evidenced in Figure 6 below. Therefore, the oil would not be able to flow up the production casing into the aquifers even if there were a leakage due to corrosion.

Figure 6. Typical Hydrostatic Heads in Block 14.[489]

Exhibit 3.10: Pressure and Hydrostatic Head Conditions in Block 14.



526. The Tribunal further notes that Mr. Sands admitted that this analysis was correct at the final hearing, as evidenced below:

> *"Q. So in relation to wells that have been constructed, would you agree with me that you wouldn't expect liquids from a lower hydrostatic head zone to rise up into a higher hydrostatic head zone. You'd agree with that, wouldn't you?*
> *A. (Pause)* ***I think in the context of the producing wells that's true****.*
> *(...)*
> *Q.* ***Well, you've just accepted, haven't you, that water doesn't flow up hill, to use a crude characterisation of my question. There is no way that oil will rise all the way to the top, defying basic hydrostatic head****, even if you didn't have a pump in the well making sure that that wasn't going to occur anywhere.* ***Isn't that right?***

[489] 1EXR of GSI Environmental, para. 247.

A. It would rise to balance the formation pressure.
*Q. **And that formation pressure would take it to beneath -- as we've just seen from the typical from the hydrostatic head data that you have accepted -- beneath the Harshiyat aquifer, yes?***
*A. **I think in -- yes, I think that's probably correct, yes***".[490] [emphasis added].

527. After considering the typical geological conditions in Block 14, and the Parties' experts' agreement in relation to the impossibility of the oil to flow up from the reservoir to the aquifers, the Tribunal will address the specificities of the well by well analysis performed by GSI Environmental.

528. The Tribunal observes that GSI Environmental concluded that:

"*Based on a well-by-well analysis of hydrostatic head conditions, we have determined that only 46 of the 300 wells (15%) exhibit production zone hydrostatic heads in excess of aquifer hydrostatic heads, such that leakage could even be possible. Of these 46 wells, only 8 have experienced corrosion issues at all and only 3 of these 8 have experienced corrosion at a depth below the hydrostatic head of the production zone, such that leakage could occur and only one of these could have affected the Mukalla Aquifer*".[491] [emphasis added].

529. In essence, out of all of the inadequately cemented wells,[492] which do not have a double barrier, only 46 have a hydrostatic head pressure that would have allowed the oil to flow upwards; out of those 46, only 8 have experienced corrosion issues; and out of those 8, only 3 have experienced corrosion at a depth that could have allowed the oil to get out of the production casing.

530. However, the Tribunal considers of paramount importance that during Mr. Sands' cross-examination, he admitted that all of those 3 wells had been repaired by the Respondents.[493]

531. Furthermore, and in relation to Camaal 104 specifically, GSI Environmental has demonstrated that such well is not part of the 46 wells that have a hydrostatic head pressure that could allow the oil to flow upwards, and therefore, even if the 9 5/8" casing were to leak due to corrosion, the oil could not flow upwards and pollute the aquifers.[494]

532. In light of the above, the Tribunal considers that the Respondents have successfully established that the installation of production packers in the production wells in general, and in Camaal 104 in particular, was not required by Good Oilfield Practice.

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[490] Mr. Sands' cross-examination, Transcript of the final hearing, day 4, p. 69 lines 11 to 13.
[491] 1EXR of GSI Environmental, para. 16.
[492] 1EXR of GSI Environmental, para. 240.
[493] Mr. Sands' cross-examination, Transcript of the final hearing, day 4, p. 62 line 22 to p. 63, line 24.
[494] 1EXR of GSI Environmental, pp. 145, and 304 of the PDF.

2. Potential loss of water

533. According to the Claimant, the lack of production packers in the production wells could lead to drinking quality water flowing into the oil reservoir, with irreversible loss of water until the barrier was repaired, which is not Good Oilfield Practice.[495]

534. In relation to the potential water loss, for the avoidance of repetition, the Tribunal refers to its analysis under Sub-section (**III**) below, in which it concludes that there was no water loss in Block 14.

535. Additionally, regarding Camaal 104, the Tribunal refers to its reasoning in paragraphs 432 to 440, in which it concluded that there is no evidence that such well has ever experienced corrosion issues.

536. Given that the only reason to install production packers in the production wells was to avoid the water loss, which could have not occurred, and did not occur, the Tribunal considers that it was not required by Good Oilfield Practice.

537. In light of the above, the Tribunal dismisses the Claimant's Production Packers claim in relation to Camaal 104.

III. Loss of water from the Mukalla aquifer

538. Under the following sub-sections, the Tribunal will analyze: (A) whether the outcome of the Production Wells claim has an effect on the Loss of Water claim; and (B) whether there has been water loss from the Mukalla aquifer.

A. Whether the outcome of the Production Wells claim has an effect on the Loss of Water claim

539. After the issuance of the Partial Award, the Respondents argued that given that the Production Wells claim had been narrowed to a single production well that was drilled after 22 March 2010, the Water Loss claim should be narrowed proportionately, and only take into consideration the potential water loss from one well.[496]

540. In a similar sense, without admitting that the Production Wells claim had been narrowed to a single well, the Claimant recognized that the outcome of the Production Wells claim directly affects the Water Loss claim, as follows:

[495] SoRDCC, para. 397.
[496] ASoDCC, para. 181, footnote No. 255.

> *"This claim is for water lost down the open annuli of the unrepaired wells from March 2010 onwards. **The Ministry accepts that it only arises if and to the extent that the Tribunal accepts its case that the Contractor should have repaired the wells during 2010 and 2011** by squeezing cement to restore the barriers between the different aquifer formations as per its main case on well repairs. In other words, the Ministry relies on the same breach evidence as per well claims (i)".*[497] [emphasis added].

541. The Tribunal considers that the Parties' interpretation is reasonable. Taking into consideration that the potential water loss would be a direct consequence of the state of each production well, if the Tribunal did not find a breach regarding the actual state of the production wells, it cannot, therefore, find that there was water loss concerning such wells.

542. As evidenced in Sub-section **(I / B / 3)** above, out of the 208 production wells that were part of the Claimant's Production Wells claim, the Tribunal only granted the Claimant's claim in relation to four production wells: (i) Deelun 1; (ii) Camaal 10; (iii) S Hemiar 01; and (iv) E Sunah 01.

543. Therefore, the Tribunal will only analyze the Water Loss claim in relation to the aforementioned four production wells.

B. Whether there has been water loss from the Mukalla aquifer

544. The Claimant argues that given that the outer part of the production casing was not properly cemented, water from the Mukalla aquifer could have been flowing down to the Harshiyat aquifer, and being lost.[498] On the other hand, the Respondents contend that there has been no measurable water loss from the Mukalla aquifer.[499] GSI Environmental, the Respondents' expert, opines that the water level of the Mukalla aquifer has remained stable over the years.

545. After reviewing all of the evidence adduced by the Parties in this regard, the Tribunal is convinced that there is no measurable water loss from the Mukalla aquifer, less so, concerning only four production wells.

546. In the following sub-sections, the Tribunal will explain how: (1) there is no actual evidence of water loss from the Mukalla aquifer; and (2) even the theoretical calculations of the Parties' experts lead the Tribunal to conclude that there has been no water loss from the Mukalla aquifer.

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[497] Claimant's PHB (first round) 2019, para. 150.
[498] SoRDCC, para. 406; 1EXR of Mr. Sands, para 107.
[499] Respondents' PHB (first round) 2019, para. 101.

1. There is no actual evidence of water loss from the Mukalla aquifer

547. The Claimant's expert, Mr. Sands, relies on temperature logs installed in two production wells (Heijah 57 and Hemiar 31), to demonstrate that water may be flowing from the Mukalla aquifer into the Harshiyat aquifer.[500] Mr. Sands explained at the final hearing that the temperature log involves running an electrical wire down a well in order to measure the temperature of the well at different depths. He opines that an anomalous decrease in temperature at a certain depth might suggest that cooler water from Mukalla aquifer is flowing into the warmer Harshiyat aquifer.[501]

548. The Tribunal first notes that these temperature logs were not installed in any of the relevant four production wells to which this claim relates to, as referenced in paragraph 542 above.

549. Additionally, the Respondents were able to demonstrate at the final hearing that the temperature log installed in Heijah 57 does not show actual water loss from the Mukalla aquifer. The temperature log shows some communication between the Mukalla aquifer and the Fartaq aquitard, which separates the Mukalla from the Harshiyat aquifer, as evidenced in Figure 3 at paragraph 349 above. However, since the aquitard is a formation through which water cannot flow,[502] it is clear that no water was actually lost in this case.

550. The relevant excerpts of Mr. Sands cross-examination at the final hearing read as follows:

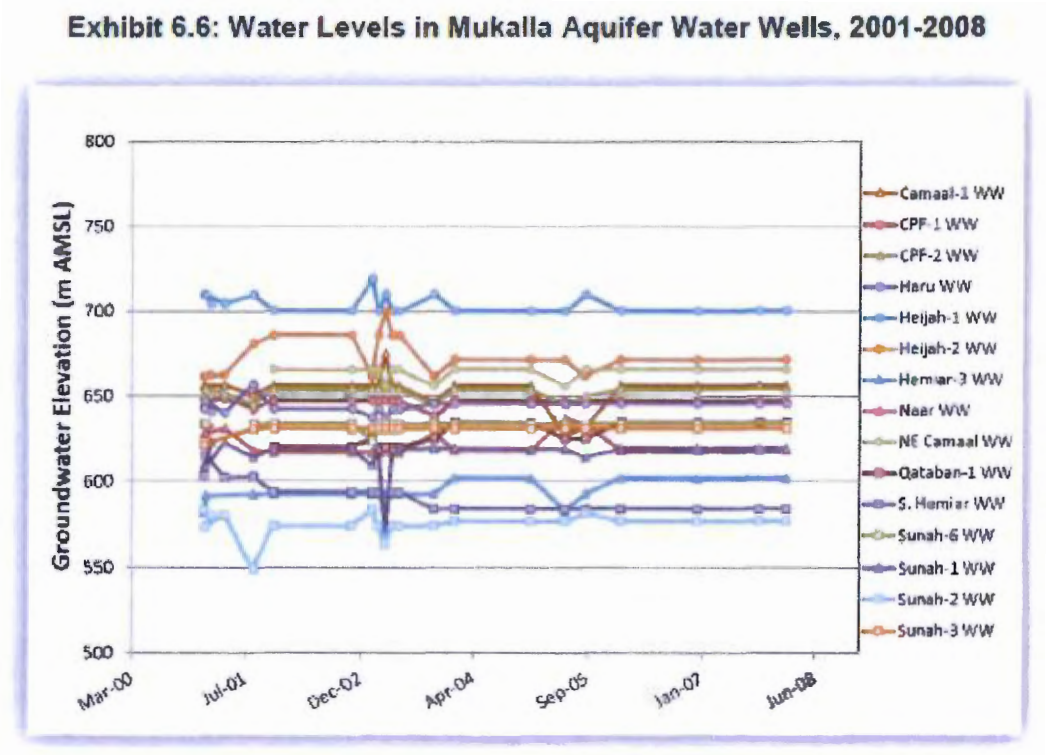
> "*Q. Let's take each one in term. **The Heijah 57 appears at exhibit C196, tab 30**, which is at tab 20 of this bundle. So tab 20 of this bundle. And we see a diagram a little bit like the diagram you showed us in your opening slides in relation to the Heija 57, under that we see the same of the slide, yes?*
> *A. Yes.*
> *(...)*
> *Q. **If we read his text under both of those two diagrams, you will see a paragraph which ends with the following sentence**, it's actually the penultimate sentence, it says -- well, there's talk of "... no hydraulic isolation outside the pipe. **There appears to be some local communication between the Mukala** [sic] **and Fartaq". Now, the Fartaq is the aquitard, isn't it?***
> *A. **It is**.*
> *Q. However **it does not extend into the Harshiyat. Do you see that?***
> *A. **I see that**.*
> *Q. Do you have any reason to suppose that that doesn't mean what it says?*
> *A. No, I don't*".[503] [emphasis added].

[500] 1EXR of Mr. Sands, paras. 102-111.
[501] Mr. Sands' cross-examination, Transcript of the final hearing, day 4, p. 90 lines 3 to 23.
[502] 1EXR of Mr. Sands, para. 21; 1 EXR of Mr. Hilbert, para. 6.10.
[503] Mr. Sands' cross-examination, Transcript of the final hearing, day 4, p. 91 line 2 to p. 93, line 4.

551. The Tribunal considers that one single temperature log showing an anomaly in the temperature of Hemiar 31 is insufficient to demonstrate that water is actually flowing out of the Mukalla aquifer into the four relevant production wells, less so into the 208 production wells that the Claimant initially claimed.

552. In addition to the above, the Tribunal considers that the Respondents have been able to demonstrate that the water level in the Mukalla aquifer has remained stable over the years, as evidenced in GSI Environmental's Report below:

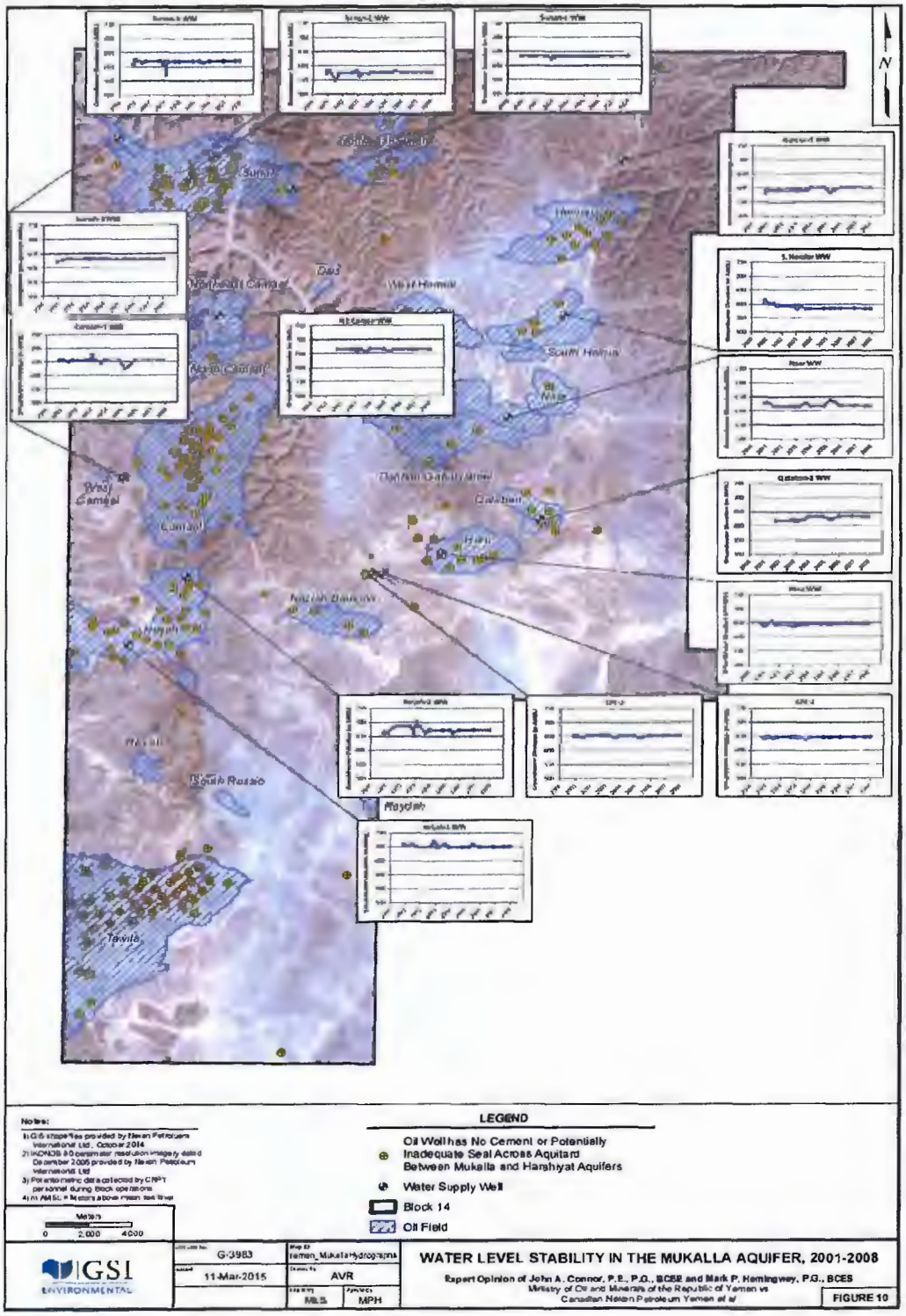
Figure 7. Water levels in the Mukalla aquifer[504]



553. Although this is merely a sample of 15 wells, they are located in strategic points to monitor the water level of the Mukalla aquifer across the Block 14, as shown in Figure 8 below.

[504] 1EXR of GSI Environmental, p. 77.

Figure 8. Water levels in the Mukalla aquifer – Samples taken[505]



[505] 1EXR of GSI Environmental, p. 178.

554. The Tribunal concludes that, the water level of the Mukalla aquifer has not decreased over time, showing that there has been no actual water loss.

555. In any case, the Claimant had the burden of proving the alleged water loss from the Mukalla aquifer, and failed to satisfy this burden.

2. Even the theoretical calculations of the Parties' experts lead the Tribunal to conclude that there has been no water loss from the Mukalla aquifer

556. Both Parties' experts have provided theoretical calculations of possible water loss from the Mukalla aquifer. On one hand, Mr. Larkin, the Claimant's expert, calculates that 33,870 m^3 of water would have been lost from the Mukalla aquifer every year, per well, or 7,000,000 m^3 of water from all the uncemented production wells.[506] On the other hand, GSI Environmental calculates that 40,000 m^3 of water could have been lost from the Mukalla aquifer every year in relation to all the uncemented wells.

557. The Tribunal observes that both Parties' experts agree that the annual recharge of the Mukalla aquifer amounts to 174,000,000 m^3 of water.[507] In other words, 174,000,000 m^3 of rainwater replenish the Mukalla aquifer every year.

558. As explained by the Respondents' expert, –and never rebutted by the Claimant– the Mukalla aquifer is full, and as a result of this annual recharge, approximately 68,000,000 m^3 of water are discharged into the sea.

559. In the words of the Respondents' expert:

> "***So we have the Mukala*** [sic]***. Every year natural processes, have nothing to do with man, put 174 million cubic metres into that aquifer. That's rainfall, infiltrating into the aquifer across a broad region****. Now, that aquifer stays full because it's not heavily used. This is not a super populated area. People do rely on groundwater very heavily, but there are just not that many people. So eastern Yemen, there's not heavy draws on this aquifer.* ***One of the results of that is that a very high portion of the water that's put into that aquifer by nature basically flows right across eastern Yemen and out to the Arabian Sea and is lost. Almost 70 million cubic metres per year is just lost to the ocean****.*
> *(…).*
> *But one key aspect that we don't want to lose track of is that the tub stays full.* ***The aquifer stays full even if this leakage is happening because it's already full to***

[506] 1EXR of Mr. Larkin, p. 23.
[507] 1EXR of Mr. Larkin, p. 23; 1EXR of GSI Environmental, para. 269.

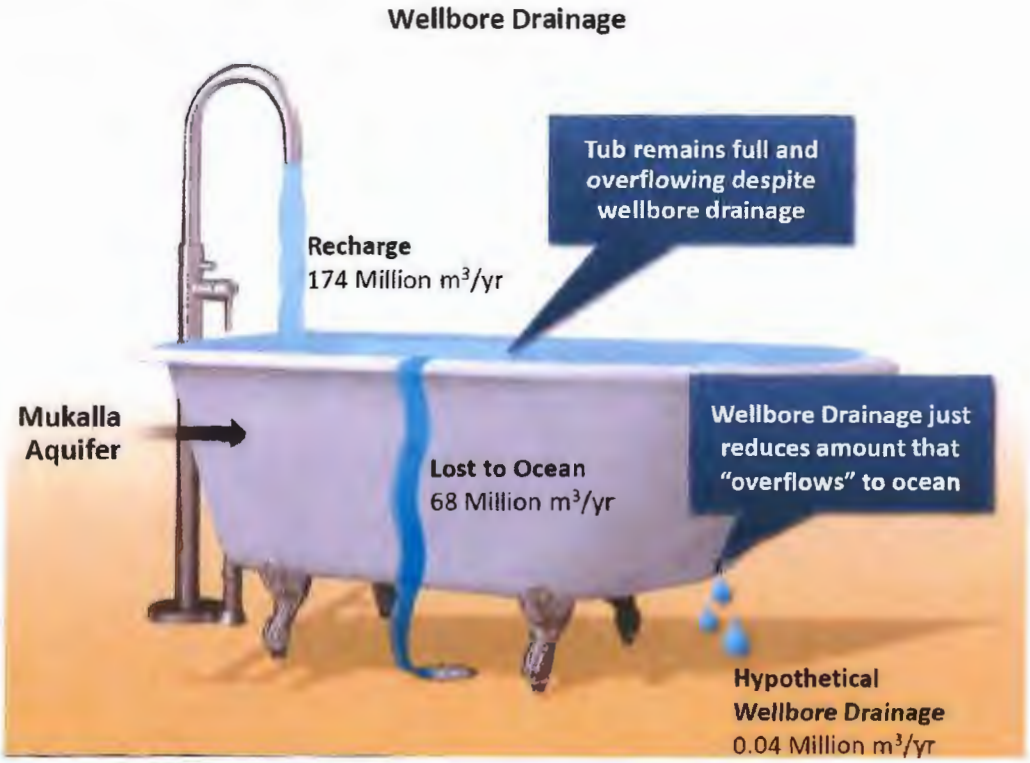
overflowing. It's overflowing to the ocean every year at a huge scale".[508] [emphasis added].

560. Taking into consideration the above, the difference in the experts' figures becomes irrelevant. Even if the Tribunal were to use the Claimant's highest estimate of 7,000,000 m³ of water for all of the production wells (or 135,480 m³ of water concerning only four production wells), each year the Mukalla aquifer is recharging with 174,000,000 m³ of water, therefore there is no actual loss suffered by the Claimant.

561. In any case, the hypothetical water loss from the Mukalla aquifer due to the uncemented production wells will only mean that less amount of water from the Mukalla aquifer is being lost to the ocean every year.

562. The Tribunal illustrates the point with the diagram presented by the Respondents' expert at the final hearing.

Figure 9. Water levels in the Mukalla aquifer – Samples taken[509]



[508] GSI Environmental Presentation, Transcript of the final hearing, day 4, p. 270 line 12 to p. 271, line 14.
[509] GSI Environmental Presentation, p. 48.

563. Therefore, even the theoretical calculations from the experts fail to demonstrate that the Claimant has suffered any loss.

564. In light of the above, the Tribunal dismisses the Claimant's Water Loss claim. The Tribunal notes that the Claimant's principal Water Loss claim requested in paragraph 658 a. iv) of its first round of post-hearing briefs, is word by word the same as the alternative Water Loss claim set forth in paragraph 658 b. iv of said submission. Therefore, the Claimant's alternative Water Loss claim is also dismissed.

IV. Cost of repairing the VPS wells

565. The Claimant has argued throughout the arbitration that: (i) **the Respondents' design of the VPS wells breached the PSA** because only a single barrier separates the produced water from the Umm er Radhuma aquifer;[510] (ii) the Respondents **failed to repair**, and consequently handed over, VPS wells with well integrity issues at the end of the PSA, in breach of Articles 8 and 18 of the PSA and Good Oilfield Practice;[511] and (iii) that, as at 22 March 2010, and at the end of the PSA, **the VPS wells were not in good working order**, in compliance with Good Oilfield Practice, and **did not prevent pollution**.[512]

566. The Claimant has further declared that it is not pursuing a claim for the design breach, but only a claim based on the Respondents' alleged failure to address the deterioration of the VPS wells.[513] The Claimant submits that pursuant to Article 8 (including Good Oilfield Practice) and Article 18.1(b) of the PSA, the Respondents should have repaired 42 VPS wells prior to the PSA's expiry.[514]

567. Under the following sub-sections, the Tribunal will determine: (A) the VPS well claim based on Article 8 of the PSA, and Good Oilfield Practice; and (B) the VPS well claim based on Article 18.1(b) of the PSA.

A. The Claimant's VPS claim based on Article 8 of the PSA and Good Oilfield Practice

568. The relevant parts of Article 8 of the PSA provide as follows:

> *"8.1 CONTRACTOR shall conduct Petroleum Operations diligently in accordance with rules as may be prescribed and in accordance with generally accepted standards of the petroleum industry. CONTRACTOR'S activities shall be designed to achieve the efficient and safe*

[510] OSoC, para. 229; ASoC, para. 295.
[511] SoRDCC, para. 412.
[512] Claimant's PHB (first round) 2019, para. 166.
[513] SoRDCC, paras. 415, 425.
[514] SoRDCC, para. 412; Claimant's PHB (first round) 2019, para. 166.

Exploration for, and production of, Petroleum and to maximize the ultimate economic recovery of Petroleum from the Contract Area. CONTRACTOR shall ensure that all materials, equipment and facilities used in Petroleum Operations comply with generally accepted engineering norms, are of proper and accepted construction, and are kept in good working order".[515]

"8.2 CONTRACTOR shall:
(a) take all proper measures, according to generally accepted methods in use in the oil industry, to prevent loss or waste of Petroleum above or under the ground in any form during drilling, producing, gathering and distributing or storing operations. MINISTRY has the right to prevent any operation on any well that it reasonably expects would result in loss or damage to the well or the field;
(b) prevent damage to any adjacent Petroleum, water-bearing formations, and other natural resources;
(c) prevent non-intentional entrance of water into Petroleum formations;
(d) take all necessary precautions to prevent pollution of or damage to the environment; [...]".[516]

569. The Claimant expressly states that its claim "*is based on the ground that the Contractor failed to act in accordance with good oilfield practice by failing to restore well integrity and failing to repair the VPS wells during and by the expiry of the PSA, rather than on the ground that the Contractor failed to design the VPS wells properly*".[517]

570. Under the following sub-sections, the Tribunal will: (1) determine whether the Claimant's VPS claim is the same as the Claimant's VPS claim pursued in the OSoC; (2) determine whether the Claimant's VPS claim is time-barred; and (3) analyze the merits of the Claimant's claim for the reparation of the Sunah 36 VPS well.

1. Whether the Claimant's VPS claim is the same as the VPS claim pursued in the OSoC

571. In its formulation, the Claimant's VPS claim in the OSoC appears to differ from the VPS claim pursued in the second phase of the arbitration. The original claim was based on the design of the VPS wells, with the Claimant complaining that only a single barrier separates the produced water from the Umm er Radhuma aquifer.[518] By contrast, in this second phase of the arbitration, the Claimant argues that the Respondents failed to repair the VPS wells during, and by the expiry of, the PSA.[519]

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[515] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.
[516] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.
[517] SoRDCC, para. 415.
[518] OSoC, para. 229; ASoC, para. 295.
[519] SoRDCC, para. 415.

572. It however appears that the Claimant's VPS claims, before and after the Partial Award are closely related. In its SoRDCC the Claimant argued that the "*consequence of this deficient design was the subsequent major corrosion in all the wells which resulted in the VPS well integrity being compromised and all the VPS wells needing to be repaired in order to restore the well integrity*".[520]

573. The Tribunal observes in the second place that the nature of the repairs sought by the Claimant is to change the VPS well design from a single barrier casing to a double barrier casing.[521] In its PHB, the Claimant argues that "*repairs were necessary to introduce a double barrier between the well contents and the surrounding environment*".[522]

574. Third, the Claimant relies heavily on Mr. Sands' expert report.[523] However, Mr. Sands does not refer to a single example of a VPS well casing that failed which was not repaired by the Respondents.[524] Instead he opines that the VPS design was flawed[525] and recommends "*that all VPS wells [*be*] repaired ahead of failure as soon as possible*".[526]

575. Fourth, the Claimant is not arguing that specific wells were found to be leaking, or damaged, and were not repaired by the Respondents at the PSA's expiry. By contrast, the Claimant's case, as it was advanced in the final hearing, and thereafter in its PHB, is based on the fact that "*the Contractor has no basis for saying that the VPS wells were in good working order at the end of the PSA despite their lack of a dual barrier*".[527] The Claimant further argues that the Respondents only pressure tested six out of 47 VPS wells in 2011 (to determine if repairs were required), and that "*unless and until you pressure test, you do not know if a well is leaking or requires a repair*".[528] Nevertheless, the Claimant requests the repair of 42 VPS wells.[529]

576. The Tribunal considers that, while the wording of the claim is different in the two phases of the arbitration, the Claimant has in fact maintained its design claim and tried to resuscitate it under a different formulation since: (i) it is requesting a repair program regarding 42 VPS well casings despite the lack of evidence of damages or failures; and, (ii) the repairs

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[520] SoRDCC, para. 424.
[521] Claimant's PHB (first round) 2019, paras. 169, 170.
[522] Claimant's PHB (first round) 2019, para. 166.
[523] Claimant's PHB (first round) 2019, para. 167.
[524] 1EXR of Mr. Sands, paras. 171-183; 2EXR of Mr. Sands, paras. 96-104.
[525] 1EXR of Mr. Sands, para. 177.
[526] 1EXR of Mr. Sands, para. 182.
[527] Claimant's PHB (first round) 2019, para. 180 a.
[528] Claimant's PHB (first round) 2019, para. 184 a.
[529] Claimant's PHB (first round) 2019, para. 183.

requested consist of a change in the design of the VPS well, from a single barrier casing to a double barrier casing.

577. Based on the considerations outlined above, the Tribunal finds that there is no difference of substance between, on the one hand, the Claimant's current VPS claim, and, on the other hand, Claimant's old VPS claim. They are one and the same claim.

578. The Tribunal therefore must determine if the Claimant's VPS claim based on Article 8 of the PSA and Good Oilfield Practice, is time-barred.

2. Whether the Claimant's VPS claim is time-barred

579. In its Partial Award, the Tribunal decided that the claim in relation to the Respondents' VPS design was time-barred:

> *"765. According to Claimant, Respondents' VPS design that used only a single barrier, the 13 3/8" steel casing, to separate the produced water from the Umm Er Radhuma aquifer was in breach of the PSA. Claimant's VPS design claims relate to 42 wells and seek repair costs in the amount of US$ 4,943,000 (EXR of Mr. Sands, paras. 171-183).*
>
> *770. In light of the above, the Arbitral Tribunal finds that the factual evidence already adduced with respect to Claimant's VPS design claims is sufficient to establish that Claimant was aware or ought to be aware of Respondents' VPS well design that used only a single metal barrier at the bottom of the VPS well since 25 November 2001. (...)*
>
> *772. Consequently, the Arbitral Tribunal finds that Claimant's VPS design claims are time-barred in accordance with the three-year limitation period under Article 10.2 of the UNIDROIT Principles, except in respect of the one VPS well that was drilled on Block 14 after 22 March 2010, considering that Claimant was aware or ought to be aware of Respondents' VPS design since 25 November 2001 and that the Standstill Agreement that interrupted the running of that limitation period was concluded on 22 March 2013".*[530] [emphasis added].

580. The Tribunal further refers to its observations on the effect of the Partial Award, in light of the *Addendum* and Decision, set forth in paragraphs 248 to 283, above. Therein, the Tribunal clarified that the Partial Award did not declare time-barred any claim based on duties and breaches arising on or after 22 March 2010, inasmuch as they were not a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010.[531]

581. On this basis, the Tribunal must apply a two-prong test in order to determine whether the Claimant's claims are time-barred. The Claimant's claims will not be time-barred if: (i) they

[530] Partial Award, paras. 765, 770, 772.
[531] *Addendum* and Decision, paras. 116-118.

are based on duties and breaches arising on or after 22 March 2010; and (ii) they are not a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010.

582. As mentioned in the *Addendum* and Decision:

> *"It is of course on Claimant to establish that those claims for breach do indeed relate to duties and breaches arising on or after 22 March 2010 and not to Respondents' duties and original wrongful acts that existed before 22 March 2010, in relation to which the Arbitral Tribunal's findings in the Partial Award have res judicata effect".*[532]

a. First prong of the time-bar test:

583. The Tribunal observes that the Parties have not submitted evidence, or put forward arguments showing the exact date on which the alleged obligation to repair the VPS well casings arose.

584. The Claimant argues that "*these claims are not time-barred because they are ones for breach of obligations which obligations arose, and which breaches occurred, on and after 22 March 2010*".[533] By contrast, the Respondents generally contend that the breach of the obligation to keep the wells in good working order "*is simply the continuation of the same alleged continuing breach that arose when these wells were originally designed and constructed*".[534]

585. The Tribunal is not in a position to determine whether the alleged obligation to repair the VPS well casings arose after 22 March of 2010 or not. However, in light of the Tribunal's determinations made under the second prong of the time-bar test below, no decision is necessary with regard to this issue.

b. Second prong of the time-bar test:

586. The Claimant argues that "*during 2008-2011, a great number of VPS wells had failed which in turn, put or should have put in question the well integrity of all the VPS wells*".[535] By contrast, the Respondents submit that the breach of the obligation to keep the wells in good working order "*is simply the continuation of the same alleged continuing breach that arose when these wells were originally designed and constructed*".[536]

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[532] *Addendum* and Decision, para. 120.
[533] Claimant's PHB (first round) 2019, para. 89.
[534] Respondents' PHB (first round) 2019, para. 133.
[535] SoRDCC, para. 432.
[536] Respondents' PHB (first round) 2019, para. 133.

587. As the Tribunal said in relation to the production wells, the issue here is to determine, taking into consideration the Partial Award, what were the Respondents' remaining obligations after 22 March 2010. The Tribunal considers that it was the obligation to maintain the wells in good working order as requested by Article 8 of the PSA. Given the decisions made in the Partial Award, this obligation could not be an obligation –that was declared time-barred– to restore the integrity of the wells, as proposed by the Claimant, that is, introduce a double barrier between the well contents and the surrounding environment, but taking into consideration the existing design and construction and the absence of dual barriers, to maintain the wells in good working order and in the first place, to repair the casing leaks.

588. In this respect, the Claimant invokes the fact that the Respondents would have acknowledged an independent obligation to repair the VPS wells casings and did not pressure test all the VPS wells in 2011.[537] These arguments are addressed below.

i. The Claimant's argument in relation to the WPBs:

589. According to the Claimant, the Respondents acknowledged having an obligation to repair several wells in their WPBs of 2009 (eighteen wells), 2010 (eighteen wells), 2011 (six wells), and also in the 2012 provisional WPB.[538] By contrast, the Respondents contend that the VPS repairs referenced in the WPBs were repairs to the VPS pumps, not the casings.[539] Additionally, the Respondents consider that a failure to carry out the work contemplated in a WPB is not a breach of the PSA;[540]

590. The Tribunal first notes that the 2009 WPB estimates "*18 VPS repairs*",[541] the 2010 WPB estimates "*18 VPS repairs*",[542] the 2011 WPB estimates "*6 VPS repairs*"[543] and the provisional 2012 WPB estimates to spent USD 136,155 in "*VPS repairs*".[544]

591. The wording of the WPBs is ambiguous as they do not specify if the repairs relate to the actual casing of the VPS wells. The Respondents argue that those repairs were for VPS pumps, not VPS casings.[545] This was further confirmed during the Respondents' witness, Mr. Tracy's cross-examination in the final hearing, as follows:

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[537] Claimant's PHB (first round) 2019, paras. 172-174.
.[538] SoRDCC, paras. 429, 431.
[539] 4EXR of Mr. Tracy, para. 48.
[540] SoRjSRCC, para. 188.
[541] Exhibit C-381, CNPY Block 14 2009 Work Program and Budget, dated 30 September 2008, p. 65.
[542] Exhibit R-351 Tab 7, 2010 Work Programme & Budget – Block 14, Masila Area, p. 66.
[543] Exhibit R-213, 2011 Work Program and Budget, dated 16 October 2010, p. 64.
[544] Exhibit C-382, Nexen email attaching the ABP 2012 Budget Plan, dated 4 September 2011, p. 2.
[545] 4EXR of Mr. Tracy, para. 48.

"I think you're confusing two things here. So the (sic) VPEPBS pumps were likely to fail. That budget category is for replacement of down hole pumps. And that's what was budgeted for, not casing repairs."[546]

592. The Tribunal had noted that Mr. Tracy's explanation that casing repairs were to be found under the label "*Expense Projects*" [547] in the WPBs. Reviewing the WPBs in detail, the Tribunal is persuaded by Mr. Tracy's explanation, and is convinced that although some general "casing repairs" appeared in the 2009-2011 WPBs under the "*Expense Projects*" label, there is no evidence of them being casing repairs related to VPS wells.[548] Furthermore, the Tribunal has not found a single casing repair for VPS wells in the provisional 2012 WPB.[549]

593. For these reasons, the Tribunal concludes that the Respondents did not acknowledge an obligation to repair VPS well casings in the WPBs of 2009-2012.

ii. The Claimant's argument in relation to the lack of pressure testing in 2011:

594. The Claimant argues that, if the Respondents had pressure tested all the VPS wells in 2011, they would have detected the failures found by PetroMasila in the following years.[550] By contrast, the Respondents contend that all of the VPS wells were pressure tested in 2011, and only three wells failed the test (Heijah 36 VPS, Tawila 65 VPS, and Tawila 83 VPS). The Respondents submit that all three wells were subsequently repaired between June and September 2011.[551]

595. The Claimant is not arguing that specific wells were found to be leaking, or damaged, and were not repaired by the Respondents at the PSA's expiry. The Claimant's case is based on its considerations that: (i) there is no evidence "*that the VPS wells were in good working order despite their lack of a dual barrier*";[552] (ii) the Respondents have "*not provided any evidence demonstrating that the VPS wells did not fail or that the VPS wells did not exhibit well integrity issues*";[553] and (iii) the Respondents only pressure tested six out of 47 VPS wells in 2011 (to determine if repairs were required), thus "*unless and until you pressure test, you do not know if a well is leaking or requires a repair*".[554]

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[546] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 217, lines 15-18.
[547] 4EXR of Mr. Tracy, para. 48.
[548] Exhibit C-381, CNPY Block 14 2009 Work Program and Budget, dated 30 September 2008, p. 34; Exhibit R-351 Tab 7, 2010 Work Programme & Budget – Block 14, Masila Area, p. 26; Exhibit R-213, 2011 Work Program and Budget, dated 16 October 2010, p. 26.
[549] Exhibit C-382, Nexen email attaching the ABP 2012 Budget Plan, dated 4 September 2011.
[550] Claimant's PHB (first round) 2019, para. 180.
[551] Respondents' PHB (first round) 2019, para. 137 b.
[552] Claimant's PHB (first round) 2019, para. 180 a.
[553] SoRDCC, para. 432.
[554] Claimant's PHB (first round) 2019, para. 184 a.

596. The Tribunal considers that the Claimant's arguments above are hypothetical. Even if they were to prevail, this would not be sufficient to demonstrate that an obligation to repair a single specific VPS well casing ever arose. But in any case, it is for the Claimant to prove that the VPS wells did fail or did exhibit well integrity issues.

597. Furthermore, the Claimant only raised the argument that the Respondents pressure tested just six VPS wells in 2011 during the final hearing. In contrast, the Respondents have consistently argued in the course of this arbitration that the VPS wells were regularly pressure tested and that during the entire life of the PSA only six VPS wells failed, out of which, four were repaired, one was suspended, and one was abandoned.[555]

598. The Tribunal further considers that the evidence in the record sufficiently confirms the following in relation to the three VPS wells that failed in 2011: (i) Heijah 36 VPS was repaired in September 2011;[556] (ii) Tawila 65 VPS was repaired in July 2011;[557] and (iii) Tawila 83 VPS was repaired in July 2011;[558]

599. The Tribunal concludes that all the wells which were proven to have failed in 2011 were repaired by the Respondents before the PSA's expiry, according to the well integrity guidelines.[559]

600. Additionally, in relation to the other three VPS wells that failed during the life of the PSA, the evidence in the record demonstrates that (i) Qataban 15 VPS was repaired in August 2007;[560] (ii) Tawila 59-1 VPS was abandoned in 2004;[561] and (iii) Haru 8 VPS was suspended in October 2007.[562]

601. The Tribunal concludes that all the wells which were proven to have failed during the PSA, were repaired, or abandoned, according to the well integrity guidelines,[563] except for Haru 8 VPS which was suspended in 2007, instead of being repaired or abandoned. However the

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[555] ASoDCC, para. 437; SoRjSRCC, para. 181; 1WS of Mr. Tracy, para. 268; 4WS of Mr. Tracy, para. 50; SoRjSRCC, para. 187; Respondents' PHB (first round) 2019, para. 135 c.

[556] Exhibit R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011, item 52.

[557] Exhibit R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011, item 50.

[558] Exhibit R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011, item 51.

[559] Exhibit R-226, Wellbore Integrity Guidelines for Operating, Suspending and Abandoning Masila Wells, dated February 2011, p. 1.

[560] Exhibit R-512, CNPY Excel Spreadsheet "Wellbore Integrity Status ALL Masila Wells", dated 17 December 2011, row 700.

[561] Exhibit R-512, CNPY Excel Spreadsheet "Wellbore Integrity Status ALL Masila Wells", dated 17 December 2011, row 722.

[562] Exhibit R-512, CNPY Excel Spreadsheet "Wellbore Integrity Status ALL Masila Wells", dated 17 December 2011, row 682.

[563] Exhibit R-226, Wellbore Integrity Guidelines for Operating, Suspending and Abandoning Masila Wells, dated February 2011, p. 1.

Tribunal notes that; (i) the well is not causing any damage in its present configuration;[564] (ii) since 2007 the well should have been either repaired or abandoned, thus, this continuing obligation was the same before and after 22 March 2010; and (iii) Exhibit C-196, Tab 58, All Block 14 wells cement tops, p. 15, row 26, confirms that PetroMasila in 2014 still considers that such well does not require to be repaired.

602. In light of the above, the Tribunal concludes that the Claimant has failed to establish that there was an obligation to repair specific VPS well casings before the PSA's expiry and that the VPS wells were not in good working order when the PSA expired.

603. The Tribunal therefore dismisses the Claimant's claims regarding the repairs of 42 VPS well casings pursuant to Article 8 of the PSA and Good Oilfield Practice.

3. The merits of the Claimant's claim to repair the Sunah 36 VPS well

604. The Parties do not dispute that the only VPS well that was drilled after 22 March 2010 was the Sunah 36 VPS well.[565] The Partial Award expressly ruled that the Claimant's VPS well claim in relation to this well was not time-barred.[566]

605. However, the Claimant is not pursuing a specific claim in relation to Sunah 36 VPS well, nor has it adduced any evidence to demonstrate that the well required repairs prior to the PSA's expiry.[567] By contrast, the Respondents contend that:[568] (i) the well was equipped with cathodic protection for corrosion control and was regularly pressure tested; (ii) there is no evidence that the well was ever corroded, or that it required repairs; and (iii) water samples obtained from the Sunah field confirm that there is no evidence of pollution.

606. First, as stated above in paragraphs 594 to 596, the Claimant's argument in relation to the Respondents' alleged failure to pressure test the VPS wells in 2011 is hypothetical. Even if the Claimant's argument were to prevail, this would not be sufficient to demonstrate that an obligation to repair Sunah 36 VPS well ever arose.

607. Second, the Claimant has failed to adduce evidence of corrosion or failure of the Sunah 36 VPS well during or after the PSA's expiry. Moreover, the Sunah 36 VPS well: (i) is not listed as a well that required repairs as at 29 September 2011, according to the Respondents'

[564] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 3, p. 53, lines 14-20.
[565] Exhibit R-452, VPS installation program entitled "Sunah-36 VPS Installation", dated 12 May 2010.
[566] Partial Award, para. 772.
[567] There is no mention of Sunah 36 VPS in the OSoC, ASoC, SoRDCC, or Claimant's PHBs.
[568] Respondents' PHB (first round) 2019, para. 131.

documents;[569] and (ii) it does not appear to be a well that was repaired by PetroMasila, or to have required repairs, as at 24 January 2014, according to the Claimant's own documents.[570]

608. Third, the evidence in the record, including the water samples taken from the Sunah field, sufficiently demonstrates that the Sunah 36 VPS well does not present any evidence of pollution.

609. In light of the above, the Tribunal dismisses the Claimant's VPS claim regarding the Sunah 36 VPS well.

B. The Claimant's VPS claim based on Article 18.1(b) of the PSA

610. Article 18.1(b) of the PSA provides as follows:

> "*Title to fixed and movable assets shall by virtue of this provision transfer gradually from CONTRACTOR to MINISTRY at the end of each year in the percentage that the cost of the particular asset is recovered by CONTRACTOR pursuant to Section IX during such year. If not already vested in MINISTRY, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the time of termination of this Agreement, with all such assets being in good working order, normal wear and tear accepted. The Book Value of the Assets acquired or created during each Calendar Year shall be communicated by CONTRACTOR to MINISTRY within sixty (60) days after the end of such year*".[571] [emphasis added].

611. The Tribunal refers to its reasoning in relation to Article 18.1(b) of the PSA set forth in paragraphs 276 to 279 above. In order for Claimant's claim based on Article 18.1(b) of the PSA to succeed, the Claimant has to establish that a specific asset, in this case, the VPS wells, was not already cost recovered at the PSA's expiry.

612. The Respondents argue that Article 18.1(b) of the PSA does not apply to the majority of the assets of Block 14, including the wells, because those assets were cost recovered decades before the expiry of the PSA.[572] By contrast, the Claimant has remained silent in this respect and has not satisfied the burden of proving the existence of VPS wells that would not have been cost recovered.

613. In light of the foregoing, the Tribunal decides that Article 18.1(b) of the PSA cannot support the Claimant's VPS claim. On the basis of all the above, it is therefore dismissed. The

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[569] Exhibit R-506, CNPY Excel spreadsheet "Casing Repairs and Leak Offs", dated 29 September 2011.
[570] Exhibit C-196, Tab 26, List of repaired wells and with casing integrity issues.
[571] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1.
[572] Respondents' PHB (first round) 2019, para. 133.

Claimant's alternative VPS claim regarding the purchase of the HPS unit (which was raised for the first time in the post-hearing briefs) depends on the Tribunal finding that the VPS wells were not in good working order when the PSA expired. Since the Claimant has failed to establish this, the Tribunal also dismisses the Claimant's alternative VPS claim.

V. Cost of installing well cellars

614. The Claimant argued throughout the arbitration that the Respondents: (i) in breach of Good Oilfield Practice, **failed to install** well cellars for any of the wells;[573] (ii) breached the PSA and Good Oilfield Practice by **failing to** take adequate steps to **identify and repair** the corrosion on the surface casing of the wells in Block 14;[574] and (iii) **should have installed well cellars in 2010 and 2011** in response to the corrosion detected in 2009.[575]

615. The Claimant has declared that it is no longer maintaining its claim in relation to the Respondents' failure to install well cellars at the time of drilling, but that the basis of its claim is that the condition breached the PSA and Good Oilfield Practice by failing to take adequate steps to identify and then subsequently repair the corrosion on the 13 3/8" surface casing of all the wells in the block. According to the Claimant, the question for the Tribunal is only whether this allegation is correct, and whether the Respondents were obliged to install well cellars on or after 22 March 2010 in order to prevent / repair corrosion of the surface casing.[576]

616. The Claimant claims: (A) the cost of installing well cellars on 613 wells after the corrosion detected in 2009 in 3 wells; and (B) alternatively the repairs undertaken in 3 wells. The Tribunal will analyze in detail those claims in the paragraphs below.

A. The Claimant's claim regarding the cost of installing well cellars on 613 wells

617. The Claimant submits that, pursuant to Article 8 (including Good Oilfield Practice) and Article 18.1(b) of the PSA, the Respondents should have handed over all the wells with well cellars, in response to the corrosion detected in 2009.[577]

618. Under the following sub-sections, the Tribunal will analyze: (1) the well cellar claims with respect to the cost of installing well cellars on 613 wells under Article 8 of the PSA, and Good Oilfield Practice; and (2) the well cellar claims regarding the cost of installing well cellars on 613 wells under Article 18.1(b) of the PSA.

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[573] OSoC, para. 234; ASoC, para. 301.
[574] ASoC, para. 304; SoRDCC, para. 441
[575] SoRDCC, paras. 453, 463; Claimant's PHB (first round) 2019, paras. 186, 191.
[576] SoRDCC, para. 448.
[577] SoRDCC, paras. 453, 463; Claimant's PHB (first round) 2019, paras. 79, 186, 191.

1. The Claimant's claim with respect to the cost of installing well cellars on 613 wells based on Article 8 of the PSA, and Good Oilfield Practice

619. The Tribunal will first determine if the Claimant's claim regarding the cost of installing well cellars on 613 wells pursuant to Article 8 of the PSA and Good Oilfield Practice, is time barred.

620. The relevant parts of Article 8 of the PSA provide as follows:

> *"8.1 CONTRACTOR shall conduct Petroleum Operations diligently in accordance with rules as may be prescribed and in accordance with generally accepted standards of the petroleum industry. CONTRACTOR'S activities shall be designed to achieve the efficient and safe Exploration for, and production of, Petroleum and to maximize the ultimate economic recovery of Petroleum from the Contract Area. CONTRACTOR shall ensure that all materials, equipment and facilities used in Petroleum Operations comply with generally accepted engineering norms, are of proper and accepted construction, and are kept in good working order."* [578] [emphasis added].
>
> *"8.2 CONTRACTOR shall:*
> *(a) take all proper measures, according to generally accepted methods in use in the oil industry, to prevent loss or waste of Petroleum above or under the ground in any form during drilling, producing, gathering and distributing or storing operations. MINISTRY has the right to prevent any operation on any well that it reasonably expects would result in loss or damage to the well or the field;*
> *(b) prevent damage to any adjacent Petroleum, water-bearing formations, and other natural resources;*
> *(c) prevent non-intentional entrance of water into Petroleum formations;*
> *(d) take all necessary precautions to prevent pollution of or damage to the environment; [...]".* [579] [emphasis added].

621. As mentioned above, the Claimant expressly states that the basis of its claim "*is not that the Contractor failed to install well cellars in the first instance*",[580] but that its claim pertains to well cellars that should have been installed in 2010 and 2011 after corrosion was detected in 3 wells in 2009. [581]

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[578] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.
[579] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.
[580] SoRDCC, para. 448.
[581] SoRDCC, paras. 453, 463; Claimant's PHB (first round) 2019, paras. 186, 191.

622. The Tribunal decided in its Partial Award that the Claimant's claim in relation to the Respondents' failure to install well cellars on all wells on Block 14, which allegedly caused corrosion, was time-barred:

> *"774. Claimant claims that Respondents breached the PSA and Good Oilfield Practice, by failing to install well cellars on all wells on Block 14. This failure has caused serious corrosion of the uppermost part of the 13 3/8" casing, as it emerges above the cement, and Claimant seeks as repair costs for 613 wells in the amount of US$ 49,040,000 (EXR of Mr. Sands, paras. 184-197).*
>
> *780. On the basis of the foregoing, the Arbitral Tribunal finds that the factual evidence already adduced with respect to Claimant's well cellars claims is sufficient to establish that Claimant was aware or ought to be aware of the absence of well cellars since the late 1990s at the latest.*
>
> *783. Therefore, the Arbitral Tribunal finds that Claimant's well cellars claims are time-barred in accordance with the three-year limitation period under Article 10.2 of the UNIDROIT Principles, except in relation to the eight wells that were drilled on Block 14 after 22 March 2010, considering that Claimant was aware or ought to be aware of the lack of well cellars since the late 1990s and that the Standstill Agreement that interrupted the running of that limitation period was concluded on 22 March 2013".*[582] [emphasis added].

623. The Tribunal refers to paragraphs 248 to 253, and 256 to 283 above, in which it pointed out that the Partial Award did not declare as time-barred any claim based on duties and breaches arising on or after 22 March 2010, inasmuch as they were not a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010.[583]

624. In order to determine whether the Claimant's claims are time-barred the Tribunal will apply a two-prong test. The Claimant's claims are not time-barred if: (i) they are based on duties and breaches arising on or after 22 March 2010; and (ii) they are not a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010.

a. First prong of the time-bar test:

625. The Tribunal observes that the Parties have not submitted evidence, or argued the exact date at which this alleged obligation arose.

626. The Claimant argues that the Respondents *"should have installed well cellars in 2010 and 2011 in response to the corrosion detected in 2009".*[584] The Claimant considers that *"these*

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[582] Partial Award, paras. 774, 780, 783.
[583] *Addendum* and Decision, paras. 116-118.
[584] SoRDCC, paras. 453, 463; Claimant's PHB (first round) 2019, paras. 186, 191.

claims are not time-barred because they are ones for breach of obligations which obligations arose, and which breaches occurred, on and after 22 March 2010".[585] By contrast, the Respondents contend that the breach of the obligation to keep the wells in good working order "*is simply the continuation of the same alleged continuing breach that arose when these wells were originally designed and constructed*"[586]

627. If corrosion was detected in 2009, it must be assumed that new corrosion also developed after 22 March 2010 and that an obligation –if there is one, an issue which will be addressed below– did arose after 22 March 2010.

b. Second prong of the time-bar test:

628. The Tribunal considers that the Claimant has not well clarified the evidence of a new obligation to install the well cellars in 613 wells. The Claimant has asserted that the well cellars should have been installed in 2010: (i) "*as a measure to **remedy** the corrosion identified*";[587] (ii) "*to **eradicate the possibility of corrosion** in the wells*";[588] and (iii) "*to **prevent further corrosion** from occurring, and to **remedy the corrosion already extant** in many wells*".[589] [emphasis added].

629. For the Claimant, a specific event (finding corrosion in 3 wells) triggered a new and independent obligation to install well cellars on 613 wells in Block 14.[590] By contrast, the Respondents contend that the Claimant is actually relying on the existence of an obligation that the Tribunal has declared time-barred.[591]

630. As already mentioned in relation to previous Wells claims, the basic issue here is to determine, taking into consideration the Partial Award, what were the Respondents' remaining obligations after 22 March 2010. The Tribunal already decided that it was the obligation to maintain the wells in good working order as requested by Article 8 of the PSA. Taking into consideration the Partial Award, this obligation could not be the obligation –that was declared time-barred– to restore the integrity of the wells, as proposed by the Claimant, that is, to install well cellars in all wells, but, taking into consideration the existing design and construction which can no longer be the subject of the claim, to maintain the wells in good working order, that is, in the first place, to repair the wells when corrosion was detected. The evidence in the record is that corrosion was detected in three wells. The issue regarding these three wells will be analyzed in the context of the Claimant's alternative claim. With

[585] Claimant's PHB (first round) 2019, para. 89.
[586] Respondents' PHB (first round) 2019, para. 153.
[587] SoRDCC, para. 453.
[588] SoRDCC, para. 463.
[589] SoRDCC, para. 465.
[590] SoRDCC, paras. 453, 463; Claimant's PHB (first round) 2019, paras. 186, 191.
[591] Respondents' PHB (first round) 2019, para. 153.

respect to the principal claim to have 613 wells equipped with well cellars without evidence of corrosion but for three of them, is an attempt by the Claimant to resuscitate a claim which was declared time-barred by the Partial Award, and must therefore be dismissed.

2. The Claimant's claim regarding the cost of installing well cellars in 613 wells based on Article 18.1(b) of the PSA.

631. Article 18.1(b) of the PSA provides as follows:

"*Title to fixed and movable assets shall by virtue of this provision transfer gradually from CONTRACTOR to MINISTRY at the end of each year in the percentage that the cost of the particular asset is recovered by CONTRACTOR pursuant to Section IX during such year. If not already vested in MINISTRY, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the time of termination of this Agreement, with all such assets being in good working order, normal wear and tear accepted. The Book Value of the Assets acquired or created during each Calendar Year shall be communicated by CONTRACTOR to MINISTRY within sixty (60) days after the end of such year*".[592] [emphasis added].

632. The Tribunal refers to its reasoning in relation to Article 18.1(b) of the PSA set forth in paragraphs 276 to 279 above, namely that in order for Claimant's claim based on Article 18.1(b) of the PSA to succeed, the Claimant has to establish that a specific asset, in this case, the wells, was not already cost recovered at the PSA's expiry.

633. The Respondents argue that Article 18.1(b) of the PSA does not apply to the majority of the assets of Block 14, including the wells, because those assets were cost recovered decades before the expiry of the PSA.[593] By contrast, the Claimant has remained silent in this respect and has not satisfied the burden of proving the existence of wells that would not have been cost recovered.

634. Article 18.1(b) of the PSA cannot therefore support a claim to have well cellars installed in all wells by the end of the PSA.

B. The Claimant's claim regarding the cost of repairs undertaken in three wells

635. The Tribunal considers that this claim is similar to the one in the Sub-section (A) above, with the difference that the Claimant is only claiming for the cost of repairs undertaken in 3 wells.[594]

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[592] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1.
[593] Respondents' PHB (first round) 2019, para. 153.
[594] Claimant's PHB (first round) 2019, para. 193.

636. The Parties agree that in 2009 the Respondents identified corrosion in 3 wells (Heijah 6, Heijah 10, and Tawila 1).[595] The Respondents contend that they subsequently took steps to sample other wells and no further corrosion was observed on those wells, or on any other wells drilled by them.[596] According to the Claimant, shortly after the PSA's expiry, PetroMasila detected corrosion on the surface casing of Heijah 6, and repaired it on June 2012.[597] Moreover, the Claimant submits that PetroMasila subsequently repaired two additional wells under the same conditions.[598]

637. The Tribunal will analyze this claim in the following paragraphs. It incorporates by reference its analysis and the decisions made in Sub-section (A) above in relation to the principal claim.

638. Under this alternative claim, the factual scenario is different. The Claimant is relying on a specific obligation to repair a well that was damaged after 22 March 2010. The Tribunal has determined that the Respondents had such obligation and that it was not time-barred.

639. In this respect the Claimant submits that it repaired three wells (including Heijah 6) on the surface casings on which it found corrosion.[599] According to the Claimant, the cost of these repairs amounted to USD 80,000 per well.[600] By contrast, the Respondents argue that the evidence of the repair works adduced by the Claimant only refers to the work done in Heijah 6.[601] The Respondents add that, in any event, such evidence does not confirm that actual works had been incurred for the reparation of Heijah 6.[602]

640. The Tribunal considers that the evidence in the record demonstrates that repair works were undertaken by PetroMasila on the surface casing of Heijah 6.[603]

641. The photographic evidence adduced by the Claimant clearly shows the state in which PetroMasila found Heijah 6, as appears below.

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[595] ASoDCC, para. 460; 1WS of Mr. Rasmussen, para. 97; SoRDCC, para. 442.
[596] SoRjSRCC, para. 196; 4WS of Mr. Tracy, para. 54; 1WS of Mr. Rasmussen, para. 97.
[597] SoRDCC, para. 442; Exhibit C-442, Heijah -6: Casing Repair and WSO, dated 3 August 2012; Exhibit C-443, Photographic Evidence of Petromasila's Repairs on the Heijah 6 well.
[598] The Claimant has failed to identify the name of the additional 2 wells in its submissions, and in the evidence in the record. For instance, it refers to "*two further wells*" SoRDCC, para. 442; "*repairing 3 wells with corroded 13 3/8' Surface casing*" 1WS of Mr. Binnabhan, para. 94 a; or simply asserts that there were 3 wells, Claimant's PHB (first round) 2019, para. 193.
[599] SoRDCC, para. 442; Exhibit C-442, Heijah -6: Casing Repair and WSO, dated 3 August 2012; Exhibit C-443, Photographic Evidence of Petromasila's Repairs on the Heijah 6 well.
[600] 1WS of Mr. Binnabhan, para. 92 a; 1EXR of Mr. Sands, paras. 191-196.
[601] SoRjSRCC, para. 200.
[602] Respondents' PHB (first round) 2019, para. 159.
[603] Exhibit C-442, Heijah -6: Casing Repair and WSO, dated 3 August 2012; Exhibit C-443, Photographic Evidence of Petromasila's Repairs on the Heijah 6 well.

Figure 10. Heijah 6 found by PetroMasila.[604]

642. Moreover, the photographic evidence adduced by the Claimant displays the state of Heijah 6, after the reparations undertaken by PetroMasila, as appears below.

[604] Exhibit C-443, Photographic Evidence of Petromasila's Repairs on the Heijah 6 well, p. 3.

Figure 11. Heijah 6 repaired by PetroMasila.[605]

643. Exhibit C-442 proves that the total costs for the multiple repairs on Heijah 6 amounted to USD 643,515.[606] The Claimant's witness, Mr. Binnabhan also confirmed that the specific repairs in relation to the surface casing amounted to USD 80,000,[607] which was further confirmed by the Claimant's expert, Mr. Sands.[608]

644. In light of the foregoing, the Tribunal grants the Claimant's alternative claim in relation to Heijah 6, in the amount of USD 80,000.

645. In relation to the additional two wells that the Claimant argues PetroMasila repaired, the Tribunal has reached the conclusion that: (i) the Claimant has failed to identify the wells it is referring to; and (ii) has failed to demonstrate that corrosion was found in the surface casing of these wells. Therefore, the Claimant has failed to substantiate this claim in relation to the two additional wells.

646. In light of the above, the Tribunal dismisses the Claimant's alternative claim in relation to these "two additional wells".

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[605] Exhibit C-443, Photographic Evidence of Petromasila's Repairs on the Heijah 6 well, p. 8.
[606] Exhibit C-442, Heijah -6: Casing Repair and WSO, dated 3 August 2012, p. 1.
[607] 1WS of Mr. Binnabhan, para. 92 a.
[608] 1EXR of Mr. Sands, paras. 191-196.

Section III Other Environmental Claims

Sub-section I. The Claimant's other environmental claims

647. The Claimant's other environmental claims relate to the following: (**I**) the Respondents' failure to conduct and produce an EIA on the PSA's expiry; (**II**) the NORM claims which are: (A) the Respondents' disposal of canisterised NORM in 3 wells, which allegedly lacked proper integrity and thus, were not suitable for NORM disposal; and (B) the Respondents' failure to dispose of NORM-contaminated equipment left behind at the end of the PSA's term; and (**III**) the Waste Management claims, which are: (A) the CPF Incinerator claim; (B) the Waste Management Facilities claim; and (C) the Sludge Ponds claim.

648. According to the Claimant, the fundamental complaint here is that the Respondents returned Block 14 in a worse environmental condition than they found it upon commencement of the PSA. The Claimant understands that oil operations would mean that Block 14 would not be precisely in the same condition at the end of the PSA's term as it had been at the start. However, the Respondents were under a strict obligation not to cause environmental damage.[609]

649. Given the decisions of the Arbitral Tribunal in the Partial Award, the Claimant has declared that it is not pursuing claims in relation to the Respondents' (i) alleged failure to prevent groundwater contamination, (ii) alleged decision to walk away from Block 14 leaving abandoned/redundant facilities and (iii) alleged failure to deal with unexploded seismic charges. In addition, in its opening statements during the final hearing, the Claimant confirmed that it had withdrawn its third-party claims in relation to indemnities which had remained unquantified throughout the arbitration.[610]

I. The EIA claim

650. According to the Claimant, the Respondents failed to comply with Good Oilfield Practice, by failing to conduct and produce a detailed environmental assessment when the PSA's term expired. It is common ground that this claim is not defeated by the Partial Award.[611]

651. The Respondents' failure to obtain and provide the Claimant with an EIA at the end of the PSA meant that PetroMasila was forced to obtain an environmental report from Al Safa Environmental & Technical Services LLC ("Al Safa").[612] This report was based on site

[609] ASoC, para. 311.
[610] Claimant's opening statement, Transcript final hearing, day 1, p. 9, lines 13 to 21.
[611] ASoC, para. 319.
[612] SoRDCC, para. 658.

inspections and an examination of documents during 2012.[613] The cost of this report was USD 70,000.[614]

652. The Claimant only pursues a claim for the USD 70,000 cost of the Al Safa Report. Contrary to the Respondents' contention, the Claimant considers that providing a close-out EIA is not a business decision, but a matter of Good Oilfield Practice, and that in any event, the Respondents' own policies recognized the obligation to provide such an EIA.[615]

II. The NORM claims

653. The Claimant clarifies that NORM is a usual by-product of oil production. The radioactive material will commonly be found in the form of liquid or sludge accumulations, liberated scale deposits, contaminated soil or deposits upon oilfield equipment. The fact that oil operations created NORM is not a breach. The Claimant's complaint is that the Respondents neglected their obligations to deal with, and dispose of, this hazardous material safely.[616]

654. According to the Claimant, it is Good Oilfield Practice to devise and implement a comprehensive plan for the safe handling, storage, transportation, processing, treatment and disposal of NORM. This is required for health and safety reasons and to ensure that pollution of, or damage to the environment is prevented.[617]

655. The Claimant claims: (i) USD 1,309,000 for the cost of the disposal of canisterised NORM in 3 wells that lacked proper integrity; and (ii) USD 2,000,000 for the disposal of NORM-contaminated oilfield equipment which should have been carried out by the Respondents prior to or at the end of the PSA.[618]

656. Regarding the Respondents' canisterisation practice, the Claimant argues that, in December 2006, the Respondents introduced guidelines for the management of NORM, which were subsequently confirmed as the NORM policy in June 2008, when the Respondents developed the NORM code of practice.[619]

657. The Claimant argues that the Respondents failed to abide by these guidelines, policies and code, when they disposed of NORM-contaminated material in the three NORM wells. The

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[613] Exhibit C-74, Phase I Environmental Site Assessment Masila Block 14, Republic of Yemen, prepared by ALSAFA Environmental & Technical Services LLC, January 2013, dated 16 January 2013.
[614] First WS of Mr. Binnabhan, para. 76.
[615] Exhibit C-376, Canadian Nexen Yemen Standard for Contractor Camps & Facilities, dated 23 May 2009; Exhibit C-5, Letter from Contractor to the Ministry re Future Masila Development Plan, dated 7 February 2011.
[616] ASoC, para. 324.
[617] ASoC, para. 325.
[618] SoRDCC, para. 472; Claimant's PHB (first round) 2019, para. 197.
[619] SoRDCC, paras. 481-482.

Claimant's expert confirms that at the end of the PSA, none of the three wells used by the Respondents to dispose of the NORM-contaminated equipment were abandoned in accordance with the Respondents' Wellbore Integrity Guidelines.[620] To the contrary, they were poorly abandoned to such an extent that the Claimant's expert recommends that they be "*re-entered and the abandonments made good and completed per the Operator's Wellbore Integrity Guidelines*".[621]

658. In relation to the second NORM-claim, the Claimant contends that in breach of Good Oilfield Practice, the Respondents left 52 pieces of NORM-contaminated equipment at the end of the PSA.[622]

659. According to the Claimant, the claim for the cost of decontaminating further NORM-contaminated equipment is not time-barred, as the equipment to which this claim relates was at Block 14 as at the date of handover. This is not a claim in relation to the NORM management policies developed since the start of the PSA, which is covered by the Partial Award.[623]

660. The Claimant notes that, in 2010 and 2011, the Respondents repeatedly confirmed their commitment to cleaning up NORM-contaminated equipment prior to the PSA's expiry. The 2010 Nexen UK Audit Report dated 9-13 September 2010 recognized that the decontamination of NORM-contaminated equipment is a project that Nexen UK said would and should be done.[624]

III. The Waste Management claims

661. The Claimant pursues three claims in relation to waste management: (A) USD 3,800,000 for the cost of replacing the defective CPF incinerator;[625] (B) USD 13,600,000 for the cost of other waste management facilities that should have been put in place prior to the end of the PSA, but were not, and the cost of addressing waste that should not have been created; and (C) USD 2,850,000 for the cost of remediating sludge ponds left behind by the Respondents at the end of the PSA.

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[620] SoRDCC, paras. 486-488.
[621] 1EXR of Mr. Sands, para. 169.
[622] SoRDCC, para. 519.
[623] SoRDCC, para. 536. See Partial Award, paras. 785, 786, 893.
[624] SoRDCC, para. 532.
[625] The ASoC includes the CPF incinerator claim under the general heading waste management, for which damages of USD17,400,000 are claimed in total. The SoRDCC lists the CPF incinerator claim separately. The cost of the CPF incinerator is revised from USD 2,250,000 in 2007 (*see* C-194 Tab 47, page 53) to USD 3,800,000 in 2011 to reflect the inflation rate in Yemen between 2007 and 2011. This approach is maintained in the PHBs.

A The CPF Incinerator claim

662. The Claimant's case is that the CPF incinerator installed in 2008 was in very poor condition at the time of the handover, and in any event was not fit for purpose. According to the Claimant, this was in breach of Article 8.1 of the PSA, including Good Oilfield Practice, Articles 8.2 and 18.1(b) of the PSA.[626]

663. The Claimant asserts that the incinerator repeatedly suffered from mechanical and instrument failures; that there were several areas on the bottom plate of the primary burner which had clear signs of both cracking and corrosion; and that it was not fit for purpose because it was unable to burn plastic NORM-contaminated filters.[627]

664. The Respondents contend that the incinerator was actually fit for purpose. According to the Claimant, the Respondents' contention is contradicted by contemporaneous documents such as internal emails from the Respondents' employees, and a Nexen UK Audit Report which demonstrates the flaws of the incinerator.[628]

665. According to the Claimant, it is to be inferred that the reason the Respondents did not install a second incinerator is that such construction would have been considered a capital project. Under the terms of the PSA, a party developing a capital project only recovers the costs associated with that project during the six years following its implementation. Thus, had the Respondents installed a new incinerator in Block 14 towards the end of the PSA, for instance, in 2010, they would have only recovered 2/6 of their total expenditures.[629]

B The Waste Management Facilities claim

666. The Claimant's claim is for the cost of facilities that should have been created prior to the end of the PSA, but which were still missing as at the date of the handover; and for the cost of treating waste which was present at the date of the handover, and should have been disposed of.[630]

667. According to the Claimant, the Respondents failures in relation to waste management include: (i) lack of proper incinerators; (ii) open burning of hazardous waste; and (iii) dumping / uncontrolled disposal of waste.[631]

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[626] SoRDCC, para. 563; Claimant's PHB (first round) 2019, para. 247.
[627] SoRDCC, para. 547.
[628] SoRDCC, paras. 549-550, 556.
[629] SoRDCC, para. 564.
[630] SoRDCC, para. 555.
[631] ASoC, para. 341.

668. The Claimant argues that the Respondents were aware of these failures, and in 2006 commissioned Environmental Resources Management ("ERM") to evaluate the Respondents' waste handling practices.[632] Based on its observations, the 2007 ERM report recommended the following to the Respondents:

> *"(1) Install new, Centralised Waste Transfer Facilities ("CWTF") at the CPF and the Terminal;*
> *(2) Install a new incinerator at the CPF to minimise the amount of waste going to landfill. ERM recommended a general purpose incinerator (350 kg/hr) for general solid wastes, solid and semi-solid pigging wastes, filters, paint tins, textile wastes, medical wastes and oily sludge.*
> *(3) Install a new incinerator at the Terminal, again to minimise the amount of waste going to landfill. ERM recommended a batch operation incinerator (175 kg/hr for 8 to 12 hours per day).*
> *(4) Implement a short term "campaign" to treat and dispose of stockpiled wastes from the CPF storage pits, as had been previously proposed in a study by MI Swaco.*
> *(5) Transport tank cleaning wastes from the CPF to the Terminal for processing.*
> *(6) Install an oily waste and oily sludge separation facility at the Terminal, including unassisted gravity separation, a decanter centrifuge and a disc-stack centrifuge*
> *(7) Construct a new, purpose-designed landfill at the CPF. ERM recommended one cell (10,000 m3) for stabilised sludge pit residues and a second cell (15,000 m3, equating to an estimated 20 years' waste input) for stabilised residues from incineration, de-sanding wastes and other relatively inert solid wastes*
> *(8) Construct a new, purpose-designed landfill at the Terminal. ERM recommended one cell (24,000 m3, equating to 1,000 m3 per annum for 20 years normal generation plus treated stockpiled wastes) to receive*
> *stabilised incinerator residues, stabilised residues from tank cleaning sludge processing and other relatively inert solid wastes".* [633]

669. The Claimant contends that out of the above, the Respondents only complied with the installation of the new incinerator at the CPF.[634] In essence, the Claimant's case is that the Respondents dumped waste or burned it, whereas they should have installed suitable incinerators at the CPF and terminal, built landfills at the CPF and terminal, and transported waste to these locations to be processed there.[635]

670. According to the Claimant, the Respondents' failure to comply with the ERM report was a breach of Articles 8.1, 8.2, and 22.1 of the PSA.[636]

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[632] ASoC, para. 342.
[633] ASoC, para. 343.
[634] ASoC, para. 345.
[635] SoRDCC, para. 566.
[636] Claimant's PHB (first round) 2019, para. 263.

671. The Claimant argues that the Partial Award ruled that a claim in respect of the introduction prior to March 2010 of defective waste management policies would be time-barred. However, it contends that its claim is in respect of the Respondents' on-going failure from March 2010 to the end of the PSA to create facilities that should have been put in place then; their creation after March 2010 of waste that should not have been created; and their failure to treat waste from March 2010 that should have been treated.[637]

C The Sludge Ponds claim

672. The Claimant explains that the sludge ponds are storage pits containing waste oil and oily sludge from liquid handling facilities, tank cleaning, and spillage from nearby accidents, which were located at the CPF and the terminal.[638]

673. According to the Claimant, the Respondents had an obligation to dispose of the waste in the sludge ponds, and failed to do so by the end of the PSA.[639] The Claimant argues that by failing to remediate the sludge ponds, the Respondents breached Articles 8.1, 8.2, and 22.1 of the PSA.[640]

674. The Respondents assert that the Partial Award "*determined that the Ministry's claims for the remediation of sludge ponds had been fully settled pursuant to the parties' 1996 Settlement Agreement*"[641]. According to the Claimant, this is incorrect, as the Partial Award states only that claims related to dismantlement, abandonment and reclamation obligations, have been settled.[642]

675. The Claimant contends that its claim is for the remediation of the sludge ponds, and has not been settled.[643]

676. The Claimant argues that, as the International Association of Oil & Gas Producers makes clear, abandonment and remediation are different concepts. Abandonment is part of the decommissioning process, which is described as "*facility closure followed by removal of process equipment, building and infrastructures*".[644] Remediation, on the other hand,

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[637] SoRDCC, para. 572; Claimant's PHB (first round) 2019, para. 277.
[638] Claimant's PHB (first round) 2019, para. 278.
[639] Claimant's PHB (first round) 2019, para. 279.
[640] Claimant's PHB (first round) 2019, para. 281.
[641] ASoDCC, para. 521.
[642] SoRDCC, para. 651.
[643] SoRDCC, para. 652.
[644] Exhibit C-343, Decommissioning, Remediation and Reclamation Guidelines for Onshore Exploration and Production Sites, E&P Forum Report, dated 1 October 1996, p. 3.

concerns "*the management of contaminated soil, surface water and groundwater to prevent, minimise or mitigate risks to public health and safety or the environment*".[645]

677. Furthermore, the Claimant contends that bioremediation (the method of waste disposal proposed by the Respondents which was not carried out)[646] is distinct from abandonment, as well as from dismantlement and reclamation.[647]

Sub-section II. The Respondents' position in relation to the Claimant's other environmental claims

678. The Respondents address the Claimant's environmental claims as they were pleaded by the Claimant: (**I**) the EIA claim; (**II**) the NORM claims which are: (A) the Canisterisation claim; and (B) the claim regarding the NORM-contaminated equipment left behind at the end of the PSA's term; and (**III**) the Waste Management claims, which are: (A) the CPF Incinerator claim; (B) the Waste Management Facilities claim; and (C) the Sludge Ponds claim.

I. The EIA claim

679. The Respondents argue that the only EIA claim that remained as per the Partial Award, is in relation to the Claimant's contention that the Respondents failed to commission or conduct any detailed environmental assessment at handover.[648]

680. The Respondents argue that the Claimant's EIA claim is without merit. In essence, the Claimant claims that the Respondents failed to comply with Good Oilfield Practice and good faith, by not producing a complete EIA at the PSA's expiry. As a result, the Claimant claims the costs of completing an environmental baseline study to evaluate the present condition of Block 14.[649]

681. The Respondents contend that they were not under any obligation to provide an EIA or any other detailed environmental assessment.[650] This is confirmed by the GSI Environmental Report, which states that "*it is a business decision as to whether either party (in this case the Ministry and the Contractor) wishes to conduct this kind of evaluation as a means of managing future liabilities. This business decision, however, does not rise to the level of being a requirement for compliance with Good Oilfield Practice*".[651]

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[645] Exhibit C-343, Decommissioning, Remediation and Reclamation Guidelines for Onshore Exploration and Production Sites, E&P Forum Report, dated 1 October 1996, p. 3.
[646] Claimant's PHB (first round) 2019, para. 280.
[647] SoRDCC, para. 654.
[648] ASoDCC, para. 171 (i).
[649] ASoDCC, para. 492.
[650] ASoDCC, para. 500.
[651] 1EXR of GSI Environmental, p. 64.

682. According to the Respondents, Mr. Larkin, the Claimant's expert, asserted that preparing an EIA upon expiry is Good Oilfield Practice because it would, in his opinion, be useful.[652] The Respondents argue that, the fact that something might be useful does not transform it into an obligation under Good Oilfield Practice.[653]

II. The NORM claims

683. The Claimant claims: (i) USD 1,309,000 for the disposal of canisterised NORM in 3 wells which lacked proper integrity and thus were not suitable for the disposal of NORM; and (ii) USD 2,000,000 for the NORM contaminated equipment left behind at the end of the PSA, which should have been carried out by the Respondents prior to, or at the end of the PSA.

684. The Respondents submit that any abandonment obligations that the Respondents would otherwise have under Article 8.2(i) of the PSA in respect of the abandonment of these wells have been settled pursuant to the Settlement Agreement.[654]

685. According to the Respondents, their experts (Dr. Hilbert, GSI Environmental and Mr. Catterall) have confirmed, and the Claimant has accepted, that the disposal of NORM-contaminated equipment by canisterisation is consistent with Good Oilfield Practice.[655] The complaint of Mr. Sands, the Claimant's expert, is that the three wells selected for canisterisation were not properly abandoned. However, Dr. Hilbert confirms that the three NORM disposal wells were properly hydrocarbon abandoned.[656] The Respondents argue that they took the necessary steps to make these wells safe and ensure that there was no means for NORM to travel to the surface or into the aquifers.[657]

686. The Respondents contend that the Claimant has not adduced any evidence of environmental damage arising from the canisterisation and downhole disposal of NORM-contaminated equipment.[658] GSI Environmental confirms that the NORM-contaminated equipment was placed deep into the formations, well below the level of the aquifers, and that "*there is no reasonable potential for impacts by NORM to groundwater*".[659]

687. Furthermore, the Respondents submit that the Claimant was fully informed of the Respondents' decision to dispose of NORM-contaminated equipment in this way. The Claimant was informed in October 2011 that the Respondents intended to proceed with

[652] SoRDCC, para. 662; 1EXR of Mr. Larkin, p. 13.
[653] SoRjSRCC, para. 204.
[654] ASoDCC, para. 468; Respondents' PHB (first round) 2019, paras. 162 d, 163 b, 165.
[655] ASoDCC, para. 469.
[656] ASoDCC, paras. 470-471.
[657] ASoDCC, para. 471.
[658] ASoDCC, para. 472.
[659] 1EXR of GSI Environmental, p. 93.

canisterisation of the equipment. However, the Claimant raised no fundamental objections to the Respondents' actions, including the wells chosen for disposal and the steps taken to hydrocarbon abandon the wells in question.[660]

688. In relation to the second NORM-claim, the Claimant argues that the Respondents breached Good Oilfield Practice because they left 52 pieces of NORM-contaminated equipment on the Block. According to the Respondents, this is wrong. Between 10 November and 7 December 2011, the Respondents carried out a NORM canisterisation and disposal campaign,[661] and only four pieces of NORM-contaminated equipment remained at the Block 14 at the conclusion of that campaign,[662] which were too large to be disposed of downhole, and were securely located in the NORM storage yard. The Respondents argue that the disposal of these pieces of equipment should be carried out as part of routine oilfield operations by PetroMasila.[663]

689. The Claimant's list of 52 pieces of NORM-contaminated equipment, is based on an inventory count finalized approximately one year after the PSA expired.[664] However, as NORM occurs naturally during the course of petroleum operations,[665] the Respondents consider that it would be entirely unsurprising that additional NORM-contaminated equipment was generated after the conclusion of the disposal campaign in December 2011.[666]

III. The Waste Management claims

690. The Respondents address the Claimant's Waste Management claims as they were pleaded by the Claimant: (A) USD 3,800,000 for the cost of replacing the CPF incinerator; (B) USD 13,600,000 for the cost of other waste management facilities; and (C) USD 2,850,000 for the cost of remediating sludge ponds.

A The CPF Incinerator claim

691. The Respondents recall that ERM recommended the construction of a purpose-built incinerator. As the Claimant acknowledges, the Respondents duly installed a new incinerator at the CPF in 2009 in accordance with ERM's recommendation.[667]

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[660] ASoDCC, para. 474.
[661] 4WS of Mr. Tracy, para. 64.
[662] 4WS of Mr. Tracy, para. 64; 1WS of Mr. Tracy, paras. 163 – 164.
[663] ASoDCC, para. 516.
[664] 4WS of Mr. Tracy, para. 66; Exhibit C-386, NORM Yard Inventory - PetroMasila Spreadsheet.
[665] 4WS of Mr. Tracy, para. 64.
[666] SoRjSRCC, para. 220
[667] ASoDCC, para. 545.

692. Contrary to the Claimant's claims, the incinerator was fit for purpose and was designed for the disposal of water filters and other solid wastes.[668]

693. However, the Claimant also claims that "*several areas on the bottom plate of the primary burner were observed ... to have clear signs of both cracking and corrosion*" and that the incinerator "*needed decommissioning and replacing*" by the expiry of the PSA.[669] The Respondents argue that any existing cracks and corrosion had been repaired and the incinerator was in operation upon the PSA's expiry.[670]

694. According to the Respondents, they cannot be responsible for any post-PSA failures by PetroMasila to maintain or repair equipment.[671]

B The Waste Management Facilities claim

695. The Respondents argue that in the Partial Award, the Tribunal ruled that the Claimant's Waste Management Facilities claim was time-barred, except in relation to one incinerator that was installed at the CPF in 2009.[672] In essence, the Respondents contend that the Claimant's claim based on the Respondents' decision not to implement each and every one of the recommendations in the ERM report has been dismissed as time-barred, and this dismissal is *res judicata*.[673]

696. According to the Respondents, the Claimant continues to maintain the entirety of its Waste Management Facilities claim on the vague basis that these claims are based on breaches committed on or after 22 March 2010 or breaches that arose at the time of handover.[674] In an effort to support its claim, the Claimant refers to the inclusion of certain waste management projects in the Respondents' 2010 and 2011 WP&Bs, which the Claimant contends constitutes a recognition of their ongoing obligations to discharge their waste management responsibilities.[675]

697. The Respondents contend that the Claimant's attempts to circumvent the Partial Award should be rejected, as the Waste Management Facilities claim is simply a continuation of the Claimant's continuing breach claim pre-dating 22 March 2010 and is therefore time-barred.

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[668] ASoDCC, para. 545.
[669] ASoDCC, para. 545, citing ASoC, para. 345.
[670] ASoDCC, para. 546; Respondents' PHB (first round) 2019, para. 187(a).
[671] ASoDCC, para. 546.
[672] ASoDCC, para. 521; SoRjSRCC, para. 222.
[673] Respondents' PHB (first round) 2019, para. 178.
[674] ASoDCC, para. 523.
[675] ASoDCC, para. 523.

C The Sludge Ponds claim

698. The Respondents argue that the Tribunal determined that the Claimant's claim in relation to the sludge ponds has been fully settled pursuant to the 1996 Settlement Agreement.[676]

699. According to the Respondents, the Partial Award is clear: "[t]*he claim of US$ 2,850,000 related to the remediation of sludge ponds is related to Respondents' dismantlement, abandonment and reclamation obligations under the PSA", which were fully settled*".[677]

700. The Respondents contend that the Claimant's claim is based on the 2007 ERM report to remediate, remove, and cease use of sludge ponds.[678] It is the Respondents' case that the claim falls within "*reclamation claims*", which involve re-purposing a site to its original or another use.[679]

Sub-section III. The Arbitral Tribunal's Analysis

701. The Tribunal will address the following environmental claims raised by the Claimant: (**I**) EIA claim; (**II**) NORM claims; and (**III**) Waste Management claims. The Tribunal notes that the Claimant withdrew its third-party claims at the final hearing.[680] Thus, the Tribunal will not address those claims.

I. The EIA claim

702. The Claimant only maintains a claim in respect of the Respondents' failure to obtain an EIA at the end of the PSA.[681] Both Parties agree that the Respondents did not submit an EIA at the end of the PSA.[682]

703. The Claimant argues that the Respondents' failure to obtain an EIA at the end of the PSA (in breach of Good Oilfield Practice) meant that PetroMasila was forced to obtain an EIA from Al Safa, which had a cost of USD 70,000.[683] By contrast, the Respondents argue that they were not required to provide an EIA at the end of the PSA.

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[676] ASoDCC, para. 521, 531
[677] Respondents' PHB (first round) 2019, para. 183; Partial Award, para. 620.
[678] Respondents' PHB (first round) 2019, para. 183; Exhibit C-194, Tab 47, ERM (2007) 'Treatment and Disposal of Wastes from the Masila Block, Yemen', report to Canadian Nexen, March 2007, Section 3.2.6.
[679] Respondents' PHB (first round) 2019, para. 183.
[680] Claimant's opening statement, Transcript final hearing, day 1, p. 9, lines 13 to 21.
[681] SoRDCC, para. 657.
[682] 1WS of Mr. Tracy I, para. 89; SoRDCC, para. 656.
[683] SoRDCC, para. 658; 1WS of Mr. Binnabhan, para. 76.

704. The Tribunal will determine in the first place whether or not the Respondents were obligated to produce an EIA at the PSA's expiry in accordance with Good Oilfield Practice.

705. According to the Claimant, the Respondents were required to provide an EIA at the end of the PSA. Mr. Larkin, the Claimant's expert, opines that:

> "*Although not noted in the Contractor's EMS, as a matter of Good Oilfield Practice the Contractor should have commissioned an end of PSA 'close-out' report which reviewed the block operations environmentally and set out its findings and recommendations. This is Good Oilfield Practice for sale or handover of such assets from one party to another. Such a document would have been useful to the Contractor, as well as to the Ministry, in that it would have allowed a new 'baseline' to be set, to help distinguish environmental impacts and liabilities that occurred during the PSA from any that occur subsequent to handover*".[684] [emphasis added].

706. In order to demonstrate that providing an EIA at the end of a PSA is a requirement under Good Oilfield Practice, Mr. Larkin confirmed that this practice is followed in the UAE, Saudi Arabia, Oman and Canada.[685]

707. On the contrary, GSI Environmental, the Respondents' expert, states that providing an EIA at the end of the PSA is not a requirement under Good Oilfield Practice, but merely a business decision.[686] Furthermore, the Respondents contend that "*Mr Larkin asserted that preparing an EIA upon expiry is Good Oilfield Practice because it would, in his opinion, be "useful". Contrary to Mr Larkin's suggestion, the fact that something might be "useful" does not transform it into an obligation under Good Oilfield Practice*".[687]

708. The Tribunal takes into consideration that GSI Environmental did not rebut the specific country-examples provided by Mr. Larkin to demonstrate that providing an EIA at the end of the PSA was a matter of Good Oilfield Practice. GSI Environmental's report simply states that this is not a matter of Good Oilfield Practice.

709. The Tribunal also considers that the Respondents' criticism towards Mr. Larkin's conclusion is flawed. Mr. Larkin's expert report did not state that submitting an EIA at the end of the PSA was Good Oilfield Practice because it was useful. A closer look at the extract of the expert report reveals that the expert opines that providing an EIA at the end of the PSA is both Good Oilfield Practice, and useful, as two distinct ideas, separated by a full stop.

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[684] 1EXR of Mr. Larkin, p. 13.
[685] 1EXR of Mr. Larkin, pp. 13-14.
[686] 1EXR of GSI Environmental, p. 64; Transcript final hearing, day 4, p. 255, lines 17 to 23.
[687] SoRjSRCC, para. 204.

"*Although not noted in the Contractor's EMS, **as a matter of Good Oilfield Practice the Contractor should have commissioned an end of PSA 'close-out' report which reviewed the block operations environmentally and set out its findings and recommendations**. This is Good Oilfield Practice for sale or handover of such assets from one party to another. **Such a document would have been useful to the Contractor**, as well as to the Ministry, in that it would have allowed a new 'baseline' to be set, to help distinguish environmental impacts and liabilities that occurred during the PSA from any that occur subsequent to handover*".[688] [emphasis added].

710. In addition, the Tribunal takes into consideration that: (i) Respondent 1 sent a letter to the Claimant dated 7 February 2011, in which it recognized that providing a closing environmental study was an outstanding issue under the PSA;[689] (ii) in May 2011 Respondent 1 acknowledged that it had contracted Worley Parsons to prepare an environmental report which should have been eventually delivered to the Claimant;[690] and (iii) the Respondents actually engaged Worley Parsons, but never submitted a final EIA report to the Claimant.[691]

711. Despite the fact that the three foregoing arguments were presented by the Claimant in its SoRDCC, the Respondents failed to address them in their SoRjSRCC.

712. In light of the above, the Tribunal finds that the Claimant has successfully established through expert and documentary evidence, the existence of an obligation from the Respondents to provide an EIA at the end of the PSA to the Claimant.

713. In relation to the quantum of the claim, the Tribunal notes that PetroMasila obtained an EIA from Al Safa in January 2013.[692] Furthermore, the Claimant's witness, Mr. Binnabhan, argues that the cost of the EIA amounted to USD 70,000.[693] By contrast, the Respondents have never disputed the cost of the EIA report, or suggested that its value is unreasonable.[694]

714. Consequently, the Tribunal finds that the Respondents were in breach of this obligation, and grants the Claimant's claim in the amount of USD 70,000.

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[688] 1EXR of Mr. Larkin, p. 13.
[689] Exhibit C-5, Letter from Contractor to the Ministry re Future Masila Development Plan dated 7 February 2011, pp. 1, 2, 5, and 19.
[690] Exhibit C-377, Block 14 Business Risks and Transition Plan Presentation, for the 27 May 2011 Management Committee Meeting dated 27 May 2011, slide 6.
[691] SoRDCC, paras. 666-669.
[692] Exhibit C-74, Phase I Environmental Site Assessment Masila Block 14, Republic of Yemen, prepared by ALSAFA Environmental & Technical Services LLC, January 2013, dated 16 January 2013.
[693] SoRDCC, para. 658; 1WS of Mr. Binnabhan, para. 76.
[694] ASoDCC, paras. 486-502; SoRjSRCC, paras. 202-213; Respondents' PHB (first round) 2019, paras. 194-197.

II. The NORM claims

715. The Tribunal first observes that the Claimant initially pursued several sub-heads of claims in relation to NORM. However, since the SoRDCC, the Claimant only advances claims in relation to NORM-canisterisation, and to the disposal of NORM-contaminated equipment left behind at the end of the PSA.[695]

716. In relation to this sub-head of claim, the Tribunal will first analyze the Canisterisation claim (A), followed by the Disposal of NORM-contaminated Equipment claim (B).

A The Canisterisation claim

717. The Claimant claims USD 1,309,000 for the disposal of canisterised NORM in 3 wells which it claims lacked proper integrity and were not suitable for the disposal of NORM in accordance with Good Oilfield Practice. In essence, the claim is for the cost of re-entering these wells and making them safe for containing NORM. The Respondents first contend that any of the abandonment obligations have already been settled pursuant to the 1996 Settlement Agreement.[696] Additionally, they argue that disposal of NORM in this manner was consistent with Good Oilfield Practice, and has not caused any damage.

718. With respect to settlement, the Respondents argue that pursuant to paragraph 620 of the Partial Award, the Tribunal has declared that this obligation was settled.

719. In order to determine if the Claimant is pursuing the same claim that the Tribunal found to be settled, the Tribunal will analyze the evolution of the Claimant's claim in the light of the Partial Award.

720. In the Original Statement of Claim the Claimant pleaded two apparently distinct heads of claim in relation to NORM issues. From paragraphs 237-241 the claim was in relation to the "*disposal of NORM in wells without proper well integrity checks*". Whereas from paragraphs 266-280 the Claimant claimed that in breach of Good Oilfield Practice, the Respondents failed to "*devise and implement a comprehensive plan for the safe handling, storage, transportation, processing, treatment and disposal of such materials*". As a sub-claim within the latter, the Claimant contended "*the cost of cleaning up and disposing of NORM-contaminated oilfield equipment to be US$ 2,000,000*".[697]

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[695] SoRDCC, paras. 472, 521.
[696] ASoDCC, para 468; Respondents' PHB (first round) 2019, paras. 162 d, 163 b, 165.
[697] OSoC, para, 279.

721. The Respondents submitted the following threshold legal defenses in relation to the foregoing claims: (i) they argued that the USD 1,309,000 claim was settled pursuant to the 1996 Settlement Agreement;[698] and (ii) they argued that the USD 2,000,000 claim had been waived pursuant to the Claimant's actions throughout the PSA.[699]

722. The relevant parts of the Partial Award in relation to the first NORM claim are as follows:

> *"612. **Respondents contend that the following claims of Claimant have been settled through the Settlement Agreement**: (...) (ii) the claims related to the increased abandonment costs, where Claimant contends that US$ 124,480,000 should be paid as abandonment costs of the "inadequately cemented wells" (overlap with primary cement program claim), US$ 124,944,000 as abandonment costs of the "adequately cemented wells," US$ 9,060,000 for reabandoning the "improperly abandoned wells" **and US$ 1,309,000 for re-abandoning wells in which NORM-contaminated equipment was canisterised**, (iii) the claim related to the remediation of sludge ponds, the value of which is US$ 2,850,000 and (iv) the claim related to the cost of abandoning sections of the MOL, redundant flow lines, surface facilities and disused borrow pits, the value of which is US$ 15,500,000. (...)*
>
> *616. However, by virtue of the more specific Clause 9 of the Settlement Agreement, Claimant agreed to "forever" release and discharge Respondents "from any and all claims and demands of any kind and nature whatsoever, at law or in equity, or under any statute relating to the carrying out the work necessary upon termination or cancellation under the Masila Block (14) PSA with respect to dismantlement, abandonment and reclamation." (Exhibit R-1). This provision shows that Respondents' release from abandonment-related claims is unlimited in time and scope and that future breach claims are not excluded. (...)*
>
> *620. **Consequently, the Arbitral Tribunal finds that all current claims of Claimant related to Respondents' dismantlement, abandonment and reclamation obligations under the PSA have been fully settled in accordance with Clause 9 of the Settlement Agreement**. Despite having had ample opportunity to do so, Claimant has not contested that **the following claims relate to Respondents' dismantlement, abandonment and reclamation obligations under the PSA and Good Oilfield Practice**: (...)*
> *(ii) The claims of US$ 124,944,000 related to the abandonment costs of 323 "adequately cemented wells," US$ 9,060,000 related to the re-abandonment costs of 5 "improperly abandoned wells" and of **US$ 1,309,000 related to the re-abandonment of 3 wells into which NORM-contaminated equipment was disposed.70**"*[700] [emphasis added].

723. The relevant parts of the Partial Award in relation to the second NORM claim are set forth below:

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[698] OSoDCC, Annex 1, Row 3.
[699] OSoDCC, Annex 1, Row 11.
[700] Partial Award, paras. 612, 616, 620.

> *"785. Under this head of claim, Claimant argues that Respondents failed to give adequate warnings, training and equipment to the workforce with respect to the existence and risk of contamination from NORM-contaminated sludge and equipment, to reduce or control NORM exposure to personnel working close to the Sunnah field pipelines and to manage, clean and dispose of NORM-contaminated equipment safely in breach of Good Oilfield Practice and good faith (WS of Mr. Binnabhan, para. 78, and EXR of Mr. Larkin, pp. 48-51).* ***Claimant has also raised a specific claim in respect of the practice of canisterisation of NORM contaminated equipment at the end of the PSA's term, the value of which is US$ 2,000,000.***
>
> *786. According to Respondents, Claimant's NORM claims are time-barred in accordance with the three-year and ten-year limitation period under Article 10.2 of the UNIDROIT Principles, with the exception of the specific claim in respect of Respondents' practice of canisterisation of NORM-contaminated equipment.* ***Considering that Claimant's specific claim in respect of Respondents' practice of canisterisation of NORM-contaminated equipment is subject to Respondents' waiver/estoppel defence, the Arbitral Tribunal will assess the Parties' evidence on that specific claim in the following section.***
>
> *892. In the Arbitral Tribunal's opinion, the above evidence does not corroborate Respondents' position that Claimant's refusal to approve the UNICO contract evinced a clear intention not to exercise its rights in respect of Respondents' practice of canisterisation of NORM contaminated equipment that was different from the UNICO de-contamination proposal and on which Claimant never agreed. Despite Claimant's eight-month delay to send a team for the NORM-related field visit,* ***there is no evidence that Claimant ever agreed on Respondents' adopted method of canisterisation that Claimant unequivocally relinquished its right to bring a claim in that respect.***
>
> *893.* ***Accordingly, the Arbitral Tribunal finds that Claimant has not waived its NORM claims in respect of Respondents' practice of canisterisation of NORM-contaminated equipment***".[701] [emphasis added].

724. In essence, the Tribunal found that: (i) the USD 1,309,000 claim (pleaded in paragraphs 237-241 of the OSoC) was settled pursuant to the 1996 Settlement Agreement; and that (ii) the USD 2,000,000 claim (pleaded in paragraphs 266-280 of the OSoC) was not waived pursuant to the Claimant's actions throughout the PSA.

725. The Tribunal referred to the USD 2,000,000 as the "*canisterisation claim*" due to the way in which the Parties pleaded their case in the early submissions. However, the Partial Award specified which claim had been settled pursuant to the 1996 Settlement Agreement, as follows:

[701] Partial Award, paras. 785, 786, 893.

> *"620. **Consequently, the Arbitral Tribunal finds that all current claims of Claimant related to Respondents' dismantlement, abandonment and reclamation obligations under the PSA have been fully settled in accordance with Clause 9 of the Settlement Agreement**. Despite having had ample opportunity to do so, Claimant has not contested that **the following claims relate to Respondents' dismantlement, abandonment and reclamation obligations under the PSA and Good Oilfield Practice**:*
> *(…)*
> *(ii) **US$ 1,309,000 related to the re-abandonment of 3 wells into which NORM-contaminated equipment was disposed.**[70]"*[702] [emphasis added].

726. Not only did the Partial Award explicitly pin-point the settled claim by referring to its amount, but under footnote 70 it specified the extracts of the OSoC of the claim, and the excerpts of Mr. Sands' first expert report which supported the claim, as follows: "*SoC, paras. 237-241, and, in particular, para. 247(3); EXR of Mr. Sands, paras. 161-170*". It is clear that this claim was the one regarding the disposal of NORM-contaminated equipment in three wells.

727. Unsurprisingly the Claimant, in its ASoC redline version, eliminated the claim in relation to the USD 1,309,000, as it appears below, and continued to pursue only its USD 2,000,000 claim in relation to the cost of cleaning up and disposing of NORM-contaminated oilfield equipment:[703]

~~(7) Disposal of NORM in wells without proper well integrity checks~~

~~237. Normally Occurring Radioactive Material ("NORM") is a usual by-product of oil production.~~

~~238. The Contractor disposed of NORM in three wells: North Camaal 9, Wadi Soham 1 and Sunah 1.~~

~~239. The Ministry does not criticize the fact that the oil operations produced NORM or the in principle decision to dispose of NORM in 3 deep wells.~~

~~211~~ CER Sands paragraph 185 and 190
~~215~~ CER-Sands paragraph 196.

[702] Partial Award, paras. 612, 616, 620.

[703] ASoC, redline version old paras. 237-241, 247, new paras. 324-338. The Tribunal further notes that the ASoC, para. 215 expressly states that "*in the light of the Partial Award the Ministry is not pursuing claims in relation to those items set out at paragraphs 209 (2), (3), (7), (…)*" and that item (7) of paragraph 209 is "*Disposed of Naturally Occurring Radioactive Material ("NORM") in wells without proper well integrity checks*".

240. The Contractor breached the PSA, however, because it failed to ensure that these wells were properly abandoned after NORM was introduced.[136] It failed to check the location of two of the cement plugs in well North Gamaal 9 and one of the plugs in Sunah 1. The Mukalla and Harshiyat aquifers had not been isolated in wells Wadi Seham 1 and Sunah 31 (because of the Contractor's inadequate cementing of the 9 5/8" casing). This creates an unsafe situation and a risk of environmental damage. NORM could potentially leak from the wells to surface level and/or out of the wells and into the aquifers.

241. The presence of NORM is a further reason why these 3 wells need to be re entered and abandoned in such a way that barriers between the aquifers and between the NORM and the surface are confirmed.

(8) Improper Disposal of Produced Water

242. From 1993 to 1996, the Contractor disposed of produced water by injecting it into the Harshiyat formation. Mr. Sands describes this as *"extremely unfortunate"*.[137] It was a clear breach of the PSA.

Cost Recovery Mitigation

308. In relation to the claims for which the Contractor would have been able to cost recover, it is the Ministry's primary case that the PSA having expired, the Contractor must give 100% of the value of the claim by way of damages. The logic behind this argument is that the PSA having expired, the Contractor is no longer entitled to recover any costs from oil produced and saved because the Contractor is no longer involved in the oil production. Moreover, the PSA specifically provides at 9.1(d) that there can be no cost recovery after the PSA. Alternatively, if the Tribunal is not with the Ministry on this point those claims for which the Contractor would have been able to cost recover during the PSA, they need to be reduced by the cost oil recovery percentage thereby reducing the claim by 70%.

II. ABANDONMENT COSTS

[136] See CER Sands paragraphs 166-170.
[137] CER Sands paragraph 261.

728. Notwithstanding the foregoing, in its SoRDCC, the Claimant asserts that it:

> "*makes 2 claims in respect of NORM:*
> *a.* ***US$1,309,000 for the disposal of canisterised NORM in 3 wells which lacked proper integrity and so were not suitable for the disposal of NORM****. The claim is for the cost of re-entering these wells and making them safe for containing NORM.*
> *b.* ***US$2,000,000 for the disposal of NORM contaminated equipment left behind at the end of the PSA****, which should have been carried out by the Contractor prior to or at the end of the PSA. The quantum of these claims has not changed, contrary to*

paragraph 467 of ASoD. ***There have always been 2 claims, for these separate amounts***".[704] [emphasis added].

729. The Tribunal needs thus to determine if the "*US$ 1,309,000 related to the re-abandonment of 3 wells into which NORM-contaminated equipment was disposed*" which was declared settled in the Partial Award[705] is the same claim as the "*US$1,309,000 for the disposal of canisterised NORM in 3 wells which lacked proper integrity and so were not suitable for the disposal of NORM*", which the Claimant pursues in its SoRDCC.

730. The Tribunal notes that the general factual matrix underlying both claims is the disposal of NORM-contaminated equipment at the end of the PSA in three wells, namely, North Camaal 9, Wadi Seham 1, and Sunah 1.[706]

731. The legal argument in relation to the claim in the OSoC is the breach of the PSA and Good Oilfield Practice, as the Respondents "*failed to ensure that the wells were properly abandoned after NORM was introduced*".[707] The Claimant argued that Respondents failed to check the location of the cement plugs which created an environmental risk.[708] The legal argument in relation to the claim in the SoRDCC is that in breach of the PSA and Good Oilfield Practice, "*the three wells were poorly abandoned*".[709] Indeed, at the final hearing, during the cross-examination of Mr. Hilbert, the Claimant attempted to demonstrate that the Respondents failed to check the location of the cement plugs in the aforementioned wells.[710]

732. In the OSoC, the expert evidence to support the Claimant's contention in relation to the deficiency of the abandonment of the three wells by the Respondents was Mr. Sands first expert report, specifically paragraphs 166 to 170.[711] In its SoRDCC the Claimant continues to assert that the "*first Sands Expert Report confirms that, at the end of the PSA, none of the three wells used by the Contractor to dispose of the NORM-contaminated equipment were abandoned in accordance with the Contractor's Wellbore Integrity Guidelines*"[712] and quotes Mr. Sands' first expert report, paragraphs 166 to 170. Additionally, the Claimant alleges that "*Mr Sands' second expert report re-affirms that the NORM wells were not properly abandoned by the Contractor*".[713] Finally, Mr. Sands' second cxpert report concludes that

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[704] SoRDCC, para. 472.
[705] Partial Award, para. 620.
[706] OSoC, para. 238; SoRDCC, para. 488.
[707] OSoC, para. 240.
[708] OSoC, para. 240.
[709] SoRDCC, para. 489; see also SoRDCC, para. 488
[710] Cross-examination of Mr. Hilbert, Transcript of the final hearing, day 4, p. 179 lines 6 to 24.
[711] OSoC, para. 240.
[712] SoRDCC, para. 488.
[713] SoRDCC, para. 490.

"all three NORM disposal wells still require intervention to complete permanent abandonment".[714]

733. The USD 1,309.000 quantum of the claim in the OSoC was based on Mr. Sands first expert report. According to Mr. Sands, the estimate *"for the total cost of re-entry and* ***re-abandonment*** *of the three wells is presented in Exhibit 40 and is US$ 1.309 MM"*.[715] In the SoRDCC the Claimant continues to cite this extract of Mr. Sands first expert report as the proof of the quantum of the claim,[716] and additionally states that this estimate is "maintained" in Mr. Sands second expert report.[717]

734. In light of the above, the Tribunal reaches the conclusion that: (i) the underlying facts of both claims are the same; (ii) the alleged breach in the claims is the same (the deficient abandonment of the three wells in which NORM-contaminated equipment was disposed at the end of the PSA); (iii) both claims rely on the same excerpts of Mr. Sands first expert report; and (iv) the quantum of the claims is the same USD 1,309.000 as identified in paragraph 170 of Mr. Sands first expert report as the cost of re-abandoning the three wells.

735. The Tribunal is convinced that the Claimant's canisterisation claim under its SoRDCC is the same claim that was pleaded in paragraphs 237-241 of its OSoC, (removed from its ASoC) and which in its SoRDCC continues to be supported by paragraphs 161-170 of Mr. Sands' first expert report. It is indeed the same claim which was identified under footnote 70 in paragraph 620 of the Partial Award, to rely on *"SoC, paras. 237-241, and, in particular, para. 247(3); EXR of Mr. Sands, paras. 161-170"*.[718]

736. Therefore, the Tribunal decides that this claim has already been declared as settled in paragraph 620 of the Partial Award and must be dismissed.

737. The Tribunal finally observes that even if it was not the same claim that was declared to have been settled as mentioned above, *quod non*, it is in essence a claim in relation to the abandonment of three wells filled with NORM-contaminated equipment at the end of the PSA, which fell under the ample scope of clause 9 of the Settlement Agreement. The Tribunal incorporates by reference its reasoning in the Partial Award, regarding the scope of the Settlement Agreement.[719]

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[714] 2EXR of Mr. Sands, para. 120.
[715] 1EXR of Mr. Sands, para. 170.
[716] SoRDCC, para. 489.
[717] SoRDCC, para. 495.
[718] Partial Award, para 620, footnote 70.
[719] Partial Award, paras. 594-621.

B The NORM-contaminated Equipment claim

738. According to the Claimant, in breach of Good Oilfield Practice, the Respondents left 52 pieces of NORM-contaminated equipment in the NORM storage area at the end of the PSA.[720] The Respondents contend that this claim is time-barred as it has been indicated in the Partial Award,[721] and that, in any case, they only left four pieces of NORM-contaminated equipment in the NORM storage area at the end of the PSA.[722]

739. The Partial Award determined that the USD 2,000,000 claim in relation to the cost of cleaning up and disposing of NORM-contaminated oilfield equipment (pleaded in paragraphs 266-280 of the OSoC) was not defeated by the Respondents' threshold legal defenses. As stated above, the Tribunal referred to the USD 2,000,000 claim as the "*canisterisation claim*" due to the way in which the Parties pleaded their case in the early submissions.

740. In order to avoid duplication, the Tribunal refers to its analysis in relation to the Claimant's OSoC, the Respondents' threshold legal defenses, and the outcome of the Partial Award in paragraphs 720 to 728 above.

741. The Tribunal will first determine if the Claimant's contention that "*the cost of cleaning up and disposing of NORM-contaminated oilfield equipment to be US$ 2,000,000*"[723] which was not defeated by the Respondents' threshold legal defenses is the same claim as the one regarding the "*US$2,000,000 for the disposal of NORM contaminated equipment left behind at the end of the PSA*",[724] pleaded in the SoRDCC.

742. The Tribunal considers that the claims: (i) arise from the same factual matrix which was first argued in paragraphs 266-280 of the OSoC (unaltered in the ASoC, and then developed in the SoRDCC); (ii) allege the same breach in relation to the non-disposal of NORM-contaminated equipment at the end of the PSA;[725] and (iii) the USD 2,000.000 quantum of the claim in the SoRDCC, is identical as the one in the OSoC, and ASoC.[726] Therefore, it is the same claim as the one initially pursued in paragraphs 266-280 of the OSoC. In any case, both Parties continued to plead this claim until the last stage of the arbitration, thus, none of the Parties' rights have been hindered in any manner.

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[720] SoRDCC, paras. 518 onwards.
[721] ASoDCC, para. 464.
[722] SoRjSRCC, paras. 219-220
[723] OSoC, para, 279.
[724] SoRDCC, para. 472.
[725] OSoC, para. 268; ASoC, para. 326; and SoRDCC, para. 518.
[726] OSoC, para. 279; ASoC, para. 337; and SoRDCC, para. 518.

743. The Tribunal observes in the first place that this claim is somehow related to the canisterisation claim assessed in the Sub-section (A) above. Indeed, the NORM-contaminated equipment which is the subject-matter of this claim, would have not been left in the storage area at the end of the PSA, had it not been too large to be disposed through canisterisation. As adduced by Mr. Tracy:

> "*Between 10 November and 7 December 2011, the canisterization took place. The Contractor had identified three hydrocarbon abandoned wells, which were suitable for the disposal of the NORM-contaminated equipment. I have described the steps taken to hydrocarbon abandon those wells in greater detail at paragraphs 313 to 317 of my witness statement. Four pieces of equipment, which were too large to be disposed of downhole, remained in the fenced-off NORM storage area in the yard at the CPF following the canisterization*".[727] [emphasis added].

744. Furthermore, the Tribunal finds that the evidence presented with respect to this claim is sufficient to establish that as a matter of Good Oilfield Practice, the Respondents had a duty to dispose of the NORM-contaminated equipment at the end of the PSA in a controlled manner.[728] The Tribunal is particularly convinced of the existence of this duty from the cross-examination of Mr. Tracy at the final hearing:

> "Q. *And it meant that you had to store NORM safely until it could be disposed of?*
> *A. Yes, that would be good oil field practice.*
> *Q. And it meant that you had to dispose of the NORM safely?*
> *A. It -- yes, at the end of the PSA it's what we did.*"[729]

745. The Tribunal's second task is to determine the number of NORM-contaminated pieces that the Respondents left at the storage area at the end of the PSA. On the one hand, the Claimant argues that the Respondents left 52 pieces of NORM-contaminated equipment in the NORM storage area at the end of the PSA.[730] By contrast, the Respondents contend that they only left four pieces of NORM-contaminated equipment in the NORM storage area at the end of the PSA.[731]

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[727] 1WS of Mr. Tracy, paras. 162-163.

[728] Exhibit C-194, Tab 52, International Association of Oil and Gas Producers (2008) 'Guidelines for the management of Naturally Occurring Radioactive Material (NORM) in the oil & gas industry', Report No 412, September 2008, pp. 23-25; R-154, Code of Practice for CNPY Waste Management Facilities dated 1 June 2008, p. 5; Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 225, line 19 to p. 226, line 22; Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 229, line 12 to p. 230, line 2; 1EXR of Mr. Larkin, p. 51.

[729] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 226 lines 18 to 22.

[730] SoRDCC, para. 519; Claimant's PHB (first round) 2019, para. 226; Exhibit C-386, NORM Yard Inventory - PetroMasila Spreadsheet.

[731] SoRjSRCC, para. 219; 1Witness Statement of Mr. Kevin Tracy, para. 152; R-231, Excel spreadsheet entitled "NORM Storage Pile" dated March 2011.

746. The Tribunal is not particularly convinced by the Claimant's undated "NORM Yard Inventory" (**Exhibit C-386**), nor by the Respondents' undated "NORM Storage Pile Document" (**Exhibit R-231**).

747. An edited excerpt of Exhibit C-386[732] presents the 20 items claimed by the Claimant that amounted to the 52 pieces of NORM-contaminated equipment which were left by the Respondents at the end of the PSA.

Figure 12. NORM Yard Inventory

Item No	Inventory ID/ Part Number	Item Description	Date Received	Status	Area		Item Value	Qty
1		ESP Boxes	12/01/2011	Storage				6
2		Joints, 5.5" LTC Casing	12/01/2011	Storage				10
3		Wooden Boxes	12/01/2011	Storage				3
4		Steel Box	12/01/2011	Storage				1
5	21K-74199	Motor	12/08/2011	Storage				1
6	11607670	Seal	12/08/2011	Storage				1
7	11607668	Seal	12/08/2011	Storage				1
8	11607665	Intake	12/08/2011	Storage				1
9	10615872	Pump	12/08/2011	Storage				1
10	10511806	Pump	12/08/2011	Storage				1
11	11603949	MLE Cable	12/08/2011	Storage				90 Ft
12	TB2766	Zenith Multi-Sensor	12/08/2011	Storage				11
13		Box Cont: Nuts, Bolts, ESP Parts	12/10/2011	Storage				1
14		Plastics Bags Containing Spent PPE	12/10/2011	Storage				4
15	SN: 10591176	Pump, P23	12/10/2011	Storage				1
16		Container 40ft Wash Bay	12/11/2011	Storage				1
17		Steel Ladder	12/11/2011	Storage				1
18		Box Cont: Nuts, Bolts, ESP Parts	14/12/2011	Storage				1
19		Plastics Bags Containing Spent PPE	14/12/2011	Storage				4
20	SN: 10591176	Pump, P23	14/12/2011	Storage				1

748. All of the "dates received" are before the expiry of the PSA, but, save for the last three items amounting to six pieces which arrived on 14 December 2011, they were all received before the canisterisation finished in 7 December 2011. The Tribunal is unable to ascertain from the undated document that the status "storage" was updated at the end of the PSA, or at all.

749. Evidently, what the Claimant should have demonstrated, but failed to do, was that the NORM-contaminated equipment was not disposed through canisterisation, and/or arrived at the storage area after the canisterisation process and before the end of the PSA.[733]

750. The Tribunal finds that the Claimant has failed to establish that at the expiry of the PSA, the Respondents left 52 pieces of NORM-contaminated equipment at the storage area. The Tribunal, however, relies on the Respondents admission that at the end of the PSA they left four pieces of NORM-contaminated equipment.

[732] Removing some irrelevant columns in order to fit the page layout and for it to be legible.
[733] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 235 lines 3 to 25.

751. In relation to the quantum of this claim, the Claimant claims USD 2 million as the cost of cleaning up and disposing of the NORM-contaminated equipment. The Claimant used the USD 2 million figure that Nexen estimated in September 2010 that the "*de-contamination project*" would cost,[734] which, according to it, is consistent with the Respondents WP&Bs of 2010 and 2011, in which in each year the Respondents budgeted USD 1 million dollars in relation to NORM-contaminated equipment decontamination.[735]

752. The Tribunal will need to review the history of the de-contamination project in order to determine whether the Claimant proved its claim on quantum.

753. The Claimant's witness, Mr. Bahumaish, explained that on 17 August 2010, there was a meeting between PEPA, the Respondents, and OpCom, in which the Respondents presented their preferred way of NORM disposal, for which UNICO was being sub-contracted.[736] It is clear from the evidence in the record that this was a decontamination contract for the NORM-contaminated equipment[737] of USD 2,000,000.[738] It is also proven that after months of correspondence and presentations in relation to this, the Claimant did not approve this contract.[739]

754. As the de-contamination contract was not approved by the Claimant, the Respondents proceeded to dispose the NORM-contaminated equipment through canisterisation,[740] except for the four pieces of NORM-contaminated equipment that were left at the end of the PSA in the storage area, as stated above.

755. The Claimant however, intends to receive the total value of the de-contamination project of all the NORM-contaminated equipment generated at the end of the PSA (USD 2,000.000) despite the Respondents having undertaken NORM-disposal through an alternative option (canisterisation), and having allegedly only left behind 52 pieces of NORM-contaminated equipment in the storage area.

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[734] SoRDCC, para. 520; Exhibit C-194, Tab 22, Nexen Petroleum UK Ltd (2010). UK Operations HSE&SR Audit/Visit Report, Nexen Petroleum Yemen: UK Environmental Visit 9th-13th September 2010. ECN-HS-FOR-00242 Rev A, p. 9.

[735] SoRDCC, paras. 533-535; Exhibit R-351, Tab 7, 2010 Work Programme & Budget – Block 14, Masila Area p. 26 (2010); Exhibit R-213, 2011 Work Program and Budget, p. 26 (2011).

[736] 1WS of Mr. Bahumaish, para. 30.

[737] 1WS of Mr. Tracy, para. 153; Exhibit R-207, Justification Memorandum for "NORM Remediation Services" by Kevin Snively dated 18 July 2010.

[738] SoRDCC, para. 520; Exhibit C-194, Tab 22, Nexen Petroleum UK Ltd (2010). UK Operations HSE&SR Audit/Visit Report, Nexen Petroleum Yemen: UK Environmental Visit 9th-13th September 2010. ECN-HS-FOR-00242 Rev A, p. 9; 1EXR of Mr. Larkin, p. 49.

[739] SoRDCC, para. 514; 1WS of Mr. Bahumaish, para. 39; 1WS of Mr. Tracy, para. 155.

[740] SoRDCC, para. 515; 1WS of Mr. Tracy, para. 157.

756. The Tribunal considers that the Claimant was unable to demonstrate the quantum of its claim when it was alleging that the Respondents had left behind 52 pieces of NORM-contaminated equipment after the PSA, let alone now that it has been demonstrated that the Respondents only left four pieces.

757. Although the Tribunal effectively finds that in breach of Good Oilfield Practice the Respondents indeed left four pieces of NORM-contaminated equipment in the storage area, the Claimant had the burden of proofing the quantum of its claim, and has failed to do so.

758. The Tribunal has not been provided with any reasonable criteria to calculate the damage (if it does exist) generated by leaving 4 pieces of NORM-contaminated equipment in the storage area, at the end of the PSA. In light of the above, the Tribunal dismisses the Claimant's claim.

III. Waste Management claims

759. The Tribunal notes that the Claimant pursues three different sub-heads of claim, which will be addressed as follows: (A) the CPF Incinerator claim; (B) the Waste Management claims; and (C) the Sludge Ponds claim.

A The Claimant's CPF incinerator claim

760. The Claimant argues that the CPF incinerator installed in 2008 was not fit for purpose, and was not working properly at the end of the PSA. It is the Claimant's case that this was a breach of Articles 8 including Good Oilfield Practice, and 18.1(b) of the PSA. By contrast, the Respondents contend that the 2009 incinerator had been repaired and the incinerator was in operation upon the PSA's expiry.

761. As a preliminary remark, the Tribunal observes that even though the Parties have not agreed upon the exact date of installation, they have been referring to the same and only incinerator located at the CPF.

762. The Tribunal notes that the Parties' submissions suggest that there is no dispute regarding: (i) the Respondents' obligation as per the PSA and Good Oilfield Practice, to hand in to the Claimant the CPF incinerator operating in "*good working order*" at the expiry of the PSA; and (ii) the fact that this claim has been unaffected by the Partial Award.

763. The dispute between the Parties is whether the CPF incinerator was fit for purpose and in good working order at the PSA's expiry.

764. The Tribunal finds that it has been sufficiently proven that the CPF incinerator experienced several operating issues throughout the PSA.

765. An internal email from the Respondent 1 in October 2009 illustrates the issues with the incinerator and stated that "*we feel this is a warranty issue on new equipment and not a maintenance issue*".[741] Another internal email dated November 2009 demonstrates the defects that the incinerator was experiencing.[742]

766. An Inspection Report performed by Nexen, dated July 2010, revealed cracks and corrosion, and the general bad condition in which the CPF incinerator was at the time.[743] This is further corroborated by the September 2010, Nexen Audit Report, which established an action plan in order to address the issues regarding the CPF incinerator.[744]

767. By January 2011, another internal email from Respondent 1 stated that due to the "*continuous failure of the incinerator and lack of spare parts, [i]t has been decided to lower the amount of waste filters burnt/day by half*".[745] Nexen's minutes of meetings from early February 2011 demonstrate that "*the unreliability of the incinerator has caused a large amount of used water filters to be stock piled at the landfill*".[746] Even an email from Mr. Kevin Tracy dated August 23, 2011 suggests that at the time, the incinerator was "*out of service again*".[747]

768. The Respondents' expert, Mr. Catterall confirms that the CPF incinerator "*appears to have suffered from a series of commissioning and operating issues and failed to reach its operating capacity for a sustainable period*".[748]

769. The above clearly demonstrates the multiple deficiencies of the incinerator from 2009 until late 2011. However, the relevant question the Tribunal needs to answer is whether those issues persisted at the PSA's expiry.

770. The Respondents rely on a single document from Nexen in order to prove that the incinerator was properly repaired by October 5, 2011,[749] before the expiry of the PSA, and thus that it was in good working order at the end of the PSA.[750]

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[741] Exhibit C-387, Internal Contractor email re: Incinerator Project and gasket defect dated 25 October 2009.
[742] Exhibit C-388, Internal Contractor email from Hussam Rawashdeh (Nexen Field Operations Advisor) re: Pennram Nov 13 Incinerator Deficiencies dated 16 November 2009.
[743] Exhibit C-194, Tab 46, CNPY Corrosion and Inspection Group Inspection Report: CPF Landfill -Incinerator Model # PHCA-1100, 20 July 2011, pp. 1-3.
[744] Exhibit C-194, Tab 22, CNPY Corrosion and Inspection Group Inspection Report: CPF Landfill -Incinerator Model # PHCA-1100, 20 July 2011, pp. 11-12.
[745] Exhibit C-389, Internal Contractor email from Hussein (Field Support) re: Waste Incinerator failure and workload reduction dated 23 January 2011.
[746] Exhibit C-209, Contractor meeting minutes dated 5 February 2011.
[747] Exhibit C-390, Internal Contractor emails re: Incinerator damage and repair dated 23 August 2011.
[748] 1EXR of Mr. Catterall, para. 80.
[749] Exhibit R-243, Engineering & Construction Service Request (ESR) Form dated 4 August 2011.
[750] Re direct-examination of Mr. Tracy, Transcript of the final hearing, day 3, p. 96 lines 1 to 4.

771. The document shows the repairs undertaken in late 2011, in relation to the CPF incinerator. The short description of the service provided reads "*to repair the incinerator cracks*", and the detailed description provides "*to repair several areas of cracks and corrosion on the bottom plate of the primary burner of the incinerator*".[751]

772. The Tribunal finds that the Claimant has established that the "cracks and corrosion" of the incinerator were not the problems *per se*, but consequences of the lack of efficiency of the incinerator. It has been demonstrated that it was the incomplete combustion of wastes which caused some products (which were not completely incinerated) to get under the hydraulic ram of the incinerator, further damaging it, creating cracks and corrosion.[752]

773. Although it is undisputed that the purpose of the incinerator was mainly to burn the filters produced in large numbers as a by-product of treating produced water,[753] it seems from the evidence in the record that the actual cause of the lack of efficiency of the incinerator was that "*it was not meant to take this waste stream*";[754] apparently "*this incinerator does not appear to be designed to burn the whole filters*".[755] Therefore, repairing the cracks and corrosion could not, and indeed, did not, solve the root of the problem in relation to the incinerator.

774. In any event, regardless of the actual cause of the cracks and corrosion, it has been sufficiently established that the incinerator never achieved the level of efficiency required. The Respondents' witness, Mr. Tracy, admitted as much during his cross-examination:

> "Q. *But it's the same point, isn't it, that, even in the last quarter of the PSA, the incinerator was not able to keep up with the production of used water filters that needed to be burnt?*
> *A. That's true. We were not able to handle all the water filters in the incinerator.*"[756]
> "*Q. Yes. So it was installed in 2008 but it never achieved the efficiency which was required from it?*
> *A. I would agree*".[757]

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[751] Exhibit R-243, Engineering & Construction Service Request (ESR) Form dated 4 August 2011, p.1.
[752] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 3, p. 243, line 3 to p. 244, line 6.
[753] Claimant's opening submissions at the final hearing, day 1, p. 78, lines 1 to 14; ASoDCC, para. 545; C-194, Tab 47, ERM (2007) 'Treatment and Disposal of Wastes from the Masila Block, Yemen', report to Canadian Nexen, March 2007, p. 47.
[754] Exhibit C-74, Phase I Environmental Site Assessment Masila Block 14, Republic of Yemen, prepared by ALSAFA Environmental & Technical Services LLC, January 2013 dated 16 January 2013, p. 4-5.
[755] Exhibit C-74, Phase I Environmental Site Assessment Masila Block 14, Republic of Yemen, prepared by ALSAFA Environmental & Technical Services LLC, January 2013 dated 16 January 2013, p. 4-13.
[756] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 240 lines 19 to 24.
[757] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 2, p. 241 lines 15 to 17.

775. The Claimant contends that the capital cost of the incinerator in 2007 was USD 2,250,000[758] and that such figure adjusted by Yemen's inflation rate[759] would be equivalent to USD 3,380,000, in 2011, the date on which the Respondents should have replaced the damaged incinerator.[760]

776. The Tribunal observes that the Respondents have not challenged this amount after the specific value of the incinerator was quantified in the Claimant's SoRDCC, and additionally finds this calculation to be reasonable.

777. In light of the above, the Tribunal finds that the Claimant has proven that in breach of the PSA and Good Oilfield Practice, the Respondents did not hand in a CPF incinerator fit for purpose and in good working order at the expiry of the PSA. Consequently, the Tribunal decides that the Claimant's claim in the amount of USD 3,380,000 for the cost of replacing the defective incinerator is duly justified.

B The Waste Management Facilities claim

778. According to the Claimant, the Respondents' failure to comply with the 2007 ERM report was a breach of Articles 8.1, 8.2, and 22.1 of the PSA.[761][762] In the Claimant's own words: the "*Ministry's claim is in respect of work and issues identified by the March 2007 ERM Report*".[763]

779. The Tribunal will first address the Respondents' time-bar defense. The Respondents argue that in the Partial Award, the Tribunal declared that this claim was time-barred. [764] On the other hand, the Claimant contends that it is not time-barred since its claim is in respect of the Respondents' on-going failure from March 2010 to the end of the PSA to create facilities that should have been put in place then; their creation after March 2010 of waste that should not have been created; and their failure to treat waste from March 2010 that should have been treated.[765]

780. The relevant parts of the Partial Award in relation to the Waste Management Facilities claim are set forth below:

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[758] Exhibit C-194, Tab 47, ERM (2007) 'Treatment and Disposal of Wastes from the Masila Block, Yemen', report to Canadian Nexen, March 2007 p. 53.
[759] 1EXR of Mr. Larkin, p. 42
[760] SoRDCC, para. 544.
[761] Claimant's PHB (first round) 2019, para. 263.
[762] Until the final hearing, the legal basis of the Claimant's claim was Article 8 of the PSA and Good Oilfield Practice. The Claimant argued Article 22.1 of the PSA as a basis to its claim only at the final hearing and in its PHBs. In any event, this modification does not change the outcome of the Tribunal's decision.
[763] SoRDCC, para. 617.
[764] ASoDCC, para. 521; SoRjSRCC, para. 222; Respondents' PHB (first round) 2019, para. 178.
[765] SoRDCC, para. 572; Claimant's PHB (first round) 2019, para. 277.

"831. According to Claimant, the lack of proper incinerators, the practice of open burning of hazardous waste and dumping/uncontrolled disposal of waste and the fact that four unlined sludge ponds at the CPF and four lined sludge ponds at the Terminal remained on Block 14 on the expiry of the PSA breached Articles 8.1 and 8.2 of the PSA, Good Oilfield Practice and good faith (EXR of Mr. Larkin, pp. 33-43). (…)

833. With respect to the remaining waste management claims, Claimant specifies that they include the lack of proper incinerators, the unsuitable open burning of hazardous waste and the dumping/uncontrolled disposal of waste. (…)

835. The Arbitral Tribunal notes Respondents' evidence that all of their waste management facilities and practices were in place since the mid-1990s, apart from the incinerator at the CPF that was installed in 2009 and that PEPA started to undertake frequent environmental inspections of their waste management facilities at the Terminal and the CPF since the late 1990s (1WS of Mr. Tracy, paras. 77-79, 2WS of Mr. Tracy, paras. 30 and 67 and fn 122, and Exhibits R-391, R-78 and R-117).

836. Respondents further show that, from as early as 2000, PEPA visually inspected the landfill and was aware of Respondents' waste disposal practices, including filter burning (2WS of Mr. Tracy, para. 67(a), and Exhibits R-391, pp. 1-2, R-440, p. 1, and R-151, p. 3). (…)

837. In addition, Respondents show that, from as early as April 2007 and January 2008, PEPA's inspections included the following: (i) the landfill, the hazardous materials area and the sludge ponds at the Terminal, (ii) the landfill, the sludge ponds, the scrap yard and the recycling area at the CPF and (iii) the filter disposal in the field (2WS of Mr. Tracy, para. 67(c), and Exhibits R-443 and R-151). Claimant was also provided with operational documents that included details covering installation of the incinerator and sludge ponds, among other waste management facilities, from at least as early as April 2008 (2WS of Mr. Tracy, para. 70, and Exhibits R-448, p. 21, and R-458, pp. 17 and 20). (…)

840. In light of the above, the Arbitral Tribunal finds that the factual evidence already adduced with respect to Claimant's waste management claims is sufficient to establish that Claimant was aware or ought to be aware of Respondents' waste management facilities and practices since January 2008 at the latest. Claimant's complaint that it discovered the scale of Respondents' breaches regarding their waste management practices only upon the PSA's term's expiry is unavailing, given that the applicable knowledge test under Article 10.2 of the UNIDROIT Principles focuses on the knowledge of the facts underlying a claim and not of the extent of the legal consequences of those facts. Therefore, considering that Claimant was aware or ought to be aware of Respondents' waste management facilities and practices since January 2008 at the latest, the Arbitral Tribunal considers that the three-year limitation period under Article 10.2 of the UNIDROIT Principles started running as that month. (…)

842. Consequently, the Arbitral Tribunal finds that Claimant's waste management claims are time-barred in accordance with the three-year limitation period under Article 10.2 of the UNIDROIT Principles, except for the claim in relation to the CPF incinerator that PEPA inspected only in July 2010, considering that Claimant was aware or ought to be aware of Respondents' waste management facilities and practices since January 2008 at the latest and that the Standstill Agreement that interrupted the running of that limitation period was concluded on 22 March 2013".[766] [emphasis added].

781. In essence, the Tribunal found that the Waste Management Facilities claim was time-barred except in relation to the CPF incinerator. Under paragraph 910 (v)(j) of the Partial Award, the Tribunal explicitly pin-pointed the time-barred claim by referring to its name (waste management facilities claim) and specified that said claim was argued in paragraphs 287-303 of the OSoC.

782. The Claimant, in its ASoC redline version, maintained word by word its waste management facilities claims, as stated in paragraphs 287-303 of the Original Statement of Claim.[767] The Tribunal notes that the Claimant relies on the *Addendum* and Decision, and contends that its claim concerns the Respondents' failures on or from 22 March 2010, and therefore is not time-barred.[768]

783. The relevant parts of the *Addendum* and Decision are set forth below:

"116. Having considered the Parties' positions and arguments on the Application, the Arbitral Tribunal finds that 'there is a need of clarification of the [Partial] Award or a need to improve such wording which would enable the parties to fully understand what the Arbitral Tribunal meant in its decision.' This need arises from the word "only" used in paragraph 910(viii) of the Partial Award and from the unclear effect of the findings set out in paragraphs 901 and 910(viii) of the Partial Award on Claimant's claims.

117. (...) The Arbitral Tribunal did not intend to and did not decide on Claimant's claims that, by their own nature and effect, are not and cannot be subject to Respondents' threshold legal defences.

118. (...) In its claim-by-claim analysis set out in paragraphs 693-853 of the Partial Award, the Arbitral Tribunal decided that Claimant's claims for breach relating to acts that occurred before 22 March 2010 were time-barred, even if those claims were based on continuing duties, as the failure to comply with these duties was only a consequence of the initial wrongful act and did not give rise to a continuing breach. The Arbitral Tribunal also decided that Claimant's claims for breach related to acts that occurred on or after 22 March 2010 were not time-barred. However, the Arbitral Tribunal did not decide on any claims for breach based on duties that are alleged to have arisen on or

[766] Partial Award, paras. 831-842.
[767] ASoC, redline version old paras. 287-303, new paras. 340-356.
[768] SoRDCC, para. 572; Claimant's PHB (first round) 2019, para. 277.

after 22 March 2010 and on breaches that Respondents allegedly committed on or after 22 March 2010. To the extent that these claims are based on duties and breaches arising on or after 22 March 2010 and not on a continuation of Respondents' duties and original wrongful acts existing before 22 March 2010, they are not and cannot be defeated by Respondents' threshold legal defences, with the exception of the Settlement Agreement defence".[769] [emphasis added].

784. The Tribunal refers to paragraphs 248 to 253, and 256 to 283 above, in which it established that the Partial Award did not declare as time-barred any claim based on duties and breaches arising on or after 22 March 2010, inasmuch as they were not a continuation of the Respondents' duties and original wrongful acts existing before 22 March 2010.[770]

785. The Tribunal finds that the Claimant has not demonstrated how an independent obligation to comply with the 2007 ERM report arose anew on or after 22 March 2010.

786. The Tribunal further considers that in multiple extracts of the ASoC,[771] SoRDCC,[772] and PHB[773] the Claimant has recognized that its Waste Management Facilities claim is based upon continuing obligations pre-dating March 2010. Specifically, the Claimant has asserted that:

"*As Mr Larkin confirms, from at least 2007 (the date of ERM's report) up to and including the expiry of the PSA, that the Contractor failed to comply with good oilfield practice, failed to achieve "efficient and safe ... production" of Petroleum and failed to take all necessary precautions to prevent pollution of and damage to the environment*".[774] [emphasis added].

"*Acting on the Contractor's lead auditor's recommendations in July 2009 and in recognition of its ongoing obligations to discharge its waste management responsibilities, the Contractor proceeded to continue to include and agree to complete waste management projects in its 2010 and 2011 Work Program and Budgets*".[775] [emphasis added].

"*Accordingly, the 2008 Waste Management Plan incorporates the waste management requirements of the Province of Alberta into the Contractor's own internal guidelines and policies. As explained above, these make it clear that the obligations are ongoing*".[776] [emphasis added].

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[769] *Addendum* and Decision, paras. 116-118.
[770] *Addendum* and Decision, paras. 116-118.
[771] ASoC, para. 363.
[772] SoRDCC, paras. 572, 573 a-b, 574, 600, 602, 606, 613, 631 a.
[773] Claimant's PHB (first round) 2019, paras. 265, 266.
[774] ASoC, para. 346.
[775] ASoC, para. 363.
[776] SoRDCC, para. 602.

787. From the above, the Tribunal concludes that: (i) any Waste Management Facilities claim based on continuing obligations under the PSA and Good Oilfield Practice is time-barred pursuant to the Partial Award and the *Addendum* and Decision; and (ii) no independent obligation to comply with the 2007 ERM report arose on or after 22 March 2010.

788. On the basis of the above, the Tribunal dismisses the Claimant's Waste Management Facilities claim.

C The Sludge Ponds claim

789. The Tribunal will address in the first place the Respondents' settlement legal defense. The Respondents argue that pursuant to paragraph 620 of the Partial Award, the Tribunal has declared that this claim was settled.[777] On the other hand, the Claimant contends that the Sludge Ponds claim was not settled as it does not relate to dismantlement, abandonment and reclamation obligations in accordance with clause 9 of the Settlement Agreement.[778]

790. The relevant parts of the Partial Award in relation to the Sludge Ponds claim are set forth below:

> *"612. Respondents contend that the following claims of Claimant have been settled through the Settlement Agreement: (...) (ii) the claims related to the increased abandonment costs, where Claimant contends that US$ 124,480,000 should be paid as abandonment costs of the "inadequately cemented wells" (overlap with primary cement program claim), US$ 124,944,000 as abandonment costs of the "adequately cemented wells," US$ 9,060,000 for reabandoning the "improperly abandoned wells" and US$ 1,309,000 for re-abandoning wells in which NORM-contaminated equipment was canisterised, (iii) the claim related to the remediation of sludge ponds, the value of which is US$ 2,850,000 and (iv) the claim related to the cost of abandoning sections of the MOL, redundant flow lines, surface facilities and disused borrow pits, the value of which is US$ 15,500,000.*
>
> *616. However, by virtue of the more specific Clause 9 of the Settlement Agreement, Claimant agreed to "forever" release and discharge Respondents "from any and all claims and demands of any kind and nature whatsoever, at law or in equity, or under any statute relating to the carrying out the work necessary upon termination or cancellation under the Masila Block (14) PSA with respect to dismantlement, abandonment and reclamation." (Exhibit R-1). This provision shows that Respondents' release from abandonment-related claims is unlimited in time and scope and that future breach claims are not excluded.*

[777] ASoDCC, para. 521; SoRjSRCC, para. 222; Respondents' PHB (first round) 2019, para. 183.
[778] SoRDCC, paras. 651-653; Claimant's PHB (first round) 2019, paras. 292-293.

> *620. Consequently, the Arbitral Tribunal finds that all current claims of Claimant related to Respondents' dismantlement, abandonment and reclamation obligations under the PSA have been fully settled in accordance with Clause 9 of the Settlement Agreement. Despite having had ample opportunity to do so, Claimant has not contested that the following claims relate to Respondents' dismantlement, abandonment and reclamation obligations under the PSA and Good Oilfield Practice:*
> *(...)*
> *(iii) The claim of US$ 2,850,000 related to the remediation of sludge ponds.71*"[779]
> [emphasis added and internal citations omitted].

791. In essence, the Tribunal found that the USD 2,850,000 Sludge Ponds claim was settled pursuant to the 1996 Settlement Agreement. The Partial Award explicitly pin-pointed the settled claim by referring to its name (remediation of sludge ponds), value (USD 2,850,000), and under footnote 71 the Tribunal specified the extracts of the OSoC of the settled claim, and the excerpts of Mr. Larkin's expert report which supported such claim, as follows: "*SoC, paras. 287-303; EXR of Mr. Larkin, Section 5.2 and Appendix B, items 8, and 9*".[780]

792. The Claimant, in its ASoC redline version, maintained word by word its Sludge Ponds claim, as stated in paragraphs 287-303 of the Original Statement of Claim.[781] Moreover, the claim continued to be based on Section 5.2 of Mr. Larkin's expert report,[782] and the value of the claim continued to be determined by adding item 8 (USD 2,100,000) and item 9 (USD 750,000) of Appendix B of Mr. Larkin's expert report. It is clearly the same claim that was declared to be settled pursuant to the 1996 Settlement Agreement.

793. The Tribunal considers that the above conclusion is sufficient to decide that the claim has already been declared as settled in paragraph 620 of the Partial Award and therefore to dismiss it. However, *ex abundanti cautela*, the Tribunal will briefly address the Claimant's subsequent argument.

794. In the ASoC, the Claimant merely asserts that "*it is not pursuing any claim in relation to dismantlement, abandonment and reclamation of the sludge ponds*".[783] The Claimant argues that the claim relates to the remediation of the sludge ponds at the time of handover, and not to the dismantlement, abandonment and reclamation obligations,[784] without providing a technical explanation.

795. The Tribunal recalls its reasoning in the Partial Award, as follows:

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[779] Partial Award, paras. 612, 616, 620.
[780] Partial Award, para. 620, footnote No. 71.
[781] ASoC, redline version old paras. 287-303, new paras. 340-356.
[782] ASoC, para. 370.
[783] ASoC, para. 369.
[784] ASoC, para. 370.

> *"620. Consequently, the Arbitral Tribunal finds that all current claims of Claimant related to Respondents' dismantlement, abandonment and reclamation obligations under the PSA have been fully settled in accordance with Clause 9 of the Settlement Agreement.* ***Despite having had ample opportunity to do so, Claimant has not contested that the following claims relate to Respondents' dismantlement, abandonment and reclamation obligations*** *under the PSA and Good Oilfield Practice: (...)*
> *(iii) The claim of US$ 2,850,000 related to the remediation of sludge ponds.71"*[785]
> [emphasis added].

796. The Tribunal first considers that the Claimant should have argued that the Sludge Ponds claim did not relate to the dismantlement, abandonment and reclamation obligations before the issuance of the Partial Award, but failed to do so. The Respondents' argument that this claim related to a reclamation obligation was never contested by the Claimant before the Partial Award.[786]

797. It further notes that it was only in September 2018 (over a year and a half after the Partial Award was issued) that the Claimant provided technical definitions to argue that the Sludge Ponds claim did not relate to the dismantlement, abandonment and reclamation obligations. The Claimant's argument is based on the 1996 Exploration and Production Forum "*Decommissioning Remediation and Reclamation Guidelines for Onshore Explorations and Production Sites*"[787] which provides definitions for: decommissioning, remediation and reclamation. On the basis of this document, the Claimant contends that remediation (which is the basis of its claim) is different from dismantlement, abandonment, and reclamation.[788]

798. The Tribunal is not convinced by the Claimant's argument for the following reasons: (i) the guidelines are a non-contractual document prepared by third parties; (ii) the guidelines were written after the execution of the Settlement Agreement, so it cannot shed light as to what the Parties did understand by dismantlement, abandonment and reclamation when they executed the Settlement Agreement; (iii) the guidelines do not provide definitions for dismantlement, abandonment and reclamation, but for decommissioning, remediation and reclamation; and (iv) the definitions of remediation and reclamation appear to be broad-enough for a certain obligation to overlap among them, as will be shown below.

799. Remediation is defined as: "*the management of contaminated soil, surface water and groundwater to prevent, minimise or mitigate risks to public health and safety or the*

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[785] Partial Award, para. 620.
[786] SoRTLD, para. 247.
[787] Exhibit C-343, Decommissioning, Remediation and Reclamation Guidelines for Onshore Exploration and Production Sites, E&P Forum Report, dated 1 October 1996, p. 3.
[788] SoRDCC, paras. 653-654.

environment"[789] whereas reclamation is defined as "*the actions required to return a site to a pre-determined land use that meets company, government and/or local needs*".[790]

800. Referring to the Sludge Ponds claim the Claimant points out that it "*is expected that with good operating practices, the site on which an oilfield waste management facility is situated will be capable of being reclaimed to conditions suitable for the next intended land use. In the present case, in the absence of decontamination,* [remediation] *at the end of the PSA Block 14 was not 'capable of being reclaimed to conditions suitable for the next intended land use' by PetroMasila*".[791] [emphasis added and internal citations omitted].

801. As per the Claimant's own definitions and the way it presented its case, it is clear that the Sludge Ponds claim falls within the reclamation obligations, which were settled pursuant to the 1996 Settlement Agreement.

802. Therefore, as explained in paragraph 793 above, the Tribunal decides that this claim has already been declared settled in paragraph 620 of the Partial Award and therefore dismisses it.

Section IV. Facilities and Equipment Claims

Sub-section I. The Facilities and Equipment Claims – Preliminary Remarks

I. The Claimant's General Arguments

803. The Claimant argues that the Respondents failed to maintain the facilities and equipment in Block 14 in good working order during the PSA, and to hand them over in good working order (normal wear and tear accepted) at the PSA's expiry.[792]

804. Initially this head of claim comprised 30 individual claims organized from item 1 to item 30. Thereafter, the Claimant withdrew four claims (items 1, 2, 4, and 16)[793] and decided to re-organize the way in which it presented its 26 remaining claims, as follows:[794]

- The first group of claims comprises items: 3, 5, 6, and 7, and relates to the status of the generator sets and vehicles;

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[789] Exhibit C-343, Decommissioning, Remediation and Reclamation Guidelines for Onshore Exploration and Production Sites, E&P Forum Report, dated 1 October 1996, p. 3.
[790] Exhibit C-343, Decommissioning, Remediation and Reclamation Guidelines for Onshore Exploration and Production Sites, E&P Forum Report, dated 1 October 1996, p. 3.
[791] SoRDCC, paras. 649-650.
[792] SoRDCC, para. 670.
[793] SoRDCC, para. 676.
[794] SoRDCC, paras. 674-675; Claimant's PHB (first round) 2019, para. 311.

- The second group claims includes items: 8, 11, 12, 13, and 28, and relates to the pipelines;
- The third group of claims covers items: 9, 10, 14, 17, 18, 19, and 20, and relates to the electrical and generator equipment;
- The fourth group of claims comprises items: 15, 26, 27, 29, 30, and relates to the assets within the terminal;
- The fifth group of claims includes items: 21, 22, and 23, and relates to the control systems to run oil operations; and
- The sixth group of claims covers items: 24, and 25, and relates to the oil water drainage system.

805. The Claimant requests damages for the Facilities and Equipment claims in the sum of USD 33,636,888.09.[795] The quantum for each individual claim is presented below in Sub-Section **(II)**.

806. The Claimant argues that the Respondents had an obligation to maintain facilities and equipment in good working order pursuant to Articles 8.1, 8.2(a), and 8.2(d) of the PSA; and to transfer assets to the Claimant in good working order, save ordinary wear and tear, in accordance with Article 18.1(b) of the PSA.[796] The Claimant contends that this included the obligation to inspect and/or test facilities and equipment when such testing was required by Good Oilfield Practice, or the Respondents' own programs or policies.[797]

807. The Claimant relies on the definition of good working order provided by its expert, Mr. Jewell:

> "*The term 'good working order' is very commonly used in the Oil and Gas industry, and elsewhere, to describe the preferred state of all equipment in a facility which is operating effectively and efficiently.*
>
> *If an item of industrial plant or machinery is considered to be in 'good working order' then it should be capable of performing all of the functions for which it has been designed, within the specifications defined when it was originally manufactured.*
>
> *Plant or machinery in 'good working order' generally needs to be maintained in order to keep it functioning within specification and so would be expected to be regularly serviced (and repaired where necessary) in accordance with the manufacturers recommendations*".[798] [emphasis added].

[795] SoRDCC, para. 677; Claimant's PHB (first round) 2019, para. 317.
[796] SoRDCC, para. 678; Claimant's PHB (second round) 2019, para. 59.
[797] Claimant's PHB (first round) 2019, para. 313.
[798] 1EXR of Mr. Jewell, paras. 58-60.

808. Additionally, Mr. Jewell opines that when a specific equipment is obsolete, it cannot be said to be in good working order.[799] Mr. Jewell did not present a definition of obsolescence in his expert reports, but he provided examples during his presentation at the final hearing:

> "*A more pertinent example at Block 14 is computers. I think we've all had examples of computers in the last 30 years. What I'm showing on the left is the IBM desktop 18 with which was made in 1987, around the time of the start of the PSA. And you can see the difference between that computer on the one on the right, which is a modern computer, and I'm sure we're all aware of how computers have been developed over the last 30 years or so. The PC AT still works as the manufacturer intended and it is still possible to get repairs. I know because I have one. Whilst it's nice as a museum piece and reminds me of my earlier days as an engineer, it is really no longer practical to use today. So I would say that the PC AT is obsolete, even though it still works*". [800] [emphasis added].

809. The Claimant argues that in relation to all of the 26 individual Facilities and Equipment claims, the Tribunal needs to decide whether an item was in good working order at the end of the PSA.[801]

810. The Claimant clarifies that it does not contend that the assets should be new, or upgraded, but rather that they should be in good working order. According to the Claimant, the evidence in the record (including Mr. Jewell's expert report) shows that they were not.[802]

811. Finally, the Claimant addresses two issues which arose at a late stage of the proceedings, namely: (i) the issue of time-bar; and (ii) the issue of potential double recovery.

812. In relation to the first issue, the Claimant argues that the Respondents have never alleged that the Facilities and Equipment claims were time-barred.[803] The Claimant remained silent regarding the Respondents' allegations at the final hearing that the claims were time-barred.

813. The second issue relates to a new double recovery defense raised by the Respondents in their PHBs regarding some of the Facilities and Equipment claims. According to the Claimant, the essence of the defense appears to be that the operator of Block 14 was entitled to charge a fee to other oil companies which used the terminal and the main oil line under usage agreements. Therefore, as PetroMasila was charging such fee after the PSA's expiry, if the Claimant were successful in its claims, it would receive a double payment for the maintenance of the shared facilities and equipment.

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[799] Presentation of Mr. Jewell, Transcript of the final hearing, day 5, p. 11 lines 2 to 3.
[800] Presentation of Mr. Jewell, Transcript of the final hearing, day 5, p. 10 lines 4 to 18.
[801] Claimant's PHB (second round) 2019, para. 59.
[802] SoRDCC, para. 683; Claimant's PHB (first round) 2019, para. 316.
[803] Claimant's PHB (first round) 2019, para. 90.

814. The Claimant argues that the Respondents only presented their new double recovery defense with their PHBs. According to the Claimant, the Respondents are not entitled to advance a new defense at such stage of the arbitration proceedings. The Claimant contends that: (i) had it been pleaded before it would have been addressed by the Claimant's submissions and evidence; (ii) there is no evidence in the record as to the amount of fees charged by PetroMasila; and (iii) the Tribunal cannot consider the issue fairly at this late stage.[804]

815. Furthermore, the Claimant argues that there could not be double recovery since there is no connection between the fee charged and the costs of maintenance or other work required for the shared facilities.[805]

II. The Respondents' General Arguments

816. The Respondents recognize that they had an obligation to maintain facilities and equipment in good working order pursuant to Articles 8.1 of the PSA, which was subject to the overarching obligation to comply with Good Oilfield Practice; and for assets that had not yet been cost recovered, to transfer them to the Claimant in good working order, save ordinary wear and tear, in accordance to Article 18.1(b) of the PSA.[806]

817. The Respondents rely on the definition of good working order provided by their expert, Mr. Catterall:

> "*Good working order is a common term within the oil and gas industry and is used to describe a piece of equipment or system that is working safely, reliably and according to its original design specification.*
> *In addition to working safely, reliably and to its design specification, for an item to be considered in good working order there should be a reasonable expectation that it will not fail imminently. Generally speaking, an item may still be considered in good working order even though it has not been maintained, provided it is still operating within its specification. An item would not be considered in good working order if an inspection or survey demonstrated an immediate requirement for repair to avoid failure*".[807] [emphasis added].

818. Mr. Catterall also submitted the following definition for obsolescence:

> "*The issue of obsolescence has become a problem that is more prevalent in the industry in the last 20 years due to the very rapid advance in computer technology and can be an issue given the long life of producing fields. In my view, equipment is only obsolete where it remains required for the operation, is no longer supported by the original equipment*

[804] Claimant's PHB (second round) 2019, para. 17.
[805] Claimant's PHB (second round) 2019, para. 18.
[806] ASoDCC, para. 576.
[807] 1EXR of Mr. Catterall, paras. 48-49.

manufacturer (OEM) and there is no supply of spares available even from alternative suppliers".[808] [emphasis added].

819. According to the Respondents, the Claimant has failed to demonstrate that any of the facilities or equipment failed, were at imminent risk of failure, or were not functioning to specification during or at the PSA's expiry.[809] In any case, they argue that it is the actual condition of the equipment at the time of assessment that determines whether it was in good working order, and not historical records.[810]

820. In relation to Article 18.1 of the PSA, the Respondents argue that this article cannot support the Claimant's claims as it only imposes an obligation as to the condition of assets that have not already been cost recovered, and whose title has not already been transferred to the Claimant.[811] The Respondents add that the Facilities and Equipment claims involve assets which were part of production operations for decades, and have been long-since cost recovered. It is the Respondents' case that the Claimant has failed to establish how or why Article 18.1(b) could be applicable.[812]

821. Finally, the Respondents raise two additional issues, namely: (i) the issue of time-bar; and (ii) the issue of potential double recovery.

822. In relation to the former, the Respondents argue that the Facilities and Equipment claims do not escape the findings of the Partial Award,[813] which has *res judicata* effect.[814] According to the Respondents, to the extent that these claims are based on Article 8 of the PSA and Good Oilfield Practice, the claims are time-barred as all the other claims based on continuing obligations, because the Claimant through its knowledge of operations at Block 14 was fully aware of the state of all the assets, facilities and equipment at all times.[815]

823. Particularly, the Respondents argue that in relation to the maintenance of the gensets (item 3 of the individual claims), the Claimant had been aware of the Respondents' condition-based servicing –which is the core of the Claimant's claim– since 2005.[816]

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[808] 1EXR of Mr. Catterall, para. 51.
[809] Respondents' PHB (first round) 2019, para. 15(b)ii.
[810] Respondents' PHB (first round) 2019, para. 212(a).
[811] Respondents' PHB (first round) 2019, paras. 52, 207.
[812] Respondents' PHB (first round) 2019, para. 207.
[813] Respondents' PHB (first round) 2019, para. 205.
[814] Respondents' PHB (first round) 2019, para. 211.
[815] Respondents' PHB (first round) 2019, para. 208.
[816] Respondents' PHB (first round) 2019, para. 209.

824. Furthermore, the Respondents contend that the fact that the application of time-bar of these claims was not addressed during the threshold legal defenses phase does not shield them from the Partial Award.[817]

825. In relation to the second issue, the Respondents argue that the Claimant is requesting to recover amounts that have already been paid by other users of the facilities.

826. According to the Respondents, Mr. Tracy explained at the hearing that all of the oil produced in nearby blocks by other operators uses the oil main line and the terminal, and that the expenditures of those facilities are shared on a throughput basis. In this sense, the Respondents argue that if the Claimant is successful in its claims, it will receive payment for the maintenance of the facilities from the current users, and from the Respondents.[818]

827. The Respondents argue that the claims that would be affected by this issue are the following items: 11, 12, 13, 14, 15, 21, 23, 24, 25 26, 27, 28, 29, and 30.

828. The Respondents contend that based on data from 2011, the portion of the repair costs that PetroMasila would have to bear corresponds to 30%.[819]

III. The Arbitral Tribunal's Preliminary Remarks

829. The Tribunal will address in the first place the three issues that were raised by the Parties that may affect various individual Facilities and Equipment claims, notably: (A) the time-bar defense; (B) the double recovery defense; and (C) the application of Article 18.1(b) of the PSA.

A. The time-bar defense

830. The Respondents argued for the first time at the final hearing that the Facilities and Equipment claims were time-barred pursuant to the findings of the Partial Award, which has *res judicata* effect. On the other hand, the Claimant contends that the Respondents have never alleged that the Facilities and Equipment claims were time-barred.

831. The Tribunal considers that the Respondents have failed to establish that the Claimant's Facilities and Equipment claims are time-barred, for the following reasons:

[817] Respondents' PHB (second round) 2019, para. 45.
[818] Respondents' PHB (first round) 2019, para. 221.
[819] Respondents' PHB (first round) 2019, para. 223.

832. In the first place, the Partial Award does not, and cannot have, *res judicata* effect over matters that were not decided, let alone discussed, in the threshold legal defenses phase, that ended with the issuance of the Partial Award.

833. Moreover, the Respondents have admitted that they had never pleaded a time-bar defense against any of the Facilities and Equipment claims before the final hearing.[820] During the threshold legal defenses phase, the Respondents only argued a waiver defense in respect of items: 1-8, 11, 13, 18, 27, and 28, which the Tribunal dismissed in the Partial Award.[821]

834. Furthermore, the Partial Award expressly decided to reserve the Facilities and Equipment claims "*to the subsequent phase of this arbitration*".[822]

835. The Tribunal also notes that its findings in the Partial Award were correctly acknowledged by the Respondents, when they asserted that the Facilities and Equipment claims had survived the threshold legal defenses phase, in their ASoDCC, as illustrated below:

> "*Accordingly, contrary to the Ministry's assertions in its Amended Statement of Claim, the few remaining claims that survived the Threshold Legal Defenses Phase are limited to the following:*
> *(...)*
> *(g) the Ministry's facilities and equipment claims*". [823] [emphasis added].

836. In the second place, the Tribunal notes that the Respondents have failed to argue, let alone demonstrate, for each of the 26 individual Facilities and Equipment claims, when each of the limitation periods started running.[824] Without these vital facts, the Tribunal is not in a position to determine whether or not the Facilities and Equipment claims are time-barred.

837. In light of the above, the Tribunal dismisses the Respondents' time-bar defense in relation to the Facilities and Equipment claims.

B. The double recovery defense

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[820] Respondents' PHB (second round) 2019, para. 45.
[821] Partial Award, paras. 897-900.
[822] Partial Award, para. 910(viii).
[823] ASoDCC, para. 179.
[824] The Respondents only specifically alleged and provided information concerning the commencement of the limitation period for "*item 3 – delays in inspection of genset*". The Respondents argue that the Claimant was aware of their maintenance approach to the gensets since 2005 (Respondents' PHB (first round) 2019, para. 209). However, for a claim regarding the condition of an asset, the limitation period would only start running from the day on which such asset was no longer in good working order, not from the day in which a maintenance approach was modified.

838. The Respondents argue that if the Claimant is successful in any of its claims (items: 11, 12, 13, 14, 15, 21, 23, 24, 25 26, 27, 28, 29, or 30) it will receive payment for the maintenance of the facilities from the current users, and also from the Respondents. On the other hand, the Claimant contends *inter alia* that this could not lead to double recovery since there is no connection between the fee charged and the costs of maintenance or other work required for the shared facilities.

839. The Tribunal cannot take into consideration this defense that was first raised by the Respondents in their first round of PHBs for the following reasons:

840. First, the Tribunal considers that taking into consideration that the OSoC was filed in November 2014, the Respondents have had sufficient time to explore and present their arguments beforehand. Additionally, the Respondents have failed to argue why they were unable to plead this argument at an early stage of the proceeding. In this sense, the Tribunal notes that the issue first arose at the final hearing during the **re-examination** of the Respondents' witness, Mr. Tracy, while inquiring him about an exhibit (**R-534**) that had been presented by the Respondents.[825]

841. Second, if the Tribunal were to address this issue, it would affect the Claimant's right to present its case in relation to this argument with proper submissions and evidence.

842. In any case, the Respondents have failed to demonstrate with evidence, the nature of the fee, and therefore, the Tribunal would not be in a position to determine if there could be a double recovery as alleged by the Respondents.

843. In light of the above, the Tribunal dismisses the Respondents' double recovery defense.

C. The application of Article 18.1(b) of the PSA

844. The Tribunal observes that each of the 26 individual Facilities and Equipment claims is based *inter alia*, on Article 18.1(b) of the PSA. The Tribunal will –for the avoidance of unnecessary repetition under each claim– explain why this article of the PSA cannot be applied to these claims.

845. Article 18.1(b) of the PSA provides as follows:

> "*Title to fixed and movable assets shall by virtue of this provision transfer gradually from CONTRACTOR to MINISTRY at the end of each year in the percentage that the cost of the particular asset is recovered by CONTRACTOR pursuant to Section IX during*

[825] Re-examination of Mr. Tracy, Transcript of the final hearing, day 3, p. 106, line 23 to p. 107, line 15.

such year. If not already vested in MINISTRY, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the time of termination of this Agreement, with all such assets being in good working order, normal wear and tear accepted. The Book Value of the Assets acquired or created during each Calendar Year shall be communicated by CONTRACTOR to MINISTRY within sixty (60) days after the end of such year".[826] [emphasis added].

846. The Tribunal refers to its reasoning in relation to Article 18.1(b) of the PSA set forth in paragraphs 276 to 279 above. Specifically, the Tribunal recalls that in order for the Claimant's claims based on Article 18.1(b) of the PSA to succeed, the Claimant has to establish that the specific assets were not already cost recovered at the PSA's expiry.

847. As already mentioned, the Respondents argue that Article 18.1 of the PSA cannot support the Claimant's claims as it only imposes an obligation as to the condition of assets that have not already been cost recovered, and whose title has not already been transferred to the Claimant. The Respondents add that the Facilities and Equipment claims involve assets which were part of production operations for decades, and have been long-since, cost recovered. On the other hand, the Claimant has remained silent regarding the application of Article 18.1(b) of the PSA to all of its 26 individual Facilities and Equipment claims and has not proved that any of these assets has not been cost recovered.

848. The Tribunal, therefore, considers that the Claimant has failed to establish that the facilities and equipment to which its claims relate to, were not already cost recovered at the PSA's expiry.

849. In light of the above, the Tribunal dismisses the Claimant's Facilities and Equipment claims pursuant to Article 18.1(b) of the PSA, and will analyze the Claimant's 26 individual Facilities and Equipment claims under Sub-section **(II)** below, on the further bases argued by the Claimant in each individual claim.

Sub-section II. The Facilities and Equipment claims – Individual Heads of Claims

850. The Arbitral Tribunal notes that initially the Claimant pursued 30 individual Facilities and Equipment claims organized from item one to item thirty. Thereafter, in the SoRDCC, the Claimant withdrew four claims, in relation to items one, two, four, and sixteen. Additionally, the Parties have decided to re-organize these claims by subject matter.

[826] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1.

851. In the following Sub-sections ("**I**" to "**XXVI**"), the Arbitral Tribunal will analyze the 26 remaining Facilities and Equipment claims in the order that the Parties decided to plead them in their last submissions.

I. Item No. 3 – Delays in Inspection of Gensets

A. The Claimant's position

852. The Claimant explains that the generator sets, or gensets, produce electrical power to operate the downhole electric pumps deployed on both production and injection wells in Block 14. Additionally, the gensets were required to power up the well casing cathodic protection systems.[827]

853. The Claimant argues that, in breach of Articles 8.1 and 18.1(b) of the PSA at the end of the PSA there was an inventory of 497 gensets of which only 318 were in good working order.[828]

854. According to the Claimant, from 1993 to 2004, Respondent 1 applied a fixed time maintenance program to the gensets.[829] The Claimant adds that, from 2005, Respondent 1 changed its maintenance program to one on condition basis (analyzing the actual state of the gensets), which in any case, included a plan to overhaul gensets after 27,000 running hours.[830] The Claimant argues that by 2010 there were many gensets running with more than 27,000 running hours since their last overhaul. Moreover, the Claimant contends that many gensets were running in excess of 30,000 running hours since their last overhaul, which is the manufacturer's recommended maximum number of running hours before an overhaul.[831]

855. The Claimant claims that the defective maintenance and condition of the gensets is evidenced by the problems that were experienced prior to, and at the end of the PSA. The Claimant submits *inter alia* the following evidence in this regard: (i) a maintenance report from 19 February 2011 that shows that 16 gensets had to be replaced due to mechanical and electrical failures;[832] (ii) a March 2011 operations and production report which shows that 21 gensets had to be replaced due to mechanical and electrical failures;[833] (iii) an August 2011 operations and production report which shows over 20 gensets failures due to mechanical

[827] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 1.
[828] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 1.
[829] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 1-2.
[830] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 2.
[831] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 3.
[832] Exhibit R-454, Email from YEMFLD, Maint PEPA to YEMFLD, PEPA et al (with attachment), dated 19 February 2011.
[833] Exhibit C-402, Tab 1, Facilities and Equipment Schedule, Claim 3 (EQP 4) – Delay Inspection of Gensets.

and electrical issues;[834] and (iv) the October 2011 operations and production report which shows that 14 gensets suffered mechanical or electrical failures in that month.[835]

856. The Claimant further argues that as a result of the Respondents' failure to repair and overhaul the gensets, PetroMasila had to overhaul 169 gensets in 2012 and 2013, at a total cost of USD 9,042,125.[836]

B. The Respondents' position

857. The Respondents argue that there was no breach of Articles 8.1 and 18.1(b) of the PSA since they handed over a sufficient number of active gensets in good working order, together with a sufficient number of spare ones, at the PSA's expiry.[837]

858. The Respondents submit that as the production decreased in the field, less gensets were needed, thus, it was not necessary to maintain the high stock of gensets required at peak production. According to the Respondents, at the end of the PSA there were approximately 318 active gensets in good working order, and between six and twelve "ready to go" gensets to replace any genset that could need overhauling.[838]

859. The Respondents further argue that based on the data and experience gathered during several years, they were able to devise a maintenance program better suited for gensets in the local environment. According to the Respondents, this adaptation is in line with Good Oilfield Practice.[839]

860. The Respondents claim that the gensets that failed in 2011 does not evidence a breach of Good Oilfield Practice, or of the PSA. According to the Respondents, what is important is that if failure occurs, the operator should have spare gensets available to replace the one that needs overhauling.[840]

861. Finally, the Respondents contend that the Claimant has failed to present evidence to demonstrate that the gensets that were in operation at the PSA's expiry were not in good working order, and has failed to substantiate the quantum of its claim.[841]

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[834] Exhibit C-420, Monthly Operations / Production Report for Masila Block 14 & Export Terminal, dated August 2011.
[835] Exhibit, R-456, PEPA Monthly Operations / Production Report for Masila Block 14 and Export Terminal, dated October 2011.
[836] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 2-3; Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 3.
[837] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 1.
[838] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, pp. 2-3.
[839] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, pp. 1-2.
[840] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 2.
[841] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 3.

C. The Arbitral Tribunal's decision

862. The Claimant argues that in breach of Articles 18.1(b) (which has already been dealt with) and 8(1) of the PSA, the Respondents failed to hand over the gensets in good working order at the PSA's expiry. On the other hand, the Respondents contend that there was no breach of the PSA since they handed over a sufficient number of active gensets in good working order.

863. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the gensets were kept in good working order.

864. The Tribunal takes note of the Claimant's clarification that the essence of the claim is the status of the gensets at the end of the PSA.[842]

865. As stated by the joint expert report of Messers Jewell, Catterall and Cline (both Parties' technical experts) "*it is the actual condition of the equipment that is important to determine that it is in good working order*".[843] In this sense, the Tribunal considers that the change in the maintenance policy, or the lack thereof is insufficient to demonstrate that the gensets were not kept in good working order at the PSA's expiry.

866. The Tribunal further considers that the Claimant's specific examples of deficient gensets in 2011 fail to demonstrate that at the end of the PSA those gensets were not in good working order and therefore were not kept in good working order. For instance: (i) the maintenance report from 19 February 2011 shows that 16 gensets "*were replaced*";[844] (ii) the March 2011 operations and production report shows that 21 gensets "*were replaced*";[845] (iii) the August 2011 operations and production report shows that over 20 gensets "*were replaced*";[846] and (iv) the October 2011 operations and production report shows that 14 gensets "*were replaced*".[847]

867. In essence, these reports actually demonstrate that these deficient gensets were replaced in 2011, before the PSA's expiry.

868. The Claimant has failed to demonstrate that at the end of the PSA there were 169 gensets which had not been kept in good working order. Claimant's Exhibit C-402, Tab 1, simply

[842] Claimant's PHB (second round) 2019, Annex A, Claimant's Second Column, p. 1.
[843] JEXR of Mr. Jewell, Mr. Catterall and Mr. Cline, p. 2.
[844] Exhibit R-454, Email from YEMFLD, Maint PEPA to YEMFLD, PEPA et al (with attachment), dated 19 February 2011, p. 4.
[845] Exhibit C-402, Tab 1, Facilities and Equipment Schedule, Claim 3 (EQP 4) – Delay Inspection of Gensets, p. 8.
[846] Exhibit C-420, Monthly Operations / Production Report for Masila Block 14 & Export Terminal, dated August 2011, p. 30.
[847] Exhibit, R-456, PEPA Monthly Operations / Production Report for Masila Block 14 and Export Terminal, dated October 2011, pp. 8-9.

suggests that at the end of the PSA there were 169 gensets running in excess of 30,000 running hours since their last overhaul, which is the manufacturer's recommended maximum number of running hours before an overhaul. As stated above, the lack of maintenance does not certainly mean that such piece of equipment was in any way deficient.

869. Therefore, the Claimant's evidence does not allow the Tribunal to determine whether these gensets were not kept in good working order prior to the PSA's expiry.[848]

870. In any case, the Claimant has failed to support evidence of the quantum of its claim. The Claimant argues that PetroMasila had to overhaul 169 gensets in 2012 and 2013, at a total cost of USD 9,042,125. The Respondents however point out that there is no evidence of the repairs that were allegedly undertaken, and of the costs incurred.

871. The Tribunal first notes that unlike in several other facilities and equipment claims, the Claimant has failed to provide expense project request forms showing that PetroMasila requested a certain amount of money to undertake these repairs, and capital project approval forms to demonstrate that PetroMasila approved a certain budget for said repairs.

872. Notably, the Claimant has also failed to provided PetroMasila's monthly reports, contracts, invoices, or any other relevant document to demonstrate the actual costs incurred in performing the repairs to the gensets, as it has provided in other claims.

873. The Claimant has adduced a single piece of evidence (**Exhibit C-402, Tab 1**) to support its claim. It is an undated, and unsigned 4-page spreadsheet that includes works order numbers for each genset. However, those work orders are not attached, and do not form part of the record.

874. Additionally, the Claimant's evidence simply suggests an "average cost" column for each genset, which add up to USD 9,042,125. However, the Claimant has failed to provide concrete documents which support the costs incurred by PetroMasila.

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[848] The Tribunal notes that the Respondents have, since an early stage of the arbitration proceeding (13 March 2015), recognized that there were 318 active gensets in good working order, and between six and twelve "ready to go" gensets, out of the 497 total inventory of gensets. The Respondents explained that since the production was no longer at its peak, there was no need to have all gensets in good working order, but only a sufficient number (Facilities and Equipment Rejoinder Schedule, Mr. Tracy's column, p. 1). Furthermore, the Claimant never objected to this reasoning until its second round of PHBs, (Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, p. 1). In any case, as the Claimant has failed to demonstrate that some works related to gensets were actually carried out, and to substantiate the quantum of its claim, the Tribunal no longer has to address this issue.

875. As evidenced during Mr. Binnabhan's cross examination at the final hearing, the Claimant has failed to submit documents in order to support the quantum of its claim:

> *"A. The job is being carried by PetroMasila staff.* ***We do have a contract with the dealer for (inaudible) engines in the Yemen, which is the company called Tehama****. So we do have a dedicated two to three engineers being on site and they are continuously there working and they get replaced and they are just with us all the time.*
> *MR PARTASIDES: There are from Tehama, are they?*
> *A. Yes, sir.*
> *Q.* ***And you have a contract with Tehama?***
> *A.* ***I have a contract with them, yes****, to get those engineers and they are based at the CPF, yet the majority of the work is being carried by PetroMasila staff.*
> *Q. And under that contractor with Tehama, how did they bill for their work, did they record their time or is there at fixed fee?*
> *A. No, there's a fixed feed.*
> *Q.* ***So that's contract which sets out a fixed fee, is it?***
> *A.* ***Yes, sir.***
> *Q.* ***And if they need to use spare parts because the maintenance results in some replacement, presumably those spare parts have to be purchased, yes?***
> *A.* ***Correct.***
> *Q.* ***So you would have invoices for those purchases?***
> *A.* ***We should, yes****.*
> (…)
> *Q.* ***So what we don't see in the evidence you've offered in support of your claim that you've incurred 9 million in costs is the Tehama contract, do we?***
> *A.* ***Correct****, it's not there.*
> *Q. And* ***what*** ***we don't have are any invoices reflecting spare parts that have been purchased because of the overhaul work*** *that's been done, do we?*
> *A.* ***Correct****."*[849] [emphasis added].

876. In light of the above, the Tribunal dismisses the Claimant's genset claim.

II. Item No. 5 – Two Hino Lube Oil Truck Replacements

A. The Claimant's position

877. The Claimant explains that the Respondents purchased two Hino Lube Oil Trucks ("Hino Trucks") in 2002. According to the Claimant, the Hino Trucks were required to provide services throughout the Block 14, including the maintenance of the gensets.[850]

[849] Cross-examination of Mr. Binnabhan, Transcript of the final hearing, day 2, p. 13 lines 18 to p. 15, line 7.
[850] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 4.

878. The Claimant argues that in breach of Articles 8.1, and 18.1(b) of the PSA, by the end of the PSA, the Hino Trucks had each a mileage over 290,000km, and were in a poor and unreliable condition.[851]

879. The Claimant contends that in 2011 the Respondents conducted a vehicle condition survey, which concluded that the Hino Trucks had to be replaced.[852] Furthermore, it argues that the Respondents' internal correspondence from August 2011 shows that the replacement of the Hino Trucks was required, as they were not in good working order,[853] and such replacement was included in a provisional 2012 WPB.[854]

880. The Claimant contends that as a result of the Respondents' failure to replace the Hino Trucks at the PSA's expiry, PetroMasila acquired two new Hino Trucks at a total cost of USD 111,600.[855]

B. The Respondents' position

881. The Respondents argue there was no breach of Articles 8.1 and 18.1(b) of the PSA since the Hino Trucks were handed over in good working order at the end of the PSA, as confirmed by Mr. Catterall, the Respondents' expert.[856]

882. According to the Respondents, repairs were performed to the Hino Trucks in 2011, which brought them back to good working order.[857] Moreover, the Respondents contend that they were not required to provide new equipment at the PSA's expiry.[858]

883. The Respondents further argue that PetroMasila made no effort to replace the Hino Trucks prior to October 2012 –a year after the PSA's expiry– which confirms that the vehicles were handed over in good working order at the end of the PSA.[859]

884. Finally, the Respondents contend that the Claimant has failed to demonstrate that PetroMasila in fact purchased the new Hino Trucks and incurred the amounts claimed.[860]

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[851] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, pp. 5-6.
[852] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 6.
[853] Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, p. 6.
[854] Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, pp. 6-7.
[855] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 7.
[856] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 6.
[857] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 5.
[858] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 6.
[859] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 6-7.
[860] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 7-8; Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 4.

C. The Arbitral Tribunal's decision

885. The Claimant argues that by the end of the PSA, the Hino Trucks had each a mileage over 290,000km, and were in a poor and unreliable condition. The Claimant's Hino Trucks claim is based on Articles 8.1, and 18.1(b) (which has already been dealt with above) of the PSA. On the other hand, the Respondents argue that there was no breach of the PSA since the Hino Trucks were handed over in good working order at the end of the PSA.

886. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the Hino Trucks that were in service since 2002 were kept in good working order. To this end, the Tribunal has reviewed *inter alia,* the following evidence in the record.

887. First, the Respondents' expert report of Mr. Catterall. Mr. Catterall opines that the Hino Trucks were in good working order:

> *"**They would not be automatically replaced just because they were old**, or even if they had become unreliable, as the requirement of Good Oilfield Practice is to consider the whole balance. (...) **The Contractor had in place an appropriate system of maintenance**, and since they were old the level of ordinary wear and tear would be high and they may also have a higher likelihood of breakdown. However, **they were still capable of operating to their specification and there is no evidence of a repair required to avoid an imminent breakdown**, therefore, in my opinion, **they should be considered in good working order** save ordinary wear and tear".*[861] [emphasis added].

888. Second, the 2011 the Respondents' vehicle replacement survey. This survey concluded that the Hino Trucks should be replaced.[862]

889. Third, the Respondents' internal correspondence dated 19 August 2011. In these internal emails the Respondents recognized that the Hino Trucks required to be replaced.[863]

890. Fourth, the WPB for 2012 (prepared in 2011), including the documents to justify the future expenses. In these documents it is clear that the Respondents were planning to expend USD 270,000 in new Hino Trucks. The justification for this expenditure reads as follows:

> *"This replacement vehicle is required because the existing vehicle has **been in service for 10 year and has become uneconomic to repair due to major drive systems and suspension failures**. The chassis has had to repaired on several occasions; the vehicle has **covered in excess of 290,000 KMs in the arduous conditions of the Yemen**; the*

[861] 1EXR of Mr. Catterall, paras. 118-119.
[862] Exhibit C-72, Tab 5, Facilities and Equipment Schedule Two Hino Lube Oil Truck Replacements, p. 185.
[863] Exhibit C-404, Internal email chain from Kevin Tracy, attaching Block 14 2012 Master Capex Budget, dated 19 August 2019, p. 9.

engine and transmission are in poor condition *and have required as identified in the Vehicle condition survey held by Maintenance*".[864] [emphasis added].

891. The Tribunal considers that the Claimant has successfully established that the Hino Trucks had not been kept in good working order and were not in good working order at the PSA's expiry. The Respondents' contemporary documents demonstrate that the Hino Trucks were old (10 years), had a high mileage under arduous conditions (290,000km), and that the engine and transmission were in poor condition.

892. Finally, the Claimant has successfully established that in 2012 PetroMasila acquired two Hino Trucks for a total amount of USD 111,600. The Resolution of the PetroMasila's Bid Committee approving the Contract No. 9685M290 for the purchase of two Hino Trucks dated 16 May 2012, and the corresponding executed Purchase Order to Automotive & Machinery Trading for the acquisition of two Hino Trucks dated 30 May 2012, sufficiently demonstrate that PetroMasila incurred such expenses.[865]

893. Consequently, the Tribunal grants the Claimant's Hino Trucks claim in the amount of USD 111,600.

III. Item No. 6 – Chemical Truck Replacement

A. The Claimant's position

894. The Claimant explains that the Respondents purchased one Chemical Truck which was used to deliver chemicals to all Block 14 field operations.[866]

895. The Claimant argues a breach by the Respondents of Articles 8.1, and 18.1(b) of the PSA, to the effect that by the end of the PSA, the Chemical Truck had a mileage of 310,000km, and was in a poor and unreliable condition.[867]

896. The Claimant argues that the Respondents' internal correspondence from August 2011 demonstrates that the replacement of the Chemical Truck was required, as it was not in good working order,[868] and such replacement was included in a provisional 2012 WPB.[869]

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[864] Exhibit C-72, Tab 5, Facilities and Equipment Schedule Two Hino Lube Oil Truck Replacements, p. 182.
[865] Exhibit C-402, Tab 2, Facilities and Equipment Schedule Two Hino Lube Oil Truck Replacements, pp. 1-3.
[866] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 8.
[867] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 8.
[868] Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, pp. 8-9.
[869] Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, p. 9.

897. The Claimant contends that as a result of the Respondents' failure to replace the Chemical Truck at the PSA's expiry, PetroMasila acquired two new Chemical Trucks at a total cost of USD 114,600,[870]

B. The Respondents' position

898. The Respondents argue there was no breach of Articles 8.1 and 18.1(b) of the PSA since the Chemical Truck was handed over in good working order at the end of the PSA, as confirmed by Mr. Catterall, the Respondents' expert.[871]

899. According to the Respondents, they were not required to provide a new Chemical Truck at the PSA's expiry.[872]

900. Finally, the Respondents contend that the Claimant has failed to demonstrate that PetroMasila purchased the new Chemical Truck, and incurred the amount claimed.[873]

C. The Arbitral Tribunal's decision

901. The Claimant argues that in breach Articles 8.1, and 18.1(b) (which has already been dealt with above) of the PSA, by the end of the PSA, the Chemical Truck had a mileage of 310,000km, and was in a poor and unreliable condition. On the other hand, the Respondents argue that there was no breach of the PSA since the Chemical Truck was handed over in good working order at the end of the PSA.

902. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the Chemical Truck that was in service since 2002 was kept in good working order. To this end, the Tribunal has reviewed *inter alia*, the following evidence in the record.

903. First, in its expert report. Mr. Catterall opines that the Chemical Truck was in good working order. In his expert report he refers to the same analysis conducted under the Hino Trucks claim, since, according to him, the principle under this claim is identical:[874]

> "[it] ***would not be automatically replaced just because*** [it was] ***old***, *or even if* [it] *had become unreliable, as the requirement of Good Oilfield Practice is to consider the whole balance. (...)* ***The Contractor had in place an appropriate system of maintenance****, and since* [it was] *old the level of ordinary wear and tear would be high and* [it] *may also*

[870] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 9.
[871] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 8-9.
[872] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 8.
[873] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 7-8; Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 6.
[874] 1EXR of Mr. Catterall, para. 120.

have a higher likelihood of breakdown. However, **[it was]** ***still capable of operating to [its] specification and there is no evidence of a repair required to avoid an imminent breakdown****, therefore, in my opinion,* **[it]** ***should be considered in good working order*** *save ordinary wear and tear*".[875] [emphasis added].

904. Second, the Respondents' internal correspondence dated 19 August 2011. In these internal emails the Respondents recognized that the Chemical Truck required to be replaced.[876]

905. Third, the WPB for 2012 (prepared in 2011),[877] including the documents to justify the future expenses. In these documents it is clear that the Respondents were planning to expend USD 275,000 in a new Chemical Truck. The justification for this expenditure reads as follows:

> "*This replacement vehicle is required because* ***the existing vehicle bought in 2002 is in poor and unreliable condition****.* ***The chassis is showing signs of stress; the vehicle has covered in excess of 310,000Km in the arduous conditions of the Yemen; the engine and transmission are in poor condition*** *as identified in the Vehicle condition survey held by Maintenance. The unreliability of the existing unit is costing over $5,500 per month. Interruptions to the service this truck provides to supplying the chemical injection facilities could cause negative disturbance to production.*"[878] [emphasis added].

906. The Tribunal considers that the documentary evidence in the record is sufficient to conclude that the Chemical Truck was not in good working order at the PSA's expiry. The Respondents' contemporary documents demonstrate that the Chemical Truck was old (10 years), had a high mileage under arduous conditions (310,000km), and that the engine and transmission were in poor condition.

907. In relation to quantum, the Claimant has successfully established that in 2012 PetroMasila acquired two Chemical Trucks for a total amount of USD 114,600. The executed Purchase Requisition No. 2512 dated 23 April 2012, sufficiently demonstrates that PetroMasila incurred such expenses for the purchase of the two Chemical Trucks which were delivered on 28 April 2012.[879]

908. However, the Tribunal notes that the Claimant's claim referred repeatedly to a single Chemical Truck which was in a poor condition at the PSA's expiry. The Claimant has not argued the technical or legal basis by which the Respondents should have replaced one

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[875] 1EXR of Mr. Cattcrall, paras. 118-119.
[876] Exhibit C-404, Internal email chain from Kevin Tracy, attaching Block 14 2012 Master Capex Budget, dated 19 August 2019, p. 9.
[877] Exhibit R-282, PowerPoint presentation entitled "2012 Provisional Work Program & Budget", dated 5 December 2011, p. 11.
[878] Exhibit C-72, Tab 5, Facilities and Equipment Schedule Chemical Truck Replacement, p. 181.
[879] Exhibit C-402, Tab 3, Facilities and Equipment Schedule Chemical Truck Replacement, p. 1.

defective Chemical Truck with two Chemical Trucks. The Tribunal is therefore not in a position to grant the Claimant's claim in full, but only in relation to one truck.

909. The Purchase Requisition No. 2512 dated 23 April 2012, provides a price per unit of USD 57,300.[880] Consequently, the Tribunal grants the Claimant's Chemical Truck claim in the amount of USD 57,300.

IV. Item No. 7 – Field Operations Vehicles Replacements

A. The Claimant's position

910. The Claimant explains that the Respondents had 31 field operation vehicles ("FOVs") which were used to enable personnel to monitor operations and respond to equipment breakdown.[881]

911. The Claimant argues that in breach of Articles 8.1 and 18.1(b) of the PSA, by the end of the PSA, all of the FOVs were in a poor an unreliable condition.[882] The Claimant further clarifies that 17 out of the 31 FOVs were leased, thus, PetroMasila had to return them in 2012.[883]

912. The Claimant argues that the Respondents' internal correspondence from August 2011 demonstrates that the replacement of the FOVs was required, as they were not in good working order,[884] and such replacements were included in a provisional 2012 WPB.[885]

913. The Claimant contends that as a result of the Respondents' failure to replace the FOVs at the PSA's expiry, PetroMasila acquired 37 FOVs at a total cost of USD 1,153,800.[886]

B. The Respondents' position

914. The Respondents argue there was no breach of Articles 8.1 and 18.1(b) of the PSA since the FOVs were handed over in good working order at the end of the PSA, as confirmed by Mr. Catterall, the Respondents' expert.[887]

915. According to the Respondents, they were not required to provide new FOVs at the PSA's expiry.[888]

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[880] Exhibit C-402, Tab 3, Facilities and Equipment Schedule Chemical Truck Replacement, p. 1.
[881] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 11.
[882] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 11.
[883] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 11.
[884] Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, p. 11.
[885] Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, p. 11.
[886] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 12.
[887] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 11-12.
[888] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 11.

916. Furthermore, the Respondents argue that out of the 31 FOVs, 17 were leased, and there was no obligation to replace those.[889] Additionally, the Respondents refer to Mr. Catterall's opinion that leasing vehicles is common practice and should be considered Good Oilfield Practice.[890]

917. Finally, the Respondents contend that the Claimant has failed to demonstrate that PetroMasila purchased the new FOVs, and incurred the amount claimed.[891]

C. The Arbitral Tribunal's decision

918. The Claimant argues that in breach of Articles 8.1, and 18.1(b) (which has already been dealt with above) of the PSA, by the end of the PSA, all of the 31 FOVs were in a poor an unreliable condition. On the other hand, the Respondents argue that there was no breach of the PSA since the FOVs were handed over in good working order at the end of the PSA.[892]

919. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the FOVs were kept in good working order. To this end, the Tribunal has reviewed *inter alia,* the following evidence in the record.

920. First, in his expert report. Mr. Catterall opines that the FOVs were in good working order. In his expert report he refers to the same analysis conducted under the Hino Trucks claim, since, according to him, the principle under this claim is identical:[893]

> *"**They would not be automatically replaced just because they were old**, or even if they had become unreliable, as the requirement of Good Oilfield Practice is to consider the whole balance. (...) **The Contractor had in place an appropriate system of maintenance**, and since they were old the level of ordinary wear and tear would be high and they may also have a higher likelihood of breakdown. However, **they were still capable of operating to their specification and there is no evidence of a repair required to avoid an imminent breakdown**, therefore, in my opinion, **they should be considered in good working order** save ordinary wear and tear".*[894] [emphasis added].

[889] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 11.
[890] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 11-12.
[891] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 7-8; Claimant's PHB (second round) 2019, Annex A, Respondents' column, pp. 12-13.
[892] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 11-12.
[893] 1EXR of Mr. Catterall, para. 121.
[894] 1EXR of Mr. Catterall, paras. 118-119.

921. Second, the Respondents' internal correspondence dated 19 August 2011. In these internal emails the Respondents recognized that the FOVs required to be replaced.[895]

922. Third, the WPB for 2012 (prepared in 2011),[896] including the documents to justify the future expenses. In these documents it is clear that the Respondents were planning to expend USD 886,000 in 31 new FOVs. The justification for this expenditure reads as follows:

> "***The replacement of these vehicles is required due to the age, high mileage (of up to 600,000Km)*** *as of mid 2011,* ***and overall mechanical and body condition****. The replacement vehicles identified by the use of the condition report held by Maintenance*".[897] [emphasis added].

923. The Tribunal considers that the documentary evidence in the record is sufficient to conclude that the FOVs were not in good working order at the PSA's expiry. The Respondents' contemporary documents demonstrate that the FOVs were old, had a high mileage under arduous conditions (up to 600,000kms), and that the overall mechanical and body condition was defective.

924. The Tribunal will now determine whether the fact that 17 FOVs were leased can partially affect the outcome of claim.

925. The Respondents argue that out of the 31 FOVs, 17 were leased, and there was no obligation to replace those.[898] Additionally, the Respondents contend that leasing vehicles is common practice in the petroleum industry and should be considered as Good Oilfield Practice.[899] On the other hand, the Claimant has remained silent in relation to this defense since the beginning of the arbitration.

926. Article 18.3 of the PSA generally allows the Respondents to lease machinery and equipment required to perform their obligations under the PSA. This article does not provide for the obligation to keep the equipment in good working order, as does Article 8.1 of the PSA.

> "18.3. *CONTRACTOR and its contractors or subcontractors may freely import into PDRY, use therein and freely export at the end of such use, any machinery and equipment which any of them rents or leases in accordance with good industry practices if such machinery and equipment are necessary for the efficient execution of its undertakings*

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[895] Exhibit C-404, Internal email chain from Kevin Tracy, attaching Block 14 2012 Master Capex Budget, dated 19 August 2019, p. 9.
[896] Exhibit R-282, PowerPoint presentation entitled "2012 Provisional Work Program & Budget", dated 5 December 2011, p. 11.
[897] Exhibit C-402, Tab 4, Facilities and Equipment Schedule Field Operations Vehicles Replacement, p. 1.
[898] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 11.
[899] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 11-12.

under this Agreement. However, no property imported by CONTRACTOR belonging to it or to an Affiliate may be leased or rented for use in other than petroleum operations".[900]

927. Moreover, the Claimant has never contested the Respondents' expert opinion that leasing vehicles is common practice in the petroleum industry and should be considered Good Oilfield Practice.[901]

928. Additionally, the Claimant has never contested the Respondents' assertion that the lease regarding the 17 FOVs finished in April 2012, and that PetroMasila continued to use such vehicles at no cost until the lease expired.[902]

929. The Tribunal concludes that the Claimant has failed to establish that Article 8.1 of the PSA applies to leased assets. Even if Article 8.1 of the PSA applied to leased equipment (which has not been pleaded by the Claimant), a breach of such article could not give rise to an obligation to purchase new equipment. The remedy for the potential contractual breach would be disproportionate since, after April 2012 (four months after the PSA's termination), the Claimant would have needed to buy or lease such FOVs in any case.

930. As per the foregoing, the Tribunal dismisses the Claimant's claim regarding 17 FOVs which were leased.

931. With respect to quantum, the Claimant's claim comprised 31 FOVs, of which, 17 FOVs were leased, and 14 FOVs were initially owned by the Respondents. The Tribunal considers that the Claimant has successfully established that in 2012 PetroMasila acquired 37 FOVs throughout Purchase Orders Nos 411000203, 41700057, and 417000100:[903]

Vehicle	Units	Total Cost (USD)
Toyota Land Cruiser Pick-Up	10	308,800
Toyota Land Cruiser Pick-Up	9	292,500
Toyota Hilux 4x4 Cylinder	7	164,500
Toyota Coaster Bus 26 seater	2	104,000
Toyota Corolla Sedan 4 Cylinder	4	76,800
Toyota Land Cruiser Station Wagon	3	147,000
Toyota Land Cruiser Pick-Up	2	60,200
Total:	37	**1,153,800**

[900] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.3.
[901] 1EXR of Mr. Catterall, para. 122.
[902] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 11.
[903] Exhibit C-402, Tab 4, Facilities and Equipment Schedule Field Operations Vehicles Replacement, pp. 11-15.

932. However, the Claimant's claim referred repeatedly to 31 FOVs which were in a poor condition at the PSA's expiry whereas it claims the cost of acquiring 37 FOVs. The Claimant has not argued the technical or legal basis by which the Respondents should have replaced 31 defective FOVs with 37 new FOVs. The Tribunal is therefore not in a position to take into consideration the additional 6 FOVs requested by the Claimant.

933. Out of the 31 FOVs, the Tribunal dismisses the Claimant's claim regarding 17 FOVs which were leased, and grants the claim in relation to 14 FOVs which were initially owned by the Respondents.

934. The Parties have not distinguished which of the FOVs purchased by the Claimant correspond to the 14 FOVs that were initially owned by the Respondents. In any case, taking into consideration that the individual cost of each FOV is relatively the same, the Tribunal is satisfied to apply an average cost. Given that 37 FOVs were acquired at USD 1,153,800, the average cost of each FOV is USD 31,184. Therefore, the total value of 14 FOVs amounts to USD 436,576.

935. Consequently, the Tribunal grants the Claimant's claim regarding the 14 FOVs in the amount of USD 436,576.

V. Item No. 8 – Buried Sunah Pipeline Inspections

A. The Claimant's position

936. The Claimant explains that the 6" diameter buried pipeline from Sunah, North Camaal and North East Camaal fields ("Sunah Pipeline") supplies fuel gas to the central processing plant and the CPF.[904]

937. According to the Claimant, prior to 2007 the Respondents adopted a risk based approach to manage the integrity of the Sunah Pipeline, which required periodic reviews to monitor its rate of deterioration.[905]

938. The Claimant submits that the last inspection was carried out in 2007, and argues that the Respondents were required to perform a subsequent inspection in 2011, prior to the PSA's expiry, but failed to do so.[906] Furthermore, the Claimant contends that the Respondents cannot demonstrate that the Sunah Pipeline was maintained in good working order and in

[904] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 13.
[905] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 14.
[906] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 18.

compliance with generally accepted engineering norms, as they failed to complete the 2011 inspection.[907]

939. It is the Claimant's case that the Respondents breached Article 8 and 18.1(b) of the PSA by: (i) failing to carry out the 2011 inspection; and (ii) since the Sunah Pipeline was not left in good working order.[908]

940. The Claimant contends that PetroMasila performed the inspection to the Sunah Pipeline in 2012, and subsequently undertook repair works at a total cost of USD 98,259.54.

B. The Respondents' position

941. The Respondents argue that there was no obligation to carry out such inspection prior to the PSA's expiry. According to them, the inspection is part of the ongoing maintenance works and was scheduled for 2012.[909]

942. The Respondents contend that, as confirmed by their expert witness, Mr. Catterall, the Sunah Pipeline was handed over in good working order, save ordinary wear and tear.[910]

943. Finally, the Respondents submit that the Claimant has failed to substantiate the quantum of its claim.[911]

C. The Arbitral Tribunal's decision

944. It is the Claimant's position that in breach of Articles 8 and 18.1(b) (which was already dealt with above) of the PSA, the Respondents failed to inspect the Sunah Pipeline, and that it was not handed over in good working order at the PSA's expiry. On the other hand, the Respondents contend that there was no breach of Articles 8 and 18.1(b) of the PSA since there was no obligation to perform the inspection in 2011, and the Sunah Pipeline was handed over in good working order.

945. The Claimant argues that:

[907] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 13.
[908] Facilities and Equipment Rejoinder Schedule, Claimant's Allegation of Breach column, p. 13.
[909] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 13.
[910] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 13.
[911] Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 9.

"[t]*he Contractor did not and cannot show that the pipeline was left in good working order and in compliance with generally accepted engineering norms, as it failed to complete the necessary inspections*".[912]

946. It is however the Claimant who has the burden of proving that the equipment handed over by the Respondents was kept not in good working order.

947. In any case, the Tribunal does not need to address the merits of this claim as the Claimant has failed to substantiate the quantum of its claim, as explained below.

948. The Claimant claims USD 98,259.54 for the inspection and repairs that PetroMasila carried out on the Sunah Pipeline in 2012. According to the Respondents, the Claimant failed to provide any evidence in relation to the cost of the inspection and subsequent repairs.

949. Contemporary documents show that PetroMasila approved a budget in 2012 for the inspection and following repairs in the amount of USD 141,600, based on a contract with GE/PII Limited.[913] However, the Claimant has not provided said contract, PetroMasila's monthly reports, invoices or any other relevant document to demonstrate the amount paid for these inspection/repairs. The Claimant has submitted a 1-page unsigned document (without even a letterhead) which provides a breakdown of items adding up to USD 98,259.54.[914] The Tribunal considers that such document is not sufficient to demonstrate the costs incurred by PetroMasila in performing these inspection/repairs.

950. The Tribunal has also reviewed all of the purchase orders that the Claimant relies on to support the quantum of its claim. All of those purchase orders are unsigned.[915]

951. In light of the foregoing, the Tribunal dismisses the Claimant's Sunah Pipeline claim.

VI. Item No. 11 – Buried Main Oil Line Inspections

A. The Claimant's position

952. The Claimant explains that the buried 133km long, and 24" diameter main oil line ("MOL") transfers crude oil from the CPF to the terminal.[916]

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[912] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 13.
[913] Exhibit C-72, Tab 8, Facilities and Equipment Schedule Buried Sunah Pipeline Inspections, p. 20.
[914] Exhibit C-402, Tab 5, Facilities and Equipment Schedule Buried Sunah Pipeline Inspections, p. 6.
[915] Exhibit C-402, Tab 5, Facilities and Equipment Schedule Buried Sunah Pipeline Inspections, pp. 10-13.
[916] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 18.

953. According to the Claimant, the Respondents adopted a risk based approach to manage the integrity of the MOL, which consisted of launching a smart pig (robot) into the oil flow. This device inspected the MOL from inside.[917]

954. The Claimant submits that the last inspection was conducted in 2009, and recorded several defects in the MOL.[918] The Claimant argues that the Respondents carried out limited repairs after the inspection, and decided to de-rate the MOL from 1,600psi to 1,400 psi as a measure against corrosion.[919] Furthermore, in March 2011, the Respondents de-rated again the MOL from 1,400 psi to 1,100psi. According to the Claimant, the side-effect of de-rating is that it reduces the capacity of the MOL.[920]

955. It is the Claimant's case that the Respondents breached Article 8 and 18.1(b) of the PSA: (i) by failing to perform a further inspection of the MOL prior to the PSA's expiry; and (ii) since the MOL was not left in good working order at the end of the PSA.[921] According to the Claimant, for the MOL to be in good working order, it must have carried oil at its designed specification pressure of 1,600psi, and not at 1,100psi.[922]

956. The Claimant contends that PetroMasila performed two inspections in 2012 and 2013 which evidenced the need to repair the MOL. The Claimant claims the cost of these repairs in the amount of USD 216,797.46.[923]

B. The Respondents' position

957. The Respondents argue that there was no obligation to carry out the MOL inspection prior to the PSA's expiry, and that the MOL was in good working order at the PSA's expiry.[924]

958. They contend that the Claimant has failed to provide evidence to demonstrate why the MOL inspection –which had been recommended to take place in 2012 by the corrosion specialist– , should have been performed in 2011.[925]

959. According to the Respondents, de-rating the pipelines is a mechanism envisaged by their own Integrity Management Programme.[926] Additionally, Mr. Catterall, the Respondents'

[917] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 18-19.
[918] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 19.
[919] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 20.
[920] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 20-21.
[921] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 18.
[922] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 10.
[923] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 23.
[924] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 18.
[925] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 18.
[926] Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 10.

expert, opines that de-rating the pipeline is a standard procedure to manage the risks of corrosion, which in this specific case, given the maximum volume of oil that was being produced in the block, had no business impact. Therefore, Mr. Catterall opines that the MOL was handed over in good working order at the PSA's expiry.[927]

960. Finally, the Respondents also argue that the Claimant has failed to present evidence to demonstrate that PetroMasila performed the 2012 and 2013 inspections and repairs, and has failed to substantiate the quantum of its claim.[928]

C. The Arbitral Tribunal's decision

961. The Claimant's case is that the Respondents failed to inspect the MOL prior to the PSA's expiry, and that it was not handed over in good working order at the end of the PSA. The Claimant's claim is based on Articles 8 and 18.1(b) (which was already dealt with above) of the PSA. The Respondents contend that there was no breach of Articles 8 and 18.1(b) of the PSA since there was no obligation to perform the inspection in 2011, and the MOL was handed over in good working order.

962. In relation to Article 8 of the PSA, the Tribunal will first analyze whether there was an obligation to perform an inspection to the MOL in 2011.

963. The Claimant does not argue that there was a specific contractual obligation to undertake the MOL inspection at a specific point in time. It merely relies on the Respondents' contemporaneous documents, in which they allegedly recognized their obligation to inspect the MOL prior to the PSA's expiry.

964. The Tribunal has reviewed *inter alia*, the following evidence in the record.

965. First, an internal memorandum from the Respondent 1 dated 9 October 2010. The aim of the memorandum is to summarize the status of the MOL after its 2009 inspection (the last inspection during the PSA). In this memorandum, Mr. Dean Kovacs, the corrosion specialist, recommends to perform a subsequent inspection in the second quarter of 2012:

> *"RECOMMENDATIONS:*
> *(...)*
> ***Schedule next GE MFL inspection tool survey on the MOL for — 2"d quarter 2012.***
> *ACTION: CORROSION GROUP".*[929] [emphasis added].

[927] 1EXR of Mr. Catterall, paras. 140-141.
[928] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 21.
[929] Exhibit C-72, Tab 11, Facilities and Equipment Schedule, Buried Main Oil Line Inspections, pp. 319-320.

966. Second, a draft internal memorandum from the Respondent1 dated 16 July 2010. This draft memorandum shows that the Respondent 1 was planning to undertake a further inspection of the MOL by the end of 2010:

> "***GE has been contacted and notified of Nexen's plan to perform another complete MOL smart tool inspection in the 41th qrt 2010***. *Tentatively no concerns from GE have been expressed with respect to the tool availability and activities to prepare for this inspection are underway.* ***This will provide for a 1 year comparative analysis to the 2009 MFL smart tool run***".[930] [emphasis added].

967. Third, draft minutes of a meeting of the Yemen Masila Block Management Committee Meeting (representatives of the Respondents) that took place in Athens on 23 September 2010. This draft minutes of meeting shows that the Respondent 1's Vice President of Operations asserted that there were plans to re-run the MOL inspection in 2011:

> "*(…). Final coating failure analysis and inspection digs will determine the longer term plan.* ***There are also plans to re-run MFL tool in 2011***".[931] [emphasis added].

968. Fourth, an internal email from Mr. Dean Kovacs (Respondent 1's corrosion specialist) dated 26 June 2011. This email reveals that after de-rating the MOL for the second time to 1,100psi, the corrosion specialist still considered that the MOL inspection should take place in 2012:

> "*Gents*
> *This section of line was derated to 1100 psi so it is okay as is with the coating repair (no sleeve required).* ***The entire section of MOL between the CPF and VS #3 has been derated to 1100 psi.*** *So all of the defects have gained in corrosion allowance making them less critical.... however, the non-repaired sites are still actively corroding.* ***The integrity is okay but this was based on rerunning the inspection tool no later than 1st quarter 2012***. *If this is delayed longer, we may have to reconsider doing coating repairs at these sites*".[932] [emphasis added].

969. The Tribunal notes in the first place that the documents that support the Claimant's case are only drafts. Additionally, the Tribunal observes that the language of the documents on which the Claimant relies is non-mandatory.

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[930] Exhibit C-72, Tab 11, Facilities and Equipment Schedule, Buried Main Oil Line Inspections, p. 335.
[931] Exhibit C-72, Tab 11, Facilities and Equipment Schedule, Buried Main Oil Line Inspections, p. 353.
[932] Exhibit C-72, Tab 11, Facilities and Equipment Schedule, Buried Main Oil Line Inspections, p. 357.

970. Moreover, the fact that at some point in time the Respondent 1 was planning to perform a subsequent MOL inspection in 2010 or 2011 does not mean that the Respondents felt or were bound by such plan.

971. On the other hand, the Respondent 1's internal memorandum dated 9 October 2010, prepared by Mr. Dean Kovacs, and his further email dated 26 June 2011, which are not drafts, reveal that the Respondent 1's official position was that the MOL inspection needed to be done in 2012.

972. In light of the above, the Tribunal considers that the Claimant has failed to demonstrate that the Respondents recognized an obligation to inspect the MOL prior to the PSA's expiry.

973. The Tribunal will now determine whether or not the MOL was kept in good working order.

974. The Claimant's main argument is that the MOL was not kept in good working order, as it was not operating at its design pressure of 1,600psi, but had been de-rated twice, up to a pressure of 1,100psi which reduced the volume of oil that it could transport.

975. The Tribunal has reviewed the following evidence in the record.

976. First, the presentation of Mr. Jewell, the Claimant's expert, during the final hearing. During his presentation Mr. Jewell opined that given that the MOL was de-rated in two occasions, its original specification was no longer being met, thus it was not in good working order:

> "*Now, as a result of this sort of damage found by inspection, the pipeline pressure rating was -- well, **the pipeline was de-rated**. So the pressure rating for the pipeline was reduced on two occasions. **The original specification for the pipe line was no longer being met, and on that basis alone the main pipeline was not in good working order at the expiry of the PSA***".[933] [emphasis added].

977. Second, the Respondent 1's MOL Integrity Management Program dated February 2008. This document reveals that de-rating was normally used as an additional safety measure, and that the Respondents acted in accordance with those guidelines.[934]

978. Third, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that de-rating a pipeline is a standard procedure and that the MOL was left in good working order at the PSA's expiry. In his view, although the MOL was de-rated (and the volume of oil it could transport was reduced), it was still able to transport more oil than required:

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[933] Presentation of Mr. Jewell, Transcript of the final hearing, day 5, p. 8, lines 15 to 22.
[934] Exhibit C-402, Tab 6, Facilities and Equipment Schedule, Buried Main Oil Line Inspections, p. 57.

> "***To manage the risks to an acceptable level and to ensure the pipeline was kept in good working order the Contractor de-rated the pipeline to 1,100psi, which is a standard procedure*** *in these circumstances and leads to an increased corrosion allowance, bringing the pipeline back into good working order for the revised operating pressure.* ***The capacity of the line at this pressure was approximately 160,000b/d and the maximum production from Masila and third party shippers was under 150,000b/d, so the de-rating of the line had no business impact***".[935] [emphasis added].

979. On the basis of the above evidence, the Tribunal first notes that both the Respondent 1's contemporary documents, and the expert report of Mr. Catterall coincide in that de-rating pipelines was a standard procedure.

980. The Tribunal further observes that the Claimant and his expert rely on the 1993 (original) specification of the MOL to argue that it was no longer in good working order since, with that lower pressure, it could transport less amount of oil. However, they have failed to address Mr. Catterall's argument that by 2011 the MOL was still able to transport more oil than required because the overall oil production in Block 14 had decreased.

981. As mentioned above, it has been established that de-rating is a standard procedure, which was envisaged by the Respondents' internal guidelines. Therefore, the MOL would not fail to be in good working order simply because it has been de-rated, unless such procedure could negatively affect the oil operations, which was not the case, and has not been argued by the Claimant.

982. Consequently, the Claimant has failed to demonstrate that the MOL was not in good working order prior to the PSA's expiry, and therefore the Tribunal dismisses the Claimant's MOL claim.

VII. Item No. 12 – Purchase Materials for MOL Emergency Repair

A. The Claimant's position

983. It is the Claimant's case that the Respondents breached Article 8 of the PSA by failing to maintain an adequate stock of 24" diameter piping and fittings to enable emergency repairs to the MOL, and Article 18.1(b) of the PSA since the MOL was not left in good working order at the end of the PSA.[936]

[935] 1EXR of Mr. Catterall, para. 140.
[936] Facilities and Equipment Rejoinder Schedule, Claimant's Breach Allegation column, pp. 23-24.

984. The Claimant argues that the Respondents recognized the importance of maintaining a stock of 24" diameter piping and fittings to enable emergency repairs, and that it was a matter of Good Oilfield Practice.[937] It claims that the Respondents failed to maintain and hand over an adequate stock at the PSA's expiry.[938]

985. The Claimant contends that, had the Respondents carried out an inspection to the MOL prior to the PSA's expiry, the need for repairs would have been evident.[939]

986. The Claimant claims for the costs incurred by PetroMasila in purchasing emergency repair materials for the MOL in the amount of USD 140, 955.46.[940]

B. The Respondents' position

987. The Respondents argue that there was no obligation to hand over a stock of 24" diameter piping and fittings spares prior to the PSA's expiry, and that the MOL was in good working order at the end of the PSA.[941]

988. The Respondents' expert, Mr. Catterall, opines that the Respondents left a sufficient number of spares at the PSA's expiry, in accordance with Good Oilfield Practice.[942]

989. According to the Respondents, this claim arose as a result of a terrorist attack against the MOL that occurred in 2012 (after the PSA's expiry), which led PetroMasila to consider that it should acquire extra spare pipes for emergency repairs. Although this event may have required the new operator to adjust its emergency preparation going forward, this was not the Respondents' obligation. In any case, the Respondents argue that the spares left at the end of the PSA allowed PetroMasila to carry out the repairs required after facing such terrorist attack in 2012.[943]

990. Finally, it is the Respondents' case that maintaining a sufficient stock of spare parts for future operations is the responsibility of PetroMasila.[944]

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[937] Facilities and Equipment Rejoinder Schedule, Claimant's Breach Allegation column, pp. 23-24; Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 13.
[938] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 24
[939] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 23.
[940] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 25.
[941] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 23-24.
[942] 1EXR of Mr. Catterall, para 147.
[943] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 24; Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 24; and Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 13.
[944] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 25.

C. The Arbitral Tribunal's decision

991. The Claimant argues that the Respondents breached Article 8 of the PSA by failing to maintain an adequate stock of 24" diameter piping and fittings to enable emergency repairs to the MOL, and Article 18.1(b) (which was already dealt with above) of the PSA since the MOL was not left in good working order at the end of the PSA. On the other hand, the Respondents contend that they left a sufficient number of spares prior to the PSA's expiry, and that the MOL was in good working order at the end of the PSA.

992. The tribunal observes that Claimant has not based its claim relating to the condition of the MOL on Article 8 but on Article 18(1)(b).

993. In any case, the Claimant's quantification of its loss does not include the need to repair the MOL, but only the costs incurred by PetroMasila to purchase spare 24" diameter piping and fittings for emergency repairs in the future.[945]

994. Additionally, the Tribunal observes that the Claimant has not presented a single piece of evidence in relation to the status of the MOL prior to the PSA's expiry.

995. Furthermore, as stated in the above claim under "*Item No. 11 – Buried Main Oil Line Inspections*", the Claimant has failed to demonstrate that the MOL was not in good working order at the PSA's expiry.

996. In light of the above, the Tribunal dismisses the Claimant's claim.

997. With respect to the issue of whether the Respondents left an insufficient quantity of spare parts to enable emergency repairs to the MOL at the PSA's expiry, the Claimant argues that the Respondents "*did not have an adequate stock of 24" diameter piping and fittings to enable emergency repairs to the MOL*".[946] However, the Claimant has not indicated to the Tribunal precise figures. More precisely, the Claimant has failed to indicate the quantity of spares that the Respondents left at the PSA's expiry, and the quantity that it deems the Respondents should have left.

998. Additionally, the Tribunal has reviewed the following evidence in the record, which was not contested by the Claimant.

999. First, Mr. Tracy's witness statement. In his witness statement Mr. Tracy explains that there was a terrorist attack against the MOL in September 2012, and argues that the fact that the

[945] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 25.
[946] Claimant's PHB (second round) 2019, Annex A, Claimant's column, p. 12.

repairs were undertaken in five days shows that the Respondents left enough spare parts for PetroMasila to carry out the required repairs:

> "***I would also emphasize again that the emergency situation for which the Ministry now claims we should have planned only occurred after the PSA expired***. *Notably,* ***on 5 September 2012, a terrorist attack targeting the pipeline caused a leak*** *that halted production and needed to be repaired.* ***I can see how an incident like this might change future risk scenarios and the levels of spares that the new operator may need to keep in order to manage those risks properly. But this was not the scenario for which we were required to plan***. *(...). From the date of the PSA's expiry, however, it was PetroMasila's responsibility as the new operator to respond to new emergencies, and maintain adequate spare materials for emergencies it anticipated may arise in the future.* ***I would also note that the leak caused in the attack was repaired in just a few days, which indicates that the spares we had handed over to PetroMasila were in fact adequate to carry out repairs and avoid a lengthy interruption in oil shipments***".[947] [emphasis added and internal citations omitted].

1000. Second, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that: (i) the Marsh evaluation in 2009 reviewed the Respondents' spares inventory and made no recommendation to increase it; and (ii) there was no reason to modify such inventory prior to the PSA's expiry:

> "***The Marsh risk evaluation of 2009 provided an independent review of the spares holding inventory and made no recommendations to change the level in place at that time***.
> ***The level of spares holding is a process of optimisation that is generally reviewed on a continuous basis as part of Good Oilfield Practice*** *in order to assure the optimum balance of performance, availability for service and cost of operation.* ***Any change to the level of spares is therefore usually the result of a change to the perceived level of risk*** *to the availability for service either because of reliability issues, logistical issues in how long it may take to order and replenish spares or,* ***in this case, a perceived external threat***.
> *The Contractor prepared a Response Plan for Emergency Repair of the MOL in November 2011, which included a proposed review of spares available.* ***The Claimant's evidence suggests that PetroMasila became particularly focused on the risk of a potential terrorist attack in 2012 based on attacks to the Mareb pipeline, but from the perspective of Good Oilfield Practice it would only be reasonable to change the spares holding after those risk reviews took place***. *(...).*
> *Therefore I conclude that* ***there was no reason to change the spares holding until the risk was formally evaluated in 2012***".[948] [emphasis added and internal citations omitted].

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[947] 4WS of Mr. Tracy, Annex, p. 5.
[948] 1EXR of Mr. Catterall, paras. 144-147.

1001. As a result of the above the Claimant has not proved that the spares left by the Respondents were insufficient, and has not contested the Respondents' evidence that establishes that they left a sufficient number of spares to enable emergency repairs to the MOL at the PSA's expiry.

1002. In light of the above, the Tribunal dismisses the Claimant's claim.

VIII. Item No. 13 – Radios and Repeaters to Secure the MOL

A. The Claimant's position

1003. The Claimant argues that the Respondents handed over a radio communications system with lack of coverage along the route of the MOL.[949]

1004. It is the Claimant's case that the Respondents breached Article 8 and 18.1(b) of the PSA since the communications system was not in good working order.[950]

1005. According to the Claimant, after the PSA's expiry PetroMasila carried out surveys on the MOL to investigate the radio coverage, and determined that it was deficient at certain points along the MOL.[951]

1006. The Claimant contends that PetroMasila installed two wide area radio repeaters to improve the radio signal, incurring costs in the amount of USD 30,173.37.[952]

B. The Respondents' position

1007. The Respondents argue there is no evidence that the communications system installed by the Respondents was not in good working order.[953]

1008. The Respondents also contend that the Claimant failed to demonstrate that it installed two wide area radio repeaters to improve the radio signal strength, and has provided no justification to the quantum of its claim.[954]

C. The Arbitral Tribunal's decision

[949] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 26.
[950] Facilities and Equipment Rejoinder Schedule, Claimant's Allegation of Breach column, pp. 26-27.
[951] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 28.
[952] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 28.
[953] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, pp. 27-28.
[954] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 30.

1009. The Tribunal does not need to address the merits as the Claimant has failed to substantiate the quantum of its claim.

1010. The Claimant claims damages in the sum of USD 37,173.37 for the costs allegedly incurred by PetroMasila in relation to the installation of two wide area radio repeaters. The Respondents point out that the Claimant failed to substantiate the quantum of its claim.

1011. The Tribunal first notes that a contemporary document (expense project request form) shows that PetroMasila requested USD 165,281 for the installation of two wide area radio repeaters.[955]

1012. The Tribunal observes that another contemporary document (capital project approval form) demonstrates that PetroMasila approved a budget of USD 94,500 for said project in November 2012.[956]

1013. However, the Claimant has not provided contracts, or invoices, or PetroMasila's monthly reports, or any other relevant documents, to demonstrate the actual costs in relation to the installation of the two wide area radio repeaters which it claims PetroMasila has already incurred.

1014. The Claimant has only submitted two purchase orders (No. 415000795, and No. 415000974), which remain unsigned both by the vendor and by PetroMasila. The Tribunal considers that such documents are not sufficient to demonstrate the actual costs that would have been incurred by PetroMasila.

1015. In light of the above, the Tribunal dismisses the Claimant's claim.

IX. Item No. 28 – Free-span Supports to Single Point Mooring (SPM) #2 Subsea Loading Pipelines

A. The Claimant's position

1016. The Claimant explains that the 16" and 36" diameter subsea loading pipelines ("Subsea Pipelines") are laid on the seabed for the majority of the way until they reach the pipeline end manifold ("PLEM").[957] However, at some points before reaching the PLEM, the Subsea Pipelines are not always resting on the seabed, and artificial supports were put in place to help withstand the weight of the Subsea Pipelines. The gaps between the supports –in which the Subsea Pipelines are not resting on anything– are called a free-span.

[955] Exhibit C-402, Tab 8, Facilities and Equipment Schedule, Radios and Repeaters, pp. 1-2.
[956] Exhibit C-402, Tab 8, Facilities and Equipment Schedule, Radios and Repeaters, p. 3.
[957] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 30-31.

1017. According to the Claimant, the design specification of the Subsea Pipelines allows a maximum free-span of 15 meters for the 16" pipeline, and 40 meters for the 36" pipeline.[958]

1018. The Claimant argues that by April 2010 the Respondents were advised that some supports had eroded, and that the maximum free-span for the 16" pipeline was between 35 and 40 meters, and the one for the 36" pipeline was approximately 60 meters; thus, both exceeded the design specifications.[959]

1019. It is the Claimant's case that the Respondents breached Article 8 and 18.1(b) of the PSA by: (i) failing to carry out any remedial action; and (ii) not handing over the Subsea Pipelines in good working order.[960]

1020. The Claimant contends that PetroMasila entered into a contract with ULO Systems Inc ("ULO") to perform the repairs at a cost USD 234,938.50.[961]

B. The Respondents' position

1021. The Respondents argue that there was no obligation to carry out repair works prior to the PSA's expiry, and that in any case the Subsea Pipelines remained in good working order, save ordinary wear and tear.[962]

1022. The Respondents' witness, Mr. Tracy, explains that they arranged for an external contractor to perform the repairs but the work had to be postponed due to weather conditions and to the security situation in Yemen in 2011. Additionally, Mr. Tracy opines that the Subsea Pipelines remained in good working order since they had no fractures.[963]

1023. Moreover, the Respondents contend that the Claimant has failed to substantiate the quantum of its claim.[964]

C. The Arbitral Tribunal's decision

1024. It is the Claimant's position that the Respondents breached Article 8 and 18.1(b) (which was already dealt with above) of the PSA by not handing over the Subsea Pipelines in good working order at the PSA's expiry. On the other hand, the Respondents contend that there

[958] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 31.
[959] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 32.
[960] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 30.
[961] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 33.
[962] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 31.
[963] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, pp. 31-32.
[964] Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 16.

was no breach of Articles 8 and 18.1(b) of the PSA since they handed over the Subsea Pipelines in good working order.

1025. With respect to the issue of whether the Subsea Pipelines were handed over in good working order at the end of the PSA, the Tribunal relies heavily on Mr. Catterall's expert report, which reads as follows:

> "***The survey report from April 2010 clearly indicates a free span on the 36" pipeline of 59m***. *Three tables are presented, the first from the Contractor, which indicates a maximum allowable span of 43m in 44m water depth, and two further tables, produced by Technip, which indicate a maximum span of between 56m and 58m (depending on operating and environmental conditions).*
> ***The same survey report shows a free span of 39m on the 16" pipeline***. *The maximum allowable span according to the Contractor's table would be 15m and according to Technip 18m to 24m (depending on operating and environmental conditions).*
> ***Since the observed spans of both pipelines are higher than both maximum allowable cases, remedial work would have been needed.*** *I understand that this was planned for 2011.* ***No calculations are presented by the Claimant to determine whether this situation put the pipelines at risk of imminent failure*** *(which would mean they would not be in good working order), but* ***the fact that the work was planned for the following year indicates that it was not considered urgent by the Contractor and therefore not at risk of imminent failure***. *Unfortunately in 2011 the work was not carried out due to "poor weather and diver issues" and the security situation in Yemen at that time".*[965] [emphasis added and internal citations omitted].

1026. The Respondents' expert opines that the Subsea Pipelines were in contravention to their design specifications in relation to the free-spans and that remedial works were required. This was further recognized during his cross-examination at the final hearing.[966]

1027. The Tribunal also observes that early in his first report Mr. Catterall opined that for an item to be in good working order it must be, *inter alia*, in accordance with its design specification:

> "*In addition to working safely, reliably and to its design specification, for an item to be considered in good working order there should be a reasonable expectation that it will not fail imminently*".[967] [emphasis added].

[965] 1EXR of Mr. Catterall, paras. 220-222.
[966] Cross-examination of Mr. Catterall, Transcript of the final hearing, day 5, p. 201, lines 5-7.
[967] 1EXR of Mr. Catterall, para. 49.

1028. Moreover, the expert pointed out that there was no indication that the equipment was at imminent risk of failure, but refrained from concluding that it was therefore maintained in good working order.[968]

1029. Furthermore, as will be demonstrated in Sub-sections (**XXV** and **XXVI**) below, Mr. Catterall conceded that the fact that the "*Oily Water Drain (lack of tie-in)*" and "*Oily Water Drain (corrosion)*" were not working to their design specifications, was sufficient for him to conclude that they were not in good working order.

1030. Taking into consideration Mr. Catterall's expert report, and the fact that the Respondents have recognized that such repairs were not undertaken,[969] the Tribunal concludes that the Subsea Pipelines were not maintained in good working order.

1031. With respect to quantum, the Claimant argues that PetroMasila entered into a contract with ULO to perform the required repairs at a cost USD 234,938.50. On the other hand, the Respondents argue that the Claimant failed to provide any evidence of the repairs that were allegedly undertaken, and of the costs incurred.

1032. Unlike in several other facilities and equipment claims, the Claimant has failed to provide expense project request forms showing that PetroMasila requested a certain amount of money to undertake these repairs, and capital project approval forms to demonstrate that PetroMasila approved a certain budget for said repairs.

1033. Notably, the Claimant has also failed to provided PetroMasila's monthly reports, or any other relevant document to demonstrate the actual costs incurred in performing the repairs to the Subsea Pipelines, as it has provided with respect to other claims.

1034. The Claimant has only submitted a contract between PetroMasila and ULO for repair services. However, the contract –which in itself is not sufficient to demonstrate that the works were indeed performed or paid– does not provide a specific price, but formulas to calculate the contractual price in function of the services rendered.[970]

1035. Furthermore, article 3 of said contract provides that:

> "*In consideration for the performance of the Work, PetroMasila shall pay, subject to Article 3 herein, to Contractor the compensation set out in Schedule "A" (hereinafter called the "Contract Price"). **The Contract Price shall be paid by PetroMasila within***

[968] 1EXR of Mr. Catterall, paras. 220-222.
[969] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, pp. 31-32.
[970] Exhibit C-402, Tab 9, Facilities and Equipment Schedule, Free-span Supports to SPM #2 Subsea Loading Pipelines, pp. 15-18.

thirty five (35) days after PetroMasila's receipt and approval of Contractor's invoice submitted in accordance with this Contract *and prepared in such form and supported by such documents as PetroMasila may reasonably require*".[971] [emphasis added].

1036. Although the contractual works were planned to finalize on 30 April 2014,[972] and the Claimant argues that they were indeed concluded, the Claimant has failed to provide the relevant invoice in order to demonstrate its actual loss.

1037. In light of the above, the Tribunal considers that the Claimant has failed to demonstrate that the repair works were indeed performed, and to substantiate its loss, and therefore, dismisses the Claimant's claim.

X. Item No. 9 – 69kV Highline Dampers

A. The Claimant's position

1038. The Claimant explains that the high voltage 69kV transmission cable lines "A" and "B" ("69kV Highlines") run from the well sites to the central power plant at the CPF in the field in a ring circuit. The cable lines are connected to highline posts by a saddle. The cables pass through an armored core that supports the cables at the point of connection.[973]

1039. The Claimant argues that these connections were damaged through wind induced vibrations. According to the Claimant, the Respondents recognized the need for urgent repairs, and engaged Dynamo Holding Inc ("Dynamo") to carry out the repair works in two phases: (i) emergency repairs in 23 structures, including the installation of some dampers at critical locations; and (ii) the subsequent installation of dampers at the cable connection points. However, only phase one was completed at the PSA's expiry.[974]

1040. The Claimant therefore contends that in breach of Articles 8.1, and 18.1(b) of the PSA, this equipment was not handed over in good working order at the end of the PSA.[975]

1041. It submits that PetroMasila engaged a Spanish company to perform the works pertaining to phase two between July 2012 and November 2013, and that the works were carried out at a total cost of USD 318,979.82.[976]

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[971] Exhibit C-402, Tab 9, Facilities and Equipment Schedule, Free-span Supports to SPM #2 Subsea Loading Pipelines, p. 2.
[972] Exhibit C-402, Tab 9, Facilities and Equipment Schedule, Free-span Supports to SPM #2 Subsea Loading Pipelines, p. 14.
[973] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 33.
[974] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 33-34.
[975] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 33.
[976] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 35.

B. The Respondents' position

1042. The Respondents argue there was no breach of Articles 8.1, and 18.1(b) of the PSA since the 69kV Highlines were in good working order prior to the PSA's expiry.[977]

1043. They further contend that all of the urgent repairs required to ensure that the 69kV Highlines could operate safely, were completed as part of phase one of Dynamo's work;[978] and that they were under no obligation to install the additional dampers (phase two) at the cable connection points prior to the PSA's expiry.[979]

1044. They also rely on Mr. Catterall's expert report, in which he opines that phase one of the repairs restored the 69kV Highlines to good working order.[980]

1045. Moreover, they argue that the Claimant has failed to demonstrate that PetroMasila in fact installed the dampers, and incurred the amounts claimed under this head of claim.[981]

C. The Arbitral Tribunal's decision

1046. The Claimant argues that in breach of Articles 8.1, and 18.1(b) (which was already dealt with above) of the PSA, by the end of the PSA, the 69kV Highlines were not in good working order as phase two of the repairs envisaged by Dynamo was not carried out. On the other hand, the Respondents contend that there was no breach of the PSA since phase one of the repairs –which was carried out in October 2011–, restored the 69kV Highlines to good working order.

1047. As a background to the claim, the Tribunal recalls that in a routine maintenance inspection in 2011 some of the conductors in the 69kV Highlines were found to be damaged. Thereafter the Respondents engaged Dynamo to carry out the repair works in two phases. In the words of Mr. Catterall, the Respondents' expert:

> "*Given the difficulty in predicting what spares would be required, the work was planned from the outset to be in two phases. Phase 1 consisted of emergency repairs using those spares available, or that could be acquired at short notice, along with a specialist inspection to identify the requirements for the less immediate repairs. Phase 2 would be*

[977] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 33.
[978] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 33.
[979] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 33.
[980] 1EXR of Mr. Catterall, para. 131.
[981] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 35.

carried out at a later date once the results from the inspection were known".[982] [emphasis added].

1048. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the repair works performed in phase one restored the 69kV Highlines to good working order.

1049. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1050. First, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that the phase one of the repairs restored the 69kV Highlines to good working order:

> "*In my opinion, it is clear that the Contractor followed Good Oilfield Practice by repairing the damage as soon as it became evident and restoring the lines to operation. The question for the claim is whether the lines were handed over in good working order, and in effect whether the Phase 1 repair work had restored them to good working order or whether Phase 2 work was required in order to be considered in good working order. **My definition of good working order requires that the equipment was working to specification and was not at imminent risk of failure, and from the evidence it seems these criteria were met**. The damage to the lines was a result of ordinary wear and tear from wind-induced vibration, and those immediate repairs required were carried out in Phase 1*".[983] [emphasis added].

1051. Second, an email from Dynamo to the Respondents dated 17 August 2011. In this email Dynamo explains to the Respondents the significance of the issue regarding the equipment, and recommends the installation of dampers on the entire 69kV Highlines:

> "***The vibration problem is much larger then*** [sic] ***I thought it would be. What we are seeing in the photos will only be the tip of the iceberg***. *If you look closely at close-up of the suspension shoe bottom picture pole #46 the shackle and bolt that holds the wire to the insulator has almost completely wore throw the side of the shackle. The bolt will also be badly damaged. It also looks like the insulator holding eye is badly damaged. The nuts on the U bolts that hold the conductor in the suspension shoe are all missing (vibrated off).*
> *The load capacity of the conductor at Poles # 46 #63 #103 is extremely reduced do* [sic] *to the outer layers of aluminum being wore away.*
> *(...)*

[982] 1EXR of Mr. Catterall, para. 129.
[983] 1EXR of Mr. Catterall, paras. 131-132.

I would recommend the installation of vibration dampers on the entire system both the 69 kV and the 13.8 kV to prevent farther damage".[984] [emphasis added].

1052. Third, a draft internal memorandum from the Respondents dated 22 September 2011. In this draft memorandum, the Respondents recognized that the 69kV Highlines were considerably damaged, and requested for the installation of all dampers available on site:

"*Services of Dynamo are urgently required for the following reasons:*
2. ***The hiline [sic] wires are considerably damaged at several locations impacting their power carrying capacity, safety, and reliability. The wires could possibly fall on the ground at any time causing safety concerns*** *and resulting in significant deferred production. (…)*
This contract relates to the provision of the following services:
4. ***Install all hiline [sic] dampers available on site*** *in areas exposed to high winds and resulting wire vibrations*".[985][emphasis added].

1053. Fourth, a PetroMasila's Report on the 69kV Highlines prepared by Mr. Fred Wright, (undated). The report concludes that given the prevailing wind conditions in Block 14, dampers should be installed throughout the 69kV Highlines to prevent further damage to the conductors:

"***The results of this study show that the prevailing wind conditions in Masila Block 14, and the level of tension in the conductors are sufficient to make the 69 kV Transmission System susceptible to damaging Aeolian vibration***. *This had been identified as a concern in the past however attempts to raise a project to facilitate remedial action were unsuccessful. The vibration is at a level severe enough to cause flexural damage to the transmission line conductors and neutral guy wires.* ***This vibration can be reduced*** *to levels below the upper limits stipulated by IEEE limit loop velocity of 200 mm/sec* ***with the installation of Stockbridge dampers on both power conductors and the horizontal guy wires***.
It is the recommendation of this study that Stockbridge dampers be installed on the power conductors and horizontal guy wires at every pole location in Transmission Lines A and B in order to prevent further damage to high voltage conductors. *(…). This work must be assigned a high priority in order to prevent a costly transmission line failure resulting in significant lost Production as well as potential of harm to personnel and equipment*".[986] [emphasis added].

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[984] Exhibit C-402, Tab 10, Facilities and Equipment Schedule, Claim 9 (EQP 18) – 69kV Highline Dampers, p. 2.
[985] Exhibit C-402, Tab 10, Facilities and Equipment Schedule, Claim 9 (EQP 18) – 69kV Highline Dampers, p. 7.
[986] Exhibit C-72, Tab 9, Facilities and Equipment Schedule, Claim 9 (EQP 18) – 69kV Highline Dampers, p. 11.

1054. The Tribunal recalls that Mr. Wright was transferred from the Respondents to PetroMasila after the PSA's expiry, and was, according to Mr. Tracy (the Respondents' witness), an expert in equipment.[987]

1055. Fifth, the cross-examination of Mr. Tracy at the final hearing. During his cross-examination Mr. Tracy admitted that the Respondents' maintenance recognized that the proper solution would have included immediate repairs (phase one) as well as the installation of dampers throughout the 69kV Highlines (phase two):

> *"Maintenance recognises that we need some outside support, and will be giving E&C an ESR to take a look at this..." And he says it could consist of one repair in the problem areas and two installing additional dampening.* ***So that's recognising, isn't it, as we just discussed there were two things: one, immediate problems; 2, install additional dampening?***
> *A.* ***That's correct****.*
> *Q. And you carried out the first part of that -- when I say you, you through Dynamo, you carried out those repairs, didn't you?*
> *A. So we carried out the repairs to the damaged cables and we installed the dampeners that we had the inventory, yes.*
> *Q.* ***But you didn't complete installing additional dampening on the whole system as he'd recommended?***
> *A.* ***We installed all the ones we had in the inventory*** *and prepared for phase 2, which will be the installation of additional dampeners.*
> *Q. Exactly.* ***So you did phase 1 but not phase 2?***
> *A.* ***Exactly***"[988] [emphasis added].

1056. The Tribunal is not convinced by Mr. Catterall's opinion that after phase 1 of the repairs the 69kV Highlines were no longer at risk of failure, and thus were kept in good working order. Mr. Catterall has not provided any explanation for this assertion. The fact that the necessary repairs were divided in two phases based on urgency and immediate availability of dampers does not in any way show that phase two was not indispensable.

1057. On the contrary, the Tribunal considers that the evidence in the record is sufficient to conclude that the 69kV Highlines were not in good working order. The documents demonstrate that both Dynamo in August 2011, and Mr. Wright (PetroMasila) after the PSA's expiry, agreed that dampers should have been installed throughout the 69kV Highlines in order to completely repair the equipment. This was further recognized by Mr. Tracy, the Respondents' witness during his cross-examination.

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[987] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 3, p. 10, line 24.
[988] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 3, from p. 17, line 17, to p. 18, line 13.

1058. Therefore, the Tribunal concludes that given that phase two was not performed prior to the PSA's expiry, the 69kV Highlines were not in good working order.

1059. With respect to quantum, the contemporary documents show that PetroMasila approved a budget in 2012 for the implementation of phase two in the amount of USD 400,000.[989]

1060. The Tribunal notes in the first place that the Claimant has not provided PetroMasila's monthly reports or any other relevant document to demonstrate how phase two was carried out after the PSA's expiry, which would have demonstrated the loss claimed.

1061. The Claimant claims that a Spanish company undertook phase two at a total cost of USD 318,979.82. It relies on a 2-page spreadsheet setting out the individual cost of materials (USD 85,560.00) and services (USD 233,419.82) which add up to USD 318,979.82, and other supporting documents.

1062. The Tribunal considers that an undated 2-page spreadsheet is not sufficient to demonstrate the cost incurred by PetroMasila in performing phase two of the repairs.

1063. In relation to the materials, the Claimant has submitted (several times) purchase order No. 415000730, and the corresponding invoice, regarding the purchase of 5450 dampers in the amount of USD 69,433.[990] Additionally, the Claimant has submitted purchase order No. 415001588 regarding the purchase of 2000 galvanized bolts in the amount of USD 3,000.[991] Therefore, the Claimant has only proven that PetroMasila incurred USD 72,433 for the costs of the materials in relation to phase two.

1064. In relation to the services, the Claimant has submitted one single invoice in relation to Contract 9685L943 for the 69kV Highlines repairs in the amount of USD 148,637.50.[992] Therefore, the Claimant has only proven that PetroMasila incurred USD 148,637.50 for the costs of the services in relation to phase two.

1065. Overall the Tribunal concludes that out of the USD 318,979.82 claimed by the Claimant, only USD 221,070.50 is supported by the evidence in the record.

1066. Consequently, the Tribunal grants the Claimant's claim in the amount of USD 221,070.50.

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[989] Exhibit C-72, Tab 9, Facilities and Equipment Schedule, Claim 9 (EQP 18) – 69kV Highline Dampers, p. 51.
[990] Exhibit C-402, Tab 10, Facilities and Equipment Schedule, Claim 9 (EQP 18) – 69kV Highline Dampers, pp. 12-14, 20-24.
[991] Exhibit C-402, Tab 10, Facilities and Equipment Schedule, Claim 9 (EQP 18) – 69kV Highline Dampers, p. 11.
[992] Exhibit C-402, Tab 10, Facilities and Equipment Schedule, Claim 9 (EQP 18) – 69kV Highline Dampers, pp. 15-16.

XI. Item No. 10 – 69kV Transmission System Wash

A. The Claimant's position

1067. The Claimant argues that the 400 structures and substations that comprise the 69kV transmission system ("Transmission System") should have been washed once every three years.[993] According to the Claimant, if the dust accumulates, it may lead to line failure and safety hazards.[994]

1068. The Claimant contends that the Respondents identified this work as critical in October 2011.[995]

1069. It is the Claimant's case that: (i) the Respondents recognized that the next wash was due on April 2011; (ii) engaged Canada Power Holdings ("Canada Power") to wash the Transmission System; and (iii) failed to perform the wash before the PSA's expiry.[996]

1070. The Claimant contends that the Respondents were in breached Article 8.1 of the PSA by failing to wash the Transmission System prior to the PSA's expiry, and Article 18.1(b) of the PSA since the Transmission System was not left in good working order at the end of the PSA.[997]

1071. The Claimant further argues that PetroMasila engaged HighLine Division to perform the wash works and that the wash was carried out at a total cost of USD 321,679.[998]

B. The Respondents' position

1072. The Respondents argue that there was no breach of Articles 8.1, and 18.1(b) of the PSA since there was no obligation to wash the Transmission System before the end of the PSA, and that it was in good working order prior to the PSA's expiry, as confirmed by the expert report of Mr. Catterall.[999]

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[993] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 35.
[994] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 35.
[995] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 35.
[996] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 35.
[997] Facilities and Equipment Rejoinder Schedule, Claimant's Allegation of Breaches column, pp. 35-36.
[998] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 37.
[999] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 36.

1073. They submit that washing the Transmission System was routine maintenance which was performed from time to time,[1000] and argue that they were under no obligation to carry out the wash prior to the PSA's expiry.[1001]

1074. Finally, they argue that the Claimant has failed to demonstrate that PetroMasila in fact washed the Transmission System, and incurred the amounts claimed under this head of claim.[1002]

C. The Arbitral Tribunal's decision

1075. It is the Claimant's position that as a result of the Respondents' failure to wash the Transmission System prior to the PSA's expiry, it was not handed over in good working order. On the other hand, the Respondents contend that there was no breach of Articles 8.1 and 18.1(b) of the PSA since they handed over the Transmission System in good working order.

1076. The Claimant bases the first part of its claim on Article 18(1)(b) which was already dealt with above and which the Tribunal found not applicable, and not on Article 8.

1077. In any case, the Claimant's quantification of its loss does not include the need to repair the Transmission System, but only the costs incurred by PetroMasila to engage HighLine Division to wash the Transmission System.[1003]

1078. Additionally, the Claimant has not presented a single piece of evidence in relation to the status of the Transmission System prior to the PSA's expiry.

1079. In light of the above, the Tribunal dismisses this part of the Claimant's claim.

1080. With respect to the issue of whether or not the Transmission System required to be washed prior to the PSA's expiry, the Tribunal notes in the first place that this specific obligation is not included in the language of Article 8 of the PSA.

1081. The Tribunal has reviewed the following evidence in the record.

1082. First, an internal memorandum from the Respondents dated 9 November 2011. In this document the Respondents were requesting to the Yemen Bid Committee an authorization to execute a contract to wash the Transmission System and to continue the inspection of all

[1000] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 35.
[1001] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 35.
[1002] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 36.
[1003] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 37.

cables to seek for cable damage (the latter refers to Item No. 9 – 69kV Highline Dampers claim above). The Respondents referred to these services as "*urgently required services*".[1004]

1083. Second, an internal chain of emails from the Respondents throughout November 2011. These emails evidence the internal discussions in relation to the abovementioned authorization. It is clarified therein that "*there will be an extra work required to do along with the Water Wash which is the Continuation of Inspection of all cable holders on structures from top of the pole for any cable damage*".[1005] Subsequently in the email chain the Respondents identified that these services were essential.[1006]

1084. The Claimant has also failed to individualize the need to "continue the inspection of all cables to seek for cable damage" from the need to "wash the Transmission System".

1085. The Claimant has also failed to demonstrate that the Respondents considered that washing the Transmission System (which is what the Claimant's present claim relates to) was either essential or critical in itself.

1086. Moreover, the mere fact that the Respondents were originally planning to wash the Transmission System in 2011 does not allow the Tribunal to conclude that they were required to do so.

1087. The Tribunal therefore concludes that the Claimant has failed to demonstrate the existence of an obligation to wash the Transmission System in 2011, and dismisses the Claimant's claim.

XII. Item No. 14 – Damaged 5kV Cables

A. The Claimant's position

1088. The Claimant explains that the 5kV cables ("5kV Cables") supplied power to three main oil line pumps and three produce water disposal pumps.[1007]

1089. The Claimant argues that on 3 September 2011 the Respondents identified cracks of up to 4.57 meters on the 5kV Cables outer jackets. According to the Claimant this could pose the

[1004] Exhibit C-402, Tab 11, Facilities and Equipment Schedule, Claim 10 (EQP 17) – 69kV Transmission System Wash, p. 10.
[1005] Exhibit C-402, Tab 11, Facilities and Equipment Schedule, Claim 10 (EQP 17) – 69kV Transmission System Wash, p. 4.
[1006] Exhibit C-402, Tab 11, Facilities and Equipment Schedule, Claim 10 (EQP 17) – 69kV Transmission System Wash, p. 1.
[1007] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 37.

following risks: (i) cause them to fail; and (ii) personnel could be injured if coming into contact with the exposed 5kV Cables where the insulating jacket has split.[1008]

1090. The Claimant contends that, although Mr. Tracy argues that the Respondents took immediate action by ordering cable jacket repair sleeves, and proceed to repair the 5kV Cables jackets, there is no evidence to substantiate this.[1009]

1091. The Claimant argues that in breach of Articles 8.1, and 18.1(b) of the PSA, this equipment was not handed over in good working order at the end of the PSA.[1010]

1092. The Claimant claims USD 342,312 which represents the costs of USD 206,312 for purchasing cables and other materials, and an estimate of the cost of installation of these new cables in the amount of USD 136,000.[1011]

B. The Respondents' position

1093. The Respondents argue that there was no breach of Articles 8.1, and 18.1(b) of the PSA since the 5kV Cables were in good working order prior to the PSA's expiry, as confirmed by the expert report of Mr. Catterall.[1012]

1094. They further submit that after identifying the cracks in September 2011 they immediately contacted the manufacturer, ordered cable jacket repair sleeves, and conducted repairs which were in progress at the PSA's expiry.[1013]

1095. Finally, the Respondents argue that the Claimant has failed to demonstrate that PetroMasila replaced or repaired the damaged 5kV Cables, and incurred the amounts claimed under this head of claim.[1014]

C. The Arbitral Tribunal's decision

1096. According to the Claimant, the Respondents have breached Articles 8.1 and 18.1(b) (which was already dealt with above) of the PSA, since the 5kV Cables were not handed over in good working order at the end of the PSA. On the other hand, the Respondents contend that there was no breach of the PSA since they handed over the 5kV Cables in good working order.

[1008] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 37.
[1009] Claimant's PHB (second round) 2019, Annex A, Claimant's Claim column, p. 20.
[1010] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 37.
[1011] Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, p. 20.
[1012] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, pp. 37-38.
[1013] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy column, p. 37.
[1014] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 38.

1097. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the 5kV Cables were maintained in good working order.

1098. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1099. First, an email from the Respondents to the manufacturer dated 3 September 2011. This email shows that the Respondents found some cracks on the outer jacket of the 5kV Cables. Additionally, this email demonstrates that the Respondents were requesting advice from the manufacturer in relation to the integrity of the 5kV Cables:

> "*Wholesale Electric supplied tray type cables to CNPY (previously Canadian Occidental Yemen) in 1993. We have found out several of these cables with cracked overall jackets. Some cracks are up to 15 feet long and are present at different locations along the cable routing. The cables have been in operation for about 15 years on an intermittent duty (operated for several days followed by several days on a standby duty without being energized). **The cables have not failed and they feed squirrel type motors driving crude oil pumps and water pumps**. It takes less than two seconds to start the pumps.*
> *The cables are shielded from direct sun exposure by cable tray covers.*
> *Please contact the original cable manufacturer and ask him to provide their comments and recommendations on what needs to be done.*
> ***We also would like to get a response on the following**:*
> *1. **If the integrity of the cables is impacted**.*
> *(...)*
> *4. The cables are installed in very dry ambient conditions with low humidity. It rains here only several times a year so the likelihood of moisture entering and propagating within the cables in very small.*
> *5. **If temporary or permanent repairs can be made, we need information such as what materials are needed and instructions on how the repairs would be carried out***".[1015]
> [emphasis added].

1100. Second, Mr. Tracy's witness statement, in which he argues that after identifying the cracks on the outer jacket of the 5kV Cables, the Respondents immediately contacted the manufacturer, ordered cable jacket repair sleeves, and proceeded to repair the outer jacket of the 5kV Cables.[1016]

[1015] Exhibit C-72, Tab 14, Facilities and Equipment Schedule, Damaged 5kV Cables, p. 2.
[1016] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy column, p. 37.

1101. Third, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that the Respondents repaired the 5kV Cables before the PSA's expiry, and that there is not enough information to opine if further repairs or replacements were required:

> "***The Contractor took steps to repair the cables by ordering 'cable jacket repair sleeves' to restore the cables to service. The evidence provided by the Claimant indicates that the cable jacket repair sleeves have been installed***. *This was a reasonable course of action prior to permanent replacement (if required), and followed Good Oilfield Practice.* ***In terms of deciding whether the cables were in good working order save ordinary wear and tear, there is no copy of the response from the supplier or manufacturer to explain the cause of the problem and whether repair or replacement was required*** *(as requested by email) and if replacement was required how quickly it should be done*".[1017] [emphasis added and internal citations omitted].

1102. Third, an undated document prepared by PetroMasila in relation to the 5kV Cables. This document shows that PetroMasila concluded that given the extent of the damage to the 5kV Cables, it was recommended not to investigate whether they could be repaired, but to proceed to replace them.[1018]

1103. The Tribunal notes that the Claimant's case is based on only two pieces of evidence.

1104. The first piece of evidence is an email from the Respondents to the manufacturer (without its response), in which the Respondents acknowledge the existence of some cracks, and request to assess the integrity of the 5kV Cables.[1019] Even without considering the Respondents' evidence –that the cables had been repaired prior to the PSA's expiry–, the email in itself is not sufficient to demonstrate that the 5kV Cables were not in good working order. In this email the Respondents were simply requesting the manufacturer to assess the condition of the equipment. The actual document that could have established the status of the 5kV Cables at the PSA's expiry, is the manufacturer's response, which is not part of the record.

1105. The second piece of evidence is a document prepared by PetroMasila, which states that given the extent of damage, it is recommended not to investigate whether the 5kV Cables can be repaired, but to replace them.[1020]

1106. This document does not demonstrate the actual condition of the 5kV Cables prior to the PSA's expiry It is a self-serving document by the Claimant's PetroMasila which simply

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[1017] 1EXR of Mr. Catterall, paras. 154-155.
[1018] Exhibit C-72, Tab 14, Facilities and Equipment Schedule, Damaged 5kV Cables, p. 1.
[1019] Exhibit C-72, Tab 14, Facilities and Equipment Schedule, Damaged 5kV Cables, p. 2.
[1020] Exhibit C-72, Tab 14, Facilities and Equipment Schedule, Damaged 5kV Cables, p. 1.

states that the cables should be replaced. The Tribunal cannot rely on this document as it is: (i) unsigned; (ii) undated; and (iii) it does not provide an explanation as to how such conclusion was reached.

1107. Consequently, the Tribunal concludes that the Claimant has failed to prove that the 5kV Cables were not in good working order, (after the Respondents' repairs, or at all), and dismisses the Claimant's claim.

XIII. Item No. 17 – Power Transformer Oil Maintenance

A. The Claimant's position

1108. The Claimant explains that there are approximately 190 transformers in operation in Block 14.[1021] According to the Claimant, the transformers use transformer oil as an insulant and cooling medium for the electrical wire coils (the integrity of the wire coils is maintained by immersion in such oil). However, the properties of the transformer oil can deteriorate over time,[1022] causing its insulation properties to degrade.[1023]

1109. The Claimant argues that regular sampling and testing of the transformer oil is essential to check and maintain the condition of the transformer oil and the transformers.[1024]

1110. It contends that the Respondents did not fully and properly test and recondition the transformer oil prior to the PSA's expiry, and therefore, the transformer oil was not handed over in good working order in breach of Articles 8.1, and 18.1(b) of the PSA.[1025]

1111. The Claimant further submits that the Marsh Report of 2009 identified shortcomings in the Respondents' testing regime and advised that additional tests (furan and power factor tests) should have been carried out throughout the PSA.[1026]

1112. Moreover, it argues that the Respondents instructed Pace Technologies Inc ("Pace") to conduct the tests recommended by the Marsh Report. In September 2011 Pace conducted site visits and issued its report in September 2012 to PetroMasila.[1027] According to the Claimant, the Pace Report shows that 90% of the oil samples tested showed signs of deterioration, and that the transformer oil needed to be reconditioned.[1028]

[1021] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 39.
[1022] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 21.
[1023] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 40.
[1024] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 21.
[1025] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 39.
[1026] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 39-40.
[1027] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 40.
[1028] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 22.

1113. According to the Claimant, PetroMasila purchased a new oil filtration machine in order to recondition the transformer oil at a total cost of USD 143,070.[1029]

B. The Respondents' position

1114. The Respondents argue there was no breach of Articles 8.1, and 18.1(b) of the PSA since the transformer oil was in good working order prior to the PSA's expiry and did not require to be reconditioned.[1030]

1115. According to Mr. Tracy, the Respondents performed testing of the transformer oil in 2002, 2004, 2006, and 2008.[1031] The 2009 Marsh Report shows that such regular maintenance took place, and recommended additional tests (furan and power factor tests) to be performed. The Respondents' expert, Mr. Catterall, opines that these tests provide an indication of the condition of the transformers, but not of the transformer oil.[1032]

1116. Mr. Tracy argues that as a result of the Marsh Report they engaged Pace to conduct several tests (including the furan and power factor tests) in March 2011. However, as per the security situation in Yemen in 2011 Pace deferred its work until September 2011, and issued its report directly to PetroMasila in July 2012.[1033]

1117. Finally, the Respondents contend that contrary to what the Claimant argues, the Pace Report did not conclude that the transformer oil needed to be reconditioned, it simply recommended to resample the transformer oil in order to confirm the results.[1034]

C. The Arbitral Tribunal's decision

1118. It is the Claimant's case that in breach of Articles 8.1 and 18.1(b) (which was already dealt with above) of the PSA the transformer oil was not handed over in good working order at the end of the PSA. On the other hand, the Respondents contend that there was no breach of the PSA since they handed over the transformer oil in good working order.

1119. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the transformer oil needed to be reconditioned / was in good working order at the PSA's expiry.

[1029] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 40-41.
[1030] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 39.
[1031] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 39.
[1032] 1EXR of Mr. Catterall, para. 170.
[1033] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 40.
[1034] Claimant's PHB (second round) 2019, Annex A, Respondents' column, pp. 21-22.

1120. There is one single piece of evidence adduced by the Parties (the Pace Report) which can be able to attest the condition of the transformer oil at the PSA's expiry.[1035] However, the Parties do not agree on the conclusions of the Pace Report. According to the Claimant, the Pace Report demonstrates that 90% of the transformer oil samples showed signs of deterioration, whereas the Respondents contend that it recommends for the transformer oil to be resampled to confirm its results.

1121. The summary of the Pace Report clearly recommends to perform a resample to confirm its findings, as it appears below:

> "*Many oil samples analyzed had moisture, gassing and/or low breakdown kV. Prior to reconditioning or drying the oil* ***it is recommended to resample to confirm findings***".[1036][emphasis added].

1122. It analyses 20 transformer oil samples (TC811 to TC30), and provides a one-paragraph diagnose for each sample. In two samples (TC814 and TC821), it concludes that "*no anomalies were found*".[1037] In all of the other eighteen samples the Pace Report suggests, after an initial diagnose, that it shall perform a resample to confirm the initial findings.[1038]

1123. Some of the specific examples are transcribed below:

> "*TC811 (...). It is recommended to confirm the findings by resampling the transformer. (...)*
> *TC812 (...). Granted that the sample is confirmed (...).*
> *TC813 (...). Assuming that re-sampling takes place to confirm the results (...).*
> *TC815 (...). Resample to confirm this result (...)*".[1039] [emphasis added].

1124. The Tribunal therefore concludes, on the one hand, that the Pace Report is non-conclusive, and consequently, that the Claimant has failed to demonstrate that the transformer oil needed to be reconditioned or that it was not in good working order.

1125. In light of the above, the Tribunal dismisses the Claimant's transformer oil claim.

XIV. Item No. 18 – Wencom Wartsila Monitoring System / PLC Replacement

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[1035] Whether or not the Respondents should have performed the furan and power factor tests is irrelevant to the outcome of the claim, as it is based on the actual conditions of the transformer oil.
[1036] Exhibit C-72, Tab 17, Facilities and Equipment Schedule, Power Transformer Oil Maintenance, p. 8.
[1037] Exhibit C-72, Tab 17, Facilities and Equipment Schedule, Power Transformer Oil Maintenance, pp. 8-9.
[1038] Exhibit C-72, Tab 17, Facilities and Equipment Schedule, Power Transformer Oil Maintenance, pp. 8-9.
[1039] Exhibit C-72, Tab 17, Facilities and Equipment Schedule, Power Transformer Oil Maintenance, pp. 8.

A. The Claimant's position

1126. The Claimant explains that the central power plant No. 1 contains diesel driven generators, and is the only power plant capable of providing a black start in the event of a total power outage.[1040] Each of those diesel driven generators is controlled by a Modicon 984 PLC ("Modicon PLC").[1041]

1127. Additionally, the Wencom Programmable Logic Controller ("Wencom PLC") monitors and controls critical internal engine temperatures on the six diesel engines located at the central power plant No. 1.[1042] According to the Claimant, if the Wencom PLC fails, the temperature protection for the engines is lost and that can cause the engines to fail, which could lead to an operational blackout.[1043]

1128. The Claimant contends that the Respondents recognized in an internal memorandum dated 16 March 2010 that the Modicon PLCs were obsolete and needed to be replaced.[1044]

1129. Furthermore, the Claimant argues that the Wencom PLC ceased to bc produced in 1995, and that the support from the manufacturer, including the provision of spare parts, ended in 2000.[1045] According to the Claimant, the Respondents recognized in an internal memorandum dated 6 January 2010, that the Wencom PLC was obsolete and needed to be replaced.[1046]

1130. It is the Claimant's case that the Respondents included the Wencom PLC replacement project and the Modicon PLCs replacement project in their 2010 and 2011 WPBs. However, in breach of Articles 8.1, and 18.1(b) of the PSA at the PSA's expiry, the Wencom PLC and the Modicon PLCs were not replaced.[1047]

1131. The Claimant argues that as a result of the Respondents' breaches, PetroMasila budgeted to commence these projects as soon as possible when funds were available.[1048] In 2013 PetroMasila cancelled the Wencom PLC replacement project and the Modicon PLCs replacement project and substituted it with the Wartsila Engine Control System Project.

[1040] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 43.
[1041] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 43-44.
[1042] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 44.
[1043] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 44-45.
[1044] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 46.
[1045] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 45.
[1046] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 23.
[1047] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 45.
[1048] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 46.

According to the documents relied on by the Claimant, this replaced the obsolete equipment with a single UNIC C2 Engine Control System.[1049]

1132. The Claimant contends that PetroMasila hired Wartsila to complete this project which was initiated in August 2013, and finished in December 2017, at a total cost of USD 1,258,371.31.[1050]

B. The Respondents' position

1133. The Respondents argue there was no breach of Articles 8.1, and 18.1(b) of the PSA since the Wencom PLC and the Modicon PLCs were in good working order prior to the PSA's expiry.[1051]

1134. They contend that the Claimant's own evidence demonstrates that throughout the duration of the PSA it remained possible to: (i) send out the Wencom PLC for repairs and maintain an inventory of spare parts; and (ii) obtain spare parts for the Modicon PLCs.[1052]

1135. According to the Respondents' witness, Mr. Tracy, the Wencom PLC and the Modicon PLCs were not obsolete.[1053] The Respondents argue that they were not at imminent risk of failure. This would be evidenced by the fact that PetroMasila only completed the replacement project in 2017, and the system has never failed.[1054]

1136. Finally, the Respondents submit that the fact that the Respondents' electrical engineer wanted the system to be upgraded does not change the analysis. In their own words:

> *"Rather, the analysis turns on: (a) whether anything had prevented the equipment from performing its function as originally intended – which was not the case; (b) whether there was evidence of imminent risk of failure – there was none; and (c) whether spares were available for any repairs that might be required in the future – which they were".*[1055]

C. The Arbitral Tribunal's decision

1137. It is the Claimant's case that in breach of Articles 8.1, and 18.1(b) (which was already dealt with above) of the PSA, by the end of the PSA, the Wencom PLC and the Modicon PLCs

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[1049] Exhibit C-402, Tab 14, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, p. 5.
[1050] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 24.
[1051] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, pp. 44-45.
[1052] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, pp. 43-44.
[1053] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 44.
[1054] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 44; Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 23.
[1055] Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 23.

were not in good working order. On the other hand, the Respondents contend that there was no breach of the PSA since such equipment was in good working order.

1138. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the Wencom PLC and the Modicon PLCs were maintained in good working order.

1. The Wencom PLC

1139. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1140. First, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that the Wencom PLC was in good working order since it was still possible to send the parts for repairs, and that a supply for spare parts remained available:

> "*The Contractor determined that* ***it was still possible to send the Wencom Wartsila system parts out for repair*** *and to maintain the limited stock of spare parts, as the Claimant has acknowledged.*
> *(…)*
> *Therefore,* ***given the clear evidence that a supply of spare parts remained available, the Wencom Wartsila monitoring system cannot be considered obsolete and I conclude that it remained in good working order*** *save ordinary wear and tear at the expiry of the PSA*".[1056] [emphasis added and internal citations omitted].

1141. Second, an internal memorandum from the Respondent 1 prepared by Mr. Fred Wright, dated 6 January 2010. In this memorandum the Respondent 1 recognized that the Wencom PLC was old, obsolete, and had a high risk of failure:

> "***Given the high probability of component failure, the age and obsolescence of the Wencom equipment, the lack of support from Wartsila, the critical nature of this control equipment****, the risk of damage to Wartsila engines when this equipment ceases to function and the loss of production that will occur as a result, it is recommended that the replacement of the Wencom temperature Monitoring and Control System proceed by incorporating the control logic in the new Modicon PLC's to be installed in the Wartsila Control Panels in 2010*".[1057][emphasis added].

1142. Third, a subsequent internal memorandum from the Respondent 1 prepared by Mr. Fred Wright, dated 21 January 2011. In this memorandum the Respondent 1 recognized that the Wencom PLC was obsolete, and that it was at imminent risk of failure:

[1056] IEXR of Mr. Catterall, para. 178.
[1057] Exhibit C-72, Tab 18, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, p. 10.

"The Nexen Risk Matrix (appendix A) was used to assess the risk level of equipment failure based on Harm to People, Environmental Effects, Financial Impact and Impact on Reputation. The assessment was based on the statement, when the Wencom fails, what is the worst potential outcome. ***Given the obsolete, unsupported, old technology nature of the Wencom, it was determined that it is not a matter of IF the unit will fail, but WHEN***".[1058][emphasis added].

1143. The Tribunal recalls that Mr. Wright, according to Mr. Tracy himself (the Respondents' witness), is an expert in equipment matters.[1059]

1144. The Tribunal is not convinced by Mr. Catterall's opinion that the Wencom PLC was not obsolete, and that it was in good working order since a supply of spare parts remained available. The availability of spare parts is only one of the criteria to determine whether an equipment is obsolete.

1145. On the contrary, the Tribunal considers that the evidence in the record is sufficient to conclude that the Wencom PLC was not maintained in good working order. The documents show that the Respondents recognized that: (i) the equipment was very old; (ii) there was no support from the manufacturer; and (iii) it was at imminent risk of failure.

1146. The fact that the risk did not materialize does not affect the analysis. The Tribunal cannot rule with the benefit of hindsight that in 2011 there was no imminent risk of failure simply because that risk did not materialize itself. In 2011, the Respondent 1 recognized that the equipment was deemed to be at imminent risk of failure.

2. The Modicon PLCs

1147. With respect to the Modicon PLCs, the Tribunal has reviewed *inter alia,* the following evidence in the record.

1148. First, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that there was no justification to upgrade the Modicon PLCs since spare parts remained available:

"In a risk assessment prepared by Mr Wright in January 2011, he suggested that the Wencom system should be upgraded at the same time as the Modicon PLCs were upgraded. The wider Modicon PLC system replacement project impacted not only the Wencom Wartsila system but also the Solar Turbines and the Cherco Gas Compressors.

[1058] Exhibit C-72, Tab 18, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, p. 16.
[1059] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 3, p. 10, line 24.

*The justifications for these projects therefore were to some extent linked. **Spare parts were available for the Modicon PLCs, therefore there was no justification for an upgrade of that system**. As a result both were put on hold*".[1060] [emphasis added and internal citations omitted].

1149. Second, an internal memorandum from the Respondent 1 prepared by Mr. Fred Wright, dated 16 March 2010. In this memorandum the Respondent 1 recognizes that the Modicon PLCs were old, obsolete, and that one or more would probably fail before the PSA's expiry:

"***Given the high probability of component failure, the age and obsolescence of the Modicon 984 PLC equipment, the lack of availability of spare parts, the lack of support from Modicon**, the critical nature of this control equipment, the risk of a power blackout or damage to CPP1 generators when this equipment ceases to function, the essential equipment definition of the Wartsila generators and the loss of production that will occur as a result, it is recommended that the replacement of the Modicon 984 PLC System on each of the 6 CPP1 generators proceed by replacing the obsolete Modicon 984 PLC's with new Modicon Quantum PLC's.*

*The Nexen Risk Matrix (appendix A) was used to assess the risk level of Modicon 984 PLC equipment failure based on Harm to People, Environmental Effects, Financial Impact and Impact on Reputation. The assessment was based on the statement, when a Modicon 984 PLC fails, what is the worst potential outcome. **Given the age, lack of spare parts and maintenance history of the Modicon PLC's it was determined that failure of one or more Modicon 984 PLC's will probably occur before the end of the PSA***".[1061] [emphasis added].

1150. The Tribunal is not convinced by Mr. Catterall's opinion that there was no justification to upgrade the Modicon PLCs since spare parts remained available. The availability of spare parts is only one of the criteria to determine whether or not an equipment is obsolete.

1151. On the contrary, the Tribunal considers that the evidence in the record is sufficient to conclude that the Modicon PLCs were not kept in good working order at the PSA's expiry. The internal memorandum shows that the Respondent 1 recognized that: (i) the equipment was very old; (ii) there was no support from the manufacturer; and (iii) they were at imminent risk of failure.

[1060] 1EXR of Mr. Catterall, para. 177.

[1061] Exhibit C-72, Tab 18, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, pp. 6-7.

1152. In relation to both equipment, the Tribunal notes that the Respondents approved the Wencom PLC replacement project and the Modicon PLCs replacement project before the PSA's expiry.[1062]

1153. Moreover, an internal email from the Respondents reveals that these projects were deferred due to manpower constraints and timing issues, not because the equipment were considered to be in good working order:

> *"After reviewing the risk assessment completed internally for these projects listed below.*
> *- **Modicon Replacement**,*
> *- **Wencom Replacement**, and*
> *- Electrical Deficiencies.*
> ***Due to manpower constraints and project deliverables timing, E&C department is considering to not proceed with these projects at this stage of time**. The above projects will be included as a part of extension projects in the event of a PSA extension"*[1063] [emphasis added].

1154. As confirmed by Mr. Tracy during his cross-examination, the projects were never intended to be cancelled, but only deferred to 2012.[1064]

1155. Taking into consideration the above, the Tribunal concludes that the Respondents should have replaced the Wencom PLC and the Modicon PLCs before the PSA's expiry, as they were not in good working order.

1156. In 2013 PetroMasila cancelled the Wencom PLC replacement project and the Modicon PLCs replacement project and substituted it with the Wartsila Engine Control System Project.[1065]

1157. The contemporary documents (expense project request forms) show that PetroMasila requested in 2012 for the implementation of the project a budget of USD 1,200,000.[1066] This was subsequently approved by a contemporary expense project approval form.[1067]

[1062] Exhibit C-72, Tab 18, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, p. 18; Exhibit C-402, Tab 14, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, p. 1.

[1063] Exhibit C-72, Tab 18, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, pp. 6-7.

[1064] Cross-examination of Mr. Tracy, Transcript of the final hearing, day 3, p. 14 lines 18-24.

[1065] Exhibit C-402, Tab 14, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, p. 5.

[1066] Exhibit C-402, Tab 14, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, p. 4.

[1067] Exhibit C-402, Tab 14, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, p. 6.

1158. Furthermore, the Claimant has presented a breakdown of the actual costs incurred in this project (USD 1,258,371.31) which is supported by a contract and invoices for the works performed.[1068]

1159. Consequently, the Tribunal grants the Claimant's claim in the amount of USD 1,258,371.31.

XV. Item No. 19 – Cherco Gas Compressors' Modicon 984 PLCs Upgrade

A. The Claimant's position

1160. The Claimant explains that three Cherco Gas Compressors provide fuel gas to the two 9MW Solar Turbines that drive the generators for electrical power generation at the central power plant No. 2. The Cherco Gas Compressors were controlled by a Modicon PLC.[1069]

1161. The Claimant submits that in breach of Articles 8.1, and 18.1(b) of the PSA, the Cherco Gas Compressor's Modicon PLC ("CGC's Modicon PLC") was not in good working order at the PSA's expiry.[1070]

1162. It also contends that the Respondents suggested replacing the CGC's Modicon PLC in September 2009 due to the lack of spare parts available for this equipment.[1071]

1163. According to the Claimant, on 24 January 2010 the Respondents recognized the need to replace the CGC's Modicon PLC as it was obsolete.[1072] Furthermore, in March 2010 an internal memorandum from the Respondents identified all the deficiencies of the CGC's Modicon PLC.[1073] However, at the PSA's expiry, the CGC's Modicon PLC was not replaced.[1074]

1164. The Claimant contends that PetroMasila replaced the CGC's Modicon PLC in July 2014, at a total cost of USD 46,505.84.[1075]

B. The Respondents' position

[1068] Exhibit C-402, Tab 14, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, pp. 8-16.
[1069] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 47-48.
[1070] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 47.
[1071] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 49.
[1072] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 49.
[1073] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 24.
[1074] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 49-50.
[1075] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 24.

1165. The Respondents argue that there was no breach of Articles 8.1, and 18.1(b) of the PSA since the CGC's Modicon PLC was in good working order prior to the PSA's expiry.[1076]

1166. According to the Respondents' witness, Mr. Tracy, an internal memorandum from PetroMasila dated 2 March 2012 recognizes that by that date there were sufficient spare parts in stock for the equipment, and that it was not at imminent risk of failure.[1077]

1167. Therefore, the Respondents conclude that they were under no obligation to replace the CGC's Modicon PLC prior to the PSA's expiry.[1078]

C. The Arbitral Tribunal's decision

1168. It is the Claimant's position that the Respondents breached Articles 8.1 and 18.1(b) (which was already dealt with above) of the PSA, since the CGC's Modicon PLC was not handed over in good working order at the end of the PSA. On the other hand, the Respondents contend that there was no breach of Articles 8.1 and 18.1(b) of the PSA since they handed over the CGC's Modicon PLC in good working order.

1169. The Tribunal first observes that the present claim refers to the CGC's Modicon PLC, which is the same type of equipment (referred to as Modicon PLC) under the above claim "*Item No. 18 – Wencom Wartsila Monitoring System / PLC Replacement*". However, whereas such claim related to the Modicon PLCs (plural) that were located at the central power plant No. 1, this claim relates to the Modicon PLC (singular) that controlled the Cherco Compressors at the central power plant No. 2.[1079]

1170. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the CGC's Modicon PLC was in good working order prior to the PSA's expiry.

1171. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1172. First, an internal email from the Respondent 1 dated 19 September 2009. This email establishes that although spare parts for the CGC's Modicon PLC were not presently available, it seemed possible to purchase them:

> "*As mentioned, this is a critical issue because we presently do not have a full set of spares for our Cherco PLC. If it failed we may be down for some time.* ***If this upgrade project is***

[1076] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 48.
[1077] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, pp. 48-49.
[1078] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, pp. 47-48.
[1079] Facilities and Equipment Rejoinder Schedule, Claimant's column, pp. 47-48.

not going to go ahead, inform me as soon as possible so I can proceed with trying to procure spares for the existing PLC".[1080] [emphasis added].

1173. Second, an internal requisition order from the Respondent 1 dated 24 January 2010. The requisition order reads as follows:

"PLC TO REPLACE OBSOLETE PLC CONTROLLING CHERCO COMPRESSORS SUPPLYING GAS TO SOLAR TURBINES".[1081]

1174. Third, an internal memorandum from the Respondent 1 prepared by Mr. Fred Wright, dated 16 March 2010. In this memorandum the Respondent 1 recognizes that the Modicon PLC equipment was old, and obsolete:

"Given the high probability of component failure, the age and obsolescence of the Modicon 984 PLC equipment, the lack of availability of spare parts, the lack of support from Modicon, the critical nature of this control equipment, ***the risk of a power blackout or damage to CPP1 generators*** *when this equipment ceases to function, the essential equipment definition of the Wartsila generators and the loss of production that will occur as a result,* ***it is recommended that the replacement of the Modicon 984 PLC System on each of the 6 CPP1 generators*** *proceed by replacing the obsolete Modicon 984 PLC's with new Modicon Quantum PLC's.*
The Nexen Risk Matrix (appendix A) was used to assess the risk level of Modicon 984 PLC equipment failure based on Harm to People, Environmental Effects, Financial Impact and Impact on Reputation. The assessment was based on the statement, when a Modicon 984 PLC fails, what is the worst potential outcome. ***Given the age, lack of spare parts and maintenance history of the Modicon PLC's it was determined that failure of one or more Modicon 984 PLC's will probably occur before the end of the PSA***".[1082][emphasis added].

1175. Fourth, an internal memorandum from PetroMasila prepared by Mr. Fred Wright (after he was transferred from the Respondent 1 to PetroMasila at the PSA's expiry), dated 2 March 2012. In this memorandum, PetroMasila recognizes that it may be possible to acquire spare parts for the CGC's Modicon PLC, and that failure of the equipment will probably occur within the next two years:

[1080] Exhibit C-72, Tab 19, Facilities and Equipment Schedule, Cherco Gas Compressors' Modicon 984 PLCs Upgrade, p. 579.
[1081] Exhibit C-72, Tab 19, Facilities and Equipment Schedule, Cherco Gas Compressors' Modicon 984 PLCs Upgrade, p. 587.
[1082] Exhibit C-72, Tab 18, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, pp. 6-7.

> *"At the present time, we have one spare processor and one spare analogue input module. A future equipment failure will take considerably longer to resolve while we attempt to locate a surplus spare unit somewhere in the world. In order to mitigate this situation for the time being,* ***PetroMasila should initiate a search of online sources of old Modicon Micro 984-145 PLC's through online suppliers of obsolete salvaged equipment as was done for the Wartsila Modicon 984 PLC's****.*
> *The assessment was based on the statement, when the Modicon Micro 984-145 PLC in the Cherco Gas Compressor Panel fails, what is the worst potential outcome.* ***Given the age, lack of spare parts and maintenance history of the Modicon PLC it was determined that failure of the Modicon Micro 984-145 PLC will probably occur within the next two years****. Also, current CPP2 operating conditions were taken into account in assessing risk. Low total power output levels significantly reduce the priority of this work".*[1083] [emphasis added].

1176. The Tribunal first notes that it cannot rely solely on the requisition order from the Respondent 1 dated 24 January 2010 which states that the CGC's Modicon PLC was obsolete, since the signature lines have been left blank.[1084]

1177. Additionally, the Tribunal observes that the Respondent 1's internal memorandum dated 16 March 2010 refers to the Modicon PLCs located at the central power plant No. 1 and not to the CGC's Modicon PLC located at the central power plant No. 2. The Claimant has not argued, and the Tribunal is not convinced, that such memorandum could assist the Tribunal in determining the status of the CGC's Modicon PLC.

1178. Moreover, the 16 March 2010 memorandum concluded that one or more of the Modicon PLCs would probably fail before the PSA's expiry.[1085] On the other hand, the 2 March 2012 memorandum prepared by PetroMasila (which relates to the correct equipment) concludes that failure of the CGC's Modicon PLC would probably occur within the next two years.[1086]

1179. The Tribunal recalls that the PSA expired in December 2011. Therefore, if by PetroMasila's own memorandum dated March 2012 the CGC's Modicon PLC would **probably** fail within the next two years (two years and three months after the PSA's expiry), the CGC's Modicon PLC was not at imminent risk of failure at the end of the PSA.

[1083] Exhibit C-72, Tab 19, Facilities and Equipment Schedule, Cherco Gas Compressors' Modicon 984 PLCs Upgrade, pp. 9-10.
[1084] Exhibit C-72, Tab 19, Facilities and Equipment Schedule, Cherco Gas Compressors' Modicon 984 PLCs Upgrade, p. 587.
[1085] Exhibit C-72, Tab 18, Facilities and Equipment Schedule, Wencom Wartsila Monitoring System / PLC Replacement, pp. 6-7.
[1086] Exhibit C-72, Tab 19, Facilities and Equipment Schedule, Cherco Gas Compressors' Modicon 984 PLCs Upgrade, pp. 9-10.

1180. Furthermore, the 2 March 2012 memorandum recognizes that it may be possible to acquire spare parts for the CGC's Modicon PLC through online suppliers.

1181. The Tribunal therefore considers that the evidence in the record is not sufficient to conclude that the CGC's Modicon PLC was not in good working order prior to the PSA's expiry.

1182. In light of the above, the Tribunal dismisses the Claimant's CGC's Modicon PLC claim.

XVI. Item No. 20 – Ruston Cylinder Liner Upper Register Repair of Crankcase

A. The Claimant's position

1183. The Claimant explains that 12 Ruston RK270 16 Cylinder diesel engines are used to drive the power generators at the central power plants No. 3, and No. 4 ("Ruston Engines").[1087]

1184. The Claimant argues that in breach of Articles 8.1, and 18.1(b) of the PSA, the Ruston Engines suffered from corrosion and were not handed over in good working order at the PSA's expiry.[1088]

1185. The Claimant contends that corrosion within the upper block of the Ruston Engines negatively affected their service life. In order to reduce the degree of damage, the original manufacturer recommended to downgrade the power of the Ruston Engines by 20%, from 3.5 to 2.8 MW. It is the Claimant's case that therefore, the Ruston Engines were not performing to their original specification.[1089]

1186. Additionally, according to the Claimant, since 2004 the original manufacturer's advice to fix these failures was to "*machine the upper landing register of the crankcases and then fit oversized upper register liners*".[1090] However when the Ruston Engines achieved 20,000 running hours it was determined that further damage was occurring, and it was considered more appropriate to apply Belzona (a repair and re-building material) to the corroded areas. It is the Claimant's case that although this was successful at the beginning, after a further 10,000 running hours it was determined that the level of corrosion exceeded the limits for when Belzona could be applied.[1091]

[1087] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 50.
[1088] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 50, 53.
[1089] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 26.
[1090] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 51-52.
[1091] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 52.

1187. The Claimant argues that although the Respondents recognized on 23 October 2011 that the Ruston Engines could fail, no further repairs were undertaken prior to the PSA's expiry.[1092]

1188. The Claimant contends that PetroMasila contracted Metalock Engineering UK Ltd to repair (by stainless steel metal spraying) the Ruston Engines in July 2012, at a total cost of USD 1,333,000.[1093]

B. The Respondents' position

1189. The Respondents argue that there was no breach of Articles 8.1, and 18.1(b) of the PSA since the Ruston Engines were in good working order prior to the PSA's expiry.[1094]

1190. According to the Respondents' witness, Mr. Tracy: (i) corrosion on the Ruston Engines was identified in 2004, and steps were taken to repair the corrosion in accordance with the original manufacturer's instructions; (ii) despite the repairs undertaken, it was later discovered that further damage was occurring; (iii) as per the original manufacturer's further recommendation, the Respondents commenced to apply Belzona to the corroded areas, but then discovered that it was not a permanent solution; and (iv) in August 2011 the Respondents identified stainless steel metal spraying as a permanent solution and scheduled the repairs works for 2012.[1095]

1191. The Respondents contend that the Ruston Engines were not at imminent risk of failure and that further repairs form part of the maintenance schedule which is the responsibility of PetroMasila.[1096]

1192. Finally, the Respondents argue that the Claimant has failed to substantiate one part the costs it claims.[1097]

C. The Arbitral Tribunal's decision

1193. It is the Claimant's position that in breach of Articles 8.1 and 18.1(b) (which was already dealt with above) of the PSA, the Ruston Engines were not handed over in good working order at the end of the PSA. On the other hand, the Respondents contend that there was no breach of the PSA since they handed over the Ruston Engines in good working order.

[1092] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 52-53.
[1093] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 51.
[1094] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, pp. 50-51.
[1095] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, pp. 50-52.
[1096] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 51.
[1097] Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 26.

1194. The Tribunal first observes that the Parties agree that since 2004, the Ruston Engines experienced corrosion issues, and that the Respondents undertook several unsuccessful repairs works up until the PSA's expiry. The Parties also agree that a suitable solution for the corrosion issue was the stainless steel metal spraying (which was ultimately performed by PetroMasila), and which the Respondents scheduled for early 2012.

1195. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the Ruston Engines were in good working order prior to the PSA's expiry.

1196. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1197. First, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that corrosion is an issue of ordinary wear and tear, and that the Ruston Engines were not at imminent risk of failure:

> "***Corrosion is a process of ordinary wear and tear*** *and so should be considered as such unless there are grounds to demonstrate that the Contractor was negligent in some manner, for example in the maintenance of the cooling water treatment. The Claimant has presented no such evidence and so I must conclude that the corrosion and subsequent repairs were a process of ordinary wear and tear.*
> *Therefore since the Contractor followed Good Oilfield Practice in the operation of these engines, had in place an appropriate system of maintenance and* ***since the repair work identified did not render the engines at imminent risk of failure and could be planned into the maintenance schedule, I conclude that these engines were in good working order save ordinary wear and tear***".[1098] [emphasis added].

1198. Second, a document reviewing all the correspondence between the Respondents and the original manufacturer of the Ruston Engines, compiled on 10 May 2012. This document reveals that the corrosion issue on the Ruston Engines was shortening their normal service life and that the manufacturer recommended to downgrade the power of the Ruston Engines by 20%:

> "*Problem*
> *Ruston 16RK270 upper block register bores for some liners are exceeding allow use specification set by MAN.* ***This causes a much shorter than normal liner life — poor reliability.***
> *Background*
> ***Numerous liner failures occurred in the Ruston 16RK270 engines early into the operating life of CPP3. The failures consisted of circumferential cracks near the top***

[1098] 1EXR of Mr. Catterall, paras. 190-191.

end of the liner adjacent to the register location. *Inspection determined the upper register bores, in the block, were exceeding tolerance.* ***MAN recommended to operating at reduced load (2.8 MW vs. 3.5 MW) until a solution was found***. *MAN later recommended the liners be upgrade from standard dimensions to oversized dimensions. At that time it was thought the failure was due to fatigue from a stress concentration problem in the liner design. Currently all Ruston engine blocks have been modified for oversized liners*".[1099][emphasis added].

1199. Third, two internal emails from the Respondents dated 23 October 2011. These emails reveal that the Respondents specifically planned the Ruston Engines repair to be scheduled just after the PSA's expiry, and that they recognized that if such repair was not carried out by February / March 2012 it was possible for the Ruston Engines to fail. The first email reads as follows:

"***What is the risk of these overhauls being delayed by 3 months so that the lead time falls after December?*** *Are we offside on warranty provisions if not done when scheduled? If the requisition just went out on Friday, how is already too late to cancel before the 40% penalty is triggered?* ***My vote would be not to place the order as this is significant dollars***".[1100][emphasis added].

1200. The reply email reads as follows:

"***At present the overhauls are scheduled for February / March*** *and in order to allow for the lead time the system has issued the requisitions.* ***The requisitions have not been released as I have put them on hold so no orders have been placed***. *Nothing will be ordered unless approved. There are no warranty issues as these units have all passed warranty expiry dates.* ***If the overhauls are not done as scheduled there is a possibility of an engine failure***, *however I do not know what the over all* [sic]*consequences would be if this did occur*".[1101][emphasis added].

1201. The Tribunal is not convinced by Mr. Catterall's opinion that the corrosion on the Ruston Engines was a process of ordinary wear and tear. Early on his expert report, in relation to this claim, Mr. Catterall opined that the "*cracking however was an abnormal event caused by unusually rapid corrosion of the engine*".[1102]

[1099] Exhibit C-72, Tab 20, Facilities and Equipment Schedule, Ruston Cylinder Liner Upper Register Repair of Crankcase, p. 596.

[1100] Exhibit C-72, Tab 20, Facilities and Equipment Schedule, Ruston Cylinder Liner Upper Register Repair of Crankcase, p. 790.

[1101] Exhibit C-72, Tab 20, Facilities and Equipment Schedule, Ruston Cylinder Liner Upper Register Repair of Crankcase, p. 790.

[1102] 1EXR of Mr. Catterall, para. 185.

1202. Additionally, the Respondents' internal correspondence shows that the Respondents planned for the repairs works to be undertaken within the first two-to-three months after the PSA's expiry, while recognizing that if such repairs were not carried out, the Ruston Engines could fail. The Tribunal is therefore convinced that the Ruston Engines were at imminent risk of failure at the PSA's expiry.

1203. Furthermore, the correspondence with the original manufacturer demonstrates that the latter recommended to downgrade the power of the Ruston Engines by 20% until a solution to the corrosion issue was found. Therefore, the Ruston Engines were not performing to their original specification.

1204. Taking into consideration the above, the Tribunal considers that the evidence in the record is sufficient to conclude that the Ruston Engines were not in good working order prior to the PSA's expiry.

1205. With respect to quantum, the Claimant claims USD 1,333,000 for the repairs to the Ruston Engines. On the other side, the Respondents argue that the Claimant has only substantiated GBP 812,809.50 *via* invoices.

1206. Contemporary documents show that PetroMasila approved a budget in 2012 for the implementation of these repairs in the amount of USD 1,333,000.[1103] However, the Claimant has not provided PetroMasila's monthly reports to demonstrate the amounts paid for these repairs, which would have demonstrated the loss claimed.

1207. The Tribunal has reviewed all of the invoices submitted by the Claimant in relation to this claim (some of them were repeated), and concludes that the Claimant has presented evidence that supports a loss in the amount of GBP 950,854.50.[1104]

1208. Consequently, the Tribunal grants the Claimant's claim in the amount of GBP 950,854.5.

XVII. Item No. 15 – CPF and Terminal Camp Accommodation, Mess Hall and Associated Equipment

A. The Claimant's position

1209. The Claimant argues that in breach of Articles 8 and 18.1(b) of the PSA the CPF camp accommodation, mess hall and associated equipment were not in good working order at the

[1103] Exhibit C-402, Tab 20, Facilities and Equipment Schedule, Ruston Cylinder Liner Upper Register Repair of Crankcase, p. 1.
[1104] Exhibit C-402, Tab 20, Facilities and Equipment Schedule, Ruston Cylinder Liner Upper Register Repair of Crankcase, pp. 5, 6, 9, 24, 27, 33, and 41.

end of the PSA. The Claimant contends that particularly: (i) the doors were prone to failure; and (ii) the smoke detectors in the kitchen and the security card system (that allowed the employees to enter the building) did not work properly.[1105]

1210. Additionally, the Claimant claims that the terminal camp accommodation, mess hall and associated equipment were similarly not in good working order at the end of the PSA.[1106]

1211. According to the Claimant, PetroMasila addressed all these issues (which were extensive repairs and not routine maintenance) in its first year as the new operator.[1107]

1212. The Claimant contends that PetroMasila expended USD 410,000 in: (i) carrying out the necessary repair/replacement jobs to the camp accommodation; (ii) bringing the mess hall to a proper standard by replacing the kitchen equipment and the mess hall's doors; and (iii) purchasing and installing a software security system to allow the employees to enter the building.[1108]

B. The Respondents' position

1213. The Respondents argue that there was no breach of Articles 8.1, and 18.1(b) of the PSA since all of the equipment was handed over in good working order at the PSA's expiry.[1109]

1214. According to the Respondents, the Claimant has failed to provide evidence in order to demonstrate that the equipment was not in good working order at the end of the PSA.[1110] In any case, they argue that the cost of refurbishing and upgrading the CPF and terminal camp accommodation and mess hall as well as associated equipment are routine maintenance activities, that should be performed by the new operator.[1111]

1215. Finally, the Respondents argue that the Claimant has failed to substantiate the quantum of its claim.[1112]

C. The Arbitral Tribunal's decision

1216. It is the Claimant's case that the Respondents breached Article 8 and 18.1(b) (which was already dealt with above) of the PSA by not handing over the CPF/terminal camp

[1105] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 53.
[1106] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 53.
[1107] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 53.
[1108] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 27.
[1109] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 53.
[1110] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 53.
[1111] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 54.
[1112] Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 27.

accommodation, mess hall and associated equipment in good working order at the PSA's expiry. On the other hand, the Respondents contend that there was no breach of the PSA since they handed over such equipment in good working order.

1217. The Tribunal will determine in the first place whether the equipment was handed over in good working order prior to the end of the PSA.

1218. The Claimant has not presented contemporary documents or witness statements in order to demonstrate the state of the equipment at the end of the PSA. The Claimant has only submitted a two-pages undated document to demonstrate the state of the equipment at the PSA's expiry. The document states in one paragraph that there were issues with the CPF camp accommodation and kitchen equipment, smoke detectors, doors, and the security card system.

1219. Moreover, this document was created for the purposes of this arbitration:

> "*Please use the highlighted portions as your guide to complete this form for each of the issues that you were asked to complete. You can delete the highlighted areas once you have completed each section.*
> *Please add the issue name and identifier number that you were provided during the conference call.*
> ***Add as much detail as possible, but you can use bullet points if necessary. The purposes* [sic] *of this are* [sic] *to try to prove that the issue is actually a claim at law** which requires a lot of facts. *Any third party documents, quotations, reports, etc are very valuable.*
> *Please copy relevant information from your initial claim sheets that were prepared for Hakim.*
> *You can cut and paste from documents that were prepared during Nexen days as long as that information is accurate (or comment in this document if you think it is not)*".[1113]
> [emphasis added].

1220. Despite the fact that the document states that the issue was first identified by internal safety reports,[1114] the Claimant has failed to submit such reports.

1221. The Tribunal considers that this document alone is not sufficient to demonstrate the actual state of the equipment.

[1113] Exhibit C-72, Tab 15, Facilities and Equipment Schedule, CPF and Terminal Camp Accommodation, Mess Hall and Associated Equipment, p. 1.
[1114] Exhibit C-72, Tab 15, Facilities and Equipment Schedule, CPF and Terminal Camp Accommodation, Mess Hall and Associated Equipment, p. 2.

1222. Despite the lack of evidence submitted by the Claimant, the Tribunal notes that Mr. Tracy, the Respondents' witness, recognized that the security card system of the CPF had been defective for two years prior to the PSA's expiry:

> "***The Ministry mentions that the security card system had been faulty for two years prior to the expiry of the PSA.*** *While* ***this is true****, we did not think at the time that we could justify the cost of replacing the system – a cost that would have been recovered as cost oil prior to the PSA's expiry*".[1115] [emphasis added].

1223. Furthermore, the Respondents' expert, who generally opined that the Claimant had not provided enough information for him to determine whether or not the equipment was kept in good working, stated the following in relation to the security card system:

> "*The security card system is clearly an important safety feature given the security situation in Yemen and I would imagine it would have been a high priority for the Contractor to ensure this worked effectively, but the information provided is insufficient to determine whether or not it was in good working order save ordinary wear and tear*".[1116] [emphasis added].

1224. Taking into consideration the lack of evidence submitted by the Claimant, and the Respondents' witness recognition of the state of the security system at the PSA's expiry, the Tribunal dismisses the Claimant's claim, except in relation to the security card system at the CPF, which was not in good working order.

1225. The Tribunal will now examine whether or not the Claimant has demonstrated the "*cost of purchasing and installing a software security system to allow the employees to enter the building*".[1117]

1226. The Claimant submitted a PetroMasila's monthly report, to substantiate the (USD 330,290) losses in relation to the "*CPF Accommodation, Buildings Upgrades & Refurbishment*".[1118] However, the report does not show individualized items. Therefore, the Tribunal is not in a position to determine how much PetroMasila expended (if at all) in relation to the cost of purchasing and installing a software security system to allow the employees to enter the building.

[1115] 4WS of Mr. Tracy, Annex, pp. 8-9.
[1116] 4WS of Mr. Tracy, Annex, pp. 8-9.
[1117] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 27.
[1118] Exhibit C-402, Tab 17, Facilities and Equipment Schedule, CPF and Terminal Camp Accommodation, Mess Hall and Associated Equipment, p. 1.

1227. The Claimant has also failed to submit contracts, invoices, purchase orders, or any other relevant document which could enable the Tribunal to determine the loss of PetroMasila in purchasing and installing that software security system.

1228. In light of the above, the Tribunal considers that the Claimant has failed to substantiate its loss, and dismisses the Claimant's claim.

XVIII. Item No. 26 – Damage from Flooding in November 2011 and Flood Defences at Area 11 of Terminal

A. The Claimant's position

1229. The Claimant explains that area 11 of the terminal contains *inter* alia, the terminal main facilities, power plant, distribution building, booster and loading pumps, and flow meters ("Area 11").[1119]

1230. It submits that in November 2011, a rainstorm caused a widespread flooding in Area 11, and argues that since this area is lower than all surrounding areas, it is susceptible to flooding.[1120]

1231. The Claimant further contends that in breach of Articles 8 (including Good Oilfield Practice) and 18.1(b) of the PSA, the Respondents: (i) failed to implement adequate flood defenses before the PSA's expiry;[1121] and (ii) failed to leave the assets of Area 11 in good working order *i.e.*, the pump sheds were destroyed, the tank bunds had been filled with water, and the tank D Southern bund wall (a dike) collapsed.[1122]

1232. It is the Claimant's case that following the November flood, the Respondents should have been in a position to re-evaluate the measures they had in place to protect Area 11, and implement adequate flood defenses. According to the Claimant, "*to assert without any evidence that flood defences were not required is not acceptable, and contrary to the Contractor's obligations*".[1123]

1233. The Claimant contends that as a result of the Respondents' failure to implement a proper flooding defense strategy at the PSA's expiry, PetroMasila engaged subcontractors to perform such works, at a cost of USD 271,029.[1124]

[1119] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 55.
[1120] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 55-56.
[1121] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 56.
[1122] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, pp. 28-29.
[1123] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 56-57.
[1124] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 55.

B. The Respondents' position

1234. The Respondents argue that there was no breach of Articles 8 (including Good Oilfield Practice) and 18.1(b) of the PSA since they were not required to provide flood defenses, and the equipment was handed over in good working order.[1125]

1235. According to the Respondents, they fully repaired all the damage caused during the November flooding, and their expert, Mr. Catterall, opines that the facilities and equipment were handed over in good working order.[1126]

1236. The Respondents further contend that they were not required to install flood defenses in the last weeks of the PSA as a consequence of a single flood that occurred in November 2011, which was the only major flood in 20 years of operating Block 14.[1127]

1237. Finally, the Respondents argue that the Claimant has failed to substantiate the quantum of its claim.[1128]

C. The Arbitral Tribunal's decision

1238. The Claimant argues that the Respondents breached Article 8 (including Good Oilfield Practice) and 18.1(b) (which was already dealt with above) of the PSA by not implementing adequate flood defenses before the PSA's expiry, and because certain equipment was not in good working order at the PSA's expiry. On the other hand, the Respondents contend that there was no breach since they were not required to provide flood defenses, and the equipment was handed over in good working order.

1239. With respect to the issue of whether or not the equipment was in good working order prior to the PSA's expiry, the Tribunal notes that the Claimant's quantification of its loss does not include the need to repair any equipment, but merely the works performed to implement the flood defenses in Area 11.[1129]

1240. Additionally, the Tribunal observes that the Claimant has not presented a single piece of evidence in relation to the status of the equipment prior to the PSA's expiry.

1241. Therefore, the Claimant has failed to demonstrate that the equipment was not in good working order prior to the PSA's expiry.

[1125] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, pp. 56-57.
[1126] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, pp. 28-29.
[1127] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, pp. 56-57.
[1128] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 57.
[1129] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 55.

1242. Concerning the issue of whether the Respondents were required to implement flood defenses in Area 11 prior to the PSA's expiry, in accordance with Article 8, (including Good Oilfield Practice) of the PSA, the Tribunal first observes that this specific obligation is not included in the language of Article 8 of the PSA.

1243. Furthermore, the Claimant has not submitted documents, witness statements, or any evidence in order to demonstrate that the Respondents were required to implement flood defenses in Area 11 before the end of the PSA.

1244. The Tribunal considers that the Claimant has attempted to shift its burden of proof by claiming that "*to assert without any evidence that flood defences were not required is not acceptable, and contrary to the Contractor's obligations*".[1130]

1245. Moreover, in relation to Good Oilfield Practice, the Claimant has contended that the Respondents' "*own risk procedures and good oilfield practice required the Contractor to continually re-evaluate risks in light of new information*",[1131] but has failed to demonstrate with evidence how an isolated event created the obligation to implement flooding defenses in Area 11.

1246. In this regard, the Tribunal has reviewed Mr. Catterall's expert report. In his report Mr. Catterall opines that:

> "***As required by Good Oilfield Practice, risks have to be managed to an acceptable level,*** *but as also discussed previously the evaluation of risk is a continuous process.* ***Risks are continually re-evaluated as a result of new information.***
> *In the same way,* ***several events of heavy rainfall may change the perspective of this risk and result in a re-evaluation and, if necessary, a plan of action*** *to mitigate these risks*".[1132] [emphasis added].

1247. The Tribunal observes that the Claimant has not contested Mr. Catterall's expert report. In fact, the Claimant has cited the aforementioned part in its SoRDCC.[1133]

1248. Notably, Mr. Catterall does not opine that in light of Good Oilfield Practice, after the November flood the Respondents were required to implement flood defenses in Area 11. On

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[1130] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 56-57.
[1131] Claimant's PHB (second round) 2019, Annex A, Claimant's Second column, p. 28.
[1132] 1EXR of Mr. Catterall, paras. 211-212.
[1133] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 56.

the contrary, he considers that "*several events of heavy rainfall may*" if necessary, require a plan of action.[1134]

1249. In light of all of the above, the Tribunal decides that the Claimant has failed to demonstrate that the Respondents were required to implement flood defenses prior to the PSA's expiry. For all the above reasons, the Tribunal dismisses the Claimant's claim.

XIX. Item No. 27 – Terminal Subsea Loading Pipelines Inspections

A. The Claimant's position

1250. The Claimant explains that the terminal subsea loading pipelines connect the Ash Shir Terminal oil storage tanks to the two offshore loading buoys and consist of two 36" diameter pipelines, and two 16" diameter oil recirculation pipelines ("Terminal Subsea Loading Pipelines"). The Claimant submits that these pipelines are critical because they are used to load oil on to ships for export.[1135]

1251. According to the Claimant, the Respondents adopted a risk based approach to manage the integrity of the Terminal Subsea Loading Pipelines, which consisted of launching a smart pig (robot) into the oil flow, which would inspect the pipelines from within.[1136]

1252. The Claimant submits that the last inspection was carried out in 2008. The inspection reports reveal that a defect was found on one of the 36" diameter pipelines, and no significant defects were recorded in relation to the other three pipelines. The reports recommended a further inspection of the four Terminal Subsea Loading Pipelines to be carried out in 2011.[1137]

1253. According to the Claimant, such inspections should have been carried out every three years. It is the Claimant's case that the Respondents breached Article 8 and 18.1(b) of the PSA by: (i) failing to carry out the 2011 inspection; and (ii) since the Terminal Subsea Loading Pipelines were not left in good working order.[1138]

1254. The Claimant notes the Respondents' contention that General Electric was engaged to perform this inspection in 2011, but ultimately prevented its personnel from travelling to Yemen. However, the Claimant argues that this could not have prevented the Respondents from engaging an alternative subcontractor.[1139]

[1134] 1EXR of Mr. Catterall, paras. 211-212.
[1135] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 30.
[1136] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 59.
[1137] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 59-60.
[1138] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 58.
[1139] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 60.

1255. The Claimant contends that as per the Respondents' failure, PetroMasila engaged a subcontractor to undertake the inspection of the Terminal Subsea Loading Pipelines, which was carried out in December 2013, at a total cost of USD 543,375.[1140]

B. The Respondents' position

1256. The Respondents argue that there was no obligation to carry out such inspection prior to the PSA's expiry. According to them, there was no obligation under the PSA to perform inspections every three years, unless a perceived risk of failure required an inspection to be performed in order to mitigate the risk, which was not the case.[1141]

1257. Moreover, Mr. Tracy, the Respondents' witness, argues that following the 2008 inspection, repairs were conducted,[1142] and Mr. Catterall, the Respondents' expert, opines that the Terminal Subsea Loading Pipelines were handed over in good working order, save ordinary wear and tear.[1143]

1258. The Respondents further contend that although an inspection was scheduled in 2011, there is no indication that deferring such inspection to 2012 could cause an unacceptable risk as the Terminal Subsea Loading Pipelines were in good condition.[1144] Mr. Tracy also argues that General Electric, the external contractor scheduled to conduct the inspection in 2011, prevented its personnel to enter the country as a result of the civil unrest in Yemen.[1145]

1259. According to the Respondents, these inspections are part of the routine maintenance operations, and are now the responsibility of PetroMasila, as the new operator.[1146]

1260. Finally, the Respondents contend that the Claimant failed to demonstrate that it conducted the inspection, and has provided no justification for the quantum of its claim.[1147]

C. The Arbitral Tribunal's decision

1261. The Claimant argues that the Respondents breached Article 8 and 18.1(b) (which was already dealt with above) of the PSA by: (i) failing to carry out the 2011 inspection; and (ii) since the Terminal Subsea Loading Pipelines were not left in good working order. On the other

[1140] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 61-62.
[1141] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 58.
[1142] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 58.
[1143] 1EXR of Mr. Catterall, para. 218.
[1144] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 58.
[1145] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 59.
[1146] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 59.
[1147] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 60.

hand, the Respondents contend that there was no breach since they were not required to perform an inspection in 2011, and the equipment was handed over in good working order.

1262. With respect to the issue of whether or not the equipment was in good working order at the PSA's expiry, the Tribunal notes that the Claimant's quantification of its loss does not include the need to repair any equipment, but only the costs incurred by PetroMasila in engaging a subcontractor to perform an inspection to the Terminal Subsea Loading Pipelines.[1148]

1263. Additionally, the Tribunal observes that the Claimant has not presented a single piece of evidence in relation to the status of the Terminal Subsea Loading Pipelines prior to the PSA's expiry, or thereafter.

1264. Therefore, the Claimant has failed to demonstrate that the Terminal Subsea Loading Pipelines were not in good working order at the PSA's expiry.

1265. Concerning the issue of whether the Respondents were required to perform an inspection to the Terminal Subsea Loading Pipelines in 2011, in accordance with Article 8 of the PSA, the Tribunal first notes that this specific obligation is not included in the language of Article 8 of the PSA.

1266. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1267. First, the Respondent 1's inspection report to the Terminal Subsea Loading Pipelines (connecting to the buoy No. 1), dated 23 September 2008. This report reveals that both pipelines were safe and fit for operation despite one small corrosion defect that was found on the 36" diameter pipeline. Additionally, the report recommended to perform a further inspection in 2011:

> "*CONCLUSIONS:*
> ***Both lines are deemed safe and fit for continued operation.***
> *One corrosion defect (external) was observed on the 36" line at Km. 1.5643. The defect is a small localized area measuring 78 mm wide x 60 mm long with a remaining wall thickness of 9.0 mm (29% of nominal thickness).*
> *Defect is most likely associated with damage to the external coating, allowing sea water to contact the external surface of the pipe.*
> *No other wall loss defects below the 20% threshold were observed on the 16" or 36" lines.*
> ***RECOMMENDATIONS:***

[1148] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 61-62.

Pipeline should be externally inspected using divers to establish cause and extent of damage (if possible). ACTION: TERMINAL MANAGER/LAMNALCO.
Consideration should be given to developing a repair strategy to prevent the possibility of a future line failure. ACTION: TERMINAL MANAGER/E&C GROUP.
***Pipelines are scheduled for reinspection in 2011**. ACTION: CORROSION GROUP".*[1149] [emphasis added].

1268. Second, the Respondent 1's inspection report to the Terminal Subsea Loading Pipelines (connecting to the buoy No. 2), dated 23 September 2008. This report reveals that both pipelines were safe and fit for operation (no defects were found on either of the pipelines), and recommended to perform a further inspection in 2011:

"*CONCLUSIONS:*
***Both lines are deemed safe and fit for continued operation**.*
No wall loss defects below the 20% threshold were observed on the 16" or 36" lines.
RECOMMENDATIONS:
***Pipelines are scheduled for reinspection in 2011**. ACTION: CORROSION GROUP".*[1150] [emphasis added].

1269. Third, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that the deferral of the originally planned 2011 inspection of the Terminal Subsea Loading Pipelines to 2012 was in accordance with Good Oilfield Practice, and did not create an unacceptable risk:

"***The corrosion inspection reports of 2008 evaluate the results of the previous inspection and do not highlight any areas for concern**. The reports conclude that the lines were 'deemed safe and fit for continued operation' and **the next scheduled smart pig inspection should be planned for 2011**.*
Due to the security situation in 2011, the Contractor could not bring the specialist service provider to site and therefore the inspection could not take place due to force majeure.
***There is no indication from either report made in 2008 that this would cause an unacceptable risk, as the pipelines were in good condition. Given also that the 2008 report indicated few corrosion issues that might need follow up in the next survey, the risk of deferral from 2011 appears low**. Therefore **I conclude that the Contractor was following Good Oilfield Practice** and the pipelines were handed over in good working order save ordinary wear and tear".*[1151] [emphasis added and internal citations omitted].

[1149] Exhibit C-72, Tab 27, Facilities and Equipment Schedule, Terminal Subsea Loading Pipelines Inspections, p. 984.
[1150] Exhibit C-72, Tab 27, Facilities and Equipment Schedule, Terminal Subsea Loading Pipelines Inspections, p. 987.
[1151] 1EXR of Mr. Catterall, paras. 217-218.

1270. Fourth, an undated document prepared by the Claimant for the purposes of the arbitration. This document reveals that PetroMasila engaged General Electric to perform the inspection in 2012, and that the latter postponed and prevented its team to enter Yemen to do the inspection:

> "*Has the issue been resolved - If so how?*
> *(…)*
> ***As soon as Petromasila established to operate Masila block, the corrosion department start arrangement with GE to conduct the ILI inspection for those lines during 3rd quarter of 2012***.
> *(…)*
> *When every things* [sic] *is ready end of September 2012 and the problem of bad movie about Prophet Mohammad (P&OH) problem has been occurred;* ***GE postponed*** *the* [sic] ***stop sending their team to do this work***".[1152] [emphasis added].

1271. The Tribunal observes that instead of changing subcontractors to perform the inspection in 2012, (as the Claimant argues the Respondents should have done in 2011 instead of deferring the inspection to 2012) the Claimant asserts that the inspection was undertaken in December 2013 by General Electric.[1153]

1272. Fifth, a 2012 expense project approval form of PetroMasila. In this document PetroMasila recognizes that the Terminal Subsea Loading Pipelines must be inspected according to the previously measure corrosion rates, or on a minimum frequency of five years:

> "*Terminal Subsea Oil loading lines are a critical service lines for transporting Oil from Terminal storage facilities to shipping, conventional inspection methods is* [sic]*not possible to be used for the inspection of these subsea lines.* ***The integrity Management of critical pipeline dictates that the line should be inspected dependent upon previous measured corrosion rates or on a minimum frequency of five years***".[1154] [emphasis added].

1273. The Tribunal concludes from the above that the Claimant has failed to demonstrate that the Respondents were required to perform the inspection to the Terminal Subsea Loading Pipelines in 2011.

[1152] Exhibit C-72, Tab 27, Facilities and Equipment Schedule, Terminal Subsea Loading Pipelines Inspections, p. 982.

[1153] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 61-62; Exhibit C-72, Tab 27, Facilities and Equipment Schedule, Terminal Subsea Loading Pipelines Inspections, p. 998.

[1154] Exhibit C-72, Tab 27, Facilities and Equipment Schedule, Terminal Subsea Loading Pipelines Inspections, p. 982.

1274. Indeed: (i) The PSA does not provide an express obligation to do so; (ii) the 2008 inspection reports provided mere recommendations; (iii) Mr. Catterall (the only expert who dealt with this issue) opined that the Respondents were acting in accordance with Good Oilfield Practice when they deferred the inspection from 2011 to 2012; (iv) PetroMasila's own actions (deferring the inspection from 2012 to 2013) seem to validate the Respondents' prior actions; and (v) PetroMasila's own documents reveal that such inspections should be done at a minimum interval of once every five years, not once every three years, as the Claimant argued in its pleadings.

1275. Additionally, the Claimant has failed to demonstrate its loss in relation to this claim.

1276. The Claimant argues that PetroMasila entered into a contract with General Electric to perform the required inspection at a cost USD 543,375. On the other hand, the Respondents argue that the Claimant failed to demonstrate that the inspection had been undertaken, as well as the costs incurred.

1277. The Tribunal first notes in this respect that the Claimant relies on a single document to demonstrate the quantum of its claim. This document is an expense project request form showing that PetroMasila requested USD 1,032,000 to undertake the inspection based on a contract with GE/PII Limited.[1155]

1278. However, the Claimant has not provided said contract, invoices, PetroMasila's monthly reports, or any other relevant document to demonstrate the actual amount paid for this inspection (if at all).

1279. When the Claimant argues that this amount "*is confirmed to by documents on the record*"[1156] it cites the abovementioned document and paragraph 32 of Mr. Binnabhan's second witness statement. However, said paragraph of Mr. Binnabhan's second witness statement merely recognizes that there is information missing:

> "*I confirm that we at PetroMasila have been making every effort to assist both the Ministry and their lawyers in locating further information and documents in respect of the various claims, in particular the Facilities and Equipment claims and well claims. However* ***given our reduced workforce we have found it very difficult and consequently some information is just not as readily available as it would have been pre-crisis***".[1157] [emphasis added].

[1155] Exhibit C-72, Tab 27, Facilities and Equipment Schedule, Terminal Subsea Loading Pipelines Inspections, p. 998.
[1156] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 31.
[1157] 2WS of Mr. Binnabhan, para. 32.

1280. The Tribunal therefore concludes that the Claimant has also failed to demonstrate the quantum of its claim, and for all the above reasons, dismisses the Claimant's claim.

XX. Item No. 29 – Terminal – Mooring Chains to SPM #1

A. The Claimant's position

1281. The Claimant explains that the single point mooring buoy No. 1 ("Buoy No. 1") was installed in 2006 using six mooring chains ("Mooring Chain" or "Mooring Chains") that had been in service since 1992. According to the Claimant, the integrity of the Mooring Chains is critical for petroleum operations as vessels must be able to moor up safely and remain in position while loading the oil.[1158]

1282. The Claimant contends that in breach of Articles 8 and 18.1(b) of the PSA the Respondents failed to replace the six Mooring Chains at the PSA's expiry, which were not in good working order.[1159]

1283. It is the Claimant's case that an internal email from the Respondents dated 19 October 2011, evidences that they were aware that the Mooring Chains were coming to the end of their useful life, but deliberately deferred to take action.[1160] The Claimant argues that the Respondents have "*not produced any evidence to show, by way of an inspection, that the mooring chains were in good working order*"[1161] before the PSA's expiry.

1284. Moreover, the Claimant contends that PetroMasila commissioned Single Buoy Moorings Inc ("SBM") to conduct a fatigue analysis on the Mooring Chains in 2012 ("2012 SBM Report"). This report concluded that the design life of Mooring Chain No. 3 expired in 2005. According to the Claimant, this report demonstrates that Mooring Chain No. 3 was not in good working order at the PSA's expiry. Additionally, the fact that one chain was deficient, meant that all six Mooring Chains should have been replaced.[1162]

1285. The Claimant submits that as a result of the Respondents' failure to comply with their obligations, PetroMasila completed the Mooring Chains replacement project, at a cost of USD 12,678,642.40.[1163]

B. The Respondents' position

[1158] Claimant's PHB (second round) 2019, Annex A, Claimant's Claim column, p. 32.
[1159] Claimant's PHB (second round) 2019, Annex A, Claimant's Claim column, p. 62.
[1160] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 62.
[1161] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 63.
[1162] Claimant's PHB (second round) 2019, Annex A, Claimant's Claim column, p. 32.
[1163] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 65.

1286. The Respondents argue that there was no breach of Articles 8 and 18.1(b) of the PSA since there was no obligation to replace the Mooring Chains before the end of the PSA, which were handed over in good working order.[1164]

1287. According to the Respondents, SBM performed an inspection to the Mooring Chains in 2009 and concluded in a report that they were in good condition, well maintained and fully operational ("2009 SBM Report").[1165] Mr. Tracy, the Respondents' witness, contends that the Respondents considered that a fatigue analysis was not required until late 2012, or early 2013, which explains the email (19 October 2011) referred to by the Claimant. It is his understanding that the work was not deferred, but simply was not due to be conducted prior to the PSA's expiry.[1166]

1288. Finally, in relation to the 2012 SBM Report, the Respondents contend that: (i) the Claimant is selectively relying on certain parts of the report;[1167] (ii) the section of the report which deals with the actual condition of the Mooring Chains confirms that they were in good working order;[1168] and (iii) the report states that a replacement of the Mooring Chains could be considered, not that it was required to prevent an imminent risk of failure.[1169]

C. The Arbitral Tribunal's decision

1289. The Claimant contends that in breach of Articles 8 and 18.1(b) (which was already dealt with above) of the PSA the Respondents failed to replace the six Mooring Chains at the PSA's expiry, which were not in good working order. On the other hand, the Respondents contend that there was no breach since they were not required to replace the Mooring Chains, which were handed over in good working order.

1290. With respect to the issue of whether or not the Respondents failed to keep the Mooring Chains in good working order, the Tribunal has reviewed *inter alia,* the following evidence in the record.

1291. First, the 2009 SBM Report. This report shows that SBM performed an "as seen" inspection to the Buoy No. 1 (including its Mooring Chains) in May 2009. The report concludes that the buoy was in good working order at that date:

"*CONCLUSION AND RECOMMENDATIONS*

[1164] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, pp. 62-63.
[1165] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 62.
[1166] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, pp. 62-63.
[1167] Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 32.
[1168] Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 33.
[1169] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 62.

The buoy is overall in good condition, well maintained and fully operational".[1170] [emphasis added].

1292. Second, the 2012 SBM Report. This report presents the conclusions of a fatigue analysis (mathematical calculations) performed in 2012 to the Mooring Chains. Based on the 2009 weather data, and a vessel weight of 320,000 dead weight tons, the report concludes that the minimum design life of the Mooring Chain No. 3 was 13.3 years. Under Note 1, the report states that the replacement of the Mooring Chains should be considered:

"*PETROMASILA have awarded a fatigue analysis on the existing and so original anchoring system to SBM Offshore.* ***The purpose of this document is to present fatigue calculations and determine the design fatigue life of mooring*** **[chains]** ***legs.***
(...)
Analyses **[sic]** ***are performed only with a 320,000 DWT vessel*** *which is a conservative approach*".[1171] [emphasis added].

"*The predicted minimum fatigue design life calculated from the installation date is 133.5 years (without safety factor). It is derived for 20 years,* ***based on the 2009 weather data****. Considering a safety factor of ten (10),* ***the minimum fatigue design life is calculated for the mooring leg number 3 and is found equal to 13.3 years****.*
(...)
Note 1*: As the marine grade of chains is not recommended for offshore applications by current applicable rules,* ***special consideration should be made for the replacement of these items***".[1172] [emphasis added].

1293. On the other hand and immediately thereafter, the 2012 SBM Report examined the actual condition of the Mooring Chains, and stated under Note 2 that: (i) according to the design specifications, the Mooring Chain wear shall not exceed 5% of the nominal diameter; (ii) that in 2009 (in the actual inspection) the wear was 4% of the nominal diameter; and (iii) that extrapolating that data to 2012, the wear would still not exceed the above limit:

"***Note 2:*** *According to API RP 21- ref.[5]* ***mooring chain wear shall not exceed 5% of the nominal diameter*** *or 10% of the nominal area (Rejection criteria). The following check can be done for the SO17150 system:*
In 2009, the wear was equivalent to 4% of the nominal.

[1170] Exhibit R-351, Tab 17, Ash Shir Oil Export Terminal Buoy Inspection, SBM, p. 20.
[1171] Exhibit C-72, Tab 29, Facilities and Equipment Schedule, Terminal – Mooring Chains to Single Point Mooring ("SPM") #1, pp. 1024, 1032.
[1172] Exhibit C-72, Tab 29, Facilities and Equipment Schedule, Terminal – Mooring Chains to Single Point Mooring ("SPM") #1, p. 1037.

Extrapolated to 2012, the wear should be approximately equivalent to 4.4% of the nominal diameter.
Following the 2009 survey *(ref.[8]),* ***the wear still does not exceed the limit of 5% of the nominal diameter***".[1173] [emphasis added].

1294. Third, Mr. Catterall's (the Respondents' expert) expert report. In his expert report Mr. Catterall opines that taking into consideration that the 2012 SBM Report is a theoretical calculation based on certain assumptions, it should not have a bearing in assessing whether or not the Mooring Chains were in good working order at the PSA's expiry:

"***The Claimant refers to a report from in [sic] 2012****, commissioned by PetroMasila, to evaluate the condition of the chains. This report (****also by SBM) makes reference to design life calculations based on certain assumptions and calculates a fatigue design life for mooring leg No. 3 of only 13.3 years****, which is referred to by the Claimant. In my opinion* ***this theoretical design life is irrelevant to the actual condition of the chain and to the question of whether it was in good working order*** *save ordinary wear and tear,* ***as the actual operating loads and sea conditions over the life of the system were not taken into account****. For example the calculations assumed that a 320,000DWT vessel was used for all offtakes (which was not the case in practice) and made assumptions about the level of corrosion rather than use the actual measured value*".[1174] [emphasis added and internal citations omitted].

1295. Fourth, Mr. Jewell's (the Claimant's expert) testimony at the final hearing. In relation to the 2009 SBM Report, Mr. Jewell recognizes that such document does not suggest that there were any problems with the Mooring Chains:

"*Q. I'm focussing on* ***this inspection report in 2009****. There's nothing in the SBM's inspection report, in person inspection report, to suggest there were any points of concern or damage; isn't that right?*
A. ***That's what it says***".[1175] [emphasis added].

1296. However, Mr. Jewell opines that the 2012 SBM Report reveals that the Mooring Chain No. 3 was at imminent risk of failure:

"*Q. So what this contractor did was inspect in May 2009, many years before the end of the 20 years minimum life, ask itself in the question in October 2011, a few weeks before the expiry of the PSA, what they would need to do when the 20-year term was reached,*

[1173] Exhibit C-72, Tab 29, Facilities and Equipment Schedule, Terminal – Mooring Chains to Single Point Mooring ("SPM") #1, p. 1037.
[1174] 1EXR of Mr. Catterall, para. 228.
[1175] Cross-examination of Mr. Jewell, Transcript of the final hearing, day 5, p. 88, lines 3 to 7.

and there was an indication, a prudent indication, that they would conduct the fatigue analysis consistent with SBM's guidelines, isn't that right?
A. Yes. ***What I would say is that this fatigue study, which was done in 2012, what it does is it confirms at the time of PSA expiry these chains were not in good working order****, and that was the reason why I looked at all of this information in the first place. I was asked to determine or to have an opinion on whether these chains were in good working order.* ***So, when I looked at the material -- the fatigue analysis that was done, it clearly showed that one of these chains based on the analysis, so not on inspection****, which is only partial inspection,* ***indicated that one of these chains was at imminent risk of failure, and on that basis the chains were not in good working order at the time of the expiry of the PSA***".[1176] [emphasis added].

1297. When the President of the Tribunal asked Mr. Jewell for his opinion in relation to Note 2 of the 2012 SBM Report, he answered that when analyzing conflicting evidence, he would be conservative and conclude that the Mooring Chains needed to be replaced:

"*THE CHAIRMAN: Since we are on that page, if you read at the bottom of the page, you see 'mooring chain wear shall not exceed 5 per cent of the nominal diameter,' and it says:*
'In 2009, the wear was equivalent to 4 per cent of the nominal. Extrapolated to 2012, the wear should be the approximately equivalent to 4.4 per cent of the nominal diameter. Following the 2009 survey the wear still does not exceed the limit of 5 per cent of the nominal diameter.' What you think of this?
A. ***That's a piece of evidence, because based on the 2009 survey that suggests that the wear isn't as bad as the fatigue analysis would suggest****. As an engineer and the manager of these sort of facilities,* ***using these two pieces of evidence my conclusion would be that chain needs to be replaced****. I would not take a chance just because one piece of evidence suggests that I might not have to change it.* ***I would err on the side of caution and I would change the chain***".[1177] [emphasis added].

1298. Fifth, Mr. Catterall's testimony at the final hearing. In relation to the 2012 SBM Report, Mr. Catterall opines that the part of the report which states that the design life of Mooring Chain No. 3 ended up in 2005 is a theoretical calculation that does not take into account the actual condition of the Mooring Chains:

"*Q. If you just look at the top of the page, and the first paragraph, third line: 'Considering a safety factor of ten, the minimum fatigue design life is calculated for the mooring leg number 3 and is found equal to 13.3 years.' So the view of the specialists at SBM was, wasn't it, that as a matter of fact* ***in 2012 mooring leg number 3 was by then about five and a half years beyond its safe design then****. That's what they found, isn't it?*
A. No, I think it's important to understand the concept and what the purpose of that calculation is for. ***It's a theoretical calculation on the design life. It's not taking into***

[1176] Cross-examination of Mr. Jewell, Transcript of the final hearing, day 5, from p. 92 line 5 to p. 93 line 1.
[1177] Cross-examination of Mr. Jewell, Transcript of the final hearing, day 5, from p. 99 line 25 to p. 100 line 20.

account the actual loading data or the actual weather data or the actual condition of the chain".[1178] [emphasis added].

1299. Mr. Catterall further opines that such theoretical calculations are based on two flawed assumptions. Moreover, he opines that Note 2 of the 2012 SBM Report indeed indicates the actual state of the Mooring Chains, and reveals that by 2012 they remained in good working order:

> "*A. Sorry. I looked at this quite carefully, and so* ***this calculation is based on two important assumptions****. They used data, weather data, from 2009, so just one year of weather data. They didn't use actual weather data throughout the whole period of time. The other assumption they made was that the vessel weight was 320,000 dead weight tonnes for every single off load. Now, that again doesn't correspond to the actual vessels that used this mooring change, so* ***it's a theoretical calculation****. And I think* ***it doesn't relate to the actual state. In fact it's important to look further down at note 2 which does indicate the actual state of the equipment, which it says is within the normal criteria of 5 per cent of the nominal wear diameter****, and this was a report actually done in 2012, so after the end of the PSA*".[1179] [emphasis added].

1300. From its analysis of the abovementioned evidence, the Tribunal concludes that the Claimant has failed to demonstrate that the Mooring Chains were not in good working order prior to the PSA's expiry.

1301. First, the burden of proof lies on the Claimant.

1302. Second, the Claimant has failed to address Mr. Catterall's early objections with respect to the assumptions on which the 2012 SBM Report relies. The Claimant has not argued why it was correct to: (i) use only the 2009 weather data; and (ii) assume that the vessel weight was 320,000 dead weight tons for every single offload.

1303. Third, the two experts agree that the 2009 SBM Report (as seen inspection) shows that by its date, the Mooring Chains were in good working order. The Parties' dispute narrows as to whether or not the theoretical calculations of the 2012 SBM Report (which states that Mooring Chain 3 had a design life of only 13.3 years and thus ended up in 2005) is sufficient to demonstrate that the Mooring Chains were in good working order at the end of the PSA.

1304. In this regard, the Tribunal considers that the 2009 SBM Report rebuts the correctness of the 2012 theoretical calculations. If the 2012 theoretical calculations were correct (and the

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[1178] Cross-examination of Mr. Catterall, Transcript of the final hearing, day 5, from p. 203, line 21 to p. 204 line 10.

[1179] Cross-examination of Mr. Catterall, Transcript of the final hearing, day 5, from p. 203, line 21 to p. 204 line 10.

Mooring Chain 3's design life ended up in 2005), it would have been impossible for them to be in good working order in 2009, as both experts agree they were.

1305. This explains why Note 1 of the 2012 SBM Report does not conclude emphatically that the Mooring Chains must be replaced, but simply asserts that "*consideration should be made for the replacement of these items*".[1180]

1306. The Tribunal concludes that in this case the empirical analysis (2009 SBM Report) disproved the theoretical calculations of the 2012 SBM Report.

1307. Fourth, Note 2 of the 2012 SBM Report demonstrates that if one extrapolates the actual data acquired in the 2009 SBM Report, the wear of the Mooring Chains "*still does not exceed the limit of 5% of the nominal diameter*"[1181] and thus remained in good working order. In this sense the two SBM reports can be read together to conclude that the Mooring Chains remained in good working order by 2012.

1308. Fifth, Mr. Jewell recognizes that there is conflicting evidence in relation to the status of the Mooring Chains at the PSA's expiry, and that if it were up to him, out of an abundance of caution, he would have replaced the chains.

1309. It is however the Tribunal's opinion that: (i) the Respondents did not have conflicting evidence in relation to the status of the Mooring Chains prior to the PSA's expiry since the 2012 SBM Report was issued afterwards; and (ii) taking into consideration how the Claimant has pleaded its case, the Tribunal does not need to determine what the Respondents should have done in hindsight, but whether or not the Mooring Chains were in good working order prior to the PSA's expiry, and in this respect, the Claimant had the burden of proofing that they were not. They did not satisfy this burden.

1310. In light of the above, the Tribunal dismisses the Claimant's claim.

XXI. Item No. 30 – SPM #1 Floating Marine Hose Replacement

A. The Claimant's position

[1180] Exhibit C-72, Tab 29, Facilities and Equipment Schedule, Terminal – Mooring Chains to Single Point Mooring ("SPM") #1, p. 1037.

[1181] Exhibit C-72, Tab 29, Facilities and Equipment Schedule, Terminal – Mooring Chains to Single Point Mooring ("SPM") #1, p. 1037.

1311. The Claimant explains that the Buoy No. 1 had 57 floating marine hoses which allow oil to flow from the on-shore storage tanks into an oil tanker moored to the buoy ("Floating Marine Hoses").[1182]

1312. The Claimant contends that the Respondents breached Article 8 of the PSA, good faith, Good Oilfield Practice, and their own Responsible Care ethos, by not ordering any replacement hoses by the PSA's expiry. Additionally, the Claimant argues that the Respondents breached Article 18.1(b) of the PSA since the Floating Marine Hoses were not in good working order at the end of the PSA.[1183]

1313. It is the Claimant's case that the Floating Marine Hoses were subject to a ten-year replacement cycle, and they all needed to be replaced in December 2012. In that sense, the Claimant argues that by the end of the PSA they had one tenth of their useful life left, and thus, were not in good working order.[1184]

1314. According to the Claimant, the Respondents discussed internally in 2009 and 2010 whether or not they were required to order the Floating Marine Hoses in 2011, and the Terminal Manager recommended to order 50% of the hoses in 2011. The Claimant argues that despite the fact that the Respondents were required to follow his recommendations regarding critical equipment, the hoses were not ordered.[1185]

1315. Finally, the Claimant contends that as a result of the Respondents' failure to comply with their obligations, PetroMasila completed the Floating Marine Hoses replacement project at a cost of USD 2,792,956.62.[1186]

B. The Respondents' position

1316. The Respondents argue that there was no obligation to replace the Floating Marine Hoses before the end of the PSA, and that they were handed over in good working order.[1187]

1317. According to the Respondents: (i) it was their practice to replace the Floating Marine Hoses after approximately ten years, but this was not based on a determined design life; (ii) the existing Floating Marine Hoses were not even due for replacement until December 2012;

[1182] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 66.
[1183] Facilities and Equipment Rejoinder Schedule, Claimant's Allegation of Breach column, p. 66.
[1184] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 66; Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 67.
[1185] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 68-70.
[1186] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 71.
[1187] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, p. 66.

and (iii) they were not required to bring forward their replacement and bear that cost gratuitously for the benefit of the new operator.[1188]

1318. The Respondents further submit that Mr. Catterall, their expert, opines that the Floating Marine Hoses were handed over in good working order, and that Good Oilfield Practice did not require for them to order their replacement in 2011.[1189]

1319. Finally, the Respondents contend that the replacement of those Floating Marine Hoses was part of routine operations for which the new operator is now responsible.[1190]

C. The Arbitral Tribunal's decision

1320. The Claimant contends that the Respondents breached Article 8 of the PSA, good faith, Good Oilfield Practice, and their own Responsible Care ethos, by not ordering any replacement hoses by the PSA's expiry. Additionally, it argues that the Respondents breached Article 18.1(b) of the PSA since the Floating Marine Hoses were not in good working order at the end of the PSA. On the other hand, the Respondents submit that they were not required to replace the Floating Marine Hoses, which were in good working order at the end of the PSA.

1321. The Arbitral Tribunal has already determined in paragraph 849 above that Article 18(1)(b) of the PSA could not found Claimant's claims for assets which had been cost recovered; and that Claimant had not identified any assets that had not been cost recovered. In any case, the Tribunal considers that the Claimant's claims here can be subsumed under Article 8 since the obligation to replace the Floating Marine Hoses could only take place if they were no longer in good working order.

1322. The Tribunal's first task is therefore to determine whether or not the Floating Marine Hoses were in good working order prior to the PSA's expiry.

1323. The Claimant initially argued that the Floating Marine Hoses were not in good working order "*given that they could not be replaced before their design life expired*".[1191] The Tribunal observes that the Claimant has failed to present any evidence to support this initial allegation, and it seems that it no longer pursues it, since it is absent from its subsequent submissions.

1324. The Claimant's argument is that the Floating Marine Hoses were not in good working order prior to the PSA's expiry, since by that date, they had only left one tenth of their design life.

[1188] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 66; Claimant's PHB (second round) 2019, Annex A, Respondents' column, p. 34.
[1189] 1EXR of Mr. Catterall, paras. 235-237.
[1190] Facilities and Equipment Rejoinder Schedule, Respondents' Response column, pp. 66-67.
[1191] Facilities and Equipment Rejoinder Schedule, Claimant's Allegation of Breach column, p. 66.

1325. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1326. First, Mr. Tracy's witness statement. In his witness statement Mr. Tracy argues that the practice of the Respondents was to replace the Floating Marine Hoses every ten years, but that this was not based on a determined design life.[1192]

1327. Second, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that the Floating Marine Hoses were in good working order at the PSA's expiry:

> "*The floating marine hoses were installed in 2002 and usual practice was to change them after ten years of service.* ***Therefore at the expiry of the PSA in December 2011 the hoses were still within their service life, there was no indication from survey or inspection that their condition rendered them un-serviceable and so they should be considered to have been in good working order save ordinary wear and tear***".[1193] [emphasis added].

1328. Third, Mr. Jewell's (the Claimant's expert) report. In his expert report Mr. Jewell defines fair wear and tear as follows:

> "*Fair wear and tear represents the deterioration one would expect in everyday normal use in a defined environment (e.g. in an enclosure, or fully exposed to weather etc)*".[1194]

1329. It is the Tribunal's opinion that the Claimant has failed to demonstrate that the Floating Marine Hoses were not in good working order prior to the PSA's expiry, as explained below.

1330. Indeed, the Claimant has failed to demonstrate that the design life of the Floating Marine Hoses was ten years. Mr. Tracy's explanation that the Respondents' practice to replace the equipment every ten years did not obey to a determined design life remains unrebutted.

1331. Additionally, the Tribunal observes that the Claimant has the burden of proving that the Floating Marine Hoses were not in good working order at the end of the PSA. However, it failed to present any evidence in relation to the actual status of the Floating Marine Hoses at the PSA's expiry.

1332. Moreover, the Claimant's sole argument is that by the end of the PSA, the Floating Marine Hoses had left only one tenth of their design life (which has not been proven). In any case,

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[1192] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 66.
[1193] 1EXR of Mr. Catterall, para. 234.
[1194] 1EXR of Mr. Catterall, para. 228.

had the Claimant's argument been demonstrated, the Tribunal considers that this would have corresponded to Mr. Jewell's own definition of fair wear and tear. In these conditions, were the Respondents required to replace the Floating Marine Hoses prior to the PSA's expiry?

1333. The Claimant considers that, given that the PSA expired in December 2011, and that as per the Respondents' practice, the Floating Marine Hoses were to be replaced in December 2012; and that the Respondents should have ordered the replacement of the hoses before the PSA's expiry, as recommended by their Terminal Manager in internal emails.

1334. The Tribunal has reviewed *inter alia*, the following evidence in the record.

1335. First, an internal email from the Respondents' Terminal Manager, Mr. John Holland, to *inter alia*, the Respondents' VP of Operations dated 24 October 2009. In this email Mr. Holland proposed to order half of the Floating Marine Hoses in 2011. However, he also flagged that the PSA was to expire in December 2011, and therefore, the Respondents needed to cost recover such equipment:

> "*Historically, in order to spread the cost and minimise the installation work involved so as not to impact other offshore maintenance activities, we have bought and installed the hoses over a 3 year period.*
> *However, circumstances have since changed, due to the installation of the second SPM and fewer tanker loadings.*
> *(...)*
> ***Some points to be borne in mind.***
> *The current hose supply contract expires January 31st, 2012. However, there is an option within the contract, to extend a further year without cost increase.*
> ***The PSA expires December 18th, 2011. The concern here is that the hoses will be ordered before expiratory of the PSA for use after expiratory.***
> *(...)*
> ***Recommendation (applies to CNPY and / or new operator).***
> ***Order 50% of the hoses in 2011 ready for installation early 2012. Hoses to be ordered / paid by the incumbent operator - CNPY. However, they need to be treated as 'super cost recoverable', as CNPY / Partners will get no benefit if no extension is negotiated***".[1195] [emphasis added].

1336. Second, a response to the abovementioned email by the Respondents' VP of Operations, Mr. Bob Fennell dated 25 October 2009. In this email Mr. Fennel inquires if the PSA has any provisions that require the Respondents ordering equipment to be used by the new operator:

[1195] Exhibit C-72, Tab 30, Facilities and Equipment Schedule, SPM #1 Floating Marine Hose Replacement ("SPM") #1, pp. 1085-1086.

"*My particular question would be: "what condition should we hand over assets at end of PSA"? Here we have hoses with 10yrs life which expire Dec 2012 - can we handover with just 1/10th of life left just because they're still in "working order"? **Are there any provisions for us ordering equipment for delivery to an unknown Operator?***".[1196] [emphasis added].

1337. Third, a further response in the abovementioned email chain by the Respondents' VP of Finance, Mr. Darin Roberts dated 25 October 2009. In this email Mr. Roberts considers that it is reasonable to follow the Terminal Manager's recommendation provided that they are able to cost recover the total value of this equipment, since it is only required at the end of 2012:

"*I think that this implies that normal wear and tear on a particular asset is okay and that we are not required to make uneconomic betterments/refurbishments prior to handing over. However, I think that it also implies that if the asset is part of a process that is to continue, like the loading of oil, we have to keep it in good shape whether by way of new purchase or refurbishment. **However, I think that if we follow what we deem to be a reasonable timeline for replacement to meet with "normal wear and tear" would be purchasing in 2011 for installation in 2012 (as John says below), we would have to advise the MOM that we would only do so on the provision that they purchase it or allow us grossed-up cost recovery** (we are at risk at end of the PSA to be at 40% ceiling and get no cost recovery, so I would rather have them purchase directly). **That is, it is not required until 2012 after the PSA is no longer ours** and it is not our fault that there is a long lead time involved. If the hoses were required to be installed in 2011, then I think we would be on the hook.*".[1197] [emphasis added].

1338. Fourth, an internal email from the Respondents' Terminal Manager, Mr. John Holland, to *inter alia,* the Respondents' VP of Operations dated 22 February 2010. In this email Mr. Holland insists in his proposal of ordering half of the Floating Marine Hoses in 2011 and the need to explore a method to fully cost recover such equipment. Additionally, he considers that the Floating Marine Hoses could remain in operation for an additional year *i.e.*, 2013:[1198]

"*Some points to be borne in mind.*

[1196] Exhibit C-72, Tab 30, Facilities and Equipment Schedule, SPM #1 Floating Marine Hose Replacement ("SPM") #1, p. 1085.
[1197] Exhibit C-72, Tab 30, Facilities and Equipment Schedule, SPM #1 Floating Marine Hose Replacement ("SPM") #1, p. 1085.
[1198] Exhibit C-402, Tab 21, Facilities and Equipment Schedule, SPM #1 Floating Marine Hose Replacement ("SPM") #1, p. 9.

Should the PSA extension be granted at the 11th hour, do not believe having the hoses in service for an additional 12 months would be a major risk to CNPY *- there would be some increased risk, but acceptable and manageable.".*[1199] [emphasis added].

1339. Fifth, an internal email from the Respondents dated 22 April 2010. In this email the Respondents consider that they can defer the procurement process of the Floating Marine Hoses until 2012 with low operational risk:

"Per our brief discussion this week, we'd appreciate your comments on this issue and how you recommend proceeding. Per John's attached email, there is approximately a one-year time period between material order and installation and ***we could likely defer the procurement process until post current PSA expiry (i.e. January 2012) with low operational risk****. See John's attached position document for more details".*[1200] [emphasis added].

1340. Sixth, Mr. Catterall's expert report. In his expert report Mr. Catterall opines that the Respondents were not required to acquire the Floating Marine Hoses in 2011 as per the PSA, Good Oilfield Practice, or the Respondents' own operating standards:

"The question of whether Good Oilfield Practice would have been to order these hoses in advance appears to be the crux of the claim. (...) ***there is nothing in the PSA or in the operating standards of the Contractor that defines how far in advance equipment should be ordered****. Given that the equipment was not yet due for replacement, that spares remained in inventory and this was for use after the expiry of the PSA it would seem unreasonable to require the Contractor to have ordered (and paid for) this equipment which was not required until 2012.*
(...), ***in my opinion the Contractor followed Good Oilfield Practice*** *and the hoses remained in good working order save ordinary wear and tear".*[1201] [emphasis added].

1341. The Tribunal concludes from the above that the Claimant has failed to demonstrate that there was an obligation to replace the Floating Marine Hoses before the PSA's expiry, as explained below.

1342. First, the Claimant has the burden of proving that the Respondents were required to replace the Floating Marine Hoses in 2011.

[1199] Exhibit C-402, Tab 21, Facilities and Equipment Schedule, SPM #1 Floating Marine Hose Replacement ("SPM") #1, p. 9.
[1200] Exhibit C-402, Tab 21, Facilities and Equipment Schedule, SPM #1 Floating Marine Hose Replacement ("SPM") #1, p. 1.
[1201] 1EXR of Mr. Catterall, paras. 235-237.

1343. Second, the Claimant has not submitted documents, witness statements, expert reports, or any evidence in order to demonstrate that under Good Oilfield Practice or the Respondents' Responsible Care Code, it was required to replace the Floating Marine Hoses before the end of the PSA. On the contrary, Mr. Catterall opined that the Respondents followed Good Oilfield Practice and their own operating standards, which was not rebutted by the Claimant at the final hearing or otherwise.

1344. Third, the Claimant's case is based solely on internal emails from the Respondents in which the issue of ordering the Floating Marine Hoses in 2011 was discussed.

1345. It is the Tribunal's opinion that: (i) none of the aforementioned emails recognize an obligation to replace the Floating Marine Hoses in 2011; (ii) the emails show that the Respondents were willing to replace the hoses in 2011 **provided** that they could cost recover the total value of this equipment, since it was only required one year after the PSA's expiration and thus would only serve the new operator.

1346. Additionally, the Claimant has failed to demonstrate that the Terminal Manager's recommendations were mandatory, and in any case the 2010 Terminal Manager's recommendations recognize that it would have been possible to defer the Floating Marine Hoses replacement for an additional year (December 2013).

1347. In light of the above, the Tribunal dismisses the Claimant's claim.

XXII. Item No. 21 – Realflex HMI System Replacement

A. The Claimant's position

1348. The Claimant explains that FMC Technologies installed the Smith Meter System in 1993. The system comprised three parts:[1202]

(i) Realflex Human Machine Interface ("Realflex") which "*monitors and controls data collected by the Supervisory Control and Data Acquisition Systems of: (a) all field well sites; (b) processes of the CPF and Terminal; and (c) the Emergency Shut Down valves along the pipeline*".[1203] The Realflex comprised both software, and hardware[1204] that was installed at the terminal, the CPF and the central control room;[1205]

[1202] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 72.
[1203] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 72.
[1204] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 72.
[1205] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 72.

(ii) Geo Flo and GeoProv computers ("Flo computers") for oil volume calculations installed at the CPF and at the terminal; and

(iii) Paskan motor operated valve controller installed at the terminal and the CPF.

1349. The Claimant pursues three different claims in relation to the Smith Meter System: (i) the Realflex claim (item No. 21); (ii) the terminal Flo computers claim (item No. 23); and (iii) the CPF Flo computers claim (item No. 22).[1206]

1350. According to the Claimant, the Respondents requested to upgrade the Smith Meter System since it was old and it was becoming obsolete.[1207] In 2008 the Respondents submitted the 2009 WPB, budgeting USD 494,000 to upgrade the Realflex software, which was running on an old version (version No. 4 instead of version No. 6), and its hardware at the CPF, the terminal, and the central control room, because the system was obsolete and discontinued by the manufacturer.[1208]

1351. The Claimant relies on a 2010 internal memorandum from the Respondents written by Mr. Wright, concerning the risks of not upgrading the Realflex, given its age and obsolescence.[1209]

1352. According to the Claimant, against the aforementioned documents, the Respondents decided to implement an alternative cost effective solution which consisted in replacing four computers at the CPF.[1210] It is the Claimant's case that this was not an effective solution, and that in breach of Articles 8 and 18.1(b) of the PSA, the Realflex was not in good working order at the PSA's expiry.[1211] The Claimant argues that the solution did not cover software upgrades, nor hardware upgrades to the equipment found at the terminal and at the central control room. [1212]

1353. The Claimant further submits that in 2012, Mr. Wright (who had been transferred from the Respondents to PetroMasila after the PSA's expiry), issued a second memorandum which again concluded that the Realflex required to be upgraded.[1213]

[1206] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 73.
[1207] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 73.
[1208] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 73.
[1209] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 74.
[1210] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 75.
[1211] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 75.
[1212] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 76.
[1213] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 77.

1354. The Claimant finally argues that PetroMasila, as recommended by Mr. Wright, upgraded the Realflex at a cost of USD 755,665.[1214]

B. The Respondents' position

1355. The Respondents argue there was no breach of Articles 8 and 18.1(b) of the PSA since there was no obligation to upgrade the Realflex prior to the PSA's expiry.[1215]

1356. Although they wondered whether to upgrade the Realflex in 2009 and 2010, in 2011 they decided to, and implemented, a suitable and cost effective solution (replacing the computers at the CPF) which addressed the risks posed by the Realflex.[1216] The Respondents' expert, Mr. Catterall, confirms that this solution was suitable to address the issues of the Realflex.[1217]The Respondents further submit that this upgrade work created additional spare parts for the older equipment that remained in use.[1218]

1357. In essence, the Respondents contend that the Realflex was handed over in good working order at the PSA's expiry, as confirmed by Mr. Catterall.[1219]

1358. Finally, the Respondents also argue that the Claimant has failed to demonstrate that PetroMasila in fact upgraded the Realflex, and incurred in the amount claimed.[1220]

C. The Arbitral Tribunal's decision

1359. It is the Claimant's case that in breach of Articles 8 and 18.1(b) (which was already dealt with in paragraph 849 above) of the PSA, the Realflex was not handed over in good working order by the end of the PSA. On the other hand, the Respondents argue that there was no breach of the PSA since the Realflex was handed over in good working order after the implementation of their cost effective solution in 2011.

1360. In relation to Article 8 of the PSA, the Tribunal will first determine whether the Realflex was in good working order before the Respondents implemented their alleged solution in 2011.

[1214] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 77.
[1215] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 72.
[1216] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 72.
[1217] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 72.
[1218] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 73.
[1219] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 73.
[1220] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 78.

1361. The Tribunal recalls that the Realflex comprised both software, and hardware[1221] that was installed at the terminal, the CPF and the central control room.[1222]

1362. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1363. First, a 2005 internal memorandum from the Respondents. In this memorandum the Respondents recognize that the Realflex should be upgraded due to its age and the fact that some spare parts were no longer available in the market:

> *"Due to the age of the system, obsolescence issues are occurring, with replacement parts no longer available to support the current system. As this system is critical to the operation of CNPY. It must be upgraded as soon as possible to maintain reliability".*[1223]

1364. Second, the Respondents' justifications to include the Realflex upgrade in the 2009 WPB. In this document the Respondents budgeted USD 494,000 to upgrade the Realflex, and recognized that some of the hardware was discontinued by the manufacturer.[1224]

1365. Third, a 2010 internal memorandum from the Respondents. In this memorandum Mr. Wright recognized that the Realflex should be upgraded *inter alia* due to its age and the fact that some spare parts were no longer available in the market:

> *"**The RealFlex version 4 currently in operation is an old version running on old hardware which in many cases is obsolete**. Due to the criticality of the RealFlex system to the Block 14 operations, **a project was initiated in 2009 to replace the old obsolete software with the current version of RealFlex version 6** which is designed to run on the current generation of computer hardware. (...) **Given the likelihood of component failure, the age and obsolescence of the Realflex equipment and software, the lack of availability of spare parts**, the critical nature of this control system and the loss of production that will occur as a result of failure combined with the likelihood of a spill or personal injury, **it is recommended that the RealFlex Upgrade Project be allowed to continue without further delays**".* [1225] [emphasis added].

1366. The Tribunal considers that the documentary evidence in the record is sufficient to conclude that the Realflex was no longer in good working order in 2010, before the Respondents implemented their 2011 solution. The Respondents' contemporary documents demonstrate that the Realflex software was an old and obsolete version (version No. 4), that the hardware was obsolete, and that there were no spare parts available in the market.

[1221] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 72.
[1222] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 72.
[1223] Exhibit C-72, Tab 21, Facilities and Equipment Schedule, RealFlex HMI System Replacement, p. 848.
[1224] Exhibit C-346, CNPY 2009 Work Program and Budget, dated 30 September 2008, p. 12.
[1225] Exhibit C-72, Tab 21, Facilities and Equipment Schedule, RealFlex HMI System Replacement, p. 840.

1367. With respect to the issue of whether the solution implemented by the Respondents in early 2011 left the Realflex in good working order at the PSA's expiry, the Respondents argue that although they wondered whether to upgrade the Realflex in 2009 and 2010, in 2011, they implemented a suitable and cost effective solution which addressed the risks issue.[1226] According to Mr. Tracy, the Respondents' witness, the solution consisted in acquiring new computers for the CPF.[1227] The Respondents' expert, Mr. Catterall, opines that this pragmatic solution was suitable to address the issues of the Realflex.[1228] Furthermore, the Respondents argue that this upgrade work created additional spare parts for the older equipment that remained in use.[1229] On the other hand, the Claimant contends that this solution did not leave the Realflex in good working order.

1368. The Tribunal notes that even though the Realflex was comprised both of software and hardware that was installed at the terminal, the CPF and at the central control room, the Respondents' solution was limited to purchase of new computers (hardware) for the CPF.

1369. The Respondents' solution therefore maintained the Realflex software which was an old and obsolete version (version No. 4), and kept the old and obsolete computers at the terminal and at the central control room. In the exact words of Mr. Tracy: "*this replacement involved removing **most** of the obsolete hardware*",[1230] which evidences that the solution left, in any case, obsolete hardware operating.

1370. The Tribunal does not agree with the Respondents that replacing obsolete computers with new ones will create spare parts (from the old computers which were to be replaced) and solve the hardware issue. The Respondents' own document demonstrates that the computers were both: (i) obsolete; and (ii) that there were no spare parts available:

> "*(...) Given the likelihood of component failure, **the age and obsolescence of the Realflex equipment** and software, **the lack of availability of spare parts**, the critical nature of this control system and the loss of production that will occur as a result of failure combined with the likelihood of a spill or personal injury, it is recommended that the RealFlex Upgrade Project be allowed to continue without further delays*".[1231] [emphasis added].

1371. The Tribunal agrees with Mr. Jewells' explanation (the Claimant's expert) during the hearing, that, although it would be possible to have an IBM desktop 18 working, whose parts

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[1226] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 72.
[1227] 4WS of Mr. Tracy, para. 33.
[1228] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 72.
[1229] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 73.
[1230] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 73.
[1231] Exhibit C-72, Tab 21, Facilities and Equipment Schedule, RealFlex HMI System Replacement, p. 840.

are still available, the device would nonetheless be obsolete and thus not in good working order.[1232]

1372. Moreover, one of the risks that the Respondents had envisaged in the 2010 memorandum, which justified the Realflex upgrade, materialized on 4 July 2012, after the Respondents implemented their 2011 solution:

> "***Some of the hardware in the system was discontinued by the manufacturer with no available spare parts. A failure of any of these components would cause an extended outage in areas of the system***. *In that event, a temporary solution to rectify the problems would have to be developed. This might include having operators stand by at critical equipment 24 hrs/day to manually operate in conjunction with 2 way radio communication with a blind control room.* ***This risk was verified during the July 4th power blackout when it took days to get the entire system back under control***". [1233] [emphasis added].

1373. Finally, the Tribunal also notes that in 2012, Mr. Wright (who was transferred from the Respondents to PetroMasila after the PSA's expiry), and who, according to Mr. Tracy (the Respondents' witness), was an expert in equipment, issued another memorandum in which he continued to opine that the Realflex software and hardware were obsolete.[1234]

1374. Taking into consideration all of the evidence referred to above, the Tribunal is convinced that the Realflex was not in good working order prior to the PSA's expiry.

1375. With respect to quantum, PetroMasila's monthly report demonstrates that the upgrade of the Realflex was implemented from September 2012 to March 2015, which included *inter alia* receiving, installing and commissioning the equipment at the CPF, the terminal, and the central control room.[1235]

1376. The contemporary documents (expense project approval forms) show that PetroMasila approved a budget in 2012 for the implementation of the Realflex upgrade of USD 820,000.[1236] Furthermore, PetroMasila's monthly report successfully establishes that although the Realflex upgrade budget was USD 820,000, the actual amount expended was USD 755,665.[1237] Since the Respondents have not disputed in any way the authenticity of

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[1232] Presentation of Mr. Jewell, Transcript of the final hearing, day 5, p. 10 line 4 to p. 11, line 3.
[1233] Exhibit C-402, Tab 22, Facilities and Equipment Schedule, RealFlex HMI System Replacement, p. 3; Exhibit C-72, Tab 21, Facilities and Equipment Schedule, RealFlex HMI System Replacement, p. 841.
[1234] Exhibit C-402, Tab 4, Facilities and Equipment Schedule, Field Operations Vehicles Replacement, p. 6.
[1235] Exhibit C-402, Tab 22, Facilities and Equipment Schedule, RealFlex HMI System Replacement, p. 11.
[1236] Exhibit C-72, Tab 21, Facilities and Equipment Schedule, RealFlex HMI System Replacement, p. 894.
[1237] Exhibit C-402, Tab 22, Facilities and Equipment Schedule, RealFlex HMI System Replacement, p. 11.

the above documents, the Tribunal considers that there is no valid reason for it to disregard them.

1377. Consequently, the Tribunal grants the Claimant's Realflex claim in the amount of USD 755,665.

XXIII. Item No. 23 – Terminal Smith Meter System Upgrade (GeoFlo / GeoProv)

A. The Claimant's position

1378. The Claimant explains that FMC Technologies installed the Smith Meter System in 1993. The system comprised three parts:[1238] (i) Realflex; (ii) the Flo computers for oil volume calculations installed at the CPF and at the terminal; and (iii) the Paskan motor operated valve controller installed at the terminal and the CPF.

1379. As mentioned above in paragraph 1349, the Claimant pursues three different claims in relation to the Smith Meter System: (i) the Realflex claim (item No. 21); (ii) the terminal Flo computers claim (item No. 23); and (iii) the CPF Flo computers claim (item No. 22).[1239]

1380. The Claimant argues that in breach of Articles 8.1, and 18.1(b) of the PSA, the Flo computers at the terminal were obsolete, and therefore not in good working order.[1240]

1381. It submits that, on 2 October 2009 the supplier of the Smith Meter System confirmed to the Respondents that the Flo computers were obsolete.[1241] Moreover, an internal document from the Respondents dated 25 November 2009 proves that the Respondents decided not to replace the Flo computers because of the financial burden.[1242] Furthermore, the Claimant contends that a Respondents' risk assessment report dated 4 March 2010 evidences that the Flo computers were obsolete.[1243]

1382. According to the Claimant, the Respondents, in disregard of the above decided not to replace the Flo computers at the terminal.

[1238] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 72.
[1239] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 73.
[1240] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 80; Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 80.
[1241] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 81.
[1242] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 81.
[1243] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 82.

1383. The Claimant finally contends that in 2012 PetroMasila budgeted USD 500,000 to upgrade the Smith Meter System (specifically the Flo computers), and completed the project in 2015, at a cost of USD 474,968.[1244]

B. The Respondents' position

1384. The Respondents argue that there was no breach of Articles 8.1, and 18.1(b) of the PSA since there was no obligation to upgrade the Smith Meter System (specifically the Flo computers) prior to the PSA's expiry,[1245] and the Claimant was not entitled to receive new equipment.[1246]

1385. They further argue that there is no evidence to conclude that the Flo computers were not in good working order.[1247]

1386. According to the Respondents, although they wondered whether to perform the upgrade, a March 2010 risk assessment report concluded that such upgrade was not needed at that time.[1248] Furthermore, the Respondents' expert, Mr. Catterall, opines that (based on the 2010 risk assessment) the equipment was in good working order at the end of the PSA.[1249]

1387. Finally, the Respondents submit that the Claimant has failed to demonstrate that PetroMasila performed the upgrade, and incurred the amounts claimed under this head of claim.[1250]

C. The Arbitral Tribunal's decision

1388. It is the Claimant's position that in breach of Articles 8.1, and 18.1(b) (which was already dealt with above) of the PSA, prior to the end of the PSA, the terminal Flo computers were not in good working order. On the other hand, the Respondents argue that there was no breach of the PSA since this equipment was in good working order at the end of the PSA.

1389. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the Flo computers at the terminal were in good working order prior to the PSA's expiry.

1390. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1391. First, a proposal from FMC Technologies (the manufacturer of the equipment) to the Respondents, to perform an upgrade to said equipment, dated 2 October 2009. In this

[1244] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 83.
[1245] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 80.
[1246] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 81.
[1247] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 80.
[1248] Facilities and Equipment Rejoinder Schedule, Respondents' Mr. Tracy's column, p. 80.
[1249] 1EXR of Mr. Catterall, para. 204.
[1250] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 81.

document the manufacturer submits that the Flo computers were supplied in 1993 and that they were becoming obsolete:

"***The equipment supplied in 1993 is now becoming obsolete*** *and parts support is becoming more difficult.* ***The GeoFlo and GeoProv computers and most of the parts for them are no longer in production. The supervisory computer processors have changed dramatically in the last fifteen years*** *and the operating systems have also changed several times.* ***The existing equipment is functionally adequate, but technically obsolete****, and will become more difficult to support in the future*".[1251] [emphasis added].

1392. Second, internal notes from the Respondents dated 25 November 2009. In these notes it is clear that although the Respondents considered the need to perform the upgrade, they were reluctant to expend the money as the PSA' expiry was approaching:

"***Smith Meter PAF: I am looking into the need for us to go ahead with this upgrade. For now, appears only to be upgrading electronics****. The existing electronics still work, however, are not supportable. That said,* ***if the mechanical still works, does it make sense to spend 450 Kon electronics?*** *I further reviewed issue with Maint, [maintenance] Plant, Fred Wright, etc. Appears that the electronics is critical to ensure proper meter proving. (...) Please speak to Sandy Leckie (maint) on this- price will be 400k plus- I would suggest that the guys are pushed on this number* ***my feeling is we are leaving money on the table here****. Have the proposal in email seems to me we are picking the easiest most painless option* ***not necessarily the most cost effective based on our term left here. I would expect that we would not actually implement this till late in 2010 based on our track record[,] so all this for 10-14 months??***".[1252] [emphasis added].

1393. Third, the Respondents' risk assessment report dated 4 March 2010. In this report the Respondents recognize that the Flo computers were obsolete and that the risk of failure was high:

"*The Custody Transfer Metering System at the Terminal was partially upgraded in 2006, however* ***the flow computers are still the original equipment and they have become obsolete****.* ***They are no longer supported by the manufacturer****.* ***As these flow computers are old and obsolete the risk of failure is high****. This document is intended to assess the consequences associated with such a failure and the steps that can be taken to lower the risk to acceptable levels*".[1253] [emphasis added].

[1251] Exhibit C-402, Tab 24, Facilities and Equipment Schedule, Terminal Smith Meter System Upgrade (Geoflo / Geoprov), p. 9.

[1252] Exhibit C-72, Tab 22, Facilities and Equipment Schedule, CPF Smith Meter System Upgrade (Geoflo / Geoprov), p. 936.

[1253] Exhibit C-72, Tab 23, Facilities and Equipment Schedule, Terminal Smith Meter System Upgrade (Geoflo / Geoprov), p. 952.

1394. The Tribunal considers that the documentary evidence in the record is sufficient to conclude that the Flo computers were not in good working order prior to the PSA's expiry. The Respondents' contemporary documents demonstrate that the Flo computers were: (i) old (over 17 years old); (ii) no longer supported by the manufacturer; (iii) technically obsolete; and (iv) had a high risk of failure.

1395. The Tribunal does not agree with the Respondents' argument, according to which, since the 2010 risk assessment determined that an upgrade was not required, the Flo computers were in good working order at the PSA's expiry.[1254]

1396. According to the 2010 risk assessment report:

> "*The Custody Transfer Metering System at the Terminal was partially upgraded in 2006, however the flow computers are still the original equipment and they have become obsolete. They are no longer supported by the manufacturer.* ***As these flow computers are old and obsolete the risk of failure is high.*** ***This document is intended to assess the consequences associated with such a failure and the steps that can be taken to lower the risk to acceptable levels***. (…)
> *The outcome of the risk analysis was 4C - Medium.* ***In the event of a system failure resulting in the loss of electronic metering, manual metering is possible****, but with a potentially significant financial impact.*
> ***Three mitigating factors have been considered****. Firstly, only five of the six meters are required for the ship loading operation. As such one meter can be viewed as being a hot spare, and in the event of a single flow computer failure there would be no impact to the operation. Secondly, there are two spare flow computers in the warehouse that are available to replace any failed flow computers. Thirdly, as the CPF Metering System is not as critical to Nexen operations the flow computers at the CPF could be used as emergency spares.*
> ***Based on the availability of replacement flow computers on site in Yemen at either the Terminal or the CPF it was decided that the risk was lowered to acceptable levels. Consequently it was decided that an upgrade is not needed at this time***". [1255] [emphasis added].

1397. The Respondents' expert, Mr. Catterall, also opined that since the Claimant had provided no evidence that these three mitigating factors were no longer applicable, the equipment did not meet the criteria for obsolescence and therefore had to be considered in good working order.[1256]

[1254] 1EXR of Mr. Catterall, para. 204.
[1255] Exhibit C-72, Tab 23, Facilities and Equipment Schedule, Terminal Smith Meter System Upgrade (Geoflo / Geoprov), p. 952.
[1256] 1EXR of Mr. Catterall, paras. 203-204.

1398. This is incorrect. From the documentary evidence it is clear that the Flo computers were not in a good working order, and that there was a high risk of failure. The exact document that the Respondents rely on specifically stated that the Flow computers were old and obsolete, and that the risk of failure was high. The fact that the associated consequences of such failure could have been mitigated does not change the actual condition of the equipment. Early in his first report Mr. Catterall agreed with this proposition:

> "*In addition to working safely, reliably and to its design specification, for an item to be considered in good working order there should be a reasonable expectation that it will not fail imminently*".[1257] [emphasis added].

1399. The test to determine if an equipment was in good working order is *inter alia*, whether or not it was deemed to fail imminently, not whether or not the consequence of such imminent failure could have been mitigated.

1400. With respect to quantum, PetroMasila's monthly report demonstrates that the upgrade of the Flo computers was implemented from March 2012 to February 2015, which included *inter alia* receiving, installing and commissioning the equipment.[1258]

1401. The contemporary documents (expense project approval forms) show that PetroMasila approved a budget in 2012 for the implementation of the terminal Flo computers upgrade of USD 500,000.[1259] Furthermore, PetroMasila's monthly report successfully establishes that although the budget was USD500,000, the actual amount expended was USD 472,968.[1260]

1402. Since the Respondents have not disputed the authenticity of these documents, the Tribunal considers that there is no valid reason for it to disregard them.

1403. Consequently, the Tribunal grants the Claimant's terminal Flo computers claim in the amount of USD 472,968.

XXIV. Item No. 22 – CPF Smith Meter System Upgrade (Geoflo / Geoprov)

A. The Claimant's position

[1257] 1EXR of Mr. Catterall, para. 49.
[1258] Exhibit C-402, Tab 24, Facilities and Equipment Schedule, Terminal Smith Meter System Upgrade (Geoflo / Geoprov), p. 37.
[1259] Exhibit C-72, Tab 23, Facilities and Equipment Schedule, Terminal Smith Meter System Upgrade (Geoflo / Geoprov), p. 964.
[1260] Exhibit C-402, Tab 24, Facilities and Equipment Schedule, Terminal Smith Meter System Upgrade (Geoflo / Geoprov), p. 37.

1404. As mentioned above in paragraph 1349, the Claimant pursues three different claims in relation to the Smith Meter System: (i) the Realflex claim (item No. 21); (ii) the terminal Flo computers claim (item No. 23); and (iii) the CPF Flo computers claim (item No. 22).[1261]

1405. The Claimant argues that in breach of Articles 8.1, and 18.1(b) of the PSA, the Flo computers at the CPF were obsolete, and therefore not in good working order.[1262]

1406. According to the Claimant, on 2 October 2009 the supplier of the Smith Meter System confirmed to the Respondents that the Flo computers were obsolete.[1263]

1407. Furthermore, the Claimant contends that the Respondents' recognized (in an email to the manufacturer) that they needed to upgrade the Flo computers at the terminal, and then use the spare parts of those old computers to support the Flo computers at the CPF. However, the manufacturer replied to the Respondents that the Flo computers at the CPF should have also been upgraded.[1264] In any case, it is the Claimant's case that the Flo computers at the CPF were not in good working order, given that the Respondents did not upgrade the Flo computers at the terminal, and therefore they were no spare parts for the former. [1265]

1408. The Claimant argues that in 2012 PetroMasila budgeted USD 500,000, to upgrade the Smith Meter System (specifically the Flo computers), and completed the project in 2014, at a cost of USD 704,000.[1266]

B. The Respondents' position

1409. The Respondents argue there was no breach of Articles 8.1, and 18.1(b) of the PSA since there was no obligation to upgrade the Smith Meter System (specifically the Flo computers) prior to the PSA's expiry,[1267] and the Claimant was not entitled to receive new equipment.[1268]

1410. They further argue that there is no evidence to conclude that the Flo computers were not in good working order.[1269] Furthermore, the Respondents' expert, Mr. Catterall, opines that they were in good working order.[1270]

[1261] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 73.
[1262] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, pp. 77-78; Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 77-78.
[1263] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 78.
[1264] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 78.
[1265] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 79.
[1266] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 80.
[1267] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 77-78.
[1268] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 78.
[1269] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 78.
[1270] 1EXR of Mr. Catterall, para. 201.

1411. Finally, the Respondents submit that the Claimant has failed to demonstrate that PetroMasila had performed the upgrade and incurred the amounts claimed under this head of claim.[1271]

C. The Arbitral Tribunal's decision

1412. The Tribunal first notes that this claim is closely related to the previous claim (item No. 23 – terminal smith meter system upgrade Geoflo / Geoprov).

1413. It is the Claimant's case that by the end of the PSA, the CPF Flo computers were not in good working order. On the other hand, the Respondents argue that there was no breach of the PSA since this equipment was in good working order at the end of the PSA.

1414. In relation to Article 8.1 of the PSA, the Tribunal will first determine whether the Flo computers at the CPF were in good working order prior to the PSA's expiry.

1415. The Tribunal has reviewed *inter alia,* the following evidence in the record.

1416. First, a proposal from FMC Technologies (the manufacturer of the equipment) to the Respondents, to perform an upgrade to said equipment, dated 2 October 2009. In this document the manufacturer asserts that the Flo computers were supplied in 1993 and that they were becoming obsolete:

> "***The equipment supplied in 1993 is now becoming obsolete*** *and parts support is becoming more difficult.* ***The GeoFlo and GeoProv computers and most of the parts for them are no longer in production. The supervisory computer processors have changed dramatically in the last fifteen years*** *and the operating systems have also changed several times.* ***The existing equipment is functionally adequate, but technically obsolete****, and will become more difficult to support in the future*".[1272] [emphasis added].

1417. Second, internal notes from the Respondents dated 25 November 2009. In these notes it is clear that the Respondents were aware that the Flo computers lacked support from the manufacturer. However, they were reluctant to expend the money in the upgrade as the PSA' expiry was approaching:

> "*Smith Meter PAF: I am looking into the need for us to go ahead with this upgrade. For now, appears only to be upgrading electronics.* ***The existing electronics still work, however, are not supportable.*** *That said, if the mechanical still works, does it make sense to spend 450 Kon electronics? I further reviewed issue with Maint, [maintenance] Plant, Fred Wright, etc. Appears that the electronics is critical to ensure proper meter proving.*

[1271] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 81.
[1272] Exhibit C-402, Tab 24, Facilities and Equipment Schedule, Terminal Smith Meter System Upgrade (Geoflo / Geoprov), p. 9.

(...) Please speak to Sandy Leckie (maint) on this- price will be 400k plus- I would suggest that the guys are pushed on this number ***my feeling is we are leaving money on the table here****. Have the proposal in email seems to me we are picking the easiest most painless option* ***not necessarily the most cost effective based on our term left here. I would expect that we would not actually implement this till late in 2010 based on our track record[,] so all this for 10-14 months??***".[1273] [emphasis added].

1418. Third, an internal email from the Respondents dated 5 October 2009. In this email the Respondents recognized that they were planning to upgrade the Flo computers in the terminal, and use the old computers as spare parts for the Flo computers at the CPF.[1274] However, the Tribunal notes that, as determined in the previous claim (item No. 23 – terminal smith meter system upgrade Geoflo / Geoprov), such upgrade never occurred.

1419. The Tribunal considers that the documentary evidence in the record is sufficient to conclude that the Flo computers were not in good working order prior to the PSA's expiry. The Respondents' contemporary documents show that the Flo computers were: (i) old (over 17 years old); (ii) no longer supported by the manufacturer; and (iii) technically obsolete.

1420. With respect to quantum, PetroMasila's monthly report demonstrates that the upgrade of the Flo computers was implemented from March 2012 to October 2014, which included *inter alia* receiving, and commissioning the equipment.[1275]

1421. The contemporary documents (expense project approval forms) show that PetroMasila approved a budget in 2012 for the implementation of the CPF Flo computers upgrade of USD 500,000.[1276] Furthermore, PetroMasila's monthly report successfully establishes that although the budget was USD500,000, the actual amount expended in this project was USD 704,000.[1277]

1422. Since the Respondents have not disputed the authenticity of these documents the Tribunal considers that there is no valid reason for it to disregard them.

1423. Consequently, the Tribunal grants the Claimant's CPF Flo computers claim in the amount of USD 704,000.

[1273] Exhibit C-72, Tab 22, Facilities and Equipment Schedule, CPF Smith Meter System Upgrade (Geoflo / Geoprov), p. 936.
[1274] Exhibit C-72, Tab 22, Facilities and Equipment Schedule, CPF Smith Meter System Upgrade (Geoflo / Geoprov), p. 928.
[1275] Exhibit C-402, Tab 23, Facilities and Equipment Schedule, CPF Smith Meter System Upgrade (Geoflo / Geoprov), p. 1.
[1276] Exhibit C-72, Tab 22, Facilities and Equipment Schedule, CPF Smith Meter System Upgrade (Geoflo / Geoprov), p. 947.
[1277] Exhibit C-402, Tab 23, Facilities and Equipment Schedule, CPF Smith Meter System Upgrade (Geoflo / Geoprov), p. 1.

XXV. Item No. 24 – Oily Water Drain (lack of tie-in)

A. The Claimant's position

1424. According to the Claimant, the "A" loading pump at the terminal was supposed to be tied into the drain lines of the oily water drainage system. This would ensure that any oil residues from maintenance activities or oil spillage from pumps or associated equipment is directed into the oil water drainage system for collection, recovery and recycling.[1278]

1425. The Claimant argues that the piping and instrument diagram shows that said pump should have indeed been connected to the oily water drainage system.[1279] However, the photographs taken after the excavation on 25 May 2012 show that these two were not tied-up together.[1280] Therefore, in breach of Articles 8.1, and 18.1(b) of the PSA, the Respondents failed to hand over the oily water drainage in good working order at the PSA's expiry.[1281]

1426. According to the Claimant, Mr. Catterall, the Respondents' expert, agrees that the Respondents failed to comply with the piping and instrument diagram.[1282] The Claimant contends that, as agreed by Mr. Catterall, this failure is sufficient to demonstrate that the oily water drainage was not in good working order.[1283]

1427. The Claimant submits that PetroMasila completed the oily water drainage tie-in project, around September 2012, at a total cost of USD 9,799.36.[1284]

B. The Respondents' position

1428. The Respondents argue there was no breach of Articles 8.1, and 18.1(b) of the PSA since the drainage system operated without any problems throughout the PSA and was in good working order at the PSA's expiry.[1285]

1429. They further contend that the Claimant has failed to provide any evidence to demonstrate that the drain pipe had never been connected to the oily water drainage system.[1286]

[1278] Claimant's PHB (second round) 2019, Annex A, Claimant's First column, p. 41.
[1279] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 83.
[1280] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 83.
[1281] Facilities and Equipment Rejoinder Schedule, Claimant's First column, pp. 83-84.
[1282] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 84.
[1283] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 84.
[1284] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 85.
[1285] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, pp. 83-84.
[1286] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 84.

1430. Finally, according to the Respondents, there is no evidence that PetroMasila has conducted any works in relation to this claim,[1287] nor evidence to substantiate the costs claimed.[1288]

C. The Arbitral Tribunal's decision

1431. The Claimant submits that the Respondents failed to tie-in the "A" loading pump at the terminal to the drain lines of the oily water drainage system, and therefore the oily water drain was not in good working order at the end of the PSA. On the other hand, the Respondents contend that the drainage system was left in good working order at the PSA's expiry.

1432. In relation to Article 8.1 of the PSA, Mr. Catterall, the Respondents' expert, accepts that the Respondents failed to comply with the piping and instrument diagram (by failing to connect the "A" loading pump at the terminal to the drain lines of the oily water drainage system), most likely due to an oversight.

> "*The* [piping and instrument diagram] *(P&ID) shows a drain from the pump to the oily water system and this would be considered normal for the design of a pump. The Claimant claims that during excavations it was discovered that it was not connected into the system.* ***It is likely that this was an oversight during the original installation and commissioning of the plant***".[1289] [emphasis added].

1433. It is indeed clear from the photographic evidence in the record that the "A" loading pump at the terminal was not connected to the drain lines of the oily water drainage system.[1290]

1434. The "A" loading pump at the terminal and the drain lines of the oily water drainage system were underground. In May 2012 PetroMasila excavated the soil and realized that these devices were not connected.[1291] Documents in the record demonstrate that "[t]*he excavation revealed that the drain pipe had never been connected into the oily water drain system as per the original P&IDs.*" [1292] Furthermore, it has never been argued, and the Tribunal has no reason to believe that, these devices were disconnected after PetroMasila's excavation took place. Thus, the Claimant has sufficiently established that the Respondents left them disconnected at the end of the PSA.

[1287] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 84.
[1288] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, pp. 83-84.
[1289] 1EXR of Mr. Catterall, para. 206.
[1290] Exhibit C-402, Tab 25, Facilities and Equipment Schedule, claim 24 (EQP 10a) Oily Water Drain (lack of tie-in), pp. 2-4.
[1291] Exhibit C-72, Tab 24, Facilities and Equipment Schedule, Oily Water Drain (lack of tie-in), p. 2.
[1292] Exhibit C-72, Tab 24, Facilities and Equipment Schedule, Oily Water Drain (lack of tie-in), p. 1.

1435. Furthermore, Mr. Catterall recognized in his expert report that the oily water drain was not in good working order at the PSA's expiry:

> "*Since the equipment could not meet its original specification (i.e. by being able to be drained into the oily water drain system)* ***I conclude that this equipment was not in good working order save ordinary wear and tear***".[1293] [emphasis added].

1436. Therefore, the Tribunal considers that the documentary evidence in the record, and the Respondents' expert admission, is sufficient to conclude that the oily water drain was not in good working order at the PSA's expiry.

1437. Finally, the Tribunal admits that since PetroMasila did these works itself, there is no record of contracts or invoices in relation to this claim. In any case, the Claimant has sufficiently established the amount spent by reference to PetroMasila's contemporary documents,[1294] and time sheet logs for the works performed.[1295]

1438. Consequently, the Tribunal grants the Claimant's oily water drain (lack of tie-in) claim in the amount of USD 9,799.36.

XXVI. Item No. 25 – Oily Water Drain (corrosion)

A. The Claimant's position

1439. The Claimant argues that the 10" oily water drainage lines at the terminal (the "10["] lines") were not in good working order, and required replacement at the end of the PSA.[1296]

1440. It submits that the 10" lines were supposed to be of size A2 schedule 40 (with a wall thickness of 9.271mm), whereas the Respondents installed size A2 schedule 20 (with a wall thickness of 6.35mm).[1297]

1441. The Claimant contends that the corrosion found on the 10" lines on December 2012 was caused because said lines failed to meet their original specification. It is the Claimant's case that, given that the 10" lines were thinner than they should have been, they were corroded to a greater extent and at a quicker speed.[1298]

[1293] 1EXR of Mr. Catterall, para. 207.
[1294] Exhibit C-402, Tab 25, Facilities and Equipment Schedule, claim 24 (EQP 10a) Oily Water Drain (lack of tie-in), p. 243; Exhibit C-72, Tab 24, Facilities and Equipment Schedule, Oily Water Drain (lack of tie-in), p. 1.
[1295] Exhibit C-402, Tab 25, Facilities and Equipment Schedule, claim 24 (EQP 10a) Oily Water Drain (lack of tie-in), pp. 243-246. The Tribunal notes that the items labelled under "T-1079" add up to USD 9,799.36, which is the amount claimed by the Claimant.
[1296] Facilities and Equipment Rejoinder Schedule, Claimant's Claim column, p. 85.
[1297] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, pp. 85-86.
[1298] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 86.

1442. According to the Claimant, Mr. Catterall's expert, admission that the fact that the 10" lines did not meet their original specification is sufficient to demonstrate that they were not in good working order.[1299] Therefore, in breach of Articles 8.1, and 18.1(b) of the PSA, the Respondents failed to hand over the oily water drainage in good working order at the PSA's expiry.[1300]

1443. The Claimant submits that PetroMasila cut and replaced the corroded section of the 10" lines in or around January 2015, at a total cost of USD 88,285.41.[1301]

B. The Respondents' position

1444. The Respondents argue that there was no breach of Articles 8.1, and 18.1(b) of the PSA since the oily water drains were in good working order at the PSA's expiry.[1302]

1445. They contend that the Claimant has failed to provide any evidence to demonstrate that the 10" lines were corroded and required to be replaced.[1303]

1446. Finally, according to the Respondents, there is no evidence that PetroMasila has conducted any works in relation to this claim,[1304] nor evidence to substantiate the costs claimed.[1305]

C. The Arbitral Tribunal's decision

1447. It is the Claimant's case that in breach of Articles 8.1, and 18.1(b) (which was already addressed above) of the PSA, the 10" oily water drainage lines at the terminal were not in good working order, and required replacement at the end of the PSA. On the other hand, the Respondents contend that there was no breach of the PSA since the equipment was in good working order.

1448. The Tribunal notes that: (i) on December 2012 leaks were found on the buried 10" lines; (ii) the area was excavated for inspection and repair, and PetroMasila's corrosion team confirmed significant internal corrosion along the exposed section; and (iii) based on the results, further 8 pilot excavations were performed revealing severe internal corrosion along the 10" lines.[1306]

[1299] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 86.
[1300] Facilities and Equipment Rejoinder Schedule, Claimant's First column, p. 85.
[1301] Facilities and Equipment Rejoinder Schedule, Claimant's Reply column, p. 87.
[1302] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 85.
[1303] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 86.
[1304] Facilities and Equipment Rejoinder Schedule, Respondents' Answer column, p. 86.
[1305] Facilities and Equipment Rejoinder Schedule, Respondents' Rejoinder column, p. 85.
[1306] Exhibit C-72, Tab 25, Facilities and Equipment Schedule, Oily Water Drain (corrosion), p. 2.

1449. Moreover, the Inspection Report dated 29 January 2013 revealed that the 10" lines installed by the Respondents did not follow the required specifications. Notably, the 10" lines should have been size A2 schedule 40 (with a wall thickness of 9.271mm), instead of a size A2 schedule 20 (with a wall thickness of 6.35mm).[1307]

1450. In relation to Article 8.1 of the PSA, Mr. Catterall, the Respondents' expert, recognized in his expert report that the oily water drain (corrosion) was not in good working order at the PSA's expiry:

> "*The P&ID for this line calls for a pipe specification of A2 schedule 40, which should have a wall thickness for 10" line of 9.271mm. Inspection of the line has shown that a schedule 20 line with a wall thickness of only 6.35mm was installed which was incorrect.* ***Therefore the line*** *could not meet its original specification (in regards to its corrosion allowance) and so* ***was not in good working order save ordinary wear and tear on expiry of the PSA***".[1308] [emphasis added].

1451. The Tribunal considers that the documentary evidence in the record, and the Respondents' expert's admission, both in his abovementioned expert report, and at the final hearing,[1309] is sufficient to conclude that the oily water drain (corrosion) was not in good working order at the PSA's expiry.

1452. Moreover, the Claimant has sufficiently established that the wall thickness plays a significant role on the risk of internal corrosion.[1310] In the present case the Tribunal is convinced–and the Respondents have not argued otherwise– that installing the 10" lines with a wall one third (1/3) thinner than specified, caused the corrosion that was found in 2012.

1453. The Tribunal concludes that the Claimant has successfully established by contemporary documents that the Inspection Report dated January 2013 recommended to cut and replace the corroded section of the 10" lines,[1311] and that PetroMasila completed these works in 2015.[1312]

1454. The Tribunal also concludes that the Claimant has sufficiently established the quantum of its claim by referring to PetroMasila's contemporary documents, (emails and service entry lists) for the relevant works.[1313]

[1307] Exhibit C-72, Tab 25, Facilities and Equipment Schedule, Oily Water Drain (corrosion), pp. 2-3.
[1308] 1EXR of Mr. Catterall, para. 209.
[1309] Cross-examination of Mr. Catterall, Transcript of the final hearing, day 5, p. 198 line 7 to p. 199, line 3.
[1310] Exhibit C-402, Tab 26, Facilities and Equipment Schedule, Oily Water Drain (corrosion), p. 1.
[1311] Exhibit C-72, Tab 25, Facilities and Equipment Schedule, Oily Water Drain (corrosion), p. 1.
[1312] Exhibit C-402, Tab 26, Facilities and Equipment Schedule, Oily Water Drain (corrosion), p. 119.
[1313] Exhibit C-402, Tab 26, Facilities and Equipment Schedule, Oily Water Drain (corrosion), pp. 123-127.

1455. Consequently, the Tribunal grants the Claimant's oily water drain (corrosion) claim in the amount of USD 88,285.41.

Section V. The Data and Asset Register Claims

Sub-section I. The Claimant's Data and Asset Register claims

1456. The Claimant argues that upon handover of Block 14, the Respondents failed to identify or transfer assets to the Claimant or to hand over important documentation and data regarding petroleum operations.[1314]

1457. According to the Claimant, PetroMasila was left having to operate a producing oil block without access to the data that was crucial for planning operations, and without an asset register.[1315]

1458. The following sub-sections will describe in detail the Claimant's: (**I**) Data claims; and (**II**) the Asset Register claim.

I. The Data claims

1459. The Claimant argues that the Respondents breached Article 16 of the PSA, insofar as they:[1316]

(i) did not maintain accurate and current records of their operations and/or did not furnish the Claimant with the same when reasonably required;[1317]
(ii) did not provide the Claimant with copies of all data (including geological and geophysical reports, logs and well surveys), reports, interpretation of such data and all other information or work product pertaining to the contract area;[1318]
(iii) did not deliver to the Claimant at the PSA's expiry, all original data, including the missing data,[1319] despite the Claimant's repeated requests;[1320] and

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[1314] ASoC, para. 395.
[1315] ASoC, para. 396.
[1316] The Claimant expressly asserted that "*no separate claim is made in respect of the wrongful export of data save that the fact that data may or may not be in Calgary is no defence to the obligation to provide it to the Ministry in Yemen*" (SoRDCC, para. 751). Furthermore, the Claimant's sole relief sought under its data claims is: (i) the delivery of missing data under Exhibit C-75; or (ii) damages in lieu of any data not provided (SoRDCC, para. 754).
[1317] ASoC, para. 399.
[1318] ASoC, para. 400.
[1319] ASoC, para. 403.
[1320] Exhibit C-70, Ministry letter to Contractor setting out estimate of Contractor's liabilities as at the date of handover, dated 23 June 2012; Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid,

(iv) exported original data from Yemen without the Claimant's permission.[1321]

1460. The Claimant adds that the Respondents further breached Article 47 of Law No. 15 of 1973, by failing to deliver copies of geological, geophysical and other survey maps and the results of all studies carried out, upon the PSA's expiry.[1322]

1461. The Claimant argues that on 5 June 2013, PetroMasila submitted to the Respondent 1 the initial missing data report (the "Missing Data Report"),[1323] which enlisted all of the data that the Respondent 1 had allegedly failed to provide to the Claimant.[1324] Thereafter, during the arbitration proceedings, the Claimant submitted a further missing data report (the "Updated Missing Data Report").[1325]

1462. The Claimant clarified in its SoRDCC that the Updated Missing Data Report, is the most recent missing data report prepared by PetroMasila for the purposes of the arbitration.[1326]

1463. In essence, the Claimant's case is that it has not received in full, or in the correct format, the data listed under the Updated Missing Data Report, to which it claims to be entitled.[1327]

1464. The Claimant submits that PEPA and the staff at the data bank have carried out a spot-check to seek to address the question of whether data has actually been provided by the Respondents, and concluded that the issue of missing data remains live.[1328]

1465. According to the Claimant, the above failures were also a breach of the Respondents' good faith obligation under Article 27.2(i) of the PSA.[1329] It argues that the Respondents' breached their good faith obligations inasmuch as they were knowingly and deliberately failing to provide the Claimant with the missing data during and until the PSA's expiry.[1330]

Exploration and Development Subsurface Director, dated 10 November 2014; Exhibit C-140, Letter from PetroMasila to PEPA concerning missing data, dated 11 August 2012.

[1321] SoRDCC, para. 712 d.

[1322] SoRDCC, para. 713 a.

[1323] Exhibit C-10, Data Bank Development Project.

[1324] ASoC, para. 401.

[1325] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director.

[1326] SoRDCC, para. 739 a.

[1327] SoRDCC, paras. 724-725; Claimant's PHB (first round) 2019, para. 565.

[1328] SoRDCC, para. 745; Claimant's PHB (first round) 2019, para. 572.

[1329] SoRDCC, para. 713 b.

[1330] ASoC, para. 405.

1466. In light of the above, the Claimant requests: (i) delivery of the data under the Updated Missing Data Report; or (ii) damages amounting to a maximum of USD 11 million, being the costs of reacquisition of data, in lieu of data not provided.[1331]

II. The Asset Register claim

1467. The Claimant contends that, as a matter of Article 8.1 of the PSA (Good Oilfield Practice) and further to Article 18.1(b) of the PSA, the Respondents should have maintained and communicated to the Claimant an asset register regarding the identity, nature, location, condition and approximate value of all fixed and moveable assets.[1332] According to the Claimant the Respondents also breached good faith insofar as Respondent 1 claimed that it maintained an asset register, which was not true.[1333]

1468. The Claimant contends that in essence, the maintenance of an asset register was necessary: (i) as it would have enabled the Claimant to track all costs incurred from 2006 and classified by the Respondents as cost recoverable, (ii) so that all assets could be identified and handed over upon the PSA's expiry, which was required for the ongoing operations following the PSA's expiry and (iii) for the purposes of customs clearance, in relation to which the Respondents had obligations under Article 12 of the PSA and Article 162 of Yemeni Law 14 of 1990.[1334] In addition, the Claimant argues that the Respondents were under the obligation to keep and maintain adequate accounting books and records, pursuant to Articles 1.8, 9.1, 15.1, 15.7, 18.1(b) and Article 1.4 of Annex D of the PSA.[1335]

1469. The Claimant recalls that it referred to the Respondents' related asset register duties already in or about 2001, when the Respondents were trying to persuade the Claimant to pay for the development of the SAP system.[1336] Moreover, the Claimant kept requesting that the Respondents produce an asset register in 2009, 2010, and 2011.[1337]

[1331] SoRDCC, para. 754.
[1332] ASoC, para. 409.
[1333] ASoC, para. 416.
[1334] SoRDCC, paras. 766-782.
[1335] SoRDCC, para. 789.
[1336] Exhibit C-42, 2000 Audit Report Item No.110, Auditor's position and Contractor's response; Exhibit R-76, Letter from CNPY to Nexen et al, attaching Statement of Activity for the 4th Quarter 2002, dated 31 January 2013, p. 21.
[1337] Exhibit C-43, Contractor letter to the Dr Saeed Sulaiman Al-Shamasi, General Manager of Petroleum Accounts at the Ministry concerning the transfer of records old financial system to new financial system, dated 6 April 2009; Exhibit C-44, Ministry letter to the Contractor approving the attached 2009 Work Program and Budget, dated 24 June 2009; Exhibit C-48, Ministry letter to the Contractor's Vice President of Financial Affairs concerning lack of reply to letter of 6 October 2009 regarding request for Asset Ledger, dated 13 April 2010; Exhibit C-52, Ministry letter to Vice President of Financial Affairs requesting Asset Ledger, dated 2 February 2011; Exhibit C-54, Contractor letter to the Ministry replying to Ministry letter of 12 February 2011, dated 20 February 2011; Exhibit C-57, Ministry letter to Vice President of Financial Affairs requesting Asset Ledger, dated 17 July 2011.

1470. On April 6, 2009, the Respondents informed the Claimant that they were still "*in process of reconciling our records from our old financial system IDEAS to our current system SAP. [...] We are currently working on your requests for fixed asset lists, and will provide them to you once we are able to complete the reconciliation*".[1338] The Claimant maintains that the Respondents never informed it that the SAP system could not generate an asset register.

1471. The Claimant adds that on 3 May 2010, the Respondent 1 purported to provide an asset register for moveable assets, but it did not state the book value of the assets.[1339] That asset register was also deficient in that it was not possible to determine what moveable assets might have been acquired or purchased in the past, but were no longer in the field.[1340]

1472. The Claimant argues that the Respondents' maintenance and communication to the Claimant of an asset register was specifically envisaged by Article 18.1(b) of the PSA:[1341]

> "*Title to fixed and movable assets shall by virtue of this provision transfer gradually from CONTRACTOR to MINISTRY at the end of each year in the percentage that the cost of the particular asset is recovered by CONTRACTOR pursuant to Section IX during such year. If not already vested in MINISTRY, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the time of termination of this Agreement, with all such assets being in good working order, normal wear and tear accepted. The Book Value of the Assets acquired or created during each Calendar Year shall be communicated by CONTRACTOR to MINISTRY within sixty (60) days after the end of such year*". [emphasis added].

1473. The Claimant argues that the book value of an asset or group of assets does not mean the original cost of the assets. Its correct definition is the original cost of the assets less depreciation, depletion and amortization ("DD&A").[1342] Thus, the Claimant contends that the quarterly SOAs provided by the Respondents which included the original cost of assets, but not the DD&A of the assets failed to comply with Article 18.1(b) of the PSA.[1343]

[1338] Exhibit C-43, Contractor letter to the Dr Saeed Sulaiman Al-Shamasi, General Manager of Petroleum Accounts at the Ministry concerning the transfer of records old financial system to new financial system, dated 6 April 2009.
[1339] Exhibit C-49, Ministry letter to the Contractor's Vice President of Financial Affairs concerning the absence of the book value of assets from Contractor's letter of 3 May 2010, dated 15 May 2010.
[1340] SoRDCC, para. 772.
[1341] ASoC, para. 411.
[1342] Exhibit C-408, David Johnston and David Johnston, Introduction to Oil Company Financial Analysis (extract), dated 2006.
[1343] SoRDCC, para. 792.

1474. Consequently, the Claimant considers that it is entitled to, and requests specific performance of the Respondents' obligation to produce an asset register with regard to fixed assets and movcable assets.[1344] Alternatively, the Claimant requests compensation for the cost of compiling an asset register, and estimates the cost to be somewhere between USD 2.15 million and USD 2.55 million.[1345]

Sub-section II. The Respondents' position in relation to the Claimant's Data and Asset Register claims

1475. The following sub-sections will describe in detail the Respondents' position regarding the: (**I**) the Data claims; and (**II**) the Asset Register claim.

I. The Data claims

1476. The Respondents dispute all of the Claimant's contentions in relation to the alleged breaches to Article 16 of the PSA. They argue that they regularly delivered copies of all hard and interpretative data to the Claimant in accordance with their obligations under Article 16.6 of the PSA. The Respondents contend that the Claimant has received all of the data that it was entitled to receive.[1346]

1477. The Respondents submit that they even re-delivered a significant portion of all data relating to Block 14 during the period 2006 – 2011 so as to assist the Claimant with its efforts to establish a national data bank, where data received from all operators in Yemen would be stored.[1347] According to the Respondents, the fact that they had to re-deliver data demonstrates the Claimant's inability to store and organize properly the data that it was receiving.[1348]

1478. The Respondents further point out that the Claimant bases its case on an assertion from Mr. Binnabhan and the spot check that was conducted by the PEPA Data Bank to determine whether certain examples of data previously sent to the Claimant were presently in the Claimant's possession.[1349]

1479. The Respondents further argue that after reviewing the Missing Data Report in June 2013, they advised PetroMasila that they had already complied with their PSA obligations in relation to the provision of data, but that nonetheless they would review the data requests

[1344] ASoC, para. 417.
[1345] Exhibit C-405, Letter from BDO to Clyde & Co re: Block 14 Agreement for Petroleum Exploration and Production Accountancy Claims, dated 17 September 2018.
[1346] ASoDCC, para. 613; SoRjSRCC, para. 243.
[1347] ASoDCC, para. 609.
[1348] ASoDCC, para. 608.
[1349] SoRjSRCC, para. 244.

contained therein. They requested PetroMasila to confirm that the Missing Data Report replaced a prior missing data report dated August 2012, and that there would not be any further amendments or future requests. However, PetroMasila did not respond.[1350] On the contrary, the Claimant submitted the Updated Missing Data Report with its OSoC.[1351]

1480. The Respondents also contend that the data that the Claimant is requesting has already been provided.[1352] Furthermore, they argue that the spot check is not adequate as evidence; and that even if it was accepted as evidence, it is unable to demonstrate whether the data was transferred to the Claimant prior to the end of 2011.[1353]

II. The Asset Register claim

1481. The Respondents submit that the Claimant's Asset Register claim is without merit, as under the PSA and Good Oilfield Practice they were not obligated to provide to the Claimant an asset register.[1354]

1482. They argue that they fully complied with their obligations under Article 18.1 of the PSA. According to the Respondents, that article provides that they were required to communicate "*the Book Value of the Assets acquired or created during each Calendar Year*" to the Claimant "*within sixty (60) days after the end of such year*". The PSA does not provide anywhere that the Claimant should have received "*a register of the identity, nature, location, condition and approximate value of all fixed and movable assets*".[1355]

1483. The Respondents maintain that they communicated the book value (*i.e.* the original cost) of the assets through provision of the quarterly SOA, which included details of all recoverable expenditure on assets.[1356]

1484. They refer to the witness statement of Mr. Rettie, who testified that: "*[t]he maintenance of an Asset Register was not required under the PSA, under GAAP, or under Yemeni law. Nor did we require such an Asset Register to perform our commercial operations*".[1357] He further added that the Respondent 1 maintained its accounts in accordance with "*accepted*

[1350] ASoDCC, paras. 597-598.
[1351] The Tribunal notes that the Missing Data Report (Exhibit C-10), is Annex 5 of the Updated Missing Data Report (Exhibit C-75).
[1352] ASoDCC, para. 594; SoRjSRCC, para. 243.
[1353] SoRjSRCC, para. 247; Respondents' PHB (first round) 2019, para. 230(f).
[1354] ASoDCC, paras. 614-617.
[1355] ASoC, para. 409.
[1356] ASoDCC, para. 619.
[1357] 1WS of Mr. Rettie, para. 49.

accounting practices generally used in the petroleum industry"[1358] and that its accounts were audited by Deloitte.

1485. The Respondents further argue that contrary to the Claimant's allegation, they never agreed to provide an asset register. According to Mr. Rettie "*[i]n correspondence with the Ministry, we were clear that we were not required to provide a fixed asset sub-ledger*"[1359]. On the other hand, the Respondents did provide an asset listing, which was used by the Claimant for the inventory conducted following the PSA's expiry.[1360]

1486. The Claimant relies on a report by Mr. Isaac to "*provide some clarification on the uses of asset registers in oil and gas operations*"[1361] and to demonstrate that keeping and providing an asset register at the end of the PSA was Good Oilfield Practice. According to the Respondents, Mr. Isaac admitted that he had been instructed by the Claimant's counsel to assume that the PSA contained a "*requirement [...] to keep an asset register, which [he] understood CNPY was under an obligation to deliver to [the Ministry]*".[1362] Thus, Mr. Isaac's report is of no use in these proceedings to demonstrate that the Respondents were obligated to provide an asset register. Further, the Respondents refer to the testimony of Mr. Rettie to support their argument that the use of an asset register is not common practice in oil and gas operations.[1363]

1487. The Respondents also note that the Claimant filed a witness statement from Mr. Al-Mazhani, who asserted that the asset register would be useful to perform commercial operations, including cost recovery, transition of the Block 14 upon expiry, and compliance with customs duties. However, according to the Respondents, usefulness is not a relevant standard for establishing obligations under the PSA or Good Oilfield Practice.[1364]

1488. Finally, the Respondents observe that in the seven years since the PSA's expiry, the Claimant has not created an asset register that it contends is required.[1365]

Sub-section III. The Arbitral Tribunal's Analysis

I. The Data claims

[1358] 1WS of Mr. Rettie, para. 49.
[1359] 1WS of Mr. Rettie, para. 55.
[1360] ASoDCC, para. 623.
[1361] 1EXR of Mr. Isaac, para. 1.1.2.
[1362] 1EXR of Mr. Isaac, para. 1.1.7.
[1363] 2WS of Mr. Rettie, para. 13.
[1364] SoRjSRCC, para. 255.
[1365] SoRjSRCC, para. 257.

1489. The Claimant submits that the Respondents breached Article 16 of the PSA, Article 47 of Law 15 of 1973, and their duty of good faith, as the Claimant has not received in full or in the correct format the data listed under the Updated Missing Data Report, and given that the Respondents exported original data from Yemen without the Claimant's permission.[1366] By contrast, the Respondents do not contest their duty to provide such data, but instead argue that the Claimant has already received all the data.[1367]

1490. As a first preliminary remark, the Tribunal observes that the Respondents' defense in relation to this claim was supported, *inter alia*, by Mr. O'Connor's witness statement dated March 12, 2015. As stated in the procedural history section in paragraph 30 above, given that the Respondents were unable to make Mr. Brendan O'Connor available for cross-examination, his witness statement was withdrawn from the record. However, as agreed by the Parties, and reflected in the Tribunal's correspondence dated 30 January 2019, the exhibits referred to in Mr. Brendan O'Connor's witness statement remain in the record.[1368]

1491. In the following paragraphs, the Tribunal will analyze (A) whether or not the data listed under the Updated Missing Data Report was provided by the Respondents to the Claimant in accordance with Article 16 of the PSA; and (B) whether data should have been handed over again at the end of the PSA in accordance with Article 47 of Law No. 15 of 1993.

1492. Before proceeding to this analysis, the Tribunal would like to make two remarks. First, good faith is a standard of interpretation and cannot create contractual obligations beyond those provided in the relevant agreement, even more so when the latter clearly specifies the parties' obligations, here with respect to the supply of data.

1493. In the second place, the Claimant argued for the first time in its PHBs that it is entitled to receive repeated data, given that Article 16.1 of the PSA does not provide any limitation to the Respondents' obligations to provide data.[1369] The Respondents contend that such position finds no support in the PSA.[1370]

[1366] The Claimant asserts that "*no separate claim is made in respect of the wrongful export of data save that the fact data may or may not be in Calgary is no defence to the obligation to provide it to the Ministry, in Yemen*". SoRDCC, para. 751.

[1367] ASoDCC, para. 613; SoRjSRCC, para. 243.

[1368] By letter dated 30 January 2019 the Tribunal invited the Respondents to confirm by 1 February 2019 "that because Respondents have been unable to make Mr. Brendan O'Connor available for cross-examination, his witness statement is withdrawn, and he will not be present for the hearing". By emails dated 1, and 4 February 2019 the Respondents confirmed that Mr. Brendan O'Connor's witness statement was withdrawn from the record. However, as reflected in the Tribunal's correspondence dated January 30, 2019, the Parties agreed to maintain the exhibits referred to in its witness statement as part of the record.

[1369] Claimant's PHB (first round) 2019, para. 571; Claimant's PHB (second round) 2019, para. 77.

[1370] Respondents' PHB (second round) 2019, para.52(a).

1494. The Tribunal is not convinced by the Claimant's late argument. On the contrary, Article 16 of the PSA has a limited scope in relation to time, as will be explained below.

1495. Article 16.1 of the PSA provides as follows:

> "*CONTRACTOR shall prepare and maintain **at all times during the term of this Agreement** accurate and current records of its operations hereunder. Upon notice from MINISTRY, CONTRACTOR shall furnish MINISTRY in conformity with applicable regulations or as MINISTRY may reasonably require, information and data concerning its operations under this Agreement*".[1371] [emphasis added].

1496. The text of such provision is clear. Under Article 16, the Respondents were only required to prepare and maintain records of their operations during the term of the PSA, and the Claimant was entitled to request data concerning such operations. Taking into consideration that the Respondents were not required to maintain records of their operations *ad infinitum*, but only during the term of the PSA, they were not required to provide, after the PSA's expiry, data already provided during the term of the PSA. Whether the Respondents had an obligation to resubmit certain data at the end of the PSA under Article 47 of Law 15 of 1973, will be examined in Section (B), below.

1497. This is aligned with Article 16.8 of the PSA which provides that at the end of the PSA the Respondents shall deliver all original data to the Claimant.[1372]

1498. It is clear from Article 16 of the PSA in general, –and from Articles 16.1 and 16.8 in particular–, that the Parties never envisaged that after the PSA's expiry, the Respondents were to continue providing data that had already been provided to the Claimant.

1499. The Tribunal concludes that the Claimant's late argument has no support in the PSA.

A. Was the data listed under the Updated Missing Data Report provided to the Claimant in accordance with Article 16 of the PSA?

1500. The Parties agree that the Respondents had an obligation under Article 16 to provide data to the Claimant. The dispute between them is whether or not the Respondents provided to the Claimant all the data listed under the Updated Missing Data Report.

1501. The most relevant facts in relation to the data claims are summarized below.

[1371] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 16.1.
[1372] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 16.8.

1502. On 2 January 2010 the Claimant requested from the Respondent 1 certain geological and geophysical studies from Block 14.[1373]

1503. On 21 February 2010, the Respondent 1 replied to the Claimant stating that the requested geological and geophysical studies had been sent in April and May 2009.[1374]

1504. On 18 January 2011, there was a meeting between Nexen and PEPA, during which the status of data delivery was discussed. The minutes of meeting reflect that PEPA stated as follows: "*In general the data delivery status is in very good shape and we received a huge data [*sic*]for example the Production, Drilling, geological, Core Samples and seismic data over than 95% and we are now dedicating for preparing the details report for looking the completeness as happened with log reports*".[1375]

1505. On 15 September 2011, the Respondents provided to the Claimant 1 USB key, and 23 DVDs containing additional seismic data.[1376] Furthermore, on 12 January 2012 the Respondents submitted to the Claimant several boxes of information containing seismic data.[1377]

1506. Finally, on 14 January 2012, the Respondent 1 provided a "data cube" to the Claimant, containing "the remainder"[1378] of the data that it was required to submit to the Claimant.[1379]

1507. After receiving the data cube, the Parties continued to exchange correspondence in relation to the alleged missing data.[1380]

[1373] Exhibit R-198, Attachment 1 to CNPY letter entitled "CNPY Response to MOM Question 4.8", dated 21 February 2010, p. 21.

[1374] Exhibit R-198, Attachment 1 to CNPY letter entitled "CNPY Response to MOM Question 4.8", dated 21 February 2010, p. 21; Exhibit R-200, Attachment to CNPY letter entitled "CNPY Response to MOM Question 4.8", dated 21 February 2010.

[1375] Exhibit R-223, Minutes of a meeting between Nexen and PEPA, dated 18 January 2011, p.1.

[1376] Exhibit 254, Letter from Nexen to Mr. Al-Heliani and Mr. Abbas, dated 15 September 2011, p. 1.

[1377] Exhibit R-292, Email correspondence between Mr. Livingston and Mr. Tracy (with attachments), dated 12 January 2012; Exhibit R-344, Excel spreadsheet entitled "Old Media to PEPA Transmittal 1" ; Exhibit R-345, Excel spreadsheet entitled "Old Media to PEPA Transmittal 2" ; Exhibit R-346, Excel spreadsheet entitled "Old Media to PEPA Transmittal 3" ; Exhibit R-347, Excel spreadsheet entitled "Old Media to PEPA Transmittal 4"; and Exhibit R-348, Excel spreadsheet entitled "Old Media to PEPA Transmittal 5".

[1378] The Tribunal notes that the expression "the remainder" appears both in Exhibit R-224, and in the Respondents' submissions. As explained below, the Tribunal is in no position to corroborate the veracity of such statement.

[1379] Exhibit R-224, Letter from CNPY to PEPA (with attachments), dated 20 January 2011.

[1380] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 6. The Tribunal will refer to the page number of Exhibit C-75 as paginated by Exhibit R-297 for ease of reference. Although *prima facie* the documents seem identical, the Tribunal has not compared the two 155-page documents to determine that they are indeed identical. Therefore, when it refers to Exhibit C-75 it has analyzed the content of such document, and has only looked for the page reference under Exhibit R-297.

1508. For instance, PetroMasila sent a letter to the Respondent 1 on 23 January 2013, requesting "*environmental studies' reports*".[1381] On 13 March 2013, the Respondent 1 provided 15 environmental studies to PetroMasila.[1382]

1509. On 5 June 2013, PetroMasila submitted to Respondent 1 the Missing Data Report.[1383]

1510. On 2 July 2013, Respondent 1 replied to PetroMasila stating that:

> "*CNP believes that it has already complied with its obligations in relation to the provision of data and information under the expired Agreement for Petroleum Exploration and Production for Masila Block (the "PSA"). However, CNPY will review the aforementioned letter and, in that regard requests your confirmation that the 5 June 2013 Report replaces the "initial missing data report" of August 2012 in its entirety. Further, CNPY requests your confirmation that the 5 June 2013 Report is the final report relating to allegedly missing data, and that there will be no further amendments to this Report or any future requests for such data*".[1384]

1511. The Tribunal observes that there were no further communications between the Parties before the arbitration commenced in relation to this issue. During the arbitration, the Claimant initially supported its missing data claim in the Request for Arbitration by reference to the Missing Data Report (Exhibit C-10), and subsequently submitted the Updated Missing Data Report on 10 November 2014 (Exhibit C-75), with its OSoC. According to the Claimant the latter superseded the former, and the data listed under the Updated Missing Data Report is still missing.[1385]

1512. Taking into consideration that the Respondents contend that they submitted the data that the Claimant is requesting, the Tribunal will start by assessing the reliability of Annexes 1-5 of the Updated Missing Data Report.[1386]

[1381] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 6, p. 150.

[1382] As the initial letter did not provided the number of reports requested, the Tribunal is no position as to determine if the Respondents provided all of the reports, or only part of them.

[1383] Exhibit C-10, Data Bank Development Project. The Tribunal notes that Exhibit C-10 is the same Annex 5 of Exhibit C-75. The Executive summary and the data contained therein is the same, however, the information under Exhibit C-10 does not have an index, and follows a different order from the one in Annex 5 of Exhibit C-75. Therefore, the Tribunal will refer to this information as provided in Annex 5 of Exhibit C-75, and as paginated in Exhibit R-297.

[1384] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 6, p. 154.

[1385] Claimant's Opening Statements, Transcript of the final hearing, day 1, p. 87, lines 1 to 4; Claimant's PHB (second round) 2019, para. 76.

[1386] The Tribunal observes that Annex 6 of Exhibit C-75 merely contains the Parties' correspondence regarding the matter, and does not contain a list of allegedly missing data.

1. Annexes 1 and 2 of the Updated Missing Data Report

1513. The Tribunal observes that Annexes 1 and 2 of the Updated Missing Data Report refer to technical studies that the Respondents allegedly did not submit to the Claimant. The Tribunal will begin by analyzing whether the Claimant is in possession of the studies it requests.

1514. First, one study that the Claimant contends was not transmitted, the 2003 version of "*The Masila Fields, Republic of Yemen*",[1387] is fully available on the internet, and, more importantly, is part of the record as Exhibit R-96.

1515. Second, another study that the Claimant argues was not transmitted, "*Horizontal water disposal well performance in a high porosity and permeability reservoir*",[1388] is fully available on the internet, and, more importantly, is part of the record as Exhibit R-62.

1516. Third, the Tribunal notes duplication of the documents requested. For instance, the aforementioned 2003 version of "*The Masila Fields, Republic of Yemen*"[1389] is requested once at page 10 and a second time at page 29 of the Updated Missing Data Report.

1517. Fourth, the abovementioned 2002 version of the "*Horizontal water disposal well performance in a high porosity and permeability reservoir*" is requested once at page 13, and further at page 33 of the Updated Missing Data Report. Moreover, the 2004 version of such article is requested twice, at pages 7 and 27, and the Tribunal observes that it is part of the record as Exhibit R-350, Tab 37.

1518. Fifth, one study that the Claimant contends was not transmitted, "*Tide-influenced sedimentation in a rift basin – Cretaceous Qishn Formation, Masila Block, Yemen: A billion barrel oil field*"[1390] is requested once at page 11, a second time at page 22, a third time at page 31, a fourth time at page 41, and a final time at page 48. The Tribunal notes that this report is part of the record, and was submitted by the Respondents as Exhibit R-350, Tab 4.

1519. Sixth, another study that the Claimant argues was not transmitted, "*Design and Performance of a Water Disposal Wll Stimulation Treatment in a High Porosity and Permeability Sand*",[1391] is requested twice at pages 10, and 30 of the Updated Missing Data Report. The

[1387] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 10.
[1388] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 7.
[1389] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 10.
[1390] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 11.
[1391] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 10.

Tribunal observes that this report is part of the record, and was submitted by the Respondents as Exhibit R-350, Tab 38.

1520. Seventh, a further study that the Claimant contends was not transmitted, "*Step Change In Time Efficiency Using An Innovative Leap-Frog Rig System In Yemen*",[1392] is requested twice at pages 12, and 30, of the Updated Missing Data Report. The Tribunal notes that this report is part of the record as Exhibit R-350, Tab 36.

1521. Eighth, a subsequent study that the Claimant argues was not transmitted, "*Masila block, Yemen, produced water disposal; challenges and solutions*",[1393] is requested once at page 7 and a second time at page 27 of the Updated Missing Data Report. The Tribunal observes that this report is fully available on the internet, and more importantly, that it is part of the record as Exhibit R-342.

1522. Finally, the Claimant argues that the Respondents did not transmit the "*Development Drilling of the Tawila Field, Yemen, Based on Three-Dimensional Reservoir Modeling and Simulation*"[1394] study, which is requested four times, at pages 15, 17, 34, and 37 of the Updated Missing Data Report. However, the Tribunal observes that this report is part of the record as Exhibit R-350, Tab 35.

2. Annex 3 of the Updated Missing Data Report

1523. Further review of the Updated Missing Data Report and the record reveals that the study "*Hydrogeology of the N.W. Masila Block*"[1395] was sent to the Claimant in 1992.[1396]

1524. Similarly, the study "*Correlation Between Surface & Qishn – Level Faulting & Assoc. Seal Breaching In The New Core Area of the Masila Block*"[1397] was also sent to the Claimant in 1992.[1398]

3. Annex 4 of the Updated Missing Data Report

[1392] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 32.
[1393] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 7.
[1394] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 34.
[1395] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 49.
[1396] Exhibit R-69, Transmittal letters from Mr. Calow to Mr. Al-Heliani dated 19 August 2002, p. 4, row 4.
[1397] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 1, p. 49.
[1398] Exhibit R-15, Transmittal letter from Ms. Bobbett to Yasmin, dated 22 September 1992.

1525. The Claimant argues that the preliminary enhanced oil recovery project reports were not transmitted by the Respondents.[1399] However, a further review of the record reveals that all of these reports prior to 2009 were sent to PEPA in June 2009.[1400]

4. Annex 5 of the Updated Missing Data Report

1526. The Tribunal first recalls that Annex 5 of the Updated Missing Data Report was previously filed in the Request for Arbitration as the Missing Data Report.

1527. Regarding the geophysical data, the report shows that the field tapes for Line/Cube CO91-134_R are missing.[1401] However, the Tribunal observes that the evidence in the record reveals that they were previously sent to the Claimant on 29 September 2006, (along with "*all the geophysical data requested for PEPA*"[1402] attached in 1CD and 12 USB keys) and on January 2012,[1403] at the expiry of the PSA.

1528. Additionally, the report displays a large volume of data missing (in red) under its SPS column from pages 93 to 98. However, the Tribunal notes that the evidence in the record shows that this data was previously sent to the Claimant on 29 September 2006, along with "*all the geophysical data requested for PEPA*" [1404] attached in 1CD and 12 USB keys, and appears in the 82-pages of an excel spreadsheet listing the documents submitted.

1529. Moreover, according to the report, there are some reports missing (in red), in the last column on pages 93, 94, 96-99. However, the Tribunal observes that the evidence in the record demonstrates that this data was previously sent to the Claimant on 29 September 2006, and appears in the 82-pages of an excel spreadsheet listing the documents submitted.[1405]

1530. In addition, the report states that there was "velocity data" missing for the Wadi Niir, Wadi Niir Merge, Sunah, and Heijah B, at pages 112 and 113 of the Updated Missing Data Report. Nevertheless, the Tribunal notes that the evidence in the record reveals that the velocity data regarding Wadi Niir Wadi Niir Merge was previously sent to the Claimant on 29 September

[1399] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, p. 3.
[1400] Exhibit R-186, Letter from CNPY to PEPA, dated 22 June 2009.
[1401] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 5, p. 96.
[1402] Exhibit R-133, Transmittal letter from Mr. Livingston to Mr. Ferrel (attaching Excel spreadsheet containing Index of 12 USB drives delivered September 2006), p. 1, and p. 44, rows 4356 to 4363.
[1403] Exhibit R-292, Email correspondence between Mr. Livingston and Mr. Tracy (with attachments) dated 12 January 2012; Exhibit R-344, Excel spreadsheet entitled "Old Media to PEPA Transmittal 1", p. 16, rows 1202 to 1209.
[1404] Exhibit R-133, Transmittal letter from Mr. Livingston to Mr. Ferrel (attaching Excel spreadsheet containing Index of 12 USB drives delivered September 2006).
[1405] Exhibit R-133, Transmittal letter from Mr. Livingston to Mr. Ferrel (attaching Excel spreadsheet containing Index of 12 USB drives delivered September 2006).

2006,[1406] and at the expiry of the PSA.[1407] In relation to Sunah, and Heijah B, the evidence shows that all velocity data was provided at the PSA's expiry.[1408]

1531. Furthermore, the report lists seismic data that appears to have never existed. For instance, it lists as missing Line/Cube CO91-125_R. and Line/Cube CO90-102_R.[1409] However, the evidence suggests that Respondent 1 notified to PEPA on September 1996, and September 2011 respectively that no seismic data was acquired.[1410]

1532. The report also states that all 2D and 3D seismic data were missing.[1411] However, the Respondents were able to demonstrate that this data was sent to the Claimant on 21 January 2009, on a CD.[1412] Furthermore, as stated in paragraphs 1504 and 1505 above, the Tribunal notes that: (i) a minute of a meeting of January 2011 between staff of Nexen and PEPA shows that 95% of the seismic data had already been delivered by that date;[1413] (ii) on 15 September 2011, the Respondents provided to the Claimant 1 USB key, and 23 DVDs of additional seismic data;[1414] and (iii) the Respondents provided several boxes of information containing seismic data to the Claimant after the expiry of the PSA, on 12 January 2012.[1415]

1533. After the Respondents adduced the evidence which demonstrates that the above data was indeed delivered to the Claimant, the latter argued that "*PEPA and the staff at the databank (...) carried out a spot-check to seek to address the question of whether data [*had*] been*

[1406] Exhibit R-133, Transmittal letter from Mr. Livingston to Mr. Ferrel (attaching Excel spreadsheet containing Index of 12 USB drives delivered September 2006), p. 1; p. 21, rows 2016, and p. 82, rows 8253 and 8254.

[1407] Exhibit R-292, Email correspondence between Mr. Livingston and Mr. Tracy (with attachments) dated 12 January 2012; Exhibit R-347, Excel spreadsheet entitled "Old Media to PEPA Transmittal 4", pp. 21-22, rows 1582-1583 and 1594-1595.

[1408] Exhibit R-292, Email correspondence between Mr. Livingston and Mr. Tracy (with attachments) dated 12 January 2012; Exhibit R-347, Excel spreadsheet entitled "Old Media to PEPA Transmittal 4", pp. 26-27, rows 1955 and 1963.

[1409] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 5, pp. 94, 96.

[1410] Exhibit R-24, Transmittal letter from Ms. Groves to Mr. Amer, dated 30 September 1996; Exhibit R-255, Letter from Nexen to Mr. Al-Heliani and Mr. Abbas (signed date 19 October 2011), dated 15 September 2011, p. 2.

[1411] Exhibit C-75, Report on Missing Data at PetroMasila by Abdulhakim Zaid, Exploration and Development Subsurface Director, Annex 5, p. 116.

[1412] Exhibit R-165, Transmittal letter from Mr. Livingston to Mr. Al-Heliani, dated 21 January 2009; Exhibit R-167, Email correspondence between Mr. Saeed and Mr. Abdulwahab et al, dated 28 January 2009; and Exhibit R-168, Excel spreadsheet entitled "DBDP Data Shipping Invoice", dated 28 January 2009.

[1413] Exhibit R-223, Minutes of a meeting between Nexen and PEPA, dated 18 January 2011, p.1.

[1414] Exhibit R-254, Letter from Nexen to Mr. Al-Heliani and Mr. Abbas, dated 15 September 2011, p. 1.

[1415] Exhibit R-292, Email correspondence between Mr. Livingston and Mr. Tracy (with attachments), dated 12 January 2012; Exhibit R-344, Excel spreadsheet entitled "Old Media to PEPA Transmittal 1"; Exhibit R-345, Excel spreadsheet entitled "Old Media to PEPA Transmittal 2"; Exhibit R-346, Excel spreadsheet entitled "Old Media to PEPA Transmittal 3"; Exhibit R-347, Excel spreadsheet entitled "Old Media to PEPA Transmittal 4"; and Exhibit R-348, Excel spreadsheet entitled "Old Media to PEPA Transmittal 5".

provided"[1416] by the Respondents. The Claimant then submitted Exhibit C-440 in the record as the document that reflects the results of such spot-check.

1534. The Tribunal is convinced that a spot-check of documents as presented in Exhibit C-440 cannot accurately show which documents were not sent to the Claimant during the PSA, or at the PSA's expiry. The Tribunal agrees with the Respondents in that Exhibit C-440 could only demonstrate which documents were missing in 2018.

1535. Although this Exhibit cannot serve its intended evidentiary purpose, the Tribunal observes that the Respondents successfully demonstrated the following:

(i) the "*Saar Clastic Study – Cross Sections*" listed as missing under item 5 of Exhibit C-440 was delivered in the data cube;[1417]
(ii) the "*Yemen: Masila 200 Frac Program*" listed as missing under item 6 of Exhibit C-440 was delivered via the data cube;[1418]
(iii) the "*Drilling Report from Heijah-015*" listed as missing under item 18 of Exhibit C-440 was in the data cube;[1419]
(iv) the "*Geological Reports prepared for the Sunah-12-D1 well*" listed as missing under item 19 of Exhibit C-440 was delivered in the data cube;[1420]
(v) the "*Survey Reports of the North Camaal-28 well*" listed as missing under item 21 of Exhibit C-440 was delivered via the data cube;[1421]
(vi) the "*Well log for the North Camaal-2 Well*" listed as missing under item 25 of Exhibit C-440 was in the data cube;[1422]
(vii) the "*Well log for the Camaal-68 Well*" listed as missing under item 26 of Exhibit C-440 was delivered in the data cube;[1423]
(viii) the "*Well log for the Sunnah-008-D1 Well*" listed as missing under item 27 of Exhibit C-440 was delivered via the data cube;[1424]
(ix) the "*Mud log data of the Sunah-012-D1 Well*" listed as missing under item 32 of Exhibit C-440 was in the data cube;[1425]

[1416] SoRDCC, para. 745.
[1417] Exhibit R-521, Item 5: Screenshot image of the Data Cube file location of "Saar Clastic Study – Cross Sections".
[1418] Exhibit R-522, Item 6: Screenshot image of the Data Cube file location of "Yemen: Masila 2000 Frac Program".
[1419] Exhibit R-523, Item 18: Screenshot image of the drilling report and its Data Cube location.
[1420] Exhibit R-524, Item 19: Screenshot image showing the "Geolog" well file for Sunah-12.
[1421] Exhibit R-525, Item 21: Screenshot images showing the location of survey reports on the Data Cube.
[1422] Exhibit R-526, Item 25: Screenshot image showing a "North_Camaal-2" well file within the "Geolog" subfolder.
[1423] Exhibit R-527, Item 26: Screenshot image showing a "Camaal-68" well file within the "Geolog" subfolder.
[1424] Exhibit R-528, Item 27: Screenshot image showing a "Sunah-8_D1" well file within the "Geolog" subfolder.
[1425] Exhibit R-529, Item 32: Screenshot image showing the location of the "Sunah-12" mud log data on the Data Cube.

(x) the digital copies of the studies listed as missing under item 42 of Exhibit C-440 were delivered in the data cube;[1426] and
(xi) the digital copies of the "*geological studies from Heijah-15, Heijah-29, Camaal-63, Jabel-Rubah-1 and North Camaal-4 wells*" listed as missing under item 43 of Exhibit C-440 were delivered via the data cube.[1427]

1536. The Tribunal further observes that for eleven out of 43 items in Exhibit C-440, which the Respondents claim were delivered, the PEPA team indicated, either: (i) no comment; (ii) that they cannot confirm whether or not they have the documents; or (iii) that they need further time to check if they have the documents.[1428]

1537. The Tribunal also notes that at the end of this arbitration proceeding the Claimant is still in no position to assert whether or not it is in possession of certain data, let alone if it was indeed provided by the Respondents seven years ago.

1538. The Tribunal further observes that the Claimant is not only requesting documents that the Respondents have successfully demonstrated were sent on several occasions, but it is also continuing to request documents which are part of the record in this arbitration.

1539. On the basis of the above findings, the Tribunal is convinced that the Updated Missing Data Report is not accurate and cannot demonstrate that the Claimant is missing data, let alone that such data was not provided by the Respondents, in breach of Article 16 of the PSA.

1540. The Tribunal clarifies that it did not expect that the Claimant would be able to demonstrate a negative assertion "*not all of the data has been provided*", as that would have been highly burdensome, if not impossible. However, it considers that the Claimant has failed to demonstrate on a *prima facie* basis that the data had not been provided by the Respondents, by relying on flawed Exhibit C-75 as its missing data report. Furthermore, the Tribunal was surprised to hear during the final hearing that the Claimant was in possession of a list of all of the data that had been provided by the Respondents,[1429] which could have been compared to the Updated Missing Data Report, but that it refrained from filing it in the arbitration.

1541. *A contrario,* the Respondents have successfully established that: (i) by January 2011, PEPA confirmed that they had received 95% of the data;[1430] (ii) on 15 September 2011, the

[1426] Exhibit R-530, Items 42-43: Screenshot image showing the studies sub-folder under "MASILA BLOCK" that contains digital copies of Masila Block studies.
[1427] Exhibit R-530, Items 42-43: Screenshot image showing the studies sub-folder under "MASILA BLOCK" that contains digital copies of Masila Block studies.
[1428] Exhibit C-440, Databank Missing Data Table from Mr. Hadi, items: 11(2), 14, 15, 17, 20, 28, 30, 33, 34, 35, and 37.
[1429] Cross-examination of Mr. Al-Humidy, Transcript of the final hearing, day 2, p. 136, lines 10 to 22.
[1430] Exhibit R-223, Minutes of a meeting between Nexen and PEPA, dated 18 January 2011, p.1.

Respondents provided to the Claimant 1 USB key, and 23 DVDs of additional seismic data;[1431] (iii) the Respondents sent several boxes of information containing seismic data to the Claimant after the expiry of the PSA, on 12 January 2012;[1432] (iv) on 14 January 2012, Respondent 1 provided the data cube containing the remainder of the data that they were required to submit to the Claimant;[1433] and (v) the Claimant's missing data report is completely unreliable.

1542. In light of the above, the Arbitral Tribunal dismisses the Claimant's claim in relation to the alleged missing data under Article 16 of the PSA.

B. Whether certain data should have been re-submitted at the end of the PSA in accordance with Article 47 of Law No. 15 of 1993

1543. The Claimant contends in its SoRDCC that in accordance with Article 22.1 of the PSA, and Article 47 of Law 15 of 1993, the Respondents were under a further obligation to provide data at the expiry of the PSA, irrespective of whether copies of the data had been provided previously.[1434] By contrast, the Respondents contend that such obligation is not part of the PSA.[1435]

1544. Article 22.1 of the PSA, provides as follows:

"*CONTRACTOR shall be bound by Law No. 15 of 1973 as amended and Law No. 25 of 1976 as amended, insofar as they are not inconsistent with this Agreement, and the regulations issued for the implementation thereof, including the regulations for the safe and efficient performance of operations carried out for the execution of this Agreement and for the conservation of Petroleum resources of the PDRY, provided that no regulation, modification or interpretation thereof shall be contrary to or inconsistent with the provisions of this Agreement*".[1436] [emphasis added].

1545. It is clear from the text of the PSA that the Respondents were bound by Law No. 15 of 1973, insofar as it was not inconsistent with the terms of the PSA. Therefore, the Tribunal needs to

[1431] Exhibit R-254 Letter from Nexen to Mr. Al-Heliani and Mr. Abbas, dated 15 September 2011, p. 1.
[1432] Exhibit R-292, Email correspondence between Mr. Livingston and Mr. Tracy (with attachments), dated 12 January 2012; Exhibit R-344, Excel spreadsheet entitled "Old Media to PEPA Transmittal 1"; Exhibit R-345, Excel spreadsheet entitled "Old Media to PEPA Transmittal 2"; Exhibit R-346, Excel spreadsheet entitled "Old Media to PEPA Transmittal 3"; Exhibit R-347, Excel spreadsheet entitled "Old Media to PEPA Transmittal 4"; and Exhibit R-348, Excel spreadsheet entitled "Old Media to PEPA Transmittal 5".
[1433] Exhibit R-224, Letter from CNPY to PEPA (with attachments), dated 20 January 2011.
[1434] SoRDCC, paras. 716-718.
[1435] Respondents' Opening Statements, Transcript of the final hearing, day 1, p. 167, lines 1 to 4.
[1436] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 22.1.

compare the obligation under Article 47 of Law 15 of 1993 which the Claimant relies on, with the obligations under Article 16 of the PSA.

1546. Article 47 of Law No. 15 of 1993 provides as follows:

> "*All parties carrying out exploration, research or investment operations must keep a copy of geological, geophysical and other survey maps that they have prepared, as well as a copy of the results of studies they have carried out. They must deliver copies of them to the Authority upon their expiration*".[1437] [emphasis added].

1547. Article 16 of the PSA reads as follows:

> "*16.6. CONTRACTOR at its own cost shall provide MINISTRY at the same time as available to CONTRACTOR for its own use, copies of any and all data (including, but not limited to, geological and geophysical reports, logs and well surveys), reports, information, interpretation of such data and all other information or work product pertaining to the Contract Area in CONTRACTOR'S or CONTRACTOR'S Affiliates' possession.*
>
> *16.8 At the end of the term of the Agreement all original data shall be delivered by CONTRACTOR to MINISTRY*".[1438] [emphasis added].

1548. The Tribunal considers that the obligation under Article 16 of the PSA is more comprehensive than the one under Article 47 of Law No. 15. Under the PSA the Respondent 1 was obligated to submit all data on a rolling basis to the Claimant, and additionally all original data at the PSA's expiry; whereas under Law No. 15 of 1993 it would have been only required to submit copies of some specific data at the end of the PSA.

1549. The Tribunal is thus convinced that Article 47 of Law No. 15 of 1993 is not applicable in the present case, as it is inconsistent with the PSA.

1550. Additionally, as stated in paragraph 1539 above, the Claimant was unable to demonstrate that it is indeed missing any data, let alone that such data was not provided by the Respondents.

1551. Furthermore, the Tribunal observes that the Claimant has not stated, let alone demonstrated, which data was missing from the data cube that was handed over after the PSA's expiry.

[1437] Exhibit C-194, Tab 19, The People's Republic of Yemen Law 15 of 1973, p. 11.
[1438] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 22.1.

1552. Consequently, the Arbitral Tribunal dismisses the Claimant's claim in relation to the alleged missing data also under Article 47 of Law No. 15 of 1993.

II. The Asset Register claim

1553. The Parties agree that the Respondents did not procure an asset register, nor did provide one to the Claimant at the expiry of the PSA.[1439]

1554. The Claimant contends that, as a matter of Article 8.1 of the PSA (Good Oilfield Practice) and further to Article 18.1(b) of the PSA, the Respondents should have maintained and communicated to the Claimant an asset register at the PSA's expiry.[1440] The Respondents deny the existence of such an obligation.[1441]

1555. The Tribunal will first determine whether there was an obligation to produce an asset register at the end of the PSA (A) in accordance with Article 18.1(b) and the further relevant accounting terms of the PSA; or (B) as per Article 8 of the PSA, along with Good Oilfield Practice.

A. Article 18.1(b) and further accounting terms of the PSA

1556. The Claimant considers that under Article 18.1(b) and the further relevant accounting terms of the PSA, the Respondents were required to maintain and communicate an asset register to the Claimant.[1442] The Respondents dispute that such obligation exists under the PSA.[1443]

1557. Article 18.1(b) of the PSA expressly provides that:

> "*(…) The Book Value of the Assets acquired or created during each Calendar Year shall be communicated by CONTRACTOR to MINISTRY within sixty (60) days after the end of such year.*"[1444] [emphasis added].

1558. The Tribunal considers that the text of Article 18.1(b) of the PSA alone does not equate to an obligation to maintain an asset register and to provide it at the end of the PSA. Furthermore, the Tribunal was not able to find the terms "asset register" or "asset ledger" in the PSA.

[1439] AsoC, paras. 192 (3), 414; ASoDCC, para. 623.
[1440] AsoC, para. 409.
[1441] ASoDCC, para. 618.
[1442] ASoC, paras. 411-412; SoRDCC, para. 759; Claimant's PHB (first round) 2019, para. 590.
[1443] ASoDCC, paras. 617-619; SoRjSRCC, paras. 251-252; Respondents' PHB (first round) 2019, para. 237.
[1444] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1(b).

1559. The Parties' dcbate can be summarized as follows. The Respondents contend that: (i) nowhere in the PSA can such obligation be found;[1445] and (ii) under Article 18.1(b) of the PSA they were only obligated to communicate the book value of the assets acquired or created within the 60 days after the end of each year, and that thcy complied with this obligation through the submission of the quarterly SOAs.[1446]

1560. On the other hand, the Claimant argues that: (i) the Respondents failcd to address in their defense the "*further relevant accounting terms of the PSA*";[1447] and that (ii) in relation to Article 18.1(b) of the PSA, the SOAs were inadequate to communicate the book value of the assets.[1448]

1561. The relevant question that the Tribunal has to answer is not whether the Respondents complied with their accounting duties in general, or specifically through their SOAs, but whether or not they were required to maintain and provide an asset register at the PSA's expiry.

1562. The Tribunal is of the opinion that in relying on a breach of an obligation not expressly provided in the PSA, the Claimant should have: (i) illustrated how this obligation arises from the accounting duties expressly provided in the PSA; and (ii) demonstrated the Respondents' breach of such an obligation.

1563. However, the Claimant was not able to establish the existence of such an obligation. By contrast, the Respondents have successfully demonstrated throughout the cross-cxamination of the Claimant's expert that there is no legal obligation or accounting standard that require to maintain and providc an asset register at the end of the PSA:

> "*Q. Well, we're come on to the accounting standards in a moment and we'll also come onto the PSA in a moment as well. But, before we consider the PSA, can we agree that, as far as you're aware. There's no legal requirement outside of the PSA that required a contractor to maintain an asset register in relation to its operations on Block 14?*
> *A. **I'm not aware that there's any accounting standard that says you must maintain an asset register**. I think it's very difficult to fulfil the requirements in terms of presenting a fair view of the balance or the value of your assets, if you don't have one. I'm not sure what else you would use outside an asset register.*
> *Q. Mr Isaac, at various instances in your report, for example paragraph 1.2.2, you say that there is often a legal requirement to maintain an asset register?*
> *A. Yes.*

[1445] ASoDCC, para. 618; SoRjSRCC, paras. 251(a); 1WS of Mr. Rettie, para. 49; 2WS Mr. Rettie, para. 11.
[1446] ASoDCC, paras. 617-619; SoRjSRCC, paras. 251(b); 1WS of Mr. Rettie, paras. 46-48; 2WS Mr. Rettie, para. 9.
[1447] SoRDCC, para. 759.
[1448] SoRDCC, para. 760; 1EXR of Mr. Isaac, paras. 1.4.3-1.5.1; C-410, p. 3; Cross-cxamination of Mr. Rettie, Transcript of the final hearing, day 4, p. 225, lines 1 to 24.

Q. And my question to you simply is this: you're not aware of any such legal requirement in the context of this case, are you?
A. ***Not in the context of this case, no***".[1449] [emphasis added].

1564. Furthermore, the Respondents demonstrated that there was no specific requirement under Article 18.1(b) of the PSA to maintain and provide an asset register at the end of the PSA, or to perform all of the functions that an asset register was ought to perform:

"*Q. No. Let's then turn to the PSA itself. Can we agree that the term "asset register" or "asset ledger" or "fixed asset sub-ledger", or any of the other terms that we have used to refer to an asset register, nowhere appears in the PSA?*
A. From memory, I can't recall. I don't think so.
Q. Okay. Well, I stipulate to you that that's the case and we'll be corrected if that's incorrect. The Ministry's case is based on Article 18.1(b) of the PSA, so let's turn that up, if you wouldn't mind.
A. Yes.
Q. Now, the Ministry says that the final sentence of Article 18.1(B) requires the Contractor to maintain an asset register and then to provide the Ministry with it within 30 days of the end of each calendar year. You see that?
A. I do, yes.
Q. I beg your pardon, 60 days after the end of each calendar year. Now, you agree with me that, if the parties had an asset register in mind, it would have been simpler for them to simply refer to it as an asset register, yes?
A. That would probably avoid the confusion we have now, possibly.
Q. It would indeed. ***You would also agree with me that there is no express requirement in 18.1(b) on the Contractor to provide the book value of each individual asset acquired or created during each calendar year, is there? It just says assets****.*
A. ***It just says assets****.*
Q. ***Nor is there an express reference in 18.1(b), Mr Isaac, to communicating to the Ministry the book value of assets acquired or created in prior years****, is there?*
A. ***It doesn't say that****.*
Q. The obligation to report each year is limited to assets acquired or created in that year. That's correct, isn't it?
A. That's what 18.1(b) seems to say, yes.
Q. ***18.1(b) does not say that the Contractor had to communicate to the Ministry the book value of all assets that it owned, does it?***
A. ***Not*** *in 18.1(b)*".[1450] [emphasis added].

1565. As a second layer argument, the Claimant referred to: (i) the importance of an asset register for cost recovery;[1451] (ii) the importance of an asset register at the end of the PSA;[1452] and

[1449] Cross-examination of Mr. Isaac, Transcript of the final hearing, day 5, p. 271, line 11 to p. 272, line 6.
[1450] Cross-examination of Mr. Isaac, Transcript of the final hearing, day 5, p. 272, line 7 to p. 273, line 23; Cross-examination of Mr. Isaac, Transcript of the final hearing, day 5, p. 277, line 17 to p. 278, line 5.
[1451] SoRDCC, para. 767 onwards.
[1452] SoRDCC, para. 775 onwards.

(iii) the importance of an asset register for customs clearance.[1453] The Respondents addressed these arguments by relying on the second witness statement of Mr. Rettie.[1454]

1566. The Tribunal, however, does not need to go into the details of those arguments. The Claimant has not even attempted to demonstrate thereby the existence of an obligation. The Claimant has merely argued that: (i) "*an asset register is useful for the cost recovery*"[1455]; (ii) "*an asset register was also important at the end of the PSA*";[1456] and (iii) an asset register "*would have been relevant to*" the process of customs clearance.[1457]

1567. As stated in paragraph 1561 above, the relevant question is not whether an asset register was useful, important, or relevant, but whether or not the Respondents were required to maintain and provide an asset register to the Claimant, at the expiry of the PSA.

1568. In light of the above, the Tribunal considers that the Respondents have successfully demonstrated that there is no obligation under the PSA, or the applicable accounting requirements, for them to maintain and provide to the Claimant an asset register at the end of the PSA.

1569. The Tribunal will analyze whether this obligation however existed in light of Article 8 of the PSA and as a matter of Good Oilfield Practice.

B. Article 8 of the PSA and Good Oilfield Practice

1570. The Claimant argues that the Respondents were obligated to maintain and communicate an asset register to the Claimant as a matter of Good Oilfield Practice.[1458] By contrast, the Respondents deny the existence of such an obligation.

1571. In order to prove its position, the Claimant relies on the witness statement of Mr. Mazhani,[1459] and on the expert report of Mr. Isaac. [1460].

1572. The only extract of Mr. Mazhani's witness statement (which is not the one referred to by the Claimant) that expressly backs this contention is unsupported by further evidence.[1461] The Tribunal observes that the specific extract quoted by the Claimant merely provides "*a few*

[1453] SoRDCC, para. 780 onwards.
[1454] 2WS of Mr. Rettie, paras. 15 to 31.
[1455] SoRDCC, para. 769; 1WS of Mr. Mazhani, para. 19.
[1456] SoRDCC, para. 775.
[1457] 1EXR of Mr. Isaac, para. 1.3.11.
[1458] ASoC para. 410; SoRDCC, para. 759.
[1459] ASoC para. 410, citing Mr. Mazhani's WS paras. 17 onwards.
[1460] SoRDCC, para. 759, citing Mr. Isaac's EXR, para. 1.3.
[1461] 1WS of Mr. Mazhani, para. 9.

reasons why the asset ledger is important to the"[1462] Claimant,[1463] but does not explain how maintaining and providing an asset register was part of Good Oilfield Practice.

1573. Furthermore, the excerpt of Mr. Isaac's report relied upon by the Claimant does not indicate that there was an obligation to maintain an asset register under Good Oilfield Practice, but merely mentions the benefits of having an asset register.[1464] In fact, although the report does not make a single reference to Good Oilfield Practice, it concludes that "*all companies operating within the Oil & Gas industry should have a proper asset register*".[1465]

1574. On the other hand, the Respondents rely on Mr. Rettie's witness statement, who argues that "*the creation and maintenance of an Asset Register is not common among oil and gas exploration, development and production companies, let alone a requirement under Good Oilfield Practice*".[1466]

1575. The Tribunal notes that, while responding a question raised by the Tribunal, Mr. Isaac confirmed that he was not even aware of a common practice of keeping asset registers:

> *"MR CRAIG: I have a question.*
> *A. Sure.*
> *MR CRAIG: Are you familiar with other oil companies in the area? To your knowledge did they keep asset registers?*
> *A. I'm not familiar with other oil companies in Yemen.*
> *MR CRAIG: Or in the industry in general.*
> *A. The industry in general. In terms of the ones that I have been involved with and I have seen asset registers, one was down in the --*
> *THE CHAIRMAN: Yes,* ***but the question is not whether you have seen asset register but whether it was a common practice*** *--*
> *A.* ***Not in that specific area, I haven't seen. We haven't*** *–*".[1467] [emphasis added].

1576. The burden of proving the existence of an obligation under Good Oilfield Practice, is on the Party relying on its existence. In this case, the Claimant had the burden of proving that the Respondents had to maintain and communicate an asset register to the Claimant as a matter of Good Oilfield Practice.

1577. Despite the fact that the Claimant has shown the usefulness of an asset register, it has failed to demonstrate that the Respondents had an obligation to maintain and communicate an asset register to the Claimant as a matter of Good Oilfield Practice.

[1462] 1WS of Mr. Mazhani, para. 17.
[1463] ASoC para. 410, citing Mr. Mazhani's WS paras. 17 onwards.
[1464] SoRDCC, para. 759, citing Mr. Isaac's EXR, para. 1.3.
[1465] 1EXR Mr. Isaac, para. 1.5.1
[1466] 2WS of Mr. Rettie, para. 13.
[1467] Cross-examination of Mr. Isaac, Transcript of the final hearing, day 5, p. 249, lines 3 to 16.

1578. In light of the above, the Tribunal dismisses the Claimant's Asset Register claim.

Section VI. The SAP Claim

Sub-section I. The Claimant's SAP claim

1579. The Claimant argues that the Respondents failed to grant access to, or transfer to it, the SAP system in breach of the PSA, Good Oilfield Practice, and the duty of good faith. The Claimant explains that the critical functions performed by the SAP system include plant maintenance and repair, materials management, project management, human resources management, financial and internal cost accounting, and asset accounting.[1468]

1580. According to the Claimant, in about 2002, the Respondents purchased and replaced the accounting system called IDEAS and the materials purchasing and inventory management system called CENDEC with the SAP system.[1469]

1581. The Claimant argues that the sum of USD 3 million was paid for the SAP system by way of the cost recovery mechanism.[1470] In that respect, the Respondents continued to state that they were cost recovering costs in relation to SAP, including: (i) USD 37,812 in the SOA for Q4 of 2002, in relation to SAP training[1471] and (ii) in each WP&B from 2003, costs in relation to the licensing and maintenance of SAP,[1472] including in the 2003 budget, USD 794,003 in respect of "*SAP Licence Costs*".[1473]

1582. The Claimant contends that the Respondents produced a memorandum dated 1 March 2010,[1474] under which a list of risks was set out, including; the fact that the Claimant will not be able to access SAP historical data; that a number of essential routine activities in Block 14 had been organized around SAP; and that the employees had been trained to use SAP.[1475]

1583. The Claimant's SAP claim is advanced on three bases: (i) under Article 18.1(b) of the PSA, title to the SAP system should have passed to the Claimant upon the PSA's expiry. In

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[1468] ASoC, para. 422.
[1469] ASoC, para. 421.
[1470] Exhibit C-22, Email (Ian Habke to Dan Halverson) attaching presentation re total project costs / hardware costs dated 4 January 2000, p. 3.
[1471] Exhibit R-76, Letter from CNPY to Nexen et al, attaching Statement of Activity for the 4th Quarter 2002, dated 31 January 2003.
[1472] Exhibit R-351, Tab 7, 2010 Work Programme & Budget – Block 14, Masila Area; Exhibit C-25, Email chain finishing with YEMSANA, Finance Manager (Randy / Frank) to Mitch White, dated 14 May 2002.
[1473] Exhibit R-71, PowerPoint presentation entitled "Masila Block 14, 2003 Work Program & Budget" dated 23 September 2002.
[1474] Exhibit C-26, Position Paper for SAP in Yemen, dated 1 March 2010.
[1475] SoRDCC, para. 813.

allocating the USD 3 million as development expenditure, the Respondents expressly acknowledged that SAP was an asset within the PSA's terms; (ii) the Respondents' breach of good faith with respect to the purchase and implementation of the SAP by Nexen and (iii) the Respondents' breach of Article 8.1 of the PSA and Good Oilfield Practice by entering into a license agreement that could not be transferred on the PSA's expiry and by failing to leave an operable ERP system. The Claimant argues that the Respondents knew about their obligation and deliberately decided not to comply with it.[1476]

1584. In its communication to PEPA and the Claimant dated 10 December 2011,[1477] the Respondent 1 stated that (i) the licenses for the SAP system were owned by Nexen and these would expire upon the PSA's expiry; (ii) the Claimant, and therefore PetroMasila, could not have the right to use the SAP system after the PSA's expiry and (iii) no alternative ERP system would be handed over or made available upon the PSA's expiry, with the "data" only being handed over.

1585. The Claimant recalls that, shortly before the PSA's expiry, the Respondents downloaded certain information related to their Yemen operations on to Excel spreadsheets or printed them in hard copy. According to the Claimant, the Respondents did not provide it with any transition period in order to migrate data to another software system upon the PSA's expiry. As a result, the Claimant was left without an ERP system and, for a considerable period of time, had to resort to manual systems to run its petroleum operations.[1478]

1586. As late as September 2011, the Respondents set out the possibilities of (i) the Claimant having its own, separate and standalone SAP system to which data could be migrated with the Respondents' assistance and (ii) a six-month (or potentially longer) extension to the use of the existing SAP system.[1479] However, these options were removed by the Respondent 1's letter of 30 October 2011, one month and a half before the PSA was due to expire.[1480] By 10 December 2011, the Respondents' position was that "*SAP will not be available to PetroMasila after 17 December 2011*".[1481] In the end, the Respondents made no effort to supply and or facilitate an alternative ERP system to which data could migrate.[1482]

[1476] Exhibit C-21, Email chain finishing with Anne Cooke to Abdulmomen Alaamdi, dated 16 October 2000; Exhibit C-32, Email chain finishing with Theresa Roessel to Yemen, VP Finance (Mohammed/Darin/Don); YEMEN, Law Manager (Todd/Ray); 1WS of Mr. Alaamdi, paras. 18-38.

[1477] Exhibit C-164, Letter from Contractor to PEPA and Ministry of Oil and Minerals concerning liability for restoration of the Contractor's Sana'a premises, dated 10 December 2011.

[1478] ASoC, para. 427.

[1479] Exhibit C-152, Letter from Contractor to Minister of Oil and Minerals concerning June 2011 meeting, dated 17 September 2011; Exhibit C-34, Contractor letter to the Ministry, dated 30 September 2011.

[1480] 1WS of Mr. Al-Humidy, para. 154, Minutes of meeting between PEPA and Contractor, dated 15 November 2011.

[1481] Exhibit C-164, Letter from Contractor to PEPA and Ministry of Oil and Minerals concerning liability for restoration of the Contractor's Sana'a premises, dated 10 December 2011.

[1482] ASoC, para 431 (3).

1587. In light of the above, the Claimant claims compensation for the actual costs incurred in procuring a replacement for the SAP in the amount of USD 9,204,631.84.[1483] As an alternative calculation of quantum, the Claimant claims (i) USD 7.07 million, being the value in 2011 of the USD 3 million cost recovered by the Respondents in 2002 uplifted by reference to the 10% rate proposed by the Respondents' expert Mr. Lagerberg, or (ii) USD 13.78 million, being the value in 2018 of the USD 3 million cost recovered by the Respondents in 2002 uplifted by reference to the 10% rate proposed by Mr. Lagerberg.[1484]

Sub-section II. The Respondents' position in relation to the Claimant's SAP claim

1588. The Respondents deny that they breached Article 18.1(b) of the PSA, Article 8.1 of the PSA and Good Oilfield Practice, or their duty of good faith, by: (i) deliberately moving to an ERP system for which the licenses were owned by Nexen, who could decide how the SAP system would be used after the PSA's expiry, (ii) putting in place an ERP system that the Claimant would not have the right to use after the PSA's expiry, (iii) continually failing to make provision for an ERP system that the Claimant had the right to use before and after the PSA's expiry (iv) "*confiscat[ing], without compensation from the Contractor*"[1485] the Claimant's title to the SAP system on the PSA's expiry and/or failing to provide "*an alternative ERP system*"[1486]; or (v) failing to transfer the SAP system to the Claimant or an alternative ERP system.[1487]

1589. The Respondents submit that there is nothing in the PSA or in any subsequent agreement of the Parties requiring the Respondents to provide SAP or any other ERP system to the Claimant on the PSA's expiry.[1488]

1590. According to the Respondents, they did not confiscate the Claimant's title to the SAP system. The Claimant was aware that Nexen would enter into a license agreement for the use of an SAP system in its global operations. Nexen's subsidiaries, including the Respondent 1, were entitled to use the SAP system in connection with their operations, pursuant to the terms of the SAP license. The Respondents contend that such arrangements are entirely standard practice for multi-national oil and gas companies. In this sense, the Respondents submit that they could not assign or transfer the SAP license to the Claimant. Moreover, the terms of the license meant that Nexen was unable to transfer it to the Claimant after the PSA's expiry.[1489]

[1483] 2WS of Mr. Binnabhan, para. 15.
[1484] Claimant's PHB (first round) 2019, para. 630.
[1485] ASoC, para. 428.
[1486] ASoC, para. 428.
[1487] ASoDCC, paras. 625-628.
[1488] ASoDCC, para. 629.
[1489] ASoDCC, paras. 630-631.

1591. According to the Respondents, in an OpCom meeting on 14 November 2001, they explained to the Claimant that the SAP arrangement provided considerable benefits to the Block 14 operations. Nexen's global and fully integrated SAP system delivered significant operational advantages to Block 14 operations, while reducing costs. As the Respondents explained, only USD 3 million, (which was a fraction of the total USD 34.4 million in SAP development and implementation costs incurred by Nexen), was cost recovered. This reduced amount related only to the implementation costs of SAP in Yemen and all additional costs relating to SAP were absorbed 100% by Nexen.[1490]

1592. Contrary to the Claimant's bad faith allegation that the Respondents "*failed to inform the Ministry*" and were "*deliberately vague*" about the status of SAP,[1491] the Respondents stress that the Claimant acknowledged its understanding of the status of the SAP system on numerous occasions and that the Claimant's witness, Mr. Alaamdi, in his capacity as IT manager for the Respondent 1, personally delivered this message to the Claimant.[1492]

1593. According to the Respondents, the Claimant is also making inaccurate contentions regarding "*an alternative ERP system*". The Respondents contend that they made considerable efforts to encourage the Claimant to obtain its own ERP system into which the data contained in the SAP system could be transferred. They further contend that they identified suitable ERP providers and arranged meetings with the Claimant. According to the Respondents, the Claimant's failure to acquire an ERP system, is entirely its own.[1493]

1594. The Respondents also argue that they provided the Claimant with the data contained in their SAP system on 17 December 2011, after having warned it that in the event that it had not procured its own ERP system prior to the PSA's expiry, they would do so.[1494] They provided the Claimant with the SAP data in a "flat file" format, together with various hard copy spreadsheets and other documents for use in running Block 14 operations. According to the Respondents, the data could be easily transferred into most ERP systems, without interrupting PetroMasila's Block 14 operations.[1495]

1595. The Respondents further submit that the Claimant has not presented evidence that Block 14 operations were hindered by the lack of an ERP system since the PSA's expiry. The Claimant acquired its own ERP system in 2014, some three years after the PSA's expiry, and, as PetroMasila's own website proclaims, production levels have either been maintained or

[1490] ASoDCC, para. 632.
[1491] ASoC, para. 431.
[1492] ASoDCC, para. 634.
[1493] ASoDCC, para. 636.
[1494] ASoDCC, paras. 637-638.
[1495] ASoDCC, para. 638.

increased since that time. This undermines the Claimant's claims that such a system is essential for the safe running of Block 14.[1496]

1596. In its SoRDCC, the Claimant continues to argue that: (i) the Respondents breached Article 18.1(b) of the PSA by failing to transfer the SAP license to the Claimant; (ii) acted in bad faith when they failed to tell the Claimant before April 2011 that the system could not be transferred, and it also argues that "*entering into a licensing agreement which could not have transferred, and / or failing to leave an operable ERP system*"[1497] constituted a breach of Good Oilfield Practice.

1597. According to the Respondents, these arguments are flawed for the following reasons:

1598. First, the Claimant argues that, because part of the costs of the SAP system were cost recovered as development expenditure, it became an asset to which the Claimant was entitled following the expiry of the PSA. However, the Claimant ignores the agreement that was reached between the Parties for the implementation of SAP, whereby Nexen would hold the SAP license and there would be no intangible asset owned by the Respondents to transfer to the Claimant at the PSA's expiry.[1498]

1599. Second, according to the Respondents, there is an extensive body of evidence that confirms that the Respondents: (i) advised the Claimant clearly and repeatedly from 2009 onwards that it was not possible to transfer the license;[1499] and (ii) offered assistance to the Claimant to obtain its own ERP system.[1500]

1600. Third, the Claimant contends that the Respondents breached Good Oilfield Practice. However, the Claimant fails to identify a single example of either a local subsidiary holding an ERP license or an outgoing operator transferring an ERP license to an incoming operator.[1501]

Sub-section III. The Arbitral Tribunal's Analysis

1601. The Parties agree that Block 14 was using the IDEAS Financial System as an accounting system, and CENDEC as a materials' purchasing and inventory management system.[1502] In 2002, both systems were replaced with SAP.[1503] SAP is a fully integrated financial and

[1496] ASoDCC, para. 639.
[1497] SoRDCC, para. 801.
[1498] 2WS of Mr. Rettie, para. 41.
[1499] 1WS of Mr. Rettie, para. 58; 2WS of Mr. Rettie, para. 44.
[1500] 1WS of Mr. Rettie, paras. 72 – 74; 2WS of Mr. Rettie, para. 46.
[1501] 2WS of Mr. Rettie, para. 48.
[1502] 1WS of Mr. Alaamdi, para. 11; 1WS of Mr. Rettie, para. 60.
[1503] 1WS of Mr. Alaamdi, para. 15; 1WS of Mr. Rettie, para. 59.

operating system[1504] which performed *inter alia,* the following modules for the operations in Block 14: financial and cost accounting; materials management; plant maintenance and project management.[1505]

1602. Both Parties also agree that after the expiry of the PSA in December 17, 2011, the Respondents did not permit the Claimant to continue to use the SAP in the operations of Block 14.[1506]

1603. The dispute between the Parties is whether the Respondents breached; (**I**) their duty of good faith by failing to tell the Claimant that they would not be able to transfer the SAP license before cost recovering the expense, or at any subsequent time prior to April 2011; (**II**) Article 18.1(b) of the PSA by failing to transfer the SAP license to the Claimant at the expiry of the PSA; and (**III**) Article 8.1 of the PSA, and Good Oilfield Practice by entering into a licensing agreement which could not be transferred and/or failing to leave an operating ERP system.

1604. These arguments will be analyzed in the sub-sections below.

I. Whether there was a Breach of Good Faith

1605. According to the Claimant, the Respondents breached their duty of good faith by failing to advise the Claimant that they would not be able to transfer the SAP license before cost recovering the expense, or at any subsequent time prior to April 2011.[1507] By contrast, the Respondents contend they advised the Claimant from 2009 that the SAP license could not be transferred, and offered assistance to the Claimant to obtain its own ERP system.[1508]

1606. In order to resolve the dispute between the Parties, the Tribunal needs to address the following issues: (A) what was the agreement reached by the Parties regarding SAP in the Block 14? (B) was there an obligation to transfer the SAP license to the Claimant? (C) when did the Claimant find out that the SAP license could not be transferred? (D) the cost recovery of the SAP; and (E) did the Respondents assist the Claimant to obtain an ERP system?

A. What was the agreement reached by the Parties regarding SAP in the Block 14?

1607. The Tribunal first notes that the Parties have not been able to provide a written agreement regarding the implementation of SAP in Block 14.

[1504] Exhibit C-20, MCM / OCM Presentation. Houston, Texas, dated 26-27 June 2001, p. 4.
[1505] 1WS of Mr. Binnabhan, para. 39.
[1506] ASoC, para. 426; ASoDCC, para. 629.
[1507] SoRDCC, para. 819.
[1508] ASoDCC, paras. 630-631, 636.

1608. They agree that the project was presented by Nexen to the Claimant, in June 2001. They further agree that Exhibit C-20 is the power point presentation by which Nexen explained the details of the SAP's implementation to the Claimant.[1509]

1609. From the presentation alone the Tribunal is able to make the following findings: (i) it was Nexen, and not Respondent 1, or any of the Respondents, which was presenting the SAP implementation to the Claimant (all slides); (ii) Nexen explained in detail the benefits of SAP (slide 8-11); (iii) the project team had been together since June 2000, and a contract had been already executed with SAP and PWC as implementation partner (slide 12); (iv) Nexen had been funding all the project to the date of the presentation (slide 13); (v) the total costs of the project amounted to USD 27.3 million (slide 19); (vi) the total Nexen users of SAP were estimated at 920, and the maximum Block 14 users were estimated at 225, thus the Block 14 percentage was calculated at 25% (slide 21); and (vii) the costs of SAP for Block 14 were calculated at USD 4 million, in relation to the percentage above, but were capped at USD 3 million (slide 20).

1610. Additional evidence in the record demonstrates that the USD 3 million in relation to SAP were cost recovered as development expenditures over six years from 2002.[1510] In order to receive those USD 3 million, Nexen was planning to invoice the Respondent 1 that amount, for it to subsequently cost recover it from the project.[1511] Furthermore, the Claimant only paid a portion of the implementation cost of the license, and since 2002 to December 2011 never paid for the annual maintenance of the SAP license.[1512]

1611. In light of all of the evidence adduced above, the Tribunal considers that the Parties agreed that Nexen was to be the titleholder of the SAP license, that it would only recover a minimum amount of the implementation costs through the Respondent 1 (USD 3 million out of USD 27.3 million), and that the Claimant could use the SAP license until the expiry of the PSA without paying any maintenance or other costs. The Respondents' narrative in relation to how the deal was structured is both logical from a commercial standpoint, and is supported by contemporaneous documents. [1513]

B. Was there an obligation to transfer the SAP license to the Claimant?

[1509] Claimant's PHB (first round) 2019, para. 608; ASoDCC, para. 632.

[1510] SoRDCC, para. 807; 1WS of Mr. Rettie, para. 64; Exhibit C-26, Position Paper for SAP in Yemen, dated 1 March 2010, p.2; Cross-examination of Mr. Alaamdi, Transcript of the final hearing, day 2, from p. 46 line 14 to p. 47 line 2; Cross-examination of Mr. Al Humidy, Transcript of the final hearing, day 2, from p. 152 line 25 to p. 154 line 20.

[1511] Exhibit C-22, Email (Ian Habke to Dan Halverson) attaching presentation re total project costs / hardware costs, dated 4 January 2002, p. 1.

[1512] Exhibit R-241, PowerPoint presentation entitled "SAP", dated 28 June 2011, pp. 5-6; Cross-examination of Mr. Alaamdi, Transcript of the final hearing, day 2, from p. 75 line 21 to p. 76 line 3.

[1513] Exhibit C-20, MCM / OCM Presentation. Houston, Texas, dated 26-27 June 2001, p. 4.

1612. The Claimant alleges that the Respondents were bound by an obligation to transfer the SAP license to the Claimant at the expiry of the PSA pursuant to Article 18.1(b) of the PSA, and/or Good Oilfield Practice.[1514]

1613. As will be demonstrated in Sub-sections (**II** and **III**) the Tribunal has reached the conclusion that the Claimant has not demonstrated that the Respondents were under an obligation to transfer the SAP license at the PSA's expiry.

C. When did the Claimant find out that the SAP license could not be transferred?

1614. The Claimant argues that: (i) the Respondents were aware, as early as October 2000 that SAP's proposed implementation was potentially inconsistent with the Respondents' handover obligations; [1515] (ii) the Respondents were always vague when questioned about the SAP handover, until April 2011;[1516] and (iii) the Respondents were using the transfer of SAP as a bargaining chip in order to pressure the Claimant to extend the PSA.[1517]

1615. In relation to the first issue, the Claimant submits an internal email from the Respondents, dated October 2000, to argue that they were aware that SAP's proposed implementation was potentially inconsistent with the Respondents' handover obligations.[1518]

1616. The email states as follows:

> "*We are supposed to "hand over the keys" to the government. SAP puts a bit of a dent in that as the whole system will operate out of Calgary and we will not want the government being tied into our network after we have left the country. Some provision in your planning should be made for that eventuality. It will happen and we should have some sort of plan to prepare for it*".[1519]

1617. The Tribunal does not consider that this email demonstrates the points raised by the Claimant. It suggests that at some point in the future they would need to plan and prepare how to handle the SAP issue, before the expiry of the PSA, which, at the time, was 11 years ahead. Additionally, as the Tribunal has found in paragraph 1611 above the Parties knew, or should have known that the titleholder of the SAP license was Nexen, and there was no obligation to transfer the license at the end of the PSA.

[1514] SoRDCC, para. 801.
[1515] SoRDCC, para. 821.
[1516] SoRDCC, para. 822.
[1517] 1WS of Mr. Alaamdi, para. 36.
[1518] SoRDCC, para. 821; 1WS of Mr. Alaamdi, para. 18; Exhibit C-21, Email chain finishing with Anne Cooke to Abdulmomen Alaamdi, dated 16 October 2000.
[1519] Exhibit C-21, Email chain finishing with Anne Cooke to Abdulmomen Alaamdi, dated 16 October 2000.

1618. Regarding the second issue, the Claimant further argues that the Respondents were always vague when questioned about the SAP handover, until April 2011.[1520] The Claimant submits a fax dated March 2007 containing a minute of meeting in which it enquired the Respondents about the SAP system.[1521] There is not a reply to it in the record. The Claimant also presents a letter dated 12 March 2008 in which the Respondents were replying to a further request from the Claimant, stating that it was premature to discuss the SAP issue then.[1522] Finally the Claimant made a subsequent request on 4 April 2010.[1523]

1619. The Respondents argue that they explained the license issue to the Claimant since 2009,[1524] as evidenced by the Nexen's presentation, and all the additional evidence under Sub-section (A) above. In any event, at the very least, there is a 19 April 2010 letter in which the Respondents informed the Claimant that the titleholder of the SAP license was Nexen, and the license was not transferable.[1525] Furthermore, on 19 September 2010, the Respondent 1 requested from the Claimant to determine with which ERP system the Claimant would intend to continue, in order to ensure the transfer of the SAP data into the new ERP system, and inform the Respondent 1 accordingly.[1526]

1620. According to the above referenced letter, depending on the ERP system selected, the Respondents would need, from a few weeks to a few months, in order to prepare and transfer the SAP data.[1527] As agreed by Mr. Alaamdi during his cross-examination, the Claimant "*was forewarned here about what it needed to do in order to ensure a smooth transition post-expiry*".[1528]

1621. The Tribunal concludes from the above that although the Respondents were somehow non-responsive in relation to the SAP issue in 2007 and 2008, from April 2010 (not April 2011 as argued by the Claimant), 20 months in advance of the PSA's expiry, they explained that the SAP licenses were not transferrable, and from September 2010, 15 months prior to the end of the PSA, instructed the Claimant to acquire an ERP system to transfer the SAP data to.

[1520] SoRDCC, para. 822.
[1521] Exhibit C-24, Minutes of 28 January 2007 meeting in Dubai, p. 2.
[1522] Exhibit C-412, Letter from CNPY to MOM re: Action Plan for SAP, dated 12 March 2008, p. 1.
[1523] Exhibit C-143, Letter from PEPA to Contractor repeating status request in respect of SAP and other programs, dated 4 April 2010.
[1524] 1WS of Mr. Rettie, para. 67.
[1525] Exhibit R-202, Letter from CNPY to the Ministry (with attachments), dated 19 April 2010, p. 1.
[1526] Exhibit C-145, Letter from Contractor to PEPA concerning SAP data transfer, dated 19 September 2010, p. 1.
[1527] Exhibit C-145, , Letter from Contractor to PEPA concerning SAP data transfer, dated 19 September 2010, p. 1.
[1528] Cross-examination of Mr. Alaamdi, Transcript of the final hearing, day 2, from p. 62, lines 5 to 8.

1622. The final issue raised by the Claimant's witness, Mr. Alaamdi, is that he found out during the Dubai meeting in June 2011 that the Respondents were using the transfer of SAP as a bargaining chip in order to pressure the Claimant to extend the PSA.[1529]

1623. The Tribunal observes that the minutes of meeting of the Dubai meeting demonstrate that the Claimant's position was that:

> *"licenses are not -the issue here; the government will purchase new licenses if needed"*.[1530]

1624. Furthermore, during his cross-examination, Mr. Alaamdi agreed that the Claimant's position, with or without extension, was that it wanted a stand-alone SAP license.[1531]

1625. Therefore, the Tribunal considers that the Claimant's argument is unfounded. The SAP license could not, and was not used as an element to put pressure on the Claimant to extend the PSA, as the Claimant itself recognized at the time, that it was willing and able to get its own ERP license.

D. Cost recovery of the SAP

1626. The Claimant suggests that the Respondents cost recovered more than the USD 3 million that were agreed by the Parties.[1532]

1627. The Tribunal first notes that this suggestion is not tied to a specific aspect of the SAP claim.

1628. As stated in paragraph 1611 above, the evidence in the record demonstrates that the Claimant only paid the USD 3 million in relation to the implementation cost of the license.[1533] The Respondents' witness, Mr. Rettie, successfully explained that the only additional costs SAP related that were actually charged were for the purchase of computers that were used only in part to SAP (USD 37,812) which were duly transferred to the Claimant at the expiry of the PSA.[1534] All the other alleged SAP costs were not finally paid by the Claimant.[1535]

[1529] 1WS of Mr. Alaamdi, para. 36.
[1530] Exhibit C-150, Minutes of Masila Block 14 Operating Committee meeting, dated 28-29 June 2011, p. 2.
[1531] Cross-examination of Mr. Alaamdi, Transcript of the final hearing, day 2, from p. 78, line 8 to p. 83, line 1.
[1532] SoRDCC, para. 808.
[1533] Exhibit R-202, Letter from CNPY to the Ministry (with attachments), dated 19 April 2010; Exhibit R-241, PowerPoint presentation entitled "SAP", dated 28 June 2011, pp. 5-6; Cross-examination of Mr. Alaamdi, Transcript of the final hearing, day 2, from p. 75 line 21 to p. 76 line 3.
[1534] 2WS of Mr. Rettie, para. 43.
[1535] 2WS of Mr. Rettie, para. 43; Cross-examination of Mr. Rettie, Transcript of the final hearing, day 3, from p. 198 line 2 to p. 203 line 7.

1629. Taking into consideration that this is not a specific claim, the Tribunal does not need to make a determination in relation to the above USD 37,812 amount that was partially SAP related, and cost recovered.

E. Did the Respondents assist the Claimant to obtain an ERP system?

1630. As explained in detail in the Sub-section (**III**) below," the Tribunal concludes that: (i) the Respondent 1 requested from the Claimant to determine which ERP system the Claimant would intend to continue with, in order to ensure the transfer of the SAP data into such new system and inform the Respondent 1 accordingly; (ii) the Claimant failed to acquire an ERP system before the PSA's expiry; and (iii) the Respondents provided the Claimant with a flat file of data contained in the SAP, which would allow the new operator to transfer the data to a new ERP, and to continue operations on Block 14 without interruptions.

1631. In light of all of the above, the Tribunal considers that the Claimant has not successfully established that the Respondents breached their duty of good faith in relation to the SAP claim.

II. The argument in relation to Article 18.1(b) of the PSA

1632. According to the Claimant, under Article 18.1(b) of the PSA, the title to the hardware and software comprising the SAP system should have been transferred to the Claimant at the expiry of the PSA.[1536] By contrast, the Respondents contend that there is nothing under the PSA or any other agreement between the Parties requiring them to transfer the SAP license to the Claimant at the expiry of the PSA.[1537]

1633. Article 18.1(b) of the PSA provides that:

> "*Title to fixed and movable assets shall by virtue of this provision transfer gradually from CONTRACTOR to MINISTRY at the end of each year in the percentage that the cost of the particular asset is recovered by the CONTRACTOR pursuant to Section IX during each year. If not already vested in MINISTRY, full title to all such assets shall transfer from CONTRACTOR to MINISTRY at the termination of this Agreement, with all such assets being in good working order, normal wear and tear accepted.*"[1538] [emphasis added].

[1536] ASoC, para. 424; SoRDCC, paras. 814-818.
[1537] ASoDCC, para. 629.
[1538] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 18.1(b).

1634. The clear terms of Article 18.1(b) of the PSA provide that assets from the Respondents shall be transferred to the Claimant at the end of each year in relation to the percentage of cost recovery, or in any case, in full, at the end of the PSA.

1635. It is undisputed that the titleholder of the SAP license was Nexen.[1539] Taking into consideration that the SAP license was an asset of a third party to the PSA, the Respondents were not under an obligation pursuant to Article 18.1(b) of the PSA, to transfer the SAP license to the Claimant at the PSA's expiry.

1636. The Claimant argues that in allocating 3 USD million as development expenditures (to cost recover part of the SAP costs), the Respondents acknowledged that the SAP license was an asset under the PSA's terms which should have been transferred to the Claimant at the end of the PSA.[1540] By contrast, the Respondents contend that the fact that SAP costs were treated as development expenditures does not change the foregoing analysis and that not all development expenditures are assets.[1541]

1637. The Tribunal observes in the first place that the Claimant does not seem to pursue any longer this sub-argument, as it was not advanced during the final hearing, and did not appear in the Claimant's demonstrative exhibits binder "Claimant's issues to be determined by the Tribunal". The Tribunal further refers to paragraph 1611 above, in which it found that the Parties had agreed that the Claimant would only bear USD 3 million of a total of USD 27.3 million of the SAP costs, and the titleholder of the SAP license was going to be Nexen.

1638. Additionally, the fact that SAP costs were treated as development expenditures does not change the analysis under Article 18.1(b) of the PSA. The fact that USD 3 million were cost recovered by the Respondents in relation to SAP, does not *ipso iure* mean that the SAP license was an asset under the PSA's terms.

1639. The Tribunal concludes that, taking into consideration the terms of the PSA, and the fact that the SAP license was property of Nexen, the Respondents did not have the obligation to transfer the SAP license to the Claimant at the PSA's expiry, pursuant to Article 18.1(b) of the PSA,

III. The argument in relation to Article 8.1 of the PSA and Good Oilfield Practice

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[1539] Exhibit C-33, Contractor letter to the Ministry, dated 21 August 2011, p. 1; Exhibit C-150, Minutes of Masila Block 14 Operating Committee meeting, dated 28-29 June 2011, p. 2; Exhibit R-202, Letter from CNPY to the Ministry (with attachments), dated 19 April 2010, p. 1; Exhibit R-204, Letter from CNPY to the Ministry, dated 3 May 2010, p. 1; and 1WS of Mr. Rettie, paras. 58 and 67.

[1540] SoRDCC, para. 817.

[1541] SoRjSRCC, para. 262.

1640. According to the Claimant, the Respondents breached Article 8.1 of the PSA, including Good Oilfield Practice, by entering into a licensing agreement which could not be transferred and/or failing to leave an operating ERP system in Block 14.[1542] The Claimant relies solely on the expert reports of Mr. Jewell to support this allegation.[1543]

1641. The Tribunal notes, however, that Mr. Jewell's argument has one additional layer. According to Mr. Jewell, as a matter of Good Oilfield Practice, the Respondents:

> "*Should not have entered into a licensing arrangement that would hinder or prevent a successor to Block 14 taking over its established Management Systems, and specifically the ERP system (...) and, at the very least, as a matter of GOP, CNPY should have arranged for the migration of data and system functions to an alternative system (...) either before the termination of the PSA or through an agreed transition period. What should not happen, as a matter of GOP, is that no ERP system is operable after handover*".[1544]

1642. The Respondents answer to this that: (i) the Claimant has failed to identify a single example of an outgoing operator transferring its ERP license to an incoming operator;[1545] (ii) they provided the Claimant with a flat file of the data contained in SAP;[1546] and (iii) they sought to assist the Claimant to acquire its own ERP system before the end of the PSA.[1547]

1643. In relation to the first allegation, the Tribunal notes that Mr. Jewell's opines that the Respondents "*should not have entered into a licensing arrangement that would hinder or prevent a successor to Block 14 taking over its established Management Systems, and specifically the ERP system*" without providing a single example in the industry in which an outgoing operator transferred its ERP license to the incoming operator. The Tribunal is therefore not persuaded by Mr. Jewell's unsupported opinion.

1644. In particular, when cross-examined at the final hearing, Mr. Jewell recognized that: (i) his reports did not provide a single example in the industry in which an outgoing operator transferred its ERP license to the incoming operator;[1548] (ii) that in the Hess-EnCana example provided in his report there was not actually a transfer of an ERP license to the incoming

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[1542] SoRDCC para. 801(c).
[1543] SoRDCC paras. 825-826.
[1544] 1EXR of Mr. Jewell, para. 26.
[1545] SoRjSRCC, para. 264.
[1546] ASoDCC, paras. 637-639.
[1547] ASoDCC, paras. 635-636.
[1548] Transcript of the final hearing, day 5, from p. 78 line 19, to p. 79. line 3.

operator;[1549] and (iii) that he was not able to recall a single example in the industry in which this had happened.[1550]

1645. The Tribunal therefore concludes that the Claimant has not proven that by entering into a licensing agreement which could not be transferred to the incoming operator, the Respondents breached Good Oilfield Practice.

1646. The second issue is whether the Respondents *"should have arranged for the migration of data and system functions to an alternative system (...) either before the termination of the PSA or through an agreed transition period"*.[1551]

1647. The Tribunal considers that the Claimant has failed to demonstrate how this is Good Oilfield Practice. In any case, as explained in paragraph 1619 above, at the very least from 19 April 2010, the Respondents informed the Claimant that the titleholder of the SAP license was Nexen, and the license was not transferrable.[1552] Several subsequent communications and minutes of meetings reaffirmed this fact throughout 2010 and 2011.[1553]

1648. Moreover, the evidence in the record demonstrates that in 19 September 2010, Respondent 1 requested the Claimant to determine with which ERP system the Claimant would intend to continue in order to ensure the transfer of the SAP data into such new system and inform the Respondent 1 accordingly.[1554] The Tribunal observes that Respondent 1 repeated this request in 19 December 2010.[1555]

1649. It is an undisputed fact that the Claimant did not acquire an ERP system prior to the expiry of the PSA, or in fact, prior to 2014. The Tribunal also notes that the Claimant never replied to the Respondent 1's request.

1650. Moreover, the Respondents provided the Claimant with a flat file of the data contained in SAP, which would allow the new operator to transfer the data to a new ERP, and to continue operations on the Block 14 without interruptions.[1556] This contention is supported by the witness statement of Mr. Rettie,[1557] and during his cross examination, the Claimant's witness,

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[1549] Transcript of the final hearing, day 5, from p. 79 lines 11 to 25.
[1550] Transcript of the final hearing, day 5, from p. 80 lines 2 to 6.
[1551] 1EXR of Mr. Jewell, para. 26.
[1552] Exhibit R-202, Letter from CNPY to the Ministry (with attachments), dated 19 April 2010, p. 1.
[1553] Exhibit C-33, Contractor letter to the Ministry, dated 21 August 2011, p. 1; Exhibit C-150, Minutes of Masila Block 14 Operating Committee meeting, dated 28-29 June 2011, p. 2; Exhibit R-204, Letter from CNPY to the Ministry, dated 3 May 2010, p. 1.
[1554] Exhibit C-145, Letter from Contractor to PEPA concerning SAP data transfer, dated 19 September 2010, p. 1.
[1555] Exhibit C-147, Letter from Contractor to PEPA regarding information required in SAP data transfer, dated 19 December 2010, p. 1.
[1556] ASoDCC, paras. 637-639.
[1557] 1WS of Mr. Rettie, para. 82.

Mr. Alaamdi, confirmed that those flat files would enable the incoming operator to access the SAP data by means of another ERP system.[1558]

1651. The Tribunal is therefore convinced that: (i) the Claimant has failed to demonstrate how what it alleges is Good Oilfield Practice; and in any case, (ii) the Respondents tried to arrange for the migration of data and system functions to an alternative system before the termination of the PSA, and eventually provided the Claimant with a flat file of the data contained in SAP for it to be transferred to the new ERP of the incoming operator.

1652. Finally, the third allegation is that *"what should not happen, as a matter of GOP, is that no ERP system is operable after handover"*.[1559]

1653. The Tribunal first notes that the Claimant has failed to provide any support in relation to how this is Good Oilfield Practice.

1654. Furthermore, it results from the evidence in the record that: (i) at the very least, from 19 April 2010, the Respondents informed the Claimant that the titleholder of the SAP license was Nexen;[1560] (ii) on the same date, the Respondents informed the Claimant that Nexen's SAP license was not transferrable;[1561] (iii) from 19 September 2010, Respondent 1 requested the Claimant to choose an ERP system to ensure the transfer of the SAP data into such new system;[1562] and (iv) in the Dubai meetings in June 2011 the Claimant stated that *"licenses are not the issue here; the government will purchase new licenses if needed"*.[1563]

1655. Finally, as mentioned above, it is an undisputed fact that the Claimant did not acquire an ERP system prior to the expiry of the PSA, or in fact, prior to 2014.

1656. The Tribunal considers that the Claimant has not successfully demonstrated either that (i) *"what should not happen, as a matter of GOP, is that no ERP system is operable after handover"*; or (ii) how it was the Respondents' fault that at the expiry of the PSA, the Claimant did not have an ERP system.

1657. In light of the above and in relation to the three grounds of the Claimant's SAP claim, the Tribunal concludes that the Respondents have not breached; (i) their duty of good faith by failing to tell the Claimant that they would not be able to transfer the SAP license before cost

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[1558] Cross-examination of Mr. Alaamdi, Transcript of the final hearing, day 2, from p. 49, lines 1 to 14.
[1559] 1EXR of Mr. Jewell, para. 26.
[1560] Exhibit R-202, Letter from CNPY to the Ministry (with attachments), dated 19 April 2010, p. 1.
[1561] Exhibit R-202, Letter from CNPY to the Ministry (with attachments), dated 19 April 2010, p. 1; Cross-examination of Mr. Alaamdi, Transcript of the final hearing, day 2, from p. 60, lines 4 to 11.
[1562] Exhibit C-145, Letter from Contractor to PEPA concerning SAP data transfer, dated 19 September 2010, p. 1; Cross-examination of Mr. Alaamdi, Transcript of the final hearing, day 2, from p. 62, lines 8 to 13.
[1563] Exhibit C-150, Minutes of Masila Block 14 Operating Committee meeting, dated 28-29 June 2011, p. 2.

recovering the expense, or at any subsequent time prior to April 2011; (ii) Article 18.1(b) of the PSA by failing to transfer the SAP license to the Claimant at the expiry of the PSA; and (iii) Article 8.1 of the PSA, including Good Oilfield Practice by entering into a licensing agreement which could not be transferred and/or failing to leave an operating ERP system.

1658. For all the reasons set forth above, the Tribunal dismisses the Claimant's SAP claim. The Tribunal also dismisses the Claimant's SAP alternative claims set forth in paragraph 1587 above. The Tribunal ruled in paragraph 1611 that "*the Parties agreed that Nexen was to be the titleholder of the SAP license, that it would only recover a minimum amount of the implementation costs through the Respondent 1 (USD 3 million out of USD 27.3 million), and that the Claimant could use the SAP license until the expiry of the PSA without paying any maintenance or other costs*". Therefore, the Claimant is not entitled to the USD 3,000,000 that were cost recovered by Respondent 1 back in 2002.

Section VII. Damages

Sub-section I. The Claimant's claim

1659. The following sub-sections will describe the remedies requested by the Claimant, namely: (**I**) Specific Performance; and (**II**) Damages.

I. The Claimant's position regarding Specific Performance

1660. The Claimant requests specific performance of the PSA's obligations together with a substantial damages award.[1564] In its PHBs the Claimant indicated that it only requests specific performance in relation to the Data and Asset Register claims.[1565]

1661. The Claimant agrees with the Respondents' legal experts that Yemeni, Canadian and Lebanese law recognize specific performance as a remedy for which an aggrieved party may claim. However, the Claimant argues that the application of the principle of specific performance is not the same in these three jurisdictions.[1566]

1662. Given the lack of uniformity between Yemeni, Canadian and Lebanese law, the Claimant relies on the UNIDROIT Principles. The Claimant points out that the UNIDROIT Principles recognize specific performance and damages as two types of remedies principally available to an aggrieved party. The principle of specific performance is enshrined in Article 7.2.2 of the UNIDROIT Principles and explained in detail in the Commentary of Article 7.2.2.[1567]

[1564] ASoC, para. 159.
[1565] Claimant's PHB (first round) 2019, para. 61.
[1566] ASoC, paras. 160-161, 171.
[1567] ASoC, para. 173; Exhibit CL-73, p. 888.

II. The Claimant's position regarding damages

1663. The Claimant submits that Yemeni, Canadian and Lebanese law recognize damages as a remedy for which an aggrieved party may claim.[1568]

1664. Under Article 347 of the Yemeni Civil Code, if specific performance is not possible, the aggrieved party shall be entitled to compensation for non-performance. According to the Claimant, the amount of damages is in lieu of specific performance. Essentially, the purpose of compensation is to put the parties in the position they would have been, had the contract been performed.[1569]

1665. Under Canadian law the principal remedy available is damages. According to the Claimant, a party is entitled to compensation for all damages which flow naturally from the breach of contract.[1570]

1666. As to Lebanese law, according to the Claimant, an aggrieved party is entitled to recover damages that have been sustained as per Articles 260-264 of the Code of Obligations and Contracts. Furthermore, in comparison to Yemeni and Canadian law, Lebanese law explicitly recognizes the recoverability of future damages.[1571]

1667. According to the Claimant, given the lack of uniformity between Yemeni, Canadian and Lebanese law, it relies on the UNIDROIT Principles.[1572]

1668. Article 7.3.5 (2) stipulates that "*[t]ermination does not preclude a claim for damages for non-performance*". Moreover, Article 7.4.1 sets out the right to damages.[1573] Furthermore, Article 7.4.2 (1) provides that an aggrieved party is entitled to full compensation as a result of non-performance, including losses suffered and loss of profit.[1574] The Claimant maintains that the aim of an award of damages under the UNIDROIT Principles is to put the aggrieved party into the position it would have been in, had the contract been performed according to its terms, and to compensate that party even for future harm, that is, harm that has not yet occurred.[1575]

[1568] ASoC, para. 160.
[1569] ASoC, paras. 164-165; 1EXR of Mr. Maqtari, paras. 38-40.
[1570] ASoC, paras. 167-168; 1EXR of Mr. Lindsay, para. 57.
[1571] ASoC, paras. 169-170.
[1572] ASoC, paras. 171-172.
[1573] ASoC, paras. 176-177; Claimant's PHB (first round) 2019, para. 63.
[1574] ASoC, para. 179.
[1575] ASoC, paras. 180-181; Exhibit CL-73, S Vogenauer and J Kleinheisterkamp (eds), Commentary On the UNIDROIT Principles of International Commercial Contracts (PICC), 2015, Oxford University Press (excerpts), pp. 951 and 989.

1669. In light of the above, the Claimant contends that it is entitled to seek damages from the Respondents in relation to the obligations that they failed to perform under the PSA.[1576]

1670. The Claimant adds that, regarding the claims for which the Respondents would have been able to cost recover, its primary case is that the PSA has expired and thus, the Respondents must give 100% of the value of the claims by way of damages. The Claimant argues that Article 9.1(d) of the PSA specifically provides that there can be no cost recovery after the PSA's expiry. Alternatively, the Claimant submits that its claims need to be reduced by 70%, which was the cost oil recovery percentage.[1577]

1671. The Claimant indicates that it no longer relies upon the alternative way of quantifying its losses, which considered the value of Block 14 as at 18 December 2011, as opposed to the value that it should have had.[1578]

1672. Finally, the Claimant submits that it is entitled to, either interest at the rate of 5% per annum –from the date of the PSA's expiry–, on all damages awarded to it by the Arbitral Tribunal, or an award of damages which reflects the value of the claims up to date.[1579]

Sub-section II. The Respondents' position in relation to the Claimant's request for damages

1673. The following sub-sections will describe the Respondents' position in relation to: (**I**) Specific Performance; and (**II**) Damages.

I. Specific Performance

1674. The Respondents note that the Claimant seeks "*specific performance of the PSA obligations together with a substantial damages award*". They submit that the Claimant's request for relief is flawed as a matter of law and fact. They argue that specific performance is not available, as the PSA expired on 17 December 2011.[1580]

1675. The Claimant contends that, in view of the lack of uniformity among Yemeni, Lebanese and Canadian law, the UNIDROIT Principles, which recognize the right to specific performance, should be applied. However, the Respondents argue that there is no lack of commonality amongst these laws concerning the availability of specific performance when a contract has

[1576] ASoC, para. 184; Claimant's PHB (first round) 2019, para. 57.
[1577] ASoC, para. 437; SoRDCC, paras. 890-891; Claimant's PHB (first round) 2019, paras. 75-76.
[1578] By email dated 21 January 2019 the Claimant confirmed that Mr. Aron's report is withdrawn, however, its exhibits remain in the record as agreed by the Parties.
[1579] ASoC, para. 442; SoRDCC, para. 888(i); Claimant's PHB (first round) 2019, para. 655.
[1580] ASoDCC, para. 640.

expired. Under these three national laws, any contractual obligation to perform ceases to exist upon the expiry of the contract and thus, there remains no obligation to perform.[1581]

1676. The Respondents add that this rationale has been recognized and applied by other legal systems, including the English legal system, upon which the principles of Canadian law are largely based. English doctrine confirms that a court's jurisdiction to order specific performance of a contractual obligation is based on the existence of a valid, enforceable contract. If a contract comes to an end, the obligations contained therein are replaced, by operation of law, by an obligation to pay money damages. The non-availability of specific performance in the presence of an expired contract is also recognized in Australia and France.[1582]

1677. The same rationale is reflected in the UNIDROIT Principles. Comment 3 to Article 7.2.2 of the UNIDROIT Principles clarifies that, if a contract is void, the problem of enforceability of the performance cannot arise, thus recognizing that an obligation to perform cannot exist without a valid, extant contract.[1583]

1678. Therefore, according to the Respondents, the Claimant's request for specific performance is flawed and should be dismissed.

II. Damages

1679. It is the Respondents' position that the Claimant seeks damages equivalent to specific performance, but such a remedy is neither specific performance, which would involve performance of an obligation, nor it is damages, as they do not relate to costs that have been incurred.[1584]

1680. Under Yemeni, Lebanese and Canadian law, as well as international law, the correct approach is to award damages stemming from a breach for the actual damage suffered as of the date of the award. According to the Respondents, the Claimant cannot claim damages for a cost of performance that has not been incurred and may not be incurred in the future.[1585]

1681. The principle of certainty of actual damage incurred is enshrined in Yemeni, Lebanese and Canadian law. Under Yemeni law, it is a fundamental principle that a claimant must first prove damages before it may claim entitlement to a damages award. A Yemeni court would consider only damages actually suffered and would be reluctant to award future cost of

[1581] ASoDCC, para. 645.
[1582] ASoDCC, paras. 647-649.
[1583] ASoDCC, para. 650.
[1584] ASoDCC, para. 642; Respondents' PHB (first round) 2019, para. 273.
[1585] ASoDCC, para. 655.

performance. Similarly, under Lebanese law, a claimant must first establish that it has suffered damages before it may claim entitlement to damages. A Lebanese judge maintains full discretion as to the form of the award and quantum of the damages. In exercising that discretion, a Lebanese judge will consider only actual damages, which have materialized at the time of the decision, for the calculation of compensation.[1586]

1682. The Respondents further stress that even if a damages award equal to the cost of performance were nevertheless to be available under either Yemeni or Lebanese law, it cannot be said that such an award is available in Canadian law. Under the latter, a court would not award damages in an amount necessary to ensure an outstanding obligation is performed. Moreover, Canadian courts are highly reluctant to award damages in circumstances where a claimant has expressed only an intention to effect repairs. The concern is that it would be possible for the claimant to never perform those repairs and retain the awarded compensation for such repairs without suffering a loss. Similarly, where a claimant has not taken, as of the date of the claim, any action to remedy the alleged deficiencies, a judge is permitted to draw the inference that the claimant has no present intention of doing so.[1587]

1683. The principle of certainty of actual damage incurred is further recognized by Article 7.4.3(1) of the UNIDROIT Principles.

1684. According to the Respondents, the Claimant is not entitled to an award of damages regarding un-incurred costs, or future damages, which may or may not be incurred in the future.[1588] It is the Respondents' case that the Claimant should only be entitled to recover the actual loss suffered.[1589]

Sub-section III. The Arbitral Tribunal's Analysis

I. Specific performance

1685. The Claimant argues that given the lack of uniformity between Yemeni, Canadian and Lebanese law, the Tribunal should apply the UNIDROIT Principles which recognize specific performance as a remedy. On the other hand, the Respondents contend that there is no lack of commonality amongst the principles of Yemeni, Lebanese and Canadian law regarding the availability of specific performance when a contract has expired. According to the Respondents, under these three national laws, any contractual obligation to perform ceases to exist upon the expiry of the contract and thus, there remains no obligation to perform.

[1586] ASoDCC, paras. 657-659.
[1587] ASoDCC, paras. 660-663.
[1588] ASoDCC, para. 672; SoRjSRCC, para 275; Respondents' PHB (first round) 2019, para. 267.
[1589] Respondents' PHB (first round) 2019, para. 276.

1686. The Tribunal notes that the Claimant's latest position is that it requests specific performance only in relation to the Data and Asset Register claims.[1590]

1687. Taking into consideration that the Tribunal dismissed the Claimant's Data and Asset Register claims as set out in Section (V) above, the Tribunal does not need to decide whether specific performance was a remedy available under the PSA.

II. Damages

1688. The Claimant contends that it is entitled to seek damages against the Respondents in relation to the obligations that they failed to perform under the PSA. On the other hand, the Respondents argue that the Claimant should only be entitled to recover the actual loss suffered.

1689. As a preliminary remark, the Tribunal summarizes below the Claimant's claims that it has found justified:

- The cost of repairing four production wells, namely: (i) Camaal 10 (ii) Deelun 1; (iii) S Hemiar 01; and (iv) E Sunah 01;
- The cost of installing a well cellar in Heijah 6;
- The Claimant's EIA claim;
- The Claimant's CPF incinerator claim; and
- The following Facilities and Equipment claims:
    - 2 Hino Lube Oil Truck Replacements;
    - 1 Chemical Truck Replacement;
    - 14 Field Operations Vehicles Replacement;
    - 69kV Highline Dampers;
    - Wencom Wartsila Monitoring System / PLC Replacement;
    - Ruston Cylinder Liner Upper Register Repair of Crankcase;
    - Realflex HMI System Replacement;
    - Terminal Smith Meter System Upgrade (GeoFlo / GeoProv);
    - CPF Smith Meter System Upgrade (Gcoflo / Geoprov);
    - Oily Water Drain (lack of tie-in); and
    - Oily Water Drain (corrosion).

1690. Save for the cost of repairs regarding two production wells (Deelun 1 and E Sunah 01), and the CPF incinerator claim, all the claims found justified by the Tribunal relate to actual costs incurred by the Claimant. The dispute between the Parties is therefore limited to whether the

[1590] Claimant's PHB (first round) 2019, para. 61.

Tribunal is allowed to grant a claim in relation to these two items, for costs that have not yet been incurred by the Claimant.

1691. The Tribunal agrees with the Parties in that Yemeni, Canadian and Lebanese law, are not uniform regarding the application of damages, and therefore, the Tribunal shall apply the UNIDROIT Principles.

1692. Article 7.3.5 of the UNIDROIT Principles provides that the termination of an agreement does not preclude a claim for damages for non-performance, as follows:

> "*Article 7.3.5 - (EFFECTS OF TERMINATION IN GENERAL)*
> *(1) Termination of the contract releases both parties from their obligation to effect and to receive future performance.*
> *(2) Termination does not preclude a claim for damages for non-performance.*
> *(3) Termination does not affect any provision in the contract for the settlement of disputes or any other term of the contract which is to operate even after termination*".[1591] [emphasis added].

1693. Additionally, Article 7.4.1 states the general principle that non-performance of a contract gives the aggrieved party a right to damages.

> "*Article 7.4.1 - (RIGHT TO DAMAGES)*
> *Any non-performance gives the aggrieved party a right to damages either exclusively or in conjunction with any other remedies except where the non-performance is excused under these Principles*".[1592]

1694. Furthermore, Article 7.4.2 enshrines the general principle of full compensation, as follows:

> "*Article 7.4.2 - (FULL COMPENSATION)*
> *(1) The aggrieved party is entitled to full compensation for harm sustained as a result of the non-performance. Such harm includes both any loss which it suffered and any gain of which it was deprived, taking into account any gain to the aggrieved party resulting from its avoidance of cost or harm.*
> *(2) Such harm may be non-pecuniary and includes, for instance, physical suffering or emotional distress*".[1593]

1695. Notably, Article 7.4.3 allows the compensation of future harm, as long as it is established with a reasonable degree of certainty.

[1591] Exhibit RL-3, UNDROIT Principles of International Commercial Contracts (2010) (UNIDROIT Principles), Article 7.3.5.
[1592] Exhibit RL-3, UNDROIT Principles of International Commercial Contracts (2010) (UNIDROIT Principles), Article 7.4.1.
[1593] Exhibit RL-3, UNDROIT Principles of International Commercial Contracts (2010) (UNIDROIT Principles), Article 7.4.2.

"Article 7.4.3 - (CERTAINTY OF HARM)
(1) Compensation is due only for harm, including future harm, that is established with a reasonable degree of certainty.
(2) Compensation may be due for the loss of a chance in proportion to the probability of its occurrence.
(3) Where the amount of damages cannot be established with a sufficient degree of certainty, the assessment is at the discretion of the court".[1594]

1696. The Tribunal concludes that under the applicable law: (i) the fact that the PSA expired in 2011 does not affect the Claimant's claims for damages; and (ii) the aggrieved party has a right to full compensation, including future harm, inasmuch as it is certain.

1697. In any case, the Tribunal does not agree with the Respondents' view that un-incurred costs constitute necessarily future harm. In the present case, the Claimant's loss was the fact of not receiving the two production wells (Deelun 1 and E Sunah 01), and the CPF incinerator, in good working order. The harm does not arise from the costs incurred in repairing those assets –as the Respondents argue–, but from the status of the assets. The reparation of the assets is simply the way to overcome the harm suffered, not the harm itself.

1698. This notwithstanding, under the UNIDROIT Principles the aggrieved party would be entitled to full compensation, including future harm, as long as such harm is certain. In the present case, as stated in the corresponding sections above, it is clear that the two production wells need to be repaired and the CPF incinerator requires to be replaced, and additionally the Tribunal is convinced of the quantification of such repairs / replacement. Therefore, the Claimant is entitled to an award on damages including these items.

1699. Furthermore, and in relation to all the claims, the Claimant argues that its primary case is that the PSA has expired and thus, the Respondents must give 100% of the value of the claims by way of damages, notwithstanding the percentages of cost recovery of oil. On the other hand, the Respondents remained silent in this regard.

1700. The recovery of costs and expenses under the PSA are envisaged under Article 9 of the PSA, as follows:

9 "Cost recovery
Subject to the auditing provisions of this Agreement, CONTRACTOR shall recover all costs and expenses not excluded by the provisions of this Agreement or the Accounting Procedures in respect of all the Exploration, Development and related operations

[1594] Exhibit RL-3, UNDROIT Principles of International Commercial Contracts (2010) (UNIDROIT Principles), Article 7.4.3.

hereunder to the extent of and out of a maximum of forty percent (40%) per annum of all Crude Oil produced and saved and out of a maximum of fifty percent (50%) per annum of all Gas produced and saved. Such Crude Oil and/or Gas to which CONTRACTOR is entitled for the purposes of recovering its costs and expenses is hereinafter referred to as "Cost Recovery Petroleum". Such costs and expenses shall be treated and recovered separately from the applicable Cost Recovery Crude Oil or Gas, as the case may be, in the following manner:

(d) To the extent that in a Financial Year costs, expenses or expenditures recoverable under paragraphs (a), (b) and (c) above exceed the value of all Cost Recovery Petroleum for such Financial Year, the excess shall be carried forward for recovery in the next succeeding Financial Year or Years until fully recovered, but in no case after termination of the Agreement".[1595] [emphasis added].

1701. The Tribunal concludes that the Claimant shall receive 100% of the value of its claims by way of damages for the following two reasons.

1702. First, the Tribunal is convinced that the Respondents should have complied with all the PSA's obligations, at the latest, before the expiry of the PSA. Had they incurred the costs concerning the claims set forth under paragraph 1689 above, by 17 December 2011, they would have not been entitled to cost recover any such costs. The Tribunal cannot, and will not, speculate at what point in time the Respondents would have hypothetically incurred such costs, in order to reduce the Claimant's damages.

1703. Second, in any case, the Respondents failed to incur such expenses during the PSA, which led to the initiation of the arbitration proceedings, and Article 9.1(d) of the PSA expressly states that no costs can be recovered after the PSA' expiry.

1704. Finally, the Claimant argues that it is entitled to interest at a rate of 5% per annum –from the date of the PSA's expiry–, on all damages awarded to it by the Tribunal. On the other hand, the Respondents remained silent in this regard.

1705. The Tribunal notes in the first place that the Parties have failed to agree on an applicable interest rate in the PSA or otherwise. In addition, the applicable interest rates under Yemeni, Lebanese, and Canadian law are not the same. For instance, the interest rate in Yemen shall not exceed 5%, [1596] whereas each Canadian province has legislation providing pre and post-judgment interest on damages, hence there is no single rate that applies across the country.[1597]

[1595] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 9.

[1596] Exhibit RL-108, Articles from the Yemeni Civil Code, Civil Law No 14 (as amended), 2002 (with English translation), Article 356.

[1597] 1EXR of Mr. Lindsay, para 80.

1706. Since Yemeni, Canadian and Lebanese law, are not uniform regarding the application of interest on damages, the Tribunal shall apply the UNIDROIT Principles as per Article 27.2 (i) of the PSA. The Tribunal refers to its reasoning in this regard, stated in paragraphs 633 to 640 of the Partial Award.

1707. In this regard, Articles 7.4.9 and 7.4.10 provide as follows:

> "*Article 7.4.10 - (INTEREST ON DAMAGES)*
> ***Unless otherwise agreed, interest on damages for non-performance of non-monetary obligations accrues as from the time of non-performance***".[1598] [emphasis added].
>
> "*Article 7.4.9 - (INTEREST RATES FOR FAILURE TO PAY MONEY)*
> *(1) If a party does not pay a sum of money when it falls due the aggrieved party is entitled to interest upon that sum from the time when payment is due to the time of payment whether or not the non-payment is excused.*
> *(2)* ***The rate of interest shall be the average bank short-term lending rate to prime borrowers prevailing for the currency of payment at the place for payment, or where no such rate exists at that place, then the same rate in the State of the currency of payment****. In the absence of such a rate at either place the rate of interest shall be the appropriate rate fixed by the law of the State of the currency of payment.*
> *(3) The aggrieved party is entitled to additional damages if the non-payment caused it a greater harm*".[1599] [emphasis added].

1708. Indeed, UNIDROIT Principles provide for interest on damages for the non-performance of monetary obligations, and a way to calculate the applicable rate. As mentioned above, the rate shall be calculated as follows: (i) the average bank short-term lending rate to prime borrowers prevailing for the currency of payment at the place for payment; (ii) or where no such rate exists at that place, the same rate in the State of the currency of payment.

1709. The commentary to Article 7.4.9 reads as follows:

> "*The rate in question is the rate at which the aggrieved party will normally borrow the money which it has not received from the non-performing party. That normal rate is the average bank short-term lending rate to prime borrowers prevailing at the place for payment for the currency of payment.*
> *No such rate may however exist for the currency of payment at the place for payment. In such cases, reference is made in the first instance to the average prime rate in the State of the currency of payment. For instance, if a loan is made in pounds sterling payable in*

[1598] Exhibit RL-3, UNDROIT Principles of International Commercial Contracts (2010) (UNIDROIT Principles), Article 7.4.10.
[1599] Exhibit RL-3, UNDROIT Principles of International Commercial Contracts (2010) (UNIDROIT Principles), Article 7.4.9.

country X and there is no rate for loans in pounds on country X financial market, reference will be made to the rate in the United Kingdom".[1600] [emphasis added].

1710. In the present case, the Parties have failed to demonstrate which is –if it does exist– the bank short-term lending rate to prime borrowers in Yemen for obligations in USD. Therefore, the Tribunal shall apply the short-term lending rate to prime borrowers in the United States of America, as per Article 7.4.9 of the UNIDROIT Principles. The Tribunal is satisfied to apply this interest rate to the entirety of the amount granted in the Final Award despite the fact that one item of one claim (Facilities and Equipment Claim - Item No. 20) has been awarded in GBP. In this respect the Tribunal has considered *inter alia*: (i) that all of the Claimant's claims (including the abovementioned) were in USD; (ii) that regarding Item No. 20, the Tribunal has limited the amount granted from USD 1,333,000 (claimed) to GBP 950,854.50, because the Claimant only substantiated the latter amount *via* invoices; and that (iii) almost the entire amount granted in this Final Award is in USD.

1711. The current US bank prime lending rate in United States of America is 5.25%, however, the Claimant has only requested interest in the amount of 5% per annum.

1712. Therefore, the Tribunal concludes that 5% per annum is an appropriate and reasonable commercial interest rate to be applied to the entire amount granted, for the whole period – from the PSA's expiry to the date of actual payment– which ensures the principle of full reparation and the rules on interests envisaged by the UNIDROIT Principles.[1601] Since the Tribunal granted the Claimant's principal interest claim it does not require to address its alternative claim set forth in paragraph 1672 above.

Section VIII. Claimant's request that the Award be immediately enforceable

1713. In its Request for Relief, the Claimant has requested the Arbitral Tribunal to declare its Award immediately enforceable. This request has not been further developed in the Claimant's submissions but has not been opposed by the Respondents in their submissions. The seat of the arbitration is Paris, France. Article 1484 of the French Code of Civil Procedure relating to domestic arbitration, also governing international arbitration by application of Article 1506 of the same Code, authorizes the Arbitral Tribunal to decide that the Award will be immediately enforceable. Since the Respondents have not opposed the request, the Arbitral Tribunal decides that the award will be immediately enforceable.

[1600] Exhibit RL-3, UNDROIT Principles of International Commercial Contracts (2010) (UNIDROIT Principles), Comment to Article 7.4.9.

[1601] Exhibit RL-3, UNDROIT Principles of International Commercial Contracts (2010) (UNIDROIT Principles), Articles 7.4.2, 7.4.9, and 7.4.10.

Section IX. The Counterclaim

Sub-section I. The Respondents' Counterclaim

1714. The Respondents argue that their Counterclaim is based on the Claimant's failure to agree to an extension to the PSA after the *force majeure* events (MLU strikes on May and September 2011).[1602]. The value of the Respondents' Counterclaim is USD 9,896,596.[1603]

1715. The Respondents contend that Article 25 of the PSA provided a mechanism for an extension of the PSA's term where *force majeure* conditions resulted in non-performance or a delay in performance of the PSA.[1604] According to the Respondents, Article 25 provided that where conditions of *force majeure* resulted in non-performance or delay, there would be a commensurate extension of the PSA for such period of non-performance or delay, "*together with such period as may be necessary for the restoration of any damage done during such delay*".[1605]

1716. The Respondents submit that during May 2011, the MLU went on strike demanding the provision of an end of service program, which was meant to provide the Respondent 1's regular employees with a lump sum payment at the end of their period of service. According to the Respondents, the dispute arose from the fact that the Claimant had refused to contribute to the costs of the program.[1606]

1717. The Respondents submit that production at Block 14 was shut-in from midnight on 8 May, until 11 May 2011.[1607]

1718. They further submit that on 1 September 2011, the MLU informed the Respondents that it would commence a full strike action on 4 September 2011 related to its ongoing demands for end of service payments. According to the Respondents, unlike the May strike, a small number of national staff working in key positions were permitted to continue to work. However, there were insufficient skilled staff to restart equipment that failed.[1608]

1719. According to the Respondents this took place between 3 and 11 September 2011.[1609]

[1602] SoRjSRCC, para. 287.
[1603] ASoDCC, para. 681; Respondents' PHB (first round) 2019, para. 283.
[1604] ASoDCC, para. 689.
[1605] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 25.
[1606] ASoDCC, para. 690.
[1607] ASoDCC, paras. 692-693.
[1608] ASoDCC, paras. 694-696.
[1609] ASoDCC, para. 697.

1720. They submit that: (i) the May and September 2011 strikes constituted *force majeure* events under Article 25.2 of the PSA;[1610] (ii) they delayed the performance of the PSA, as they were two shut-ins of production;[1611] and therefore (iii) they were entitled to an extension of the PSA's term, in accordance with Article 25.1 of the PSA.[1612]

1721. They further allege that in light of the MLU strikes (among other events), on 4 November 2011 they requested a one-year extension of the PSA's term under Article 25.1 of the PSA. They submit that they made this request in order to allow for sufficient time to recover for lost production due to the *force majeure* events and also in order to enable the Parties to undertake an orderly transition of Block 14.[1613]

1722. It is the Respondents' case that, in breach of the PSA, the Claimant refused to accept the Respondents' declaration of *force majeure* and refused to agree to an extension of the PSA's term.[1614]

1723. The Respondents dispute the Claimant's position that these strikes were not *force majeure* events. First, they dispute the Claimant's position that the strikes resulted from the Respondents' own alleged failure to provide end of services benefits to their employees. They argue that the dispute only arose because of the Claimant's refusal to contribute to its portion of the costs of the end of services program.[1615] Later, on its PHB, the Respondents indicated that according to them, labor strikes represent a conscious decision by employees and their Union, that cannot be attributed to the Parties.[1616]

1724. Second, the Respondents contend that the Claimant is wrong to suggest that the PSA did not provide their express right to maximize economic recovery. According to the Respondents, that is precisely the effect of Article 8.1 of the PSA.[1617]

1725. Third, they deny the Claimant's allegation that overall production did not drop as a consequence of the strikes, and that the Respondents have failed to substantiate their loss.[1618] The Respondents contend that daily production data show that there was lost production between 8–11 May 2011 and 4–12 September 2011, resulting in losses to the Respondents valued at USD 9,896,596.[1619]

[1610] ASoDCC, para. 699.
[1611] ASoDCC, para. 701.
[1612] ASoDCC, para. 702; Respondents' PHB (first round) 2019, para. 288(g).
[1613] ASoDCC, paras. 703-704.
[1614] ASoDCC, para. 705.
[1615] SoRjSRCC, para. 283.
[1616] Respondents' PHB (first round) 2019, para. 290.
[1617] SoRjSRCC, para. 284.
[1618] SoRDCC, paras. 854-881.
[1619] SoRjSRCC, para. 285.

Sub-section II. The Claimant's position in relation to the Counterclaim

1726. The Claimant understands the Respondents' case to be that there were two *force majeure* events in Block 14 which resulted in a 10-day shut-in period in 2011, which entitled the Respondents to a one-year extension to the PSA.[1620] This position is not supported by the PSA. According to the Claimant: (i) the MLU strikes are not *force majeure* events; (ii) the Respondents have not identified an obligation that they have delayed or failed to perform; (iii) and have not demonstrated that the overall production dropped as a consequence of the strikes; and (iv) the Claimant's rejection of the PSA extension proposal was reasonable.

1727. First, the Claimant recalls that the alleged *force majeure* events were two strikes of Block 14 employees, who were members of the MLU, in May and September 2011. The PSA provides that a *force majeure* event cannot be "*due to the fault or negligence of MINISTRY or CONTRACTOR, or either of them*".[1621] According to the Claimant, these strikes were of the Respondents' own making, as they refused to pay end of service benefits to their employees, as required by Yemeni law and the PSA.[1622]

1728. Second, the Claimant submits that the Respondents have not identified an obligation which they were not able to comply with, or were delayed in complying with, due to the alleged *force majeure* events. According to the Claimant, Article 8.1 of the PSA is not an obligation to produce petroleum at all times.[1623]

1729. Third, the Claimant argues that the Respondents' operation/production reports for the period from May to December 2011 do not support their contention that production was reduced as a result of the strikes.[1624] According to the Claimant, although the May report does refer to a strike, no oil lost is calculated as a result thereof, and the September report does not even refer to a strike.[1625]

1730. Fourth, the Claimant contends that its rejection letter dated 4 November 2011 was reasonable. The Respondents rely upon letters sent in 2011 in which they requested a one-year extension to the PSA on the grounds of *force majeure* events, and "*to enable the parties to undertake an orderly transition of the Block*".[1626] Given the fact that the Respondents'

[1620] SoRDCC, para. 832.
[1621] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 25.2.
[1622] SoRDCC, para. 849-847.
[1623] SoRDCC, para. 858.
[1624] Exhibit C-417, Monthly Operations / Production Report for Masila Block 14 & Export Terminal, May 2011; Exhibit C-424, Monthly Operations / Production Report for Masila Block 14 & Export Terminal, December 2011.
[1625] SoRDCC, para. 861
[1626] SoRDCC, para. 865, citing directly the ASoDCC, para. 704.

claim was predicated upon ten days of lost production, it was reasonable to reject a one-year extension request.

1731. Moreover, the Claimant contends that the Respondents proposed a one-year extension, not because of the *force majeure* events, but to attempt to negotiate a five-year extension to the PSA,[1627] as one of their letters demonstrates:

> "*Canadian Nexen and the partners are prepared to continue to operate the block for a temporary period of one year on the existing PSA terms, to allow for a government process to emerge for approval of the five year (sic) extension as outlined in our proposal*".[1628]

Sub-section III. The Arbitral Tribunal's Analysis

1732. The Tribunal will first (**I**) present a summary of the most salient facts regarding the Respondents' Counterclaim; and thereafter (**II**) will determine whether or not the Respondents' counterclaim has merit.

I. Summary of facts regarding the Respondents' Counterclaim

1733. On 8 May 2011, the Respondent 1 sent a letter to the Claimant informing it that the MLU were to commence a full strike action at midnight, which would cause the shut-down of operations in Block 14. The Respondent 1 further asserted that it was "*declaring the Block 14 PSA to be subject of to Force Majeure*"[1629] until it was able to re-commence production and all related services.

1734. On 23 May 2011, the Respondent 1 sent a letter to the Claimant asserting that the following factors were a continuation of *force majeure* events under the PSA:[1630] (i) the MLU strike; (ii) the civil unrest situation in Yemen in 2011 related to the Arab Spring; (iii) the Sana'a office (Respondent 1's office) closure by armed guards who created a barricade and prevented the employees from entering the office; and (iv) additionally security issues. Furthermore, on 12 June 2011, the Claimant replied to the Respondent 1's letter arguing that there was no basis to assert the continuation of *force majeure* events, since the company was now experiencing regular production rates. Additionally, the Claimant contended that the May strike was the Respondent 1's fault.[1631]

[1627] SoRDCC, paras. 865, 869.
[1628] Exhibit R-7, Letter from Nexen Inc. to the Vice President of the Republic of Yemen, H.E. Abd Rabbu Mansour Hadi, dated 4 November 2011, p. 5.
[1629] Exhibit R-2, Letter from Canadian Nexen Petroleum Yemen (CNPY) to the Minister of Oil and Minerals (the Minister), dated 8 May 2011.
[1630] Exhibit R-3, Letter from CNPY to the Minister, dated 23 May 2011.
[1631] Exhibit C-14, Letter from Ministry to Contractor re Continuation of Force Majeure, dated 12 June 2011.

1735. On 12 June 2011, the Respondent 1 sent a letter to the Claimant[1632] arguing that the existing civil unrest, and the illegal takeover of the Sana'a office by guards required that written correspondence be delivered by fax and/or email, and possibly without an Arabic translation until further notice. On 13 June 2011, the Claimant replied to the Respondent 1's letter reiterating its earlier position that there was no basis to assert the continuation of *force majeure* events, since the company was now experiencing regular production rates.[1633]

1736. On 23 June 2011, the Respondent 1 sent a letter to the Claimant asserting that *force majeure* was declared for the following reasons, which had an impact on operations:[1634] (i) the civil unrest situation; (ii) the MLU strike; and (iii) the Sana'a office closure. On 25 June 2011, the Claimant replied to the Respondent 1's letter, once again refusing the declaration of *force majeure*.[1635]

1737. On 21 November 2011, the Respondent 1 sent a letter to the Claimant arguing that the declaration of *force majeure* sent on 8 May 2011 remained in effect. It further mentioned an additional MLU strike that took place during 3-11 September 2011.[1636] On 10 December 2011, the Claimant replied to the Respondent 1's letter, once again rejecting the declaration of *force majeure*.[1637]

1738. In parallel, the Parties to the PSA were discussing extension proposals, and on 31 October 2011, the Claimant informed the Respondent 1 of the Cabinet's decision not to extend the PSA.[1638]

1739. Subsequently, on 4 November 2011, Nexen sent a letter to the Vice President of Yemen in relation to the Claimant's decision not to extend the PSA. In that letter Nexen argued that Block 14 was under *force majeure*, as notified on 8 May 2011. Furthermore, the letter stated:

> "*Canadian Nexen and the partners are prepared to continue to operate the block for a temporary period of one year on the existing PSA terms, to allow for a government process to emerge for approval of the five year extension as outlined in our proposal. However, in order to do so we will still need assurance that adequate provision has been provided for on the legal framework for such temporary extension.*

[1632] Exhibit R-4, Letter from CNPY to the Minister, dated 12 June 2011.
[1633] Exhibit C-15, Letter from PEPA to Contractor re Continuation of Force Majeure, dated 13 June 2011.
[1634] Exhibit R-5, Letter from CNPY to the Minister and the Chairman of the Petroleum Exploration & Production Company (PEPA), dated 23 June 2011.
[1635] Exhibit C-18, Letter from PEPA to Contractor re Continuation of your Announced Force Majeure- Block 14, dated 25 June 2011.
[1636] Exhibit R-6, Letter from CNPY to the Minister and the Chairman of PEPA, dated 21 November 2011.
[1637] Exhibit R-10, Letter from the Chairman of PEPA to CNPY, dated 10 December 2011.
[1638] Exhibit C-153, Letter from Ministry of Oil and Minerals to Contractor advising the decision not to grant the PSA after 17 December 2011, dated 31 October 2011; SoDCC, para. 101.

We suggest that a period of one year to account for the difficult force majeure conditions in the country be added to the term of the Masila Block 14 PSA as provided for in the PSA and that a further Cabinet Resolution be issued to clarify the status of Cabinet Resolution 200".[1639] [emphasis added].

1740. The Tribunal will analyze below the merits of the Counterclaim in the light of Article 25 of the PSA.

II. Analysis of the Counterclaim

1741. The Tribunal first observes that albeit the Respondents referred to several *force majeure* events in the abovementioned letters, their counterclaim relies on the two MLU strikes that took place in May 9-11 and September 3-11, 2011.

1742. The Parties are in disagreement as to: (A) whether or not the strikes were events of *force majeure*; (B) whether the alleged *force majeure* events caused a delay or failure in the performance of an obligation under the PSA; (C) whether the Claimant breached the PSA by not agreeing to the extension of the PSA sought by the Respondents; and (d) whether there was a loss of production, and to what extent.

1743. The Tribunal notes that for the Respondents' Counterclaim to prevail, they need to answer all of the above queries in the affirmative.

A. Were the two MLU strikes events of force majeure?

1744. The Tribunal will first interpret Article 25 of the PSA, in order to determine if the two MLU strikes were events of *force majeure*. Article 25.2 of the PSA provides as follows:

"Force Majeure", within the meaning of this Article XXV shall be any order, regulation or direction of the GOVERNMENT of the PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN or the Governments of Canada, Bermuda or Lebanon (with respect to the CONTRACTOR) whether promulgated in the form of law or otherwise, or any act of God, insurrection, riot, war, strike and other labor disturbance, fire, flood, or any other cause not due to the fault or negligence of MINISTRY or CONTRACTOR, or either of them, whether or not similar to the foregoing provided that any such cause is beyond the reasonable control of the party invoking Force Majeure".[1640] [emphasis added].

[1639] Exhibit R-7, Letter from Nexen Inc. to the Vice President of the Republic of Yemen, H.E. Abd Rabbu Mansour Hadi, dated 4 November 2011.
[1640] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 25.2.

1745. It is not disputed that "strikes" are listed as a potential event that could be categorized as *force majeure*, provided that certain requirements are met.

1746. Moreover, the requirements under Article 25.2 of the PSA are clear. The *force majeure* event (1) cannot be caused by the fault or negligence of: (i) the Claimant; (ii) the Respondents ; or (iii) either of them; and (2) its cause must be beyond the reasonable control of the party invoking the *force majeure*.

1747. According to the Respondents' initial position, the strikes were caused by the Claimant's failure to contribute to its portion of the end of services program for the Respondent 1's employees.[1641] Subsequently in their PHBs, the Respondents argued that labor strikes cannot be attributed to the Parties.[1642] By contrast, the Claimant contends that the MLU strikes were caused by the Respondent 1's failure to rectify the issue of the end of services program.[1643]

1748. The Tribunal considers that if either Party were correct, the MLU strikes could not constitute *force majeure* events pursuant to Article 25, which expressly states that "*force majeure", within the meaning of this Article XXV shall be any (...), strike and other labor disturbance, fire, flood, or any other cause not due to the fault or negligence of MINISTRY or CONTRACTOR, or either of them*".[1644] [emphasis added].

1749. However, both Parties have been unable to successfully demonstrate the actual cause of the strikes. The evidence in the record is simply not sufficient for the Tribunal to decide which Party (if any) should be held responsible for the MLU strikes. Therefore, the Tribunal will continue with its analysis regarding the delay or failure in performance of an obligation under the PSA.

B. Did the two strikes cause a delay or failure in the performance of an obligation under the PSA?

1750. The answer to this question requires an interpretation of Article 25.1 of the PSA, which provides as follows:

> "*25.1 The non-performance or delay in performance by MINISTRY and CONTRACTOR, or either of them, **of any obligations** under this Agreement other than the payment of funds or the giving of notice shall be excused if and to the extent that such non-performance is caused by force majeure. The period of any such non-performance or delay, together with such period as may be necessary for the restoration of any damage done during such delay, shall be added to the time given in this Agreement for the*

[1641] ASoDCC, para. 690; 1WS of Mr. Tracy, para. 381; SoRjSRCC, para. 283.
[1642] Respondents' PHB (first round) 2019, para. 290.
[1643] SoRDCC, para. 854;
[1644] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 25.2.

performance of such obligation and for the performance of any obligation dependent thereon and to the term of this Agreement.[1645] [emphasis added].

1751. The purpose of this clause is to excuse a delay or a failure in performance of **an obligation** under the PSA. The clause is intended to: (i) excuse the delay or failure in performance of **an obligation** when its cause was a *force majeure* event; and (ii) allow the non-compliant party additional time to comply with its obligations under the PSA, and to repair any damage done during such delay.

1752. The Parties' positions in this respect are as follows.

1753. First, the Respondents contend that, as a result of the strikes, they were unable, in the terms of Article 8.1 of the PSA, to "*maximize the ultimate economic recovery of Petroleum from Contract Area*".[1646]

1754. Second, the Claimant argues that the Respondents cannot rely on Article 8.1 of the PSA to support their Counterclaim. According to the Claimant, the only obligation under Article 8.1 of the PSA was to design activities in such a way as to achieve ultimate economic recovery, which does not mean that the Respondents had an obligation to produce petroleum at all times.[1647]

1755. Finally, the Respondents contend that the Claimant "*is wrong to suggest that the PSA did not provide the Contractor **with the express right** to conduct petroleum operations to maximise the ultimate economic recovery of Petroleum for the Contract area*".[1648] [emphasis added].

1756. The Tribunal considers that the Respondents seem to be equating **an obligation to design activities** in order to achieve the efficient and safe exploration and production of petroleum, which has not been argued to have been delayed, "*with the **express right** to conduct petroleum operations to maximise the ultimate economic recovery of Petroleum for the Contract area*".[1649] [emphasis added].

1757. Article 25 of the PSA does not allow a party to request an extension to the PSA when its rights have been hindered. It only allows the non-compliant party additional time to comply with **its obligations** under the PSA (and a possible extension to the PSA), when the delay or non-performance of **an obligation** has been caused by a *force majeure event.*

[1645] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 25.1.
[1646] ASoDCC, para. 701.
[1647] SoRDCC, paras. 857-858.
[1648] SoRjSRCC, para. 284.
[1649] SoRjSRCC, para. 284.

1758. Article 8.1 of the PSA provides as follows:

> "*CONTRACTOR shall conduct Petroleum Operations diligently in accordance with rules as may be prescribed and in accordance with generally accepted standards of the petroleum industry. CONTRACTOR'S activities shall be designed to achieve the efficient and safe Exploration for, and production of, Petroleum and to maximize the ultimate economic recovery of Petroleum from Contract Area. CONTRACTOR shall ensure that all materials, equipment and facilities used in Petroleum Operations comply with generally accepted engineering norms, are of proper and accepted construction, and are kept in good working order*".[1650] [emphasis added].

1759. Consequently, even if the **express right** to maximize economic recovery existed under the PSA, Article 25 of the PSA was conceived to excuse the non-performance or delay of **an obligation** (not a right); and to extend the term of compliance of such non-performed or delayed obligation, as well as the term of the PSA, in order to repair any damage caused during such delay.

1760. Article 25 of the PSA did not therefore allow the Respondents to request an extension of the PSA based on the fact that they were not able to maximize **their rights** under the PSA.

1761. In light of the above, the Tribunal concludes that the Respondents failed to establish that the MLU strikes caused a delay or failure in performance of obligation under the PSA.

C. Did the Claimant breach the PSA by not agreeing to the extension of the PSA sought by the Respondents?

1762. The Respondents are "*claiming for the consequences of the Ministry's failure to perform its consequential obligation to permit the extension of the PSA so as to enable the Contractor to fully recover its 'losses arising out of force majeure' from Block 14's production*".[1651] By contrast the Claimant argues that its refusal to agree on an extension of the PSA was reasonable.[1652]

1763. The Tribunal notes that the Respondent 1 argued that multiple *force majeure* events occurred during the last year of the PSA, including: (i) a civil unrest situation in Yemen;[1653] (ii) the

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[1650] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 8.1

[1651] SoRjSRCC, para. 287.

[1652] SoRDCC, para. 865.

[1653] Exhibit R-3, Letter from CNPY to the Minister, dated 23 May 2011; Exhibit R-4, Letter from CNPY to the Minister, dated 12 June 2011; Exhibit R-5, Letter from CNPY to the Minister and the Chairman of the Petroleum Exploration & Production Company (PEPA), dated 23 June 2011; Exhibit R-6, Letter from CNPY to the Minister and the Chairman of PEPA, dated 21 November 2011.

MLU strike of May 2011;[1654] (iii) the MLU strike of September 2011;[1655] and (iv) the illegal takeover of the Respondents' Sana'a office by guards.[1656] The last letter from the Respondent 1 to the Claimant and PEPA even contended that the *force majeure* events continued to exist from May 8, 2011, until November 21, 2011.[1657] However, the Respondents' Counterclaim is based solely on the two strikes of the MLU which took place in 9-11 May and 3-11 September, 2011.[1658]

1764. Therefore, the Tribunal's analysis regarding the Respondents' Counterclaim is limited to the two MLU strikes as potential *force majeure* events.

1765. The Tribunal further observes that the Respondent 1 failed to request an extension of time in all the letters dealing with the alleged *force majeure* events.[1659] The only exception was the letter dated 4 November 2011,[1660] which was sent after the Claimant rejected the Respondents' proposal for an extension of the PSA. In this letter Nexen argued as follows:

> "*Canadian Nexen and the partners are prepared to continue to operate the block for a temporary period of one year on the existing PSA terms, to allow for a government process to emerge for approval of the five year extension as outlined in our proposal. However, in order to do so we will still need assurance that adequate provision has been provided for on the legal framework for such temporary extension.*
> *We suggest that a period of one year to account for the difficult force majeure conditions in the country be added to the term of the Masila Block 14 PSA as provided for in the PSA and that a further Cabinet Resolution be issued to clarify the status of Cabinet Resolution 200*".[1661] [emphasis added].

1766. In essence, the Respondents' case is that they "*requested such an extension to provide* [them] *with a sufficient period to recover the lost production caused by the force majeure conditions*

[1654] Exhibit R-2, Letter from Canadian Nexen Petroleum Yemen (CNPY) to the Minister of Oil and Minerals (the Minister), dated 8 May 2011; Exhibit R-3, Letter from CNPY to the Minister, dated 23 May 2011; Exhibit R-5, Letter from CNPY to the Minister and the Chairman of the Petroleum Exploration & Production Company (PEPA), dated 23 June 2011.

[1655] Exhibit R-6, Letter from CNPY to the Minister and the Chairman of PEPA, dated 21 November 2011.

[1656] Exhibit R-3; Exhibit R-4; Exhibit R-5; Exhibit R-6.

[1657] Exhibit R-6, Letter from CNPY to the Minister and the Chairman of PEPA, dated 21 November 2011.

[1658] ASoDCC, para. 683, 687(c), 699, 701; SoRjSRCC, para. 279; 1WS of Mr. Tracy, para. 394-395; Exhibit R-315, Document entitled "Masila Decline Plots", dated 3 March 2015; and Exhibit R-322, Estimated Masila Losses Due to MLU Strikes in May and September, 2011, dated 10 March 2015.

[1659] Exhibit R-2, Letter from Canadian Nexen Petroleum Yemen (CNPY) to the Minister of Oil and Minerals (the Minister), dated 8 May 2011; Exhibit R-3, Letter from CNPY to the Minister, dated 23 May 2011; Exhibit R-4, Letter from CNPY to the Minister, dated 12 June 2011; Exhibit R-5, Letter from CNPY to the Minister and the Chairman of the Petroleum Exploration & Production Company (PEPA), dated 23 June 2011; Exhibit R-6, Letter from CNPY to the Minister and the Chairman of PEPA, dated 21 November 2011.

[1660] Exhibit R-7, Letter from Nexen Inc. to the Vice President of the Republic of Yemen, H.E. Abd Rabbu Mansour Hadi, dated 4 November 2011.

[1661] Exhibit R-7, Letter from Nexen Inc. to the Vice President of the Republic of Yemen, H.E. Abd Rabbu Mansour Hadi, dated 4 November 2011.

and also enable the parties to undertake an orderly transition of the Block"[1662] and that in "*breach of contract, the Ministry refused to accept the Contractor's declaration of force majeure, and refused to recognise the Contractor's entitlement to an extension*".[1663] [emphasis added].

1767. The relevant part of Article 25.1 of the PSA, provides as follows:

> "*25.1 (…). The period of any such non-performance or delay, together with such period as may be necessary for the restoration of any damage done during such delay, shall be added to the time given in this Agreement for the performance of such obligation and for the performance of any obligation dependent thereon and to the term of this Agreement*".[1664] [emphasis added].

1768. Therefore, the terms of Article 25 of the PSA are clear: when a *force majeure* event occurs, preventing a Party to perform, or delaying the performance of its obligations under the PSA, the period of such non-performance/delay, together with a period **necessary for the restoration of any damage**, shall be added to the term given for the performance of such obligation and to the PSA's term.

1769. Consequently, the Respondents' request for a one-year extension to the PSA, when arguing a *force majeure* event of twelve days (9-11 May and 3-11 September 2011) did not comply with the requirements of Article 25 of the PSA, since it is significantly in excess of the time that the Respondents would have needed to restore any damage, plus the twelve-day duration of the strikes.

1770. This was admitted by the Respondents, when arguing that the extension was requested: (i) partly in accordance with Article 25 of the PSA; and (ii) also to "*enable the parties to undertake an orderly transition of the Block*".[1665] [emphasis added].

1771. In light of the above, the Tribunal finds that the Claimant has not breached Article 25 of the PSA by failing to enter into a one-year extension to the PSA. The Tribunal dismisses the Respondents' Counterclaim.

[1662] ASoDCC, para. 704.
[1663] ASoDCC, para. 705.
[1664] Exhibit C-1, Petroleum Exploration and Production Agreement, Article 25.1.
[1665] ASoDCC, para. 704.

Chapter IX. Costs

1772. The Tribunal must decide how to allocate the arbitration and legal costs between the Parties.

1773. The Claimant "*seeks reimbursement of all of its costs and expenses plus interest for the preparation and conduct of this arbitration*".[1666] It argues that the Respondents "*should be held liable for the costs of the reference because this arbitration was caused by its breaches*"[1667] and that "*these proceedings have been hugely lengthened and complicated by the preliminary issues pursued by the Contractor*".[1668]

1774. The Claimant's costs are presented as follows: [1669]

	GBP / USD / YER / EUR
Legal costs	GBP 7,711,627.20
ICC costs	USD 1,000,000
Client / witness hearing attendance costs	USD 19,954 YER 64,940 EUR 235.65
Total costs	**GBP 7,711,627.20** **USD 1,019,954** **YER 64,940** **EUR 235.65**

1775. The Claimant also requests an award of simple pre-award and compound post-award interests on any costs awarded at a rate of 5% per annum.[1670]

1776. On the other hand the Respondents contend that taking into account "*both the existing and expected dismissal of the Ministry's claims, as well as the improper way in which the Ministry has utterly disregarded the terms and effect of the Partial Final Award of 2017, an indemnity costs award in favour of the Contractor is justified in the circumstances of this case*".[1671]

1777. The Respondents' costs are presented as follows: [1672]

[1666] Claimant's Submission on Costs, para. 1.
[1667] Claimant's Submission on Costs, para. 3.
[1668] Claimant's Submission on Costs, para. 5.
[1669] Claimant's Submission on Costs, paras. 78, 90.
[1670] Claimant's Submission on Costs, paras. 81-83.
[1671] Respondents' Submission on Costs, para. 10.
[1672] Respondents' Submission on Costs, paras. 39, 58, 59.

	USD
Legal costs	USD 14,166,232.72
Fees and expenses of experts	USD 3,967,498.36
Expenses and consulting fees of fact witnesses	USD 1,593,460.06
Expenses of the Respondents' in-house counsel and senior management directly involved in the arbitration, and other expenses incurred directly by the Respondents	USD 670,788.34
ICC Costs	USD 1,000,000
Total costs	**USD 21,397,979.48**

1778. The Respondents also claims interests on the costs it has incurred at the one-year US Dollar LIBOR rate + 2%, compounded annually as follows: (i) from the day of the Partial Award, in respect of the Respondents' costs claimed on 16 August 2017; and (ii) from the date of the Final Award, in respect of the remaining costs.[1673]

1779. With respect to the arbitration costs, Article 37(1) of the ICC Rules provides that "*[t]he costs of the arbitration shall include the fees and expenses of the arbitrators and the ICC administrative expenses fixed by the Court, in accordance with the scale in force at the time of the commencement of the arbitration, as well as the fees and expenses of any experts appointed by the arbitral tribunal and the reasonable legal and other costs incurred by the parties for the arbitration*".

1780. In its Financial Table dated 23 May 2019, the ICC Secretariat indicated that the advance on costs, which is meant to cover the fees and expenses of the Arbitral Tribunal and the ICC administrative expenses, as per Article 37(2) of the ICC Rules, has been fixed by the ICC Court at USD 2,000,000. The ICC Secretariat also indicated that it received USD 1,000,000 from each Party.

1781. On 19 December 2019, the Court fixed the total arbitration costs in the amount of USD 2,000,000 in accordance with Article 37 of the ICC Rules.

1782. The Arbitral Tribunal has total discretion to allocate the costs of the arbitration in accordance with Article 37(4)-(5) of the ICC Rules: "*4 The final award shall fix the costs of the arbitration and decide which of the parties shall bear them or in what proportion they shall be borne by the parties. 5 In making decisions as to costs, the arbitral tribunal may take into account such circumstances as it considers relevant, including the extent to which each party has conducted the arbitration in an expeditious and cost-effective manner*". The expectation

[1673] Respondents' Submission on Costs, para. 57.

is that the Tribunal will take into account, to the extent that it considers fit, which party is successful. The Parties' submissions presuppose that this is so.[1674]

1783. The Tribunal has considered all the points raised in the Parties' costs submissions, but does not find it necessary to mention all of them in order to reach its decision on costs. The Tribunal notes that it was a very complex case, involving very difficult issues and that the Parties have made very long written and oral submissions in good faith. All of the claims, as well as the counterclaim, were seriously pursued, with extensive supporting materials, therefore, the Tribunal decides that each Party shall bear half of the arbitration costs, that is, USD 1,000,000 each.

1784. The Respondents submit that as overall winners they should be awarded all of their reasonable costs. The Tribunal rejects this submission. Such an approach fails to take into account that there were some claims, albeit a minority, on which the Claimant succeeded, including the dismissal of the Respondents' Counterclaim. The Tribunal also notes that, although it has no reason to decide that the Parties' costs expended for their legal defense are not reasonable, there is great disparity between the costs expended by Claimant and those expended by Respondents, the latter being nearly double. Therefore, even though the Respondents have prevailed to a large extent in this arbitration, the Tribunal judges that it is appropriate to award a lesser sum. Taking into account the above, the Tribunal decides that the Claimant shall reimburse the Respondents as a contribution to the Respondents' legal fees and expenses, the amount of USD 6,000,000. The Parties each made submissions about the other's conduct during the proceedings; the Tribunal does not find these sufficiently weighty to alter its decision.

1785. Lastly, in the Tribunal's view, in the absence of a specific applicable rule to the contrary, there is insufficient reason to depart from the more common practice that costs are only due on the date that the Award granting costs is notified to the Parties, therefore the Tribunal declines the Respondents' claim for interest on costs from the Partial Award. Concerning the Respondents' claim for post-award interest on costs, the Tribunal is satisfied to award interest at a rate of 5% (simple) per annum from the date on which the Final Award is notified, until the date of full payment. In reaching this conclusion, the Tribunal considered *inter alia:* (i) that as stated in paragraph 1712 above, a 5% per annum is an appropriate and reasonable commercial interest rate which ensures the principle of full reparation; (ii) that the Respondents failed to provide any reasons for the Tribunal to grant the requested interest rate of one-year US Dollar LIBOR rate + 2%, compounded annually and (iii) that the Tribunal does not find any reason in the present case that will justify to award a different interest rate to the Respondents' costs, than the one awarded to the Claimant's claims which were successful in this arbitration.

[1674] Claimant's Submission on Costs, para. 9; Respondents' Submission on Costs, para. 8.

Chapter X. Decisions

1786. The Tribunal, in its majority, makes the following decisions in relation to the Claimant's Well Claims:

- Dismisses the entirety of the Claimant's Well Claims except for the following ones, in which it Condemns the Respondents to pay the Claimant:

  - USD 1,123,876 being the cost of repairing four production wells; and
  - USD 80,000 being the cost of installing a well cellar in one well.

1787. The Tribunal, unanimously, makes the following decisions:

- As to the other Claimant's claims (with exception of the costs of the arbitration):

  Condemns the Respondents to pay the Claimant:
  - USD 70,000 being the cost of the environmental impact assessment (EIA);
  - USD 3,380,000 being the cost of replacing the incinerator;
  - USD 111,600 being the cost of replacing 2 Hino Lube Oil Trucks;
  - USD 57,300 being the cost of replacing one Chemical Truck;
  - USD 436,576 being the cost of replacing 14 Field Operations Vehicles;
  - USD 221,070.5 being the cost of repairs of 69 kV Highline Dampers;
  - USD 1,258,371.31 being the cost of replacement of the Wencom Wartsila Monitoring System PLC;
  - GBP 950,854.50 being the cost of the Ruston Cylinder Liner Upper Register repair of Crankcase;
  - USD 755,665 being the cost of upgrade of the Realflex HMI;
  - USD 472,968 being the cost of the Terminal Smith Meter System upgrade (GEOFlo/GEOProv);
  - USD 704,000 being the cost of the CPF Smith Meter System upgrade (GEOFlo/GEOProv);
  - USD 9,799.36 being the cost of completion of the oily water drainage tie-in project;
  - USD 88,285.41 being the cost of replacement of the oily water drainage lines;

  Being a total of USD 8,769,511.58 and GBP 950.854.50
  plus interest at the rate of 5% per annum from the date of the PSA expiry, i.e., 17 December 2011 until the date of full payment;

  Dismisses all other Claimant's claims;

- As to the Respondents' Counterclaim (with the exception of the costs of the arbitration):

- Dismisses the Respondents' Counterclaim;

- As to the costs of the arbitration:

  - Decides that Claimant and Respondents shall each bear one half of the Arbitral Tribunal's fees and expenses and ICC administrative expenses, i.e., USD 1,000,000 each;
  - Also decides that Claimant shall reimburse the Respondents USD 6,000,000 as a contribution to the Respondents' costs and expenses that they have incurred for their legal defense, plus a 5% (simple) interest per annum from the date on which the Final Award is notified to the Parties, until the date of full payment.

- Dismisses all other requests and claims pursued by the Parties; and

- Decides that this Final Award will be immediately enforceable.

Place of arbitration: Paris, France

Date: 4 February 2020

The Arbitral Tribunal:

Mr. William Laurence Craig
Arbitrator
(dissenting in part)

Professor Michael Pryles
Arbitrator

Professor Bernard Hanotiau
President