

**IN THE MATTER OF AN ARBITRATION UNDER CHAPTER 11 OF THE NORTH AMERICAN FREE
TRADE AGREEMENT AND THE UNCITRAL RULES (1976)**

ICSID Case No. UNCT/20/1

Odyssey Marine Exploration, Inc. (USA)

Claimant

v.

The United Mexican States

Respondent

Claimant's Memorial

4 September 2020

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I. INTRODUCTION

1. This arbitration arises out of Respondent Mexico's breaches of NAFTA's investment protections (i) requiring fair and equitable treatment and full protection and security (Article 1105), (ii) prohibiting indirect expropriations (Article 1110), and (iii) requiring treatment no less favorable than that it accords to its own investors (Article 1102), all in connection with Claimant's Mexican enterprise's application for environmental approval for a phosphate dredging project.
2. Using expertise in marine exploration it developed over two decades, Claimant Odyssey discovered one of the most significant sedimentary phosphate sand deposits in the world off the coast of Baja California Sur in the Gulf of Ulloa within Mexico's exclusive economic zone. Phosphate is a valuable natural resource used primarily to produce fertilizer and animal feed. A growing global population and the finite nature of the resource means that phosphate is an increasingly valuable and strategically important commodity.
3. With the intention to exploit this resource, Claimant caused the incorporation of a Mexican enterprise, Exploraciones Oceánicas S. de R.L. de CV ("**ExO**"), and ExO obtained a 50-year Concession for the deposit from Respondent. Odyssey then spent the next 13 months exploring the Concession to quantify and characterize the deposit and gather the baseline data it would need to develop the deposit in an environmentally responsible way. The results confirmed that the deposit is world class—both in size and *in-situ* grade.
4. Odyssey next worked with a division of Royal Boskalis Westminster R.V. to develop an engineering solution to extract the ore using established dredging techniques. Compared to terrestrial mining, dredging is cheaper and has a far smaller environmental footprint. The plan they arrived at was designed with mitigation measures to be environmentally responsible and acceptable and would not materially impact any flora or fauna in the region.
5. Before extraction could commence, however, the dredging project (the "**Project**") required environmental approval. In accordance with relevant Mexican regulations, ExO prepared and submitted to the Mexican Secretaría de Medio Ambiente y Recursos

Naturales (Ministry of the Environment and of Natural Resources, or “SEMARNAT”) an environmental impact statement (“MIA”) that comprehensively explained the potential environmental impacts of the Project, which are minimal, and the various mitigation measures that would be employed.

6. After 18 months during which ExO participated in public consultations and responded to numerous requests for information from SEMARNAT, and following significant delays caused by SEMARNAT’s unlawful and arbitrary demand that ExO withdraw and re-submit the MIA with letters of support from various interest groups, the SEMARNAT staffers responsible for reviewing and approving MIAs were prepared to issue an approval, [REDACTED]
[REDACTED]
[REDACTED]
7. [REDACTED], the SEMARNAT Secretary himself, Rafael Pacchiano Alamán—a political appointee with no environmental science expertise—intervened, instructing the SEMARNAT staff to “find a reason” to deny the permit, stating that an ExO representative had “insulted” him. A more gross violation of the rule of law is difficult to imagine. Indeed, [REDACTED]
[REDACTED] there was no legitimate basis on which to deny the permit. So, they were forced to invent one. SEMARNAT thus issued a denial stating (contrary to reason and fact) that the Project would impact protected sea turtles.
8. ExO appealed the denial to the Mexican Federal Administrative Tribunal (“TFJA”), which unsurprisingly unanimously annulled the arbitrary and unfounded denial and remanded it to SEMARNAT for a re-review. However, Secretary Pacchiano, apparently seeking to enhance his own political reputation by denying the permit, immediately ordered the SEMARNAT staff to issue a second denial and announced to the world that such Denial would be forthcoming shortly. And, just like with the first Denial, [REDACTED]
[REDACTED] there was no legitimate basis to deny the permit. The lack of any reasoned basis for either denial is also demonstrated in the reports of numerous global environmental experts described in further detail below.

9. SEMARNAT's conduct constitutes breaches of three separate provisions of NAFTA, namely:
 - a. Article 1105, which provides that "[e]ach Party shall accord to investments of investors of another Party treatment in accordance with international law, including fair and equitable treatment and full protection and security";
 - b. Article 1110(1), prohibiting indirect expropriations; and
 - c. Article 1102, pursuant to which each Party must grant investors and investments of another Party treatment no less favorable than it has accorded to the investors and investments of Mexico or of any third State.
10. The unlawful denial of the permit eliminated the entire economic value of Claimant's investment, and Odyssey, which brings claims on behalf of itself and ExO, is entitled to recover from Respondent full compensation for this loss.

II. **FACTUAL BACKGROUND**

A. Odyssey Is a Global Leader in Deep-Ocean Exploration and the Development of Marine Minerals

11. Founded in 1994, Odyssey is a pioneer in deep-ocean exploration.¹ Its roots are in the archaeologically-sensitive exploration and recovery of artifacts and cargoes from shipwrecks in the deep ocean.
12. Using state-of-the-art technology, highly-trained, experienced personnel, and strong research capabilities, Odyssey discovered and explored more shipwrecks than any other entity in the world, and was able to locate and recover shipwreck artifacts and cargoes at depths that were previously unreachable or economically unfeasible.² Mark Gordon, the

¹ Odyssey was founded in 1994 as Remarc International Inc., incorporated under Nevada law. In 1997, Remarc completed a reverse merger, and the company name was changed to Odyssey Marine Exploration, Inc. See **C-0033**, Odyssey Marine Exploration, Inc. Certificate of Incorporation, 28 August 1997. Odyssey is organized under the laws of the State of Nevada and headquartered in Tampa, Florida. It is listed on the NASDAQ Stock Exchange as OMEX. (Witness Statement of Mark Gordon, dated 4 September 2020 ("**Gordon WS**"), ¶ 6; **C-0192**, Odyssey Marine Exploration, Inc. Common Stock (OMEX) Stock Quotes, Nasdaq).

² Gordon WS, ¶ 16.

Chief Executive Officer of Odyssey and Chairman of Odyssey’s Board of Directors, explains:³

Through this work, we became pioneers in using advanced deep-ocean technology—such as side scan sonar for mapping the seafloor, remotely operated vehicles (“ROVs”), and positioning systems. Our research and scientific services team (“RSS”) became experts at researching national archives, academic papers, and oceanographic characteristics to identify prospective shipwrecks by photograph and video pre-disturbance, and to excavate them and recover artifacts consistent with or exceeding globally-accepted archaeological standards.

13. A decade ago, Odyssey made the strategic decision to leverage this expertise and re-focus its core business on the discovery, exploration, and development of marine minerals.⁴ It was a natural evolution, as Mr. Gordon discusses in his witness statement, and one which was informed by one of the world’s foremost experts in seabed excavation and drilling, Robert Goodden.⁵ Partnering with Mr. Goodden and Dr. Timothy McConachy, a world-renowned deep-ocean geologist, Odyssey acquired an interest in SMM Project LLC.⁶ Through a subsidiary, SMM Project held licenses to explore the seafloor in the Exclusive Economic Zones (“EEZs”) of four South Pacific countries.⁷ Shortly thereafter, SMM Project was absorbed by a new entity, Dorado Ocean Resources (“DOR”), with Odyssey retaining a significant shareholding interest and contracting to provide the marine exploration services.⁸

³ Gordon WS, ¶ 17.

⁴ Gordon WS, ¶ 18. As part of its legacy shipwreck business, Odyssey continues to perform marine services for private clients and governments on a contract basis. **C-0015**, “About Us,” Odyssey Marine Exploration.

⁵ Gordon WS, ¶ 18. Mr. Goodden is the Director of Subsea Minerals (a marine mining consultancy, based in England), the founder of Seacore Limited (an offshore drilling company that he ran for 30 years), and the former President of the International Marine Minerals Society. **C-0023**, Robert Goodden Bio, Subsea Minerals.

⁶ Gordon WS, ¶ 19.

⁷ Gordon WS, ¶ 19. The EEZ is “an area beyond and adjacent to the territorial sea” which extends up to 200 nautical miles from the baselines of a State. In the EEZ, the coastal State (in this case Mexico) has “sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil.” See **CL-0130**, United Nations Convention on the Law of the Sea, 10 December 1982, art. 55-57.

⁸ Gordon WS, ¶ 20.

14. This initial exploration work focused primarily on the discovery and assessment of Seafloor Massive Sulfide (“**SMS**”) deposits, polymetallic nodules, and crusts.⁹ To carry out this work, Odyssey entered into a long-term charter agreement for the *Dorado Discovery*, a research vessel that the company then custom-outfitted with advanced technology and equipment for mineral project development at full ocean depths of greater than 6,000 meters.¹⁰ This included advanced survey and drilling equipment, scientific labs for geology and water chemistry analysis, and refrigerated sample and core storage:¹¹

The *Dorado Discovery* had one of the world’s most advanced multibeam sonar systems capable of recording backscatter, which allows us to identify and characterize geological structures while mapping the seabed. It was equipped with TowYo survey technology, which allowed us to conduct water chemistry data collection continuously and in real time (important for vents and plumes), and a magnetometer (important for mapping large geology formations and sensing metals). There was a ROV [remote operated vehicle] system for inspection and sampling. We also added advanced drilling and coring capabilities, including a remote controlled deep-water robotic drill rig that could work at depths of up to 3,000 meters. In 2012, we installed state-of-the-art vibracore technology for deeper, continuous core sampling.

15. Pictures of the *Dorado Discovery*, and some of the sampling equipment it deploys, are shown below.

⁹ Gordon WS, ¶ 19; **C-0015**, “About Us,” Odyssey Marine Exploration. SMS deposits are formed from hydrothermal vents in the deep sea, mostly at or near tectonic plate boundaries. These deposits are caused when fissures erupt in the earth’s crust, sea water and hot rocks (magma) react hydrothermally, and the minerals precipitate on the seafloor. Nodules form on the abyssal plains, while crusts are formed at seamounts where (mainly) cobalt, nickel, and other metals precipitate on rock surfaces. SMS deposits are generally located in the deep ocean, from 500 to thousands of meters deep. (Expert Report of Ian Selby, dated 4 September 2020 (“**Selby ER**”), ¶¶ 19-20.)

¹⁰ Gordon WS, ¶ 21.

¹¹ Gordon WS, ¶ 22.



The Dorado Discovery



**ROV being lowered into the water with equipment to test water column currents and turbidity
(to assist with the plume dispersion model)**



Carousel Water Sampler being lowered into the water column structure across the Project area
(temperature, salinity, turbidity, light penetration)



Multicore Sampler

(used to characterize ore and overburden at site for input into plume modelling and dredging locations)

16. Odyssey's work was led by then-Director of Mineral Exploration, Thomas Dettweiler. Prior to joining Odyssey, and in addition to working under Dr. Robert Ballard to lead the search team that found the S.S. *Titanic* and serving as the Science Officer for the Cousteau Society aboard the *Calypso*, Mr. Dettweiler had worked for the Woods Hole Oceanographic Institution ("WHOI") as its offshore project manager, studying seafloor

mining.¹² Odyssey also recruited world-class geologists, scientists, and geophysicists to join its experienced technical crew, who had been working as a cohesive unit for a decade (or more).¹³

17. In 2010, Odyssey used the *Dorado Discovery* to map the seafloor in the areas covered by exploration permits under charter to DOR. Working in waters up to 2,300 meters deep, Odyssey recovered hundreds of samples and discovered new SMS deposits off the coasts of Vanuatu and the Solomon Islands. Assay results on these samples indicated high grades of gold, silver, zinc, and lead.¹⁴
18. The next year, Odyssey expanded its operations and concluded two charters with Neptune Minerals Inc. and its affiliates to explore tenements held in the EEZs of Papua New Guinea, the Solomon Islands, Vanuatu, New Zealand, and Tonga.¹⁵ The exploration program lasted 150 days in total and led to the discovery of new SMS deposits indicating high-grade gold, silver, zinc, and copper resources.
19. In 2011, Odyssey concluded a charter agreement with Chatham Rock Phosphate, Ltd. to map the seabed topography in its permit area (located at the Chatham Rise off New Zealand) and to collect the data required for geological and baseline environmental studies.¹⁶ The mineral being explored for was phosphate rock in the form of nodules. Over the course of the charter, Odyssey launched four cruises and a bulk sampling program in “400 meter water depths and vibracoring at over 715 stations, collected over 1,200 km² of multibeam swath bathymetry data, and conducted over 100 km of ROV transits.”¹⁷ Odyssey was joined by, and worked in tandem with, personnel from New Zealand’s National Institute of Water and Atmospheric Research (“**NIWA**”).¹⁸

¹² Gordon WS, ¶ 21. The Woods Hole Oceanographic Institution is an independent non-profit research institute located in Massachusetts, United States.

¹³ Gordon WS, ¶ 23.

¹⁴ Gordon WS, ¶ 24. An assay is a process for determining the composition of a mineral or ore sample.

¹⁵ Gordon WS, ¶ 25. Odyssey took a shareholding interest in Neptune Minerals in 2011.

¹⁶ Gordon WS, ¶ 26.

¹⁷ Gordon WS, ¶ 26.

¹⁸ Gordon WS, ¶ 26.

20. Since its work on Chatham Rise, Odyssey’s primary focus has been on the environmentally sound development of the Don Diego Project.¹⁹

B. Odyssey Discovers the Don Diego Deposit

21. As part of its pivot to marine minerals, Odyssey expanded its Research & Scientific Services (“**RSS**”) team to include geologists and tasked RSS with identifying promising opportunities for mineral exploration projects.²⁰ Performing desktop research and building off of Odyssey’s experience in the South Pacific, the RSS team reviewed academic literature, publicly-available reports, oceanography, and tectonic data to locate prospective projects.²¹

22. In deciding which opportunities to pursue, Odyssey prioritized the prospective deposits’ depths and whether they could be developed in an environmentally responsible way.

a. **DEPTH:** In order to ensure that it would be able to use proven engineering solutions with predictable costs and a track-record of minimal environmental impact (or proven-effective mitigation measures), Odyssey looked for deposits that could be developed using existing dredging ships and systems.²² Drawing on the experience the of the aggregate dredging industry in the North Sea, which has used dredging to excavate sand and gravel for decades, Odyssey focused on deposits located at water depth of 100 meters or less.²³

b. **ENVIRONMENT:** Odyssey applies principles of environmental stewardship and sustainability in all of its work.²⁴ This core value, reinforced by commercial exigencies, meant Odyssey sought to focus on deposits that could be developed

¹⁹ Gordon WS, ¶ 26. In recent years, Odyssey also acquired a 79.9% equity ownership interest in Bismarck Mining Corporation, which holds an exclusive exploration license in the EEZ of Papua New Guinea. Odyssey previously explored these waters under charter to Neptune Minerals. The license areas include at least five targets for deposits of seamount-related epithermal and modern placer gold. Odyssey is currently advancing its exploration plan to validate and quantify the precious and base metal content of the prospective resource, as well as planning environmental surveys and studies related to environmental permitting. Gordon WS, ¶ 27; **C-0185**, “Odyssey Marine Exploration Expands Mineral Portfolio,” Odyssey Marine Exploration Press Release, 15 July 2019, p. 1.

²⁰ Gordon WS, ¶ 28; Witness Statement of John Oppermann, dated 1 September 2020 (“**Oppermann WS**”), ¶ 14.

²¹ Gordon WS, ¶¶ 28-29; Oppermann WS, ¶¶ 14-15.

²² Gordon WS, ¶ 30(b).

²³ Gordon WS, ¶ 30(b); Selby ER, ¶¶ 8, 25; Witness Statement of Dr. Richard Newell, dated 1 September 2020 (“**Newell WS**”), ¶¶ 10-11, 24.3.

²⁴ Gordon WS, ¶ 30(c) (“Odyssey’s core values include operating at the highest standard of scientific excellence and in an environmentally responsible manner. This carries over to everything we do, including our exploration techniques, which have minimal environmental impact.”).

with minimal environmental impact. [REDACTED]

5

23. RSS initially evaluated Mexican territory for SMS and phosphates, and by the end of 2011, it had converged on a potentially significant phosphate deposit off the coast of the Baja California Peninsula.²⁶ The RSS team was led by John Oppermann (current Vice President and Director of Research and Scientific Studies). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

.²⁷

24. Based on this information, Odyssey was able to identify an exploration target that ultimately resulted in defining what would come to be known as the Don Diego deposit.²⁸ In addition, Odyssey assessed the oceanographic characteristics of the region, including “examining circulation patterns, potential for upwelling and assessment of bathymetric and coastal morphology to determine if and where conditions were favorable for phosphatization and deposition.”²⁹ This analysis supported that phosphatization and deposition had occurred (i.e., that a phosphate deposit existed) and allowed Odyssey to identify the initial area for the Concession.³⁰

²⁵ Gordon WS, ¶ 30(c).

²⁶ Oppermann WS, ¶ 14; Gordon WS, ¶ 31.

²⁷ Oppermann WS, ¶ 15.

²⁸ Odyssey named the deposit after Diego Hurtado de Mendoza, the first Spanish explorer to explore the Mexican Pacific Coast. Gordon WS, ¶ 9.

²⁹ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 35.

³⁰ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 35.

C. Phosphate Is an Essential and Finite Resource

25. The prospect of a large phosphate resource off the coast of Mexico was exciting, not only because of the immediate economic returns, but because of the resource's potential geopolitical importance Mexico.
26. Phosphate is an essential, non-renewable, and finite natural resource.³¹ About 90% of phosphate rock is used for food production, with the balance used for industrial products. Phosphorus is described as a "limiting factor" in agriculture because, irrespective of growing conditions and the presence of other nutrients, plants cannot thrive without it.³² There is no substitute for phosphorus in agricultural applications, synthetic or otherwise.³³ Quite literally, if there were no phosphorus, there would be no food.
27. A growing world population and the corresponding growth in food demand means that phosphate will become an increasingly scarce resource.³⁴ As the Hague Center for Strategic Studies explained:³⁵

The United Nations (UN) estimate that by 2050 the global population will reach over 9 billion people. In addition, due to continuing urbanization and economic growth, more people will live in cities and enjoy higher incomes. To feed an ever larger, more urban and richer population, world food production needs to increase by 70% in the coming decades. Increasing food production will increase the demand for energy and water and phosphate fertilizer, making phosphate rock an increasingly scarce resource.

³¹ **C-0172**, S. Daneshgar, et al., "The Potential Phosphorus Crisis: Resource Conservation and Possible Escape Technologies: A Review," MDPI, 2 June 2018, p. 5.

³² **C-0051**, M. de Ridder, et al., "Risks and Opportunities in the Global Phosphate Rock Market," The Hague Centre for Strategic Studies, 2012, p. 15.

³³ **C-0051**, M. de Ridder, et al., "Risks and Opportunities in the Global Phosphate Rock Market," The Hague Centre for Strategic Studies, 2012, pp. 15-16.

³⁴ **C-0172**, S. Daneshgar, et al., "The Potential Phosphorus Crisis: Resource Conservation and Possible Escape Technologies: A Review," MDPI, 2 June 2018, p. 5.

³⁵ **C-0051**, M. de Ridder, et al., "Risks and Opportunities in the Global Phosphate Rock Market," The Hague Centre for Strategic Studies, 2012, p. 16.

28. Accurate data and reporting about the levels of global phosphate reserves and resources is difficult to obtain.³⁶ Because much of this information is considered proprietary or classified as confidential for national security reasons, the data is not reported in a transparent and consistent way.³⁷ Consequently, there is an ongoing international debate over the longevity and scarcity of this resource.³⁸ While some scientists have estimated there are enough phosphate deposits to last hundreds of years, others warn that by around 2035, the world will face “peak phosphorus,” at which point global levels of phosphorus will begin to decline.³⁹
29. Based on the data that is available, at current phosphate rock production rates, some scientists estimate that China (which holds the second largest reserves in the world) has only 24 years of supply; India has only 29 years of supply; and the United States has only 37 years of supply.⁴⁰
30. These figures are sobering enough, but the reserve level tells only half the story. One region holds the vast majority of the world’s phosphate rock supply—Morocco and the occupied territory of Western Sahara, where a separatist movement continues to fight for independence.⁴¹ Indeed, according to a 2011 United States Geological Survey (“USGS”), “Morocco holds more than 72 percent of all phosphate-rock reserves in the

³⁶ **C-0043**, C. Nedelciu, et al., “Opening access to black box: The need for reporting on global phosphorus supply chain,” *Ambio*, 4 September 2019, p. 881; **C-0047**, D. Grossman, “Are We Reaching Peak Phosphorus?,” *Popular Mechanics*, 4 November 2019, p. 3.

³⁷ **C-0043**, C. Nedelciu, et al., “Opening access to black box: The need for reporting on global phosphorus supply chain,” *Ambio*, 4 September 2019, p. 884.

³⁸ **C-0025**, D. Cordell, et al., “Peak Phosphorus: The Crunch Time for Humanity?,” *The Sustainability Review*, 3 April 2011.

³⁹ **C-0025**, D. Cordell, et al., “Peak Phosphorus: The Crunch Time for Humanity?,” *The Sustainability Review*, 3 April 2011, pp. 2-3.

⁴⁰ **C-0042**, M. Blackwell, et al., “Phosphorus use efficiency and fertilizers: future opportunities for improvements,” *Front. Agr. Sci. Eng.*, 2019, p. 332; **C-0050**, USGS Mineral Commodity Summaries, U.S. Department of the Interior U.S. Geological Survey, 31 January 2020, pp. 22-23; **C-0041**, USGS Mineral Commodity Summaries, U.S. Department of the Interior U.S. Geological Survey, 28 January 2016, pp. 224-225.

⁴¹ **C-0155**, A. Kasprak, “The Desert Rock That Feeds the World,” *The Atlantic*, 29 November 2016; **C-0046**, F. Pearce, “Phosphate: A Critical Resource Misused and Now Running Low,” *Yale Environment* 360, 7 July 2011.

world.”⁴² These reserves are owned by Morocco’s state-owned enterprise, Office Cherifien des Phosphates (“**OCP**”), which dominates the phosphate rock export market.⁴³

31. Dependence on Morocco for phosphate raises profound geopolitical concerns about price volatility (and monopoly pricing), as well as supply disruption. And because phosphate is vital to agriculture, this is a food security issue. Political instability and civil unrest in rock exporting countries—such as the events of Arab Spring, labor strikes in North Africa, and the civil war in Syria—have also shone a spotlight on the risks of being highly dependent on one country or region for phosphate. These realities led the European Commission in 2014 to declare phosphate “a ‘critical raw material,’” “ie an essential resource with significant risk to supply.”⁴⁴
32. In a recent article, *The Guardian* summarized the situation in the following way: “[t]he world faces an ‘imminent crisis’ in the supply of phosphate, a critical fertiliser that underpins the world’s food supply.”⁴⁵ This is because “rock phosphate is a finite resource and the biggest supplies are mined in politically unstable places, posing risks to the many countries that have little or no reserves.”⁴⁶ In fact, “[a]t current rates of use, a lot of countries are set to run out of their domestic supply in the next generation, including the US, China and India.”⁴⁷
33. While “demand is rising, most of the best reserves are gone, and those that remain are in just a handful of countries.”⁴⁸ Long before the reserves are depleted, moreover,

⁴² **C-0155**, A. Kasprak, “The Desert Rock That Feeds the World,” *The Atlantic*, 29 November 2016, p. 2. Some estimates put the figure as high as 80%. See **C-0046**, F. Pearce, “Phosphate: A Critical Resource Misused and Now Running Low,” *Yale Environment* 360, 7 July 2011, p. 2.

⁴³ **C-0046**, F. Pearce, “Phosphate: A Critical Resource Misused and Now Running Low,” *Yale Environment* 360, 7 July 2011, pp. 1-2.

⁴⁴ **C-0188**, D. Carrington, “Phosphate fertiliser ‘crisis’ threatens world food supply,” *The Guardian*, 6 September 2019, p. 2.

⁴⁵ **C-0188**, D. Carrington, “Phosphate fertiliser ‘crisis’ threatens world food supply,” *The Guardian*, 6 September 2019, p. 1.

⁴⁶ **C-0188**, D. Carrington, “Phosphate fertiliser ‘crisis’ threatens world food supply,” *The Guardian*, 6 September 2019, p. 1.

⁴⁷ **C-0188**, D. Carrington, “Phosphate fertiliser ‘crisis’ threatens world food supply,” *The Guardian*, 6 September 2019, p. 2.

⁴⁸ **C-0046**, F. Pearce, “Phosphate: A Critical Resource Misused and Now Running Low,” *Yale Environment* 360, 7 July 2011, p. 2.

phosphate rock is expected to become significantly more expensive as production shifts to deposits that are more costly to mine (because, for instance, they have more overburden, are deeper underground and more difficult to mine, or require increasingly expensive technology) and face significant opposition due to the possible environmental impacts of terrestrial phosphate mining.⁴⁹

34. For Mexico, the need for phosphate rock is already acute and will only worsen. From the start of the Don Diego Project until now, Mexico has relied on imported phosphate rock (mainly from Morocco) and imported fertilizer to meet its domestic needs.⁵⁰ Most of Mexico's domestic phosphate rock is produced by Grupo Fertinal's terrestrial San Juan de la Costa mine in Baja California Sur.⁵¹ It opened in 1981 as an open pit mine, but transitioned to an underground mine. It is one of the most expensive mines in the world to operate, and its production has been erratic and unreliable.⁵² All the while, Mexico's import of phosphate rock has steadily increased.⁵³
35. At the same time, Mexico is struggling to feed its large and growing population. The country is not food self-sufficient. As recently as 2019, Mexico imported 80% of all basic foodstuffs.⁵⁴ In 2012, 80.8% of the Mexican population reported some degree of food insecurity, with 13% reporting severe insecurity.⁵⁵ Both the past and current administrations have identified Mexico's lack of food security as a pressing issue, and both

⁴⁹ **C-0188**, D. Carrington, "Phosphate fertiliser 'crisis' threatens world food supply," *The Guardian*, 6 September 2019, p. 2. Florida is the center for phosphate mining in the United States and home to the first and second largest phosphate mines in the world. Attempts to expand and extend the lives of those mines are facing fierce opposition because of the impacts terrestrial phosphate strip mines have on the environment, including threats to waterways and drinking water. **C-0046**, F. Pearce, "Phosphate: A Critical Resource Misused and Now Running Low," *Yale Environment* 360, 7 July 2011, pp. 3-4.

⁵⁰ **C-0054**, T. de la Rosa, "Destinarán 1000 mdp para producir fertilizantes en 2019," *Eje Central*, 27 December 2018.

⁵¹ Witness Statement of John Longley, dated 4 September 2020 ("**Longley WS**"), ¶ 13.

⁵² Expert Report of Dr. Peter Heffernan (CRU Consulting), dated 4 September 2020 ("**Heffernan ER**"), pp. 2-3, 39, 77-78.

⁵³ **C-0055**, Dirección General de Desarrollo Minero, "Perfil de Mercado de la Fosforita," December 2014, pp. 31-33.

⁵⁴ **C-0068**, M. Salazar, "Se importa a México el 80% de lo que consumimos," *El Sol de Orizaba*, 30 December 2019.

⁵⁵ **C-0070**, Instituto Nacional de Salud Pública, Encuesta Nacional de Salud y Nutrición: Resultados Nacionales, 2012, p. 144.

have made increasing domestic food production a key part of the effort to address the problem.⁵⁶

36. In 2013, then-current Mexican President Enrique Peña Nieto launched the *Sin Hambre* initiative (the “National Crusade Against Hunger”; in Spanish, “Cruzada Nacional Contra el Hambre”).⁵⁷ President Andrés Manuel López Obrador has also made food security a central issue for his administration.⁵⁸ In 2019, President López Obrador announced an ambitious program to combat food insecurity that includes the creation of Mexican Food Security (“Seguridad Alimentaria Mexicana” or “SEGALMEX” in Spanish) as an arm of the Secretariat of Agriculture.⁵⁹
37. Both the Peña Nieto and López Obrador administrations have recognized that increasing the use of fertilizers and expanding domestic fertilizer production are key to combatting food insecurity.⁶⁰ Estimates in 2013 indicate that around 36% of Mexico’s cultivated land is under-fertilized.⁶¹ Dependence on imports translates into higher prices, which in turn makes fertilizer too expensive for many farmers, and leaves the country exposed to exchange rate risks and price shocks.⁶² In 2013, Mexico adopted the Sectorial Program of

⁵⁶ A fundamental part of Peña Nieto’s efforts to address food insecurity included increasing the domestic food production and income of peasant farmers and small-scale producers. **C-0220**, Elementos técnicos de diseño, planeación e instrumentación del programa nacional México sin hambre, July 2014, p. 20. Likewise, President López Obrador’s National Agreement for Food Self-Sufficiency also recognizes increasing domestic food production as a key part of the effort against food insecurity. **C-0221**, Acuerdo nacional para la autosuficiencia alimentaria, 8 February 2019, p. 2.

⁵⁷ **C-0058**, Notimex, “Piden incorporar a mas municipios en cruzada antihambre,” El Universal, 11 April 2013; **C-0200**, “Presenta Peña Nieto Cruzada Nacional contra el Hambre, en Chiapas,” Aristegui Noticias, 21 January 2013; **C-0053**, “Anti-hunger campaign can mark “historical turning point” for Mexico – FAO DG,” Food and Agriculture Organization of the United Nations, 30 April 2014.

⁵⁸ See, e.g., **C-0179**, K. Hansen-Kuhn, “Bold farm plans in Mexico offer a ray of hope in 2019,” Institute for Agriculture & Trade Policy, 15 January 2019.

⁵⁹ **C-0071**, “Se crea el organismo Seguridad Alimentaria Mexicana,” El Financiero, 18 January 2019.

⁶⁰ **C-0073**, G. Olson, “Anuncia Enrique Peña Nieto iniciativa de reforma para el campo,” Excelsior, 6 November 2013; **C-0028**, E. Perea, “Sagarpa busca reducir importación de fertilizantes del 70 al 30%,” Imagen Agropecuaria, 2 June 2013; **C-0179**, K. Hansen-Kuhn, “Bold farm plans in Mexico offer a ray of hope in 2019,” Institute for Agriculture & Trade Policy, 15 January 2019; **C-0076**, “Programa Nacional de Fertilizantes, esencial en producción de granos,” Mexicampo Internacional, 8 February 2019.

⁶¹ **C-0222**, “Fertilizantes: alimentos de nuestros alimentos,” SIAP Informa, 16 December 2013, p. 2.

⁶² **C-0073**, G. Olson, “Anuncia Enrique Peña Nieto iniciativa de reforma para el campo,” Excelsior, 6 November 2013. Enrique Martínez y Martínez, the head of SAGARPA in 2013, commented on this, noting that an increase in low cost, domestically-sourced fertilizers was necessary because “[c]urrently, only 15 percent

Agriculture, Fishing, and Food Development 2013-2018, which called on Petróleos Mexicanos (“PEMEX”) to play a leading role in the revitalization of the domestic fertilizer industry.⁶³ As part of that initiative, PEMEX purchased Grupo Fertinal at the beginning of 2016.⁶⁴

38. Similarly, President López Obrador vowed to meet Mexico’s fertilizer needs entirely from domestic sources. To achieve this, his administration launched the National Fertilizer Program (Programa Nacional de Fertilizantes), which seeks to increase farmer access to domestic fertilizer at competitive prices.⁶⁵ PEMEX was chosen as the only producer in order to assist with self-sufficiency and sovereignty in fertilizer production.⁶⁶ A non-terrestrial, domestic, more reliable, and cheaper source of phosphate would contribute significantly to Mexico’s efforts to reduce dependence on international imports.

D. Odyssey Incorporates ExO and Obtains a 50-Year Concession for the Don Diego Deposit

39. In early 2012, Odyssey began preparing its application for a mining concession and assembling its project team. To incorporate and manage its local project vehicle, Odyssey engaged Daniel De Narvaez McAllister.⁶⁷ A graduate from the Colorado School of Mines, Mr. De Narvaez had led mining projects throughout Latin American and served on an advisory council to President Pastrana regarding a new Colombian mining code.⁶⁸ Odyssey also retained Dr. Claudio Lozano Guerra-Librero to work as Project and Project Manager. Dr. Lozano, whose expertise is in coastal sedimentology, had previously worked with Odyssey in project management roles on marine archaeology projects.⁶⁹

of fertilizers that we use in the country [Mexico] are of national origin, and many producers do not have access to them due to their high price.”

⁶³ C-0074, Diario Oficial de la Federación, 13 December 2013, pp. 11, 29.

⁶⁴ C-0075, R. Cruz, “Pemex anuncia compra de grupo Fertinal,” MVS Noticias, 29 January 2016.

⁶⁵ C-0076, “Programa Nacional de Fertilizantes, esencial en producción de granos,” Mexicampo Internacional, 8 February 2019.

⁶⁶ C-0079, A. Vega, “Gobierno ajusta programa de fertilizantes: Pemex será único proveedor y no darán semilla a productores,” Yahoo! News, 11 March 2020, p. 3.

⁶⁷ Gordon WS, ¶¶ 34-35.

⁶⁸ Gordon WS, ¶ 25.

⁶⁹ Gordon WS, ¶ 36; Witness Statement of Dr. Claudio Lozano, dated 29 August 2020 (“Lozano WS”), ¶¶ 3-10. Dr. Lozano holds a PhD in underwater archeology and a second in remote sensing and geo-location. (Lozano

40. Exploraciones Oceánicas (“**ExO**”) was incorporated in March 2012.⁷⁰ Odyssey, through intermediary holding companies, has held a majority interest in and controlled ExO since February 2013.⁷¹
41. On 28 June 2012, ExO obtained a 50-year mining Concession from the Dirección General De Minas (“**DGM**,” or General Directorate of Mines), the responsible agency within the Secretaría de Economía (Secretariat of the Economy).⁷² This Concession extended over 2,680 km² in Mexico’s EEZ off the coast of Baja California Sur in the Gulf of Ulloa.
42. As a result of its exploration program (discussed below), Odyssey determined that the original Concession (Concession No. 240744) was both over- and under-inclusive with respect to the Don Diego deposit and needed to be modified.⁷³ Therefore, in April 2014, ExO applied for and was granted one Concession to the north and another to the south of the original Concession area.⁷⁴ The next year, in July 2015, ExO applied to release areas on the periphery of the deposit, as the exploration data indicated the ore there was less commercially viable. Releasing this area also moved the Project site even farther away from the migration routes of grey whales and coastal foraging areas for sea turtles.⁷⁵ The DGM granted this application in February 2016, thereby reducing the original Concession area by approximately 70%.⁷⁶

WS, ¶¶ 3, 5.) Dr. Lozano’s role was to manage the team of environmental experts engaged by Odyssey and ExO to prepare the MIA. (Lozano WS, ¶¶ 2, 10.) In that capacity, Dr. Lozano reported to Mr. De Narvaez and Mr. Oppermann. (Lozano WS, ¶ 11; Oppermann WS, ¶¶ 7, 45, 84.)

⁷⁰ **C-0052**, ExO’s Articles of Incorporation, 7 March 2012; Gordon WS, ¶¶ 7, 37.

⁷¹ Gordon WS, ¶¶ 7-8; **C-0057**, Amendment to ExO’s Articles of Incorporation, 31 May 2013, p. 7. Specifically, Odyssey holds its interest in ExO through its wholly-owned U.S. subsidiary Marine Exploration Holdings, LLC (“**MEH**”). MEH holds 100% interest in Odyssey Marine Enterprise Ltd., a Bahamian entity, which in turn holds a 53.88% interest in Oceánica Resources S. de R.L. (“**Oceánica**”). Oceánica holds 99.99% of ExO. See **C-0180**, OMEX EXO Ownership Chart; **C-0183**, Certificate of the Treasurer, ExO Stock Ownership, 29 March 2019; **C-0184**, Certificate of the Treasurer, Oceánica Stock Ownership, 29 March 2019.

⁷² **C-0012**, Concession Title No. 240744, 27 June 2012, p. 1; Gordon WS, ¶¶ 34, 37; Lozano WS, ¶ 13.

⁷³ Gordon WS, ¶ 9; Lozano WS, ¶ 17.

⁷⁴ **C-0092**, Concession Title Nos. 242994 and 242995, 29 April 2014. Mining Concession No. 242994 is referred to as “**Don Diego Norte**,” and Mining Concession No. 242995 is referred to as “**Don Diego Sur**.” These extensions enlarged the Concession area to over 3,029 km².

⁷⁵ Gordon WS, ¶¶ 9, 37; Lozano WS, ¶ 17; Newell WS, ¶¶ 24.1, 26.2.

⁷⁶ Gordon WS, ¶¶ 9, 37; Lozano WS, ¶ 17; **C-0013**, Concession Title No. 244813, 15 February 2016. Concession 240744, as modified by Concession 244813, is referred to herein as the “**Concession**.” The term “**Concessions**” refers to the Concession plus the Don Diego Norte and Sur Concessions.

43. The Concession is valid for 50 years and may be extended for another 50 years at ExO's option.⁷⁷ The Concession covered by the MIA expires on 27 June 2062.⁷⁸ The Concession confers ExO the exclusive right to explore and exploit the areas it covers.⁷⁹

E. Odyssey Explores the Concession Area and Confirms the Concession Holds a Strategically Significant Phosphate Deposit

44. With the Concession in hand, Odyssey began an extensive prospecting and coring campaign in the Concession area in October 2012, using the *Dorado Discovery*.⁸⁰

45. Odyssey conducted seven cruises over the next 13 months.⁸¹ Five of those cruises focused on quantifying and characterizing the resource and verifying its development was technically and economically sound, while two focused on environmental sampling and modelling. The crew on board included geo-technicians, marine geologists, experienced surveyors, navigators, data loggers, ROV operators, marine biologists, and environmental scientists.⁸²

46. To support the assessment and perform the assays on core samples, Odyssey retained the Florida Industrial and Phosphate Research Institute ("**FIPR**").⁸³ After FIPR assayed the samples from one leg, Odyssey used the results to develop the survey plan and coring patterns for the next.⁸⁴

47. In late 2012, Odyssey engaged Henry Lamb, President of Mineral Resource Associates ("**MRA**"), as the Technical Advisor to evaluate the size and character of the ore.⁸⁵ Mr. Lamb is a geologist with over 40 years of experience in the exploration, evaluation, and

⁷⁷ Expert Report of Federico Kunz, dated 31 July 2020 ("**Kunz ER**"), ¶ 18.

⁷⁸ **C-0012**, Concession Title No. 240744, 27 June 2012, p. 1.

⁷⁹ Kunz ER, ¶¶ 17-18.

⁸⁰ Before commencing these activities, ExO confirmed with the Mexican Secretary for the Environment and Natural Resources ("**SEMARNAT**") that no prior permitting was required. **C-0098**, Prospecting Authorization by SEMARNAT, 17 August 2012.

⁸¹ Oppermann WS, ¶ 18; Lozano WS, ¶ 15; Gordon WS, ¶ 39. These cruises are also referred to as "legs."

⁸² Gordon WS, ¶ 39; Lozano WS, ¶ 15.

⁸³ Created by Florida state legislation, FIPR sits within Florida Polytechnic University and is one of the premier research institutes in the world specializing in phosphates. It provides laboratory and consulting services on a contract basis. **C-0016**, "About Us," FIPR Institute.

⁸⁴ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, pp. 36-41; Gordon WS, ¶ 40.

⁸⁵ **C-0084**, Henry Lamb, NI 43-101 Technical Report, p. 66; **C-0056**, Email from J. Oppermann to B. Birky and H. Lamb, 12 December 2012; **C-0089**, Sample Testing Assay Methodology, 30 June 2014.

development of phosphate projects.⁸⁶ Mr. Lamb’s analysis would be reflected in a Technical Report in the form of a Canadian NI 43-101. A “National Instrument 43-101” Technical Report is a report that complies with the rules for reporting and publicizing mineral assets for companies traded on Canadian stock exchanges. The rules—and the reports that “Qualified Persons” produce according to the code—are recognized worldwide as a rigorous and reliable way to report mineral holdings. Mr. Lamb is a “Qualified Person” who is credentialed to produce a NI 43-101 Report, as well as a “Competent Person” under the JORC standards, which are Australia’s version of the NI 43-101.⁸⁷

48. Mr. Lamb reviewed the initial laboratory analysis and mapping, and advised Odyssey as it planned the next cruises to continue mapping the deposit, obtain additional samples, and better define the phosphorite boundaries.⁸⁸ In total, the team recovered [REDACTED]. Of these, Mr. Lamb used results from [REDACTED] to prepare the resource estimate in the NI 43-101 Technical Report.⁸⁹
49. Mr. Lamb published the NI 43-101 Technical Report on 30 June 2014.⁹⁰ The report only addresses the original Concession, and not the Don Diego Norte or Sur Concessions.
50. The Don Diego deposit is a loose, uncemented sand, “which can be dug out or dredged.”⁹¹ The NI 43-101 Technical Report indicates the deposit has at least two distinct phosphorite zones, which are divided by a rocky seafloor exposure, or “hardbottom outcrop.”⁹² The zone to the west of the hardbottom outcrop is called the Don Diego West Phosphorite

⁸⁶ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 67.

⁸⁷ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, pp. 80-81.

⁸⁸ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 77.

⁸⁹ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 46. Vibracoring is a type of core drilling unit. Because it obtains long, well-preserved cores, it permits the stratigraphic layers with sediment depth to be captured while preserving the depositional sequence of sediments, with younger sediments at the top and older ones at the bottom. C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, pp. 42-43; Selby ER, ¶ 47.

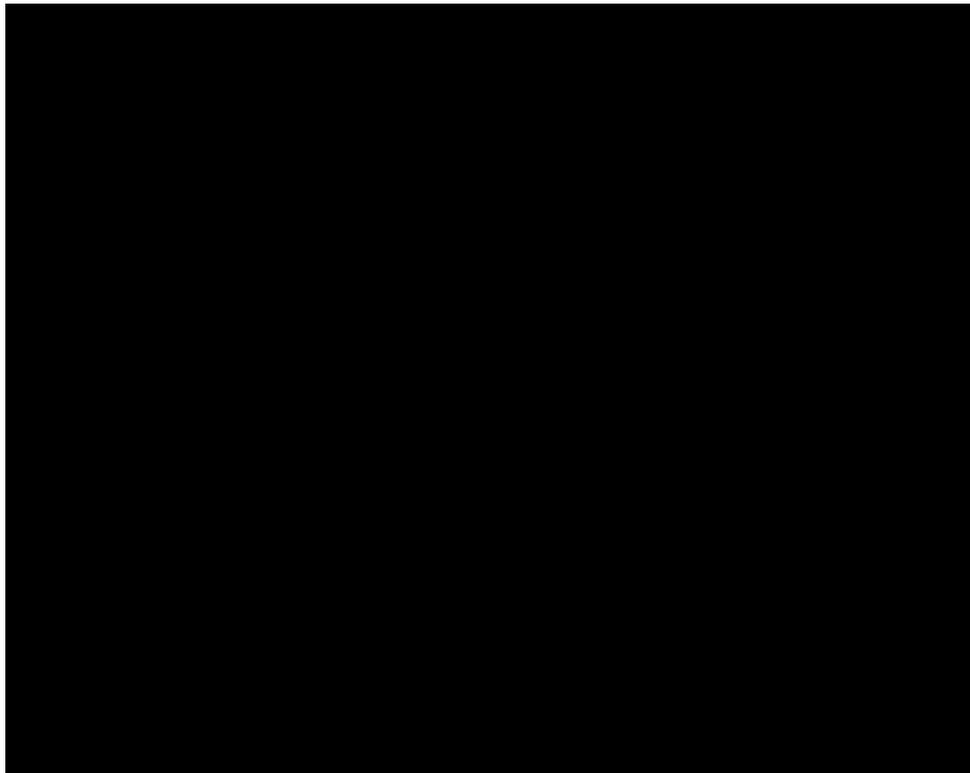
⁹⁰ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 1.

⁹¹ Selby ER, ¶ 11. In his report, Dr. Selby contrasts the Don Diego deposit with a deposit where the mineral is extracted from rocks “which form a hard, solid mass, for example limestone or granite – and will require mining – blasting, crushing etc.”

⁹² C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, pp. 29-30.

Deposit, and the zone to the east is called the Don Diego East Phosphorite Occurrence.⁹³ The water depth ranges from 70 to 90 meters.⁹⁴ The phosphorite bed is exposed at the seafloor in the east, meaning there is no overburden.⁹⁵ In the west, the phosphorite bed is “covered by a thin layer (1 to 2 meters) of quartz sand and silt.”⁹⁶

51. The figure below is a multi-beam sonar image of the Concession, showing the location of these two zones.⁹⁷ The red outline reflects the boundaries of the original Concession.



⁹³ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, pp. 29-30. A mineral “occurrence” denotes an area with a concentration of a valuable mineral, while a mineral “deposit” denotes a mineral occurrence with sufficient size and grade that it has potential for economic development. Because the Don Diego East Phosphorite Occurrence has “visually low to moderate concentrations of phosphorite,” Odyssey concentrated its exploration program on the Don Diego West Phosphorite Deposit, and the NI 43-101 Technical Report only estimates resources in this area. **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, pp. 29-30.

⁹⁴ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 16; Witness Statement of Craig Bryson, dated 4 September 2020 (“**Bryson WS**”), ¶ 35.

⁹⁵ Bryson WS, ¶ 15.2. In geology, overburden refers to the rock, soil, clay, and sand which surrounds the mineral ore.

⁹⁶ **C-0084**, Henry Lamb, NI-43-101 Technical Report, 30 June 2014, p. 16.

⁹⁷ **C-0084**, Henry Lamb, NI-43-101 Technical Report, 30 June 2014, p. 30.

52. The NI 43-101 Report estimated the resources in the Don Diego West Phosphorite Deposit as follows:⁹⁸

| Category | Quantity (ore tonnes) | P ₂ O ₅ % | Average Overburden Thickness |
|-----------|-----------------------|---------------------------------|------------------------------|
| Measured | 106.9 million | ██████████ | ██████████ |
| Indicated | 220.3 million | ██████████ | ██████████ |
| Inferred | 166.4 million | ██████████ | ██████████ |

53. On average, the phosphorite bed is approximately ██████████ deep, but in some areas it is more than ██████████ deep.⁹⁹ As Mr. Lamb explains in the NI 43-101 Technical Report, the ██████████. In ██████ of the core sites, the core tube ended in sediment with a significant concentration of P₂O₅, meaning that the depth of the phosphate deposit was not fully sampled.¹⁰⁰ This is significant because it means the phosphate resource “extends beyond the base of the samples,” and therefore “any resulting volume calculation utilizing this data will result in a conservative estimate.”¹⁰¹

54. Also important, Mr. Lamb observed that the boundaries of the Don Diego West Phosphorite Deposit “appear to be open to the northwest, to the southeast, at depth and to the west.”¹⁰² Consequently, he believed that “the potential for identifying additional resources is high.”¹⁰³

55. In addition, the NI 43-101 Technical Report confirmed that the available data clearly supported the ore would produce phosphate rock concentrate at ██████████ with a

⁹⁸ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 14.

⁹⁹ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 28.

¹⁰⁰ Longley WS, ¶¶ 39-40.

¹⁰¹ Selby ER, ¶ 56. The amount of phosphorus present in phosphate rock is often expressed in terms of a percentage of phosphorus pentoxide (P₂O₅). Heffernan ER, p. 7,

¹⁰² C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 14.

¹⁰³ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 76.

relatively simple beneficiation process, meaning that it was suitable for manufacturing phosphoric acid.¹⁰⁴

56. After issuing the NI 43-101 Technical Report, Mr. Lamb prepared a second resource estimate that included the Don Diego Norte Concession (also referred to as the Northern Concession).¹⁰⁵ When the Don Diego Norte Concession is included, the total resource estimate comprises 588.3 million ore tonnes at average 18.1% P₂O₅.¹⁰⁶

57. This makes the Don Diego deposit one of the largest phosphate resources in the world.¹⁰⁷

F. Odyssey Selects Boskalis as a Dredging Contractor and, Working Together, They Develop a Straightforward Engineering Solution Using Proven Technology to Exploit the Phosphate Deposit

58. Once the initial exploration phase confirmed the Concession contained a commercial-grade deposit, Odyssey turned its attention to identifying the best engineering solution for dredging it. As one of its first steps, Odyssey retained Craig Bryson.

59. Mr. Bryson is a mining engineer and independent mining consultant who has over 20 years' experience designing, implementing, and managing both terrestrial and marine mining projects worldwide, with a particular focus on marine mineral extraction and processing design.¹⁰⁸ Among other things, Mr. Bryson helped to develop the technology to recover alluvial diamonds in the South Atlantic Ocean by dredging and screening sediment.¹⁰⁹

¹⁰⁴ C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, pp. 61-62, 72-73.

¹⁰⁵ C-0223, Don Diego West Resource Estimate With Northern Extension, 21 August 2014.

¹⁰⁶ C-0223, Don Diego West Resource Estimate With Northern Extension, 21 August 2014. The resource assessment breaks down as 114.9 million () measured and 243.6 million ore tonnes () indicated. The inferred resources increase to 229.9 million ore tonnes ().

¹⁰⁷ Oppermann WS, ¶ 36.1.

¹⁰⁸ Bryson WS, ¶ 2. Mr. Bryson is a graduate of the Wits School of Mining Engineering at the University of Johannesburg and holds both a National Diploma in Mining Engineering and a National Higher Diploma in Mining Engineering. Prior to joining Subsea Minerals Ltd. in 2008, Mr. Bryson was mine manager for the Namibian Minerals Corporation and led marine and terrestrial mining projects for Lafarge Aggregates UK and Saint-Gobain BPB British Gypsum. At Subsea Minerals, a consultancy based in the UK that specializes in the planning, development, and operation of marine mining projects, Mr. Bryson led the engineering design for an extensive heavy mineral sand dredging project for Kenmare Resources in Mozambique and developed the concept engineering for Rio Tinto in South Africa for the dredging and processing of offshore heavy mineral sands in the Indian Ocean. (Bryson WS, ¶¶ 3-11.)

¹⁰⁹ Bryson WS, ¶ 5. DeBeers continues to use this technology today.

60. Before agreeing to commit to the Project, Mr. Bryson reviewed the core sample analysis and geological data and spoke to members of the Odyssey team to satisfy himself that the Project was “well placed to succeed.”¹¹⁰ Based upon what he learned, Mr. Bryson was convinced “this was an extremely attractive project.”¹¹¹ In his witness statement, he explains why:¹¹²
- a. The core samples and analysis “suggested the resource was both vast and highly-concentrated.”¹¹³
 - b. The core samples also indicated the phosphate granules were in a well-defined range of size-fractions compared to the other materials that would be dredged (such as seashells, sand and silt). This was important because it would mean the phosphate ore could be concentrated through simple mechanical separation—think of a sieve sifting sand where pebbles remain because they cannot pass through.
 - c. There was low overburden and in many areas, the phosphate bed was exposed on the surface of the sea floor. This was important to Mr. Bryson because removing overburden increases operating costs and lowers rates of return.
 - d. Phosphate is an essential resource; as the global population grows and arable land needs to be more production, demand for phosphate is expected to rise.
61. As his first order of business, Mr. Bryson prepared the Request for Proposals (“RFP”) to select a dredging partner. Odyssey issued the RFP in March 2013, and four of the world’s largest and most renowned dredging companies submitted tenders: Boskalis Offshore (part of Royal Boskalis Westminster), Jan de Nul, Royal Van Oord, and Royal IHC.¹¹⁴ Odyssey selected Boskalis for the following main reasons.¹¹⁵
62. *First*, Boskalis is not only widely acknowledged as the one of the world’s preeminent dredging companies; it also has a well-established operational presence in Mexico

¹¹⁰ Bryson WS, ¶ 14.

¹¹¹ Bryson WS, ¶ 15.

¹¹² Bryson WS, ¶ 15.

¹¹³ Bryson WS, ¶ 15.1.

¹¹⁴ Bryson WS, ¶ 28. Following its merger with DEME (Dredging, Environmental and Marine Engineering NV), IHC is also known as IHC/DEME or DEME.

¹¹⁵ Bryson WS, ¶¶ 29-39; Gordon WS, ¶¶ 52-53.

through its subsidiary Dragamex.¹¹⁶ Dragamex has been active in Mexico for over 25 years and, at the time of the tender, had executed over 175 projects in the country (ranging from port construction in Cuyutlán on the Pacific coast, to beach replenishments in Quintana Roo on the Yucatan Peninsula).¹¹⁷ Odyssey “gave weight to this because it meant our dredging partner would be a known entity to SEMARNAT and could help make our MIA even stronger.”¹¹⁸

63. *Second*, Boskalis’ capabilities extend beyond classical dredging. Through its acquisition of a materials processing company in 1990, Boskalis had expanded into the field of material separation and sizing.¹¹⁹
- a. This division has market-leading expertise in particle separation and processing dredged sediment.¹²⁰ This expertise was critical to the Don Diego Project, which would require separation of phosphate particles from other sediment through mechanical sizing.¹²¹
 - b. Mr. Bryson explains, “[t]his experience also meant that Boskalis had long-term relationships with reputable and experienced materials processing equipment and service providers [. . .] which expanded the knowledge base they could draw upon as the Project progressed and enhanced our confidence in the accuracy of their estimated projections.”¹²²
 - c. Relatedly, Boskalis would be able to draw on employees who had worked on comparable projects involving ocean dredging and separation. For instance, Boskalis has worked on projects in the North Sea involving dredging gravel and

¹¹⁶ Selby ER, ¶ 91; Expert Report of Lomond & Hill, dated 4 September 2020 (“**Lomond & Hill ER**”), ¶ 3.4.1; **C-0059**, Boskalis Phosphate Mining Proposal, 28 May 2013, p. 5.

¹¹⁷ **C-0059**, Boskalis Phosphate Mining Proposal, 28 May 2013, p. 5; **C-0060**, Boskalis Phosphate Mining Proposal, Attachment 1, Dragamex Brochure, 28 May 2013; Gordon WS, ¶ 53; Bryson WS, ¶ 39.

¹¹⁸ Gordon WS, ¶ 53.

¹¹⁹ Bryson WS, ¶ 32; **C-0059**, Boskalis Phosphate Mining Proposal, 28 May 2013, pp. 5-6, 30.

¹²⁰ For instance, the division carried out the clean-up of the Miami River in Florida and the Fox River in Wisconsin by separating contaminated silts from material dredged from the riverbeds and reusing or redepositing the separated material. **C-0082**, International Dredging Review, “Johan Dolman’s Material Processing Equipment Has Been a Boon to Major Dredging Projects,” 28 September 2016; Bryson WS, ¶¶ 32-33.

¹²¹ Bryson WS, ¶¶ 15.3, 32-33, 54.

¹²² Bryson WS, ¶ 34.

sand from the seafloor, separating the material for use in the construction sector, and returning the unusable material to the seabed.¹²³

64. *Third*, Boskalis focuses on environmentally sustainable dredging. Among other things, Boskalis' environmental stewardship is reflected in its membership in the "Building with Nature" European consortium, which has as its objective the sustainable development of river, delta, and coastal environments. This program aims to manage dredging operations to produce more complex seabed topography in order to speed seabed recovery and improve biodiversity of invertebrate and fish communities once the dredging process is completed.¹²⁴
65. Boskalis' extensive experience with a wide variety of methods of depositing rock and sediment to the ocean floor (at depths of up to 1,500 meters)¹²⁵ was also important to Odyssey because it suggested there would be options for returning the sediment below the surface, thereby reducing overflow and sediment plumes, and mitigating the environmental impact of the Project.¹²⁶
66. In its initial tendering proposal, Boskalis had proposed to use a common dredging technology called a "Trailing Suction Hopper Dredger" ("**TSHD**") to recover the ore from the seafloor in order to achieve the production volume and quality targets required by Odyssey in the RFP.¹²⁷ In essence, a TSHD is a boat with a long pipe that can be extended down to the seafloor. It travels at a slow walking pace (approximately one to two knots) over an area and operates like a large vacuum cleaner that sucks up particles from the surface via the "**draghead**" at the bottom end of the pipe, and hydraulically pumps it through that pipe up to the surface as a mix of water and sediment (known as "**slurry**"). The slurry is collected in a large receptacle called the "**hopper**," which fills up as the

¹²³ Bryson WS, ¶ 28. See generally **C-0022**, D.E. Highley, et al., "The strategic importance of the marine aggregate industry to the UK," British Geological Survey Research Report, 2007 (describing UK aggregates industry).

¹²⁴ **C-0165**, Boskalis Dragagemex Track Record, 1999-2018, p. 12; **C-0017**, Presentation re Seabed Landscaping: encouraging recolonization with smart designs; **C-0187**, Boskalis Presentation, "Building with Nature," 28 August 2019.

¹²⁵ **C-0018**, Boskalis Fallpipe Vessels; Bryson WS, ¶ 35.

¹²⁶ Newell WS, ¶ 17; Lozano WS, ¶ 45.1.

¹²⁷ **C-0059**, Boskalis Phosphate Mining Proposal, 28 May 2013, p. 18; Bryson WS, ¶ 41.

dredger proceeds.¹²⁸ TSHDs are ideally suited for collecting loose, unconsolidated, sandy sediment like the seabed material in the Don Diego Concession area.¹²⁹

67. As Deltares notes,¹³⁰ the TSHD proposed for the Project is a “combination of standard techniques that are common in the dredging industry, whether for maintenance or capital dredging or mineral extraction,” with “well-established techniques minimizing physical environmental impact” consistent with standard industry guidance.¹³¹
68. In its initial tender, Boskalis also proposed to use well-established mining industry materials processing technology on board a Floating Processing Storage Platform, or alternatively, Floating Processing Storage Plant (“FPSP”). This was intended to upgrade, or refine, the phosphate mineral ore into a more concentrated product that could be sold to downstream manufacturers as a key feedstock in the process of manufacturing agricultural fertilizer.¹³²
69. Boskalis also proposed a circuit of processing steps to take place on the FPSP that would isolate and preserve the phosphate-rich fraction of the ore while discarding the rest. According to Boskalis’ analysis, which coincided with the data provided by FIPR’s tests and Mr. Lamb’s analysis, this processing could upgrade the ore to around ██████████ which would represent a commercial-grade phosphate rock.¹³³ No chemicals are introduced during this process—it is entirely mechanical.
70. In Boskalis’ proposal, the TSHD and FPSP would form the basis for the production cycle. The TSHD would dredge the ore and then transfer it to the nearby FPSP, which would process it into a more concentrated product. This product would then be transferred to bulk carrier ships that would ship the product to end-user customers.¹³⁴

¹²⁸ Bryson WS, ¶ 41; Selby ER, ¶¶ 100-102.

¹²⁹ Bryson WS, ¶ 42; Selby ER, ¶ 102.

¹³⁰ First Expert Report of Deltares, dated 6 August 2020 (“**Deltares ER1**”), Sections 3.1 and 3.2, pp. 13-14.

¹³¹ Deltares ER1, Sections 3 and 3.1, p. 14.

¹³² **C-0059**, Boskalis Phosphate Mining Proposal, 28 May 2013, pp. 31-37; Bryson WS, ¶ 50.

¹³³ **C-0059**, Boskalis Phosphate Mining Proposal, 28 May 2013, pp. 31-32; Bryson WS, ¶¶ 72-77; **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, pp. 13-15, 53-54, 71-72.

¹³⁴ **C-0059**, Boskalis Phosphate Mining Proposal, 28 May 2013, pp. 23, 29-30, 41.

71. Over roughly the next three years, Mr. Bryson and Boskalis worked to refine this engineering solution in ways that:
- a. de-risked many aspects of the Project, especially those that were specific to the offshore processing context;
 - b. reduced capital and operating costs to make the Project one of the lowest-cost phosphate mines in the world;
 - c. enhanced efficiency; and
 - d. mitigated or eliminated environmental impacts to an unprecedented degree.¹³⁵
72. For example, Mr. Bryson and Boskalis made substantial strides in enhancing the efficiency of the engineering solution, as well as reducing capital and operating costs. Boskalis developed optimizations that, for example, eliminated the need for thermal drying, increased dredging efficiency, reduced power consumption on the FPSP, and minimized the need for certain repair requirements on the FPSP, further reducing estimated capital and operating costs.¹³⁶
73. Furthermore, after extensive studies to identify the optimal dredger size, Mr. Bryson and Boskalis settled on the *Seaway*, which Mr. Bryson described as the “Goldilocks” dredger for the Project—large enough that it could be adapted with a suction pipe of sufficient length to reach the seabed at the Don Diego deposit, but also small enough that it would dredge the requisite volumes at an appropriate rate, avoiding the risk that it would waste money sitting idle while the FPSP was busy processing its delivered volumes.¹³⁷ Ultimately, in consultation with Boskalis, Odyssey selected a dredging process based on proven technology that Boskalis had used successfully for dredging moveable material (such as sand or clay) all over the world, including in Mexican waters, in compliance with domestic and international environmental regulations.

¹³⁵ Bryson WS, ¶¶ 24, 31, 89, 90.

¹³⁶ **C-0105**, Boskalis Don Diego Phosphate Mining Executive Summary of Optimization, 25 February 2015, p. 8; Bryson WS, ¶¶ 89, 135, 138, 140.

¹³⁷ Bryson WS, ¶ 131.

74. Boskalis and Mr. Bryson also developed the engineering for the additional mechanical sizing step necessary to split the economic fraction of ore into two separate sized fractions that would produce two different phosphate products.¹³⁸ This held promise as a means to monetize the deposit more rapidly and at higher value, and formed a key component in the evolution of Odyssey’s business planning for the Project immediately prior to Mexico’s Denial of the MIA.
75. Boskalis and Mr. Bryson also implemented engineering configuration requests from Odyssey’s RSS department and its independent environmental consultants in order to meet the environmental commitments intended for inclusion in Odyssey’s MIA permit application. A primary example of this was the decision to avoid the release of any sediment at the water’s surface or in the pelagic water column.¹³⁹ Normal dredging practice around the world is to use a feature called “overflow,” which does just that.¹⁴⁰
76. For the Project, however, Odyssey required Boskalis to plan for the operation of its TSHD without using the overflow valve, and this commitment enabled Odyssey to ensure that strictly no sediment would be released into the surface water surrounding the TSHD.
77. In response to feedback from SEMARNAT, INAPESCA (Mexico’s National Fisheries Institute, the scientific adviser to the fisheries industry), and CONAPESCA (Mexico’s National Commission of Fisheries and Aquaculture, the commercial arm of the fisheries), Odyssey also required Boskalis to ensure that sediment was not released near the surface of the water or in the pelagic water column¹⁴¹ by the FPSP when it disposed of the unused, non-economic fraction of the dredged sediment following processing of the ore. Boskalis and Mr. Bryson devised a solution, termed the “Eco-tube,” which was a retractable pipe that extended from the FPSP down to just seven meters above the sea floor. The Eco-tube would allow the FPSP to return non-economic material directly back to the seabed,

¹³⁸ Bryson WS, ¶¶ 147, 150.

¹³⁹ Bryson WS, ¶¶ 180, 188, 190.

¹⁴⁰ **C-0059**, Boskalis Phosphate Mining Proposal, 28 May 2013, p. 20; Bryson WS, ¶ 157.

¹⁴¹ This refers to the upper surface of the water column which is not close to the coast.

bypassing the pelagic water column beneath the vessel and avoiding the creation of any sediment plumes in that water column.¹⁴²

78. Other environmental engineering decisions included using only mechanical particle sizing technology for the materials processing steps on board the FPSP. This meant that no processing chemicals of any kind would be used on the FPSP, further ensuring that this offshore environment would not be subject to any kind of potential water pollution.¹⁴³ Moreover, at Odyssey’s instruction, Boskalis made provisions for sea turtle protection devices such as “tickler chains,” which are essentially a curtain of chains that hang down from the dredging pipe in front of the draghead and encourage turtles to move out of the way, and turtle deflectors, which are like fenders that sit in front of the draghead and nudge turtles aside if they remain in the path of active dredging.¹⁴⁴ Although Boskalis explained that such devices would not be necessary for a variety of reasons—especially due to the absence of any turtles at the dredging depths of the Project, as well as the fact that Boskalis’ protocols and dredging techniques made it virtually impossible to dredge a turtle¹⁴⁵—Odyssey nevertheless insisted on these extra precautions being taken to eliminate any possibility of harm to turtles.

79. The final configuration of the engineering solution immediately prior to Mexico’s Denial of the MIA was expressed in the August 2015 MIA [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].¹⁴⁶

¹⁴² Bryson WS, ¶¶ 180, 188, 190; Newell WS, ¶ 25.
¹⁴³ Newell WS, ¶ 44.5.
¹⁴⁴ Bryson WS, ¶¶ 159-161; Newell WS, ¶ 26.3; Witness Statement of Douglas Clarke, dated 5 August 2020 (“Clarke WS”), ¶¶ 34-37.
¹⁴⁵ Bryson WS, ¶ 150; Newell WS, ¶¶ 26.2-26.3; Clarke WS, ¶¶ 74.3-74.5.
¹⁴⁶ C-0002, MIA, 21 August 2015, pp. 26-34, 43-47, 50-53, 73-86, 96-101; [REDACTED] [REDACTED], pp. 21-24.

G. ExO Applies for the Environmental Permit

1. The Environmental Approval Process

80. Mexico requires projects that could impact the natural environment to undergo an environmental risk assessment process and provide an environmental impact statement (in Spanish, Manifestación de Impacto Ambiental, or “**MIA**”).¹⁴⁷ In the MIA, an applicant explains how it will undertake a project, identifying and describing the project’s potential and actual environmental impacts and the measures it proposes to prevent or mitigate such impacts.¹⁴⁸
81. Applicants submit MIAs to SEMARNAT. SEMARNAT is a federal agency within the executive branch of the Mexican government.¹⁴⁹ The highest-ranking official of SEMARNAT holds the title of Secretary and is appointed directly by Mexico’s President.¹⁵⁰
82. Within SEMARNAT, the General Directorate of Impact and Environmental Risk (“**DGIRA**”) has the primary responsibility for analyzing, assessing, and approving MIAs.¹⁵¹ DGIRA is headed by a Director General who reports to the Undersecretary of Management for Environmental Protection (the “**Undersecretary**”), who in turn reports to SEMARNAT’s Secretary.¹⁵²
83. Following receipt of a MIA, DGIRA carries out an environmental impact assessment (“**EIA**”) under Article 44 of the Regulations of the Mexican General Law of Ecological Balance and Environmental Protection in Environmental Impact Assessment (“**R-LGEEPA-EIA**,” for its Spanish acronym). In doing so, DGIRA must take into account:

¹⁴⁷ Article 28 of the Mexican General Law of Ecological Balance and Environmental Protection (“**LGEEPA**”) requires mineral exploration projects to submit an environmental statement (“**MIA**”). See **C-0014**, Ley General del Equilibrio Ecologico y la Proteccion al Ambiente, 5 June 2018 (“**LGEEPA**”), p. 33, art. 28(III); Expert Report of Hector Herrera, dated 29 August 2020 (“**Herrera ER**”), ¶¶ 13-16.

¹⁴⁸ **C-0014**, LGEEPA, 5 June 2018, art. 3(XXI).

¹⁴⁹ Herrera ER, ¶ 27; **C-0035**, Reglamento Interior de la Secretaria de Medio Ambiente Y Recursos Naturales, 21 March 2003, art. 1.

¹⁵⁰ Herrera ER, ¶ 39; **C-0035**, Reglamento Interior de la Secretaria de Medio Ambiente Y Recursos Naturales, 21 March 2003, art. 1.

¹⁵¹ Herrera ER, ¶¶ 38-40.

¹⁵² Herrera ER, ¶¶ 39-40.

- a. “The possible effects of the works or activities to be carried out in the relevant ecosystems, taking into account the set of elements of which they are composed, and not just the resources that were exploited or impacted;”¹⁵³
 - b. “The use of natural resources in a way that respects the functional integrity and carrying capacities of the ecosystems of which they are part, for indefinite periods;”¹⁵⁴ and
 - c. “[P]reventive, mitigation and other measures that are proposed on a voluntary basis by the applicant, in order to avoid or minimize negative effects on the environment.”¹⁵⁵
84. Within 10 days of submission, SEMARNAT must issue a confirmation that a MIA meets the formal requirements.¹⁵⁶ It must also publish information in relation to the project (including the sponsor’s name and details, date of filing, main elements of the project, whether it is a MIA or some other study, and the location of the project) in the Ecological Gazette (*Gaceta Ecológica*).¹⁵⁷ SEMARNAT must also make the MIA, its annexes, and its executive summary available to the public at large.¹⁵⁸ Public consultations on a MIA are held if SEMARNAT receives a request to do so from an interested party within 10 days of publication.¹⁵⁹
85. SEMARNAT, through DGIRA, must decide whether to approve, conditionally approve, or deny a project. It has 60 business days to issue a decision, running from the date the MIA is filed.¹⁶⁰ This period can only be extended once for an additional 60 business days, meaning that a decision must be reached within a maximum of 120 business days from the date the MIA is filed.¹⁶¹ However, pursuant to Article 22 of R-LGEEPA-EIA, SEMARNAT

¹⁵³ **C-0097**, Regulations of the General Law of Ecological Balance and Environmental Protection in Environmental Impact Assessment, 31 October 2014 (“**R-LGEEPA-EIA**”), art. 44(I).

¹⁵⁴ **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 44(II). See definition of “carrying capacities” in Deltares ER1, Annex A, p. 45: “The carrying capacity of an environment is the maximum population size of a biological species that can be sustained in that specific environment, given the food, habitat, water, and other resources available.”

¹⁵⁵ **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 44(III).

¹⁵⁶ **C-0014**, LGEEPA, 5 June 2018, art. 35.

¹⁵⁷ **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 37.

¹⁵⁸ **C-0014**, LGEEPA, 5 June 2018, art. 34.

¹⁵⁹ **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 40.

¹⁶⁰ **C-0014**, LGEEPA, 5 June 2018, art. 35(BIS); **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 46.

¹⁶¹ **C-0014**, LGEEPA, 5 June 2018, art. 35(BIS); **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 46; Herrera ER, ¶ 52.

is entitled to suspend the running of this time by issuing an additional information request to the sponsor.¹⁶² The statutory time-frame resumes when SEMARNAT receives the additional information and can only take place once and up to a maximum of 60 working days.¹⁶³ SEMARNAT normally uses this period to interact with the project’s sponsor and ask for clarifications or additional information, to ascertain the views of any other private or public body, and to engage in a dialogue about adopting measures to address and mitigate legitimate environmental concerns.¹⁶⁴

86. The grounds for denying a MIA are defined under Article 35 of the General Law of Equilibrium and the Protection of the Environment (“**LGEEPA**,” for its Spanish acronym).¹⁶⁵ They are limited to the following:¹⁶⁶
- a. The project contravenes Mexican laws or regulations;
 - b. The project may cause a species to be declared as endangered or where the project affects an already endangered species; or
 - c. The MIA contains false information.
87. SEMARNAT must not deny a project for political or other reasons falling outside of Article 35—not even for environmental reasons that fall outside the criteria included in Article 35.¹⁶⁷ Mexican administrative law thus requires SEMARNAT’s decision to be reasoned and supported by (or “grounded in”) scientific evidence.¹⁶⁸
88. Complex projects are not new to SEMARNAT. In such cases, SEMARNAT approves a project subject to conditions as to how it must be carried out, and subject to continuous and adaptive monitoring by the agency.¹⁶⁹ As part of the MIA process, SEMARNAT is

¹⁶² **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 22

¹⁶³ **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 22.

¹⁶⁴ Herrera ER, ¶¶ 45-51; [REDACTED] **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 26.

¹⁶⁵ **C-0014**, LGEEPA, 5 June 2018, art. 35; Herrera ER, ¶ 18.

¹⁶⁶ **C-0014**, LGEEPA, 5 June 2018, art. 35(III).

¹⁶⁷ Herrera ER, ¶¶ 18-19.

¹⁶⁸ Herrera ER, ¶ 10.

¹⁶⁹ Expert Report of Vladimir Pliego, dated 3 September 2020 (“**Pliego ER**”), ¶¶ 69, 89-90.

supposed to seek to establish the conditions that a project will need to fulfill in order to prevent or mitigate a negative impact on the environment.¹⁷⁰

2. Odyssey Prepares Its Application for the MIA Approval, Engaging Leading Environmental Scientists Around the World

89. ExO and Odyssey spent almost two years preparing an environmentally sustainable development plan and the MIA to be submitted for approval by SEMARNAT.¹⁷¹
90. As noted above, Odyssey's dredging partner Boskalis had significant experience with environmentally sustainable dredging, including measures to protect turtles and seabed remediation. Odyssey complemented this expertise with a team of experts in ecotoxicology, fishing, marine biology, marine ecosystem management, marine dredging, oceanography, plume modelling, sound propagation, and turtles and turtle protection measures, among others. A more detailed description of that team can be found in the witness statement of Mr. Oppermann, with each expert listed in Appendix One of his statement. A description of how the MIA was prepared can be found in the statement of ExO's Environmental and Project Manager, Dr. Claudio Lozano Guerra-Libero.¹⁷²
91. Odyssey engaged Dr. Richard Newell as an independent consultant in 2013 to act as the Project's Chief Project Scientist. Dr. Newell is a Senior Research Fellow at The Royal Society and one of the world's foremost experts in the field of applied marine biology, with over 115 peer-reviewed publications to his name.¹⁷³ Throughout his career, he has been closely involved with the marine dredging industry, advising on all aspects of the environmental impacts of TSHD techniques, such as those proposed at Don Diego. In this capacity, he has been involved in compiling numerous environmental impact assessments and has submitted in excess of 300 technical reports for clients on numerous projects.¹⁷⁴

¹⁷⁰ Pliego ER, ¶¶ 76-77.

¹⁷¹ Oppermann WS, ¶¶ 17, 44-83; Lozano WS, ¶¶ 24-44.

¹⁷² Oppermann WS, ¶¶ 44-83; Lozano WS, ¶¶ 24-45.

¹⁷³ Newell WS, ¶¶ 5-12.

¹⁷⁴ Newell WS, ¶¶ 3, 6-12; Lozano WS, ¶ 26.

92. Mexican environmental consulting firm, QV Gestión Ambiental SC (“**QVGA**”), advised on the MIA and helped to compile it.¹⁷⁵ QVGA is one of the leading environmental consulting firms in Mexico. Its principals are mostly former SEMARNAT officials with extensive experience evaluating and now writing MIAs. At the time ExO and Odyssey hired QVGA, it had submitted more than 80 MIAs that had been approved.¹⁷⁶ ExO and Odyssey retained Mexican environmental lawyer Mauricio Limón Aguirre as an environmental law consultant. Mr. Limón had served as the Undersecretary of SEMARNAT under the Calderón Administration from 2006 to 2012.¹⁷⁷ Together, QVGA and Mr. Limón had deep experience with the legal requirements for MIAs and SEMARNAT’s expectations.
93. The MIA incorporated several different components of analysis by various expert consultants.
94. For example, ExO engaged Marine Ecological Surveys Limited (“**MESL**”)¹⁷⁸ to analyze and interpret the marine ecological and environmental data gathered during the cruises, with the aim of describing the ecology of Baja California Sur.¹⁷⁹
95. Its key findings included:
- a. The rate of dredging (roughly 1 km²/year) would “allow the seafloor to naturally recover prior to disturbing adjacent areas”;¹⁸⁰
 - b. “[T]he species that comprise the community within the resource area are insignificantly different from the community composition of deposits sampled outside the resource area in the SAR”;¹⁸¹ and

¹⁷⁵ Lozano WS, ¶ 24.

¹⁷⁶ Lozano WS, ¶ 25.

¹⁷⁷ Lozano WS, ¶ 25.

¹⁷⁸ MESL was uniquely qualified to advise on baseline regeneration and recolonization, given its advisory role on the environmental impacts of major at-sea, industrial, and construction developments since 1975. MESL’s expertise conducting benthic, epi-benthic, and intertidal biological surveys in support of environmental impact assessments and monitoring programs was a natural fit for the Don Diego Project. **C-0024**, MESL, Tender, 8 December 2014, p. 6.

¹⁷⁹ **C-0102**, MESL Don Diego Marine Ecological Report 2014, 21 January 2015, p. 4.

¹⁸⁰ **C-0102**, MESL Don Diego Marine Ecological Report 2014, 21 January 2015, p. 49.

¹⁸¹ **C-0102**, MESL Don Diego Marine Ecological Report 2014, 21 January 2015, p. 9. “**SAR**” is the acronym for Sistema Ambiental Regional (in English, Regional Environmental System). The SAR is the geographical space characterized by its extension and uniformity, whose boundaries are determined in connection to the ecosystems therein contained. When delineating the SAR, various environmental components are used

- c. “[T]he population density within the deposits of the resource area is only 50% of that found in the surrounding deposits. The resource area thus supports a relatively impoverished community comprising species that are represented in abundance over the wider area included within this study.”¹⁸²
96. In addition, ExO engaged EA Engineering (“EA”) to produce the initial ecotoxicity reports. Ecotoxicity testing helps determine the levels and types of man-made or natural contaminants that cause harm to biota and the likely impact of these contaminants on native species at different levels. While Odyssey’s intended dredging and processing procedure is mechanical, not chemical, EA performed a series of tests designed to assess whether the dredging and return of sediments at the seabed in the Project area would release toxic substances into the water column, and if so, whether representative organisms present in the Project area would likely be affected by the toxicity of sediments resulting from the dredging activities.¹⁸³ The results indicated “none of the sediment samples had substantial adverse effects on the test organisms, when compared to the corresponding control,” and would therefore be classed as either “non-toxic” or not “acutely toxic.”¹⁸⁴
97. ExO also engaged CalScience Environmental Laboratories, Inc. (“CalScience”) to carry out the environmental and marine chemistry testing for the Project.¹⁸⁵ It performed a series of tests designed to determine the likely impact of the Project on marine organisms in the Project area.

such as geo-form, water, air, soil, flora, fauna, population, infrastructure and landscape. The factors with which the project interacts in space and time (location, extension, dimensions, etc.) should also be taken into consideration. (See **C-0139**, SEMARNAT, “Guia para la presentacion de la manifestacion de impacto ambiental del sector Vias Generales de Comunicacion, Modalidad: particular,” 2016, p. 4.) In the context of the Project, it encompasses an area of 17,737 km². The annual dredging area comprises only 0.0056% of this wider SAR.

¹⁸² **C-0102**, MESL Don Diego Marine Ecological Report 2014, 21 January 2015, p. 9.

¹⁸³ **C-0002.02**, MIA, 21 August 2015, Annex 2, pp. 1-2.

¹⁸⁴ **C-0102**, MESL Don Diego Marine Ecological Report 2014, 21 January 2015, pp. 1-2; **C-0099**, Letter from EA Engineering to Odyssey Marine Exploration, Inc., 19 November 2014; **C-0002.02**, MIA, 21 August 2015, Annex 2, pp. 2, 9-10.

¹⁸⁵ **C-0002.12**, MIA, 21 August 2015, Annex 12, p. 11.

98. The results of these tests confirmed that there was no evidence to suggest the project would alter the composition of nutrients, heavy metals, or suspended solids beyond permissible Mexican (and U.S.) thresholds.¹⁸⁶
99. ExO engaged the Scottish Association for Marine Science Research Services Ltd. (“SAMS”) to assess the physical effects of dredging and re-deposition of dredged material on the seabed and its likely impact on the habitats and species in the Active Dredging Area (“ADA”). SAMS modelled the likely impacts on four representative species found in the Project area (and throughout the Gulf of Ulloa): pelagic red crab (*Pleuroncodes planipes*) (an important species in these proceedings because of its prominence in the denials), warty sea cucumber, ridgeback prawn, and blossom shrimp. It concluded that less than five percent of species would be considered sensitive to the predicted levels of sediment deposition; three of the four species identified by Odyssey for review, including the pelagic red crab, were “not considered sensitive to the sedimentation and suspended sediment plumes”; and the relatively small size of the area to be dredged annually (1 km²) meant that any impacts were expected to be localized.¹⁸⁷
100. Odyssey engaged HR Wallingford to model¹⁸⁸ the sound “footprint” of the proposed dredging operations at Don Diego and its potential impact on a number of marine species.¹⁸⁹ HR Wallingford fed the noise of the TSHD and FPSP into its model, together with the hearing frequencies/range of the various species considered, and graded the severity of the likely behavioral responses (if any) of each species.¹⁹⁰
101. HR Wallingford concluded¹⁹¹ that the noise levels generated during dredging would be similar in intensity and magnitude to the whale-watching vessels that frequent the region,

¹⁸⁶ **C-0002.12**, MIA, 21 August 2015, Annex 12, pp. 10-13.

¹⁸⁷ **C-0002.08**, MIA, 21 August 2015, Annex 8, pp. 9-14.

¹⁸⁸ The model used was the internationally recognized HAMMER (Hydro-Acoustic Model for Ecological Mitigation and Response) tool, which can model discrete sound frequencies and factors influencing their propagation, including: different water depths, changing oceanographic and seabed conditions, water temperature and salinity changes, and ambient noise levels. **C-0002**, MIA, 21 August 2015, pp. 507, 718-719.

¹⁸⁹ **C-0002.10**, MIA, 21 August 2015, Annex 10, p. 3.

¹⁹⁰ **C-0002.10**, MIA, 21 August 2015, Annex 10, pp. 24-25.

¹⁹¹ **C-0002.12**, MIA, 21 August 2015, Annex 12, pp. 14-25.

the merchant ships that cross the trade routes, and fishermen's ships.¹⁹² Furthermore, the TSHD and FPSP will be either stationary or moving at a slow walking pace, in contrast with whale watching vessels, for example, so it will be easy for affected species to simply evade the source of the sound. Consequently, the predicted sound levels were determined to be unlikely to cause damage to any of the species considered.

102. With expert scientific support from MESL and SAMS, Dr. Newell studied the composition of the benthic and epibenthic fauna present in the Project area, analyzed their resilience and recovery rates, and developed methods to mitigate any impacts.¹⁹³
103. Odyssey and ExO also engaged Dr. Douglas Clarke to advise on measures to protect sea turtles during dredging operations. Dr. Clarke holds a doctorate in biology and spent the bulk of his career at the U.S. Army Corps of Engineers ("**USACE**"), where he focused on assessing the environmental impacts of coastal engineering projects and dredging and methods to avoid or mitigate those impacts.
104. As Dr. Clarke notes and describes,¹⁹⁴ in relation to sea turtles, hydraulic entrainment is the major concern associated with TSHD operations due to their use of suction (with the Biological Opinions noting that there is little risk to sea turtles from other aspects of dredging operations, such as collisions with surface ships, because of their speed).¹⁹⁵ Hydraulic entrainment is a concern which arises predominantly when dredging in shallower waters that could contain high densities of sea turtles. That is not applicable to this Project.¹⁹⁶
105. Despite the fact that the scientific assessment determined that turtles would be encountered rarely, if at all, because of the depth at which the dredging was to occur, the Project still includes turtle protection measures that have been developed in the United

¹⁹² **C-0002**, MIA, 21 August 2015, pp. 117-118, 206-209, 507-513, 543, 669-673; **C-0002.13**, MIA, 21 August 2015, Annex 13.

¹⁹³ Newell WS, ¶¶ 3, 24-27.

¹⁹⁴ Clarke WS, ¶¶ 31-32, 67.1.

¹⁹⁵ **C-0191**, South Atlantic Regional Biological Opinion, 27 March 2020, pp. 521-531 (particularly Section 3.1, pp. 529-531); **C-0039**, Gulf Regional Biological Opinion, Rev.2, 9 January 2007, pp. 8-16. There are no traffic restrictions in the Gulf of Ulloa.

¹⁹⁶ Clarke WS, ¶¶ 32, 59; [REDACTED]

States and elsewhere, together with additional protection.¹⁹⁷ Indeed, Dr. Clarke describes the package of measures proposed by ExO as the “gold standard for projects elsewhere”¹⁹⁸ and “as comprehensive a package of protection measures as occurred anywhere in the world.”¹⁹⁹ ExO’s measures included:

- a. Turtle deflectors: devices that push a sand wave in front of the draghead. This creates a soft barrier for any turtle and shunts the turtle aside to swim away.²⁰⁰ The development, nature, and success of sea turtle deflectors is described in paragraphs 34 to 36 of Dr. Clarke’s witness statement, with annotated photographs. They are a critical part of the turtle protection measures mandated in the United States.²⁰¹
- b. Tickler chains: chains hanging ahead of the draghead, gently scouring the surface to alert any turtle on the path of the dredge to the draghead’s presence and induce it to swim away.²⁰² These are a less expensive alternative to turtle deflectors. Here, ExO proposed to use both turtle deflectors and tickler chains with the objective of providing even more protection than that provided by deflectors alone.²⁰³
- c. Pumping protocols: ExO intended to turn off suction pumps when the draghead was raised above the seabed to prevent entrainment of turtles swimming underneath.²⁰⁴ In both Denials, SEMARNAT incorrectly asserted that this is a part of ordinary dredging operations.²⁰⁵ As Dr. Clarke explains, this is not true.²⁰⁶ This measure was specifically developed to protect turtles and is incorporated in the Biological Opinions.²⁰⁷
- d. Independent observers (and screens): third parties placed on the TSHD to identify turtle mortalities caused by dredging and report them to the authorities. This ensures mortalities are investigated and understood, and operating practices are

¹⁹⁷ Clarke WS, ¶¶ 32-33; Bryson WS, ¶¶ 159-161; Expert Report of Sergio Flores-Ramirez, dated 1 September 2020 (“S. Flores ER”), ¶¶ 109-127.

¹⁹⁸ Clarke WS, ¶ 80; C-0154, Doug Clarke mitigation measures email, 31 August 2016.

¹⁹⁹ Clarke WS, ¶ 80.

²⁰⁰ Clarke WS, ¶ 36.1.

²⁰¹ Clarke WS, ¶¶ 34-36; C-0191, South Atlantic Regional Biological Opinion, March 2020, pp. 44, 86, 109; C-0039, Gulf Regional Biological Opinions, Rev.2, 9 January 2007, p. 10.

²⁰² Clarke WS, ¶¶ 37-38.

²⁰³ Clarke WS, ¶¶ 37, 59; Lozano WS, ¶ 56; Newell WS, ¶ 26.3.

²⁰⁴ Clarke WS, ¶¶ 39-40, 60.

²⁰⁵ C-0008, SEMARNAT Denial Decision, 7 April 2016, p. 222; C-0009, SEMARNAT Denial Decision, 12 October 2018, p. 500.

²⁰⁶ Clarke WS, ¶ 78.1.

²⁰⁷ See, for example (i) C-0191, South Atlantic Regional Biological Opinion, 27 March 2020, pp. 530-531 and (ii) C-0039, Gulf Regional Biological Opinion, Rev.2, 9 January 2007, p. 10.

revised if necessary.²⁰⁸ Screens ensure entrained turtles would be observed. Again, these are key components of the Biological Opinions.²⁰⁹

- e. “Project take limits”: ExO and Dr. Clarke state there is every chance that the Project would cause no turtle mortalities²¹⁰ (a view shared by Professor Flores-Ramirez).²¹¹ However, ExO accepted that it could not entirely discount the possibility that, on occasion, *Caretta caretta* or other endangered sea turtles would visit the seabed when the dredging was taking place, despite the temperature, and be entrained despite the protection measures. That is the right approach to risk assessment. In its Additional Information for the August 2015 MIA, ExO suggested, on a conservative basis as explained by Dr. Clarke,²¹² a risk of dredging-induced mortalities of up to five turtles per year of operation.²¹³ That figure was proposed so SEMARNAT could, if it wished, set a maximum limit for the number of allowable turtle mortalities, or “takes,” per year as a conditional approval of the MIA, reflecting the approach of the National Marine Fisheries Service (“NMFS”) in the U.S. Biological Opinions.²¹⁴ By way of reference, SAGARPA (the Mexican Fishing and Agricultural Ministry), imposed a 90-loggerhead take limit²¹⁵ on fishermen in the Gulf of Ulloa in June 2016, two months after SEMARNAT first denied the Project (ostensibly on the basis of the potential impact of the Project on loggerhead turtles)²¹⁶ This regulation and take number have been renewed since then.²¹⁷

106. As Dr. Clarke explains, in circumstances where turtles are actually likely to be found, these measures have reduced annual turtle mortalities in the United States to less than two per dredging project per year on average. And when such measures are adopted for an environment with a much lower expected turtle population density, such as the Project area, the likelihood of any mortalities would be even lower, if ever.²¹⁸

²⁰⁸ **C-0002**, MIA, 21 August 2015, pp. 812-815.

²⁰⁹ See, for example (i) **C-0191**, South Atlantic Regional Biological Opinion, 27 March 2020, pp. 529-530 and (ii) **C-0039**, Gulf Regional Biological Opinion, Rev.2, 9 January 2007, pp. 9-10.

²¹⁰ Clarke WS, ¶ 74.5; Lozano WS, ¶ 56.

²¹¹ S. Flores ER, ¶¶ 29, 113.

²¹² Clarke WS, ¶¶ 74.3-74.4.

²¹³ **C-0005**, Additional Information, 3 December 2015, p. 408.

²¹⁴ Clarke WS, ¶¶ 27, 74.4; **C-0191**, South Atlantic Regional Biological Opinion, 27 March 2020, pp. 425-427; **C-0036**, Gulf Regional Biological Opinion, 19 November 2003; **C-0037**, Gulf Regional Biological Opinion, Rev.1, 24 June 2005; **C-0039**, Gulf Regional Biological Opinion, Rev.2, 9 January 2007, p. 5.

²¹⁵ **C-0010**, Fishing Agreement, 23 June 2016. If this take limit were to be reached before the end of the year, fishing activities would be suspended.

²¹⁶ **C-0010**, Acuerdo Pesquero, 23 June 2016.

²¹⁷ **C-0011**, Acuerdo Pesquero, 25 June 2018.

²¹⁸ Clarke WS, ¶ 50.

H. ExO Files the MIA

107. On 3 September 2014, ExO filed the MIA with SEMARNAT.²¹⁹ In total, the MIA was over 5,000 pages long and included an Executive Summary and presentation, eight chapters, and 15 annexes of scientific reports. A detailed “Readers’ Guide” to the MIA is at Annex A to this submission, but its key features can be summarized as follows:²²⁰
- a. Compared with conventional terrestrial mining, seabed dredging has reduced infrastructure requirements, does not require the relocation of communities, has no impact on potable water supplies, requires little or no removal of overlying material, has an overall lower carbon footprint and a better occupational health and safety record, and leaves minimal impact on seabed topography.²²¹
 - b. The dredging process is chemical-free and non-toxic,²²² and operates exclusively through mechanical extraction and separation (the technical term is “beneficiation”).²²³ As noted above, testing of the phosphate sediments confirmed that the dredging and return of sediment would not expose living organisms to any toxic substances.²²⁴
 - c. TSHD dredging normally releases water containing suspended unwanted dredged material through overspill pipes close to the surface, with the use of a “green valve” to reduce entrainment of air bubbles that could otherwise cause some excess water and suspended sediments to rise to the sea surface.²²⁵ ExO proposed using a “green valve” in the September 2014 MIA.²²⁶ Near-surface discharge creates a sediment plume in the water column. HR Wallingford modelled the dispersal of the sediment plume that would result.²²⁷

²¹⁹ Lozano WS, ¶¶ 21, 32.

²²⁰ As discussed below, in June 2015 then-Undersecretary Pacchiano encouraged ExO, for extra-judicial, political reasons, to “voluntarily” withdraw its original MIA and resubmit it in order to restart the clock on the review process. Feeling it had little choice, ExO did as Undersecretary Pacchiano bid. On 21 August 2015, ExO filed a new MIA. The Readers’ Guide at Annex A digests the 21 August 2015 MIA, which is the MIA that SEMARNAT ultimately denied twice. The description of the MIA that follows also reflects the 21 August 2015 MIA.

²²¹ **C-0002**, MIA, 21 August 2015, pp. 10-11.

²²² **C-0002**, MIA, 21 August 2015, pp. 85, 174, 639-640, 803; Bryson WS, ¶ 99, 133; Deltares ER1, Section 4.1.1, pp. 20-21, and Section 5.2, p. 38.

²²³ Bryson WS, ¶¶ 53, 66, 68, 69.

²²⁴ **C-0002**, MIA, 21 August 2015, pp. 736, 992-993; **C-0002.02**, MIA, 21 August 2015, Annex 2, pp. 1-2, 12; **C-0002.08**, MIA, 21 August 2015, Annex 8, pp. 8-9.

²²⁵ **C-0002**, MIA, 21 August 2015, p. 40; Deltares ER1, Section 4.1.1, p. 21.

²²⁶ **C-0002**, MIA, 21 August 2015, pp. 40, 69-71.

²²⁷ **C-0002.09**, MIA, 21 August 2015, Annex 9, pp. 113-135.

- d. The modelling demonstrated that the environmental impact of this plume would be minimal and manageable.²²⁸ This was because the sediment plume would not materially affect primary production (the growth of phytoplankton, which forms the basis of the marine food web),²²⁹ or have any other material adverse impact, and was environmentally sustainable.²³⁰ However, following discussions with SEMARNAT and others, the final version of the MIA moved away from near-surface discharge to discharge near the seabed using the Eco-tube. This is described in further detail below.
- e. Dredging would only take place in a tiny fraction of the overall Concession area each year. The annual area affected by dredging would be a strip approximately 3.5 km long and about 200 to 300 meters wide.²³¹ This amounts to approximately 1 km² in total each year, out of a total Concession area of 800 km² situated within a SAR of 17,737.48 km², and forming part of the Gulf of Ulloa which occupies 19,934 km².²³²
- f. There was an extremely low likelihood of impacting marine animals, notably sea turtles and whales, and none that would impact the species as a whole—which was the applicable test under Article 35 of the LGEEPA. In relation to sea turtles, the MIA noted that it was highly unlikely that *Caretta caretta* would spend time in the dredging area²³³ because of its depth and the lack of available food, although ExO acknowledged it was possible that individuals might pass through the dredging area.²³⁴ Whale migration routes are in deeper waters located to the west of the development site or shoreward in shallower waters east of the development site.²³⁵ Given the location of the Project and its very limited annual footprint of 1 km², there was no possibility of impacts on conservation-significant resources on the coastline. Furthermore, acoustic modelling confirmed that operations would generate no harmful frequencies or volumes in areas of whale migration.²³⁶
- g. The Project would not affect local fisheries.²³⁷ While the dredging areas are sporadically frequented by either commercial or smaller local fisheries, given the naturally low numbers of fish in the sector and low catch numbers, fishermen have historically avoided the water column directly above the Don Diego deposit—they

²²⁸ Newell WS, ¶ 25.2; **C-0002.09**, MIA, 21 August 2015, Annex 9, p. 3; Deltares ER1, Section 4.2.3, pp. 28-29.

²²⁹ Deltares ER1, Annex A, p. 46.

²³⁰ **C-0002**, MIA, 21 August 2015, pp. 675-688; Newell WS, ¶ 25.

²³¹ **C-0002**, MIA, 21 August 2015, pp. 654-655.

²³² **C-0010**, Fishing Agreement, 23 June 2016.

²³³ **C-0002**, MIA, 21 August 2015, pp. 423-426.

²³⁴ **C-0002**, MIA, 21 August 2015, p. 424.

²³⁵ **C-0002**, MIA, 21 August 2015, pp. 393-409.

²³⁶ **C-0002**, MIA, 21 August 2015, pp. 702-703; **C-0002.10**, MIA, 21 August 2015, Annex 10.

²³⁷ **C-0002**, MIA, 21 August 2015, pp. 49, 475-477, 495-500, 737-738.

refer to the area as “Los Lodos” or “the silts.”²³⁸ Furthermore, economic compensation will be available to fishermen in case they are affected by the project’s operations.²³⁹

- h. The Project would not have any impact on tourism. At 40 km from the coast, it would not be visible from the shoreline and would have no impacts on coastline amenities, nor does it require adjacent shore-based facilities that might affect the Baja California Sur area leisure and tourism industry.²⁴⁰
- i. The development plan incorporated a range of precautionary mitigation measures and extensive ongoing monitoring and adaptation of those measures, if necessary.²⁴¹ These include the turtle protection measures described above,²⁴² turtle conservation measures not directly related to the Project,²⁴³ monitoring of the sediment plume,²⁴⁴ and a program to monitor and support seabed recovery.²⁴⁵

I. The Evaluation of the MIA

1. Key SEMARNAT Personnel

- 108. At the time ExO submitted the MIA, the Secretary of SEMARNAT was Mr. Juan José Guerra Abud.
- 109. Mr. Rafael Pacchiano Alamán was SEMARNAT’s Undersecretary of Environmental Protection. In August 2015, Mr. Pacchiano succeeded Mr. Guerra as Secretary.²⁴⁶
- 110. Mr. Pacchiano had no environmental experience before joining SEMARNAT. In fact, he is widely considered to be one of the least academically and professionally prepared

²³⁸ **C-0002**, MIA, 21 August 2015, pp. 477, 485, 495-500.

²³⁹ **C-0002**, MIA, 21 August 2015, pp. 915-916.

²⁴⁰ **C-0002**, MIA, 21 August 2015, pp. 10, 50, 127-128, 136-137, 541-543, 1019; **C-0005**, Additional Information, 3 December 2015, pp. 294-295.

²⁴¹ **C-0002**, MIA, 21 August 2015, pp. 24, 769-916.

²⁴² **C-0002**, MIA, 21 August 2015, pp. 803-817.

²⁴³ **C-0002**, MIA, 21 August 2015, pp. 803-805, 815, 925-926.

²⁴⁴ **C-0002**, MIA, 21 August 2015, pp. 623, 894-911.

²⁴⁵ **C-0002**, MIA, 21 August 2015, pp. 784-802.

²⁴⁶ **C-0167**, A. Ortega Rubio, “Mexican Natural Resources Management and Biodiversity Conservation,” Chapter 3 (2018), pp. 82-83.

Secretaries in the history of SEMARNAT²⁴⁷ Mr. Pacchiano's previous professional experience, with a degree in business administration, was in selling cars.²⁴⁸

111. As part of his role as Undersecretary and overseer of DGIRA, which conducted the environmental impact assessment ("EIA"),²⁴⁹ Mr. Pacchiano acted as the Mexican federal government's representative in Baja California Sur,²⁵⁰ which effectively made him the federal government's spokesperson in the state and consequently a potential target of its constituents' ire.
112. In fact, he had experienced this ire when, in August 2014, SEMARNAT approved the MIA for Los Cardones, an open pit gold mining project located within Sierra de La Laguna, a UNESCO biosphere reserve.²⁵¹ Local opposition was so vocal and strong that the locally-based backers of this project were never able to utilize the approvals they had obtained to proceed with it.²⁵² The manner in which this story played out also helped cement local opposition against mining projects generally and Mr. Pacchiano in particular.²⁵³
113. Undersecretary Pacchiano was also criticized for SEMARNAT's handling of the vaquita marina, a toothed whale which was the smallest of all cetaceans and which once inhabited the Gulf of California in the thousands. The population was decimated when these small whales were incidentally caught and killed as the by-catch of a lucrative trade in *totoaba* swim bladder with China.²⁵⁴ By 2017, experts estimated that only about 30

²⁴⁷ C-0167, A. Ortega Rubio, "Mexican Natural Resources Management and Biodiversity Conservation," Chapter 3 (2018), pp. 83-85; [REDACTED]

²⁴⁸ C-0167, A. Ortega Rubio, "Mexican Natural Resources Management and Biodiversity Conservation," Chapter 3 (2018), p. 85.

²⁴⁹ C-0067, Manual General de Organización de la SEMARNAT, 13 August 2013, pp. 62-63.

²⁵⁰ C-0141, SEMARNAT, "Rafael Pacchiano supervisa el avance de las obras y acciones comprometidas en Baja California Sur," Ciencias Ambientales, 21 March 2016.

²⁵¹ C-0091, "Revés al medio ambiente: México autoriza la explotación de la mina Los Cardones," Ecoticias, 1 August 2014, pp. 2-4.

²⁵² C-0175, G. Rodríguez Navarro, "Protestan contra proyecto minero en área protegida de Baja California Sur," El Universal, 29 August 2018.

²⁵³ [REDACTED]

²⁵⁴ C-0159, E. Malkin, "Before Vaquitas Vanish, a Desperate Bid to Save Them," The New York Times, 27 February 2017, p. 2. Wealthy Chinese diners would pay thousands of dollars per meal for this alleged delicacy, which was believed to have medicinal powers.

vaquitas remained,²⁵⁵ and by July 2019, roughly 18 specimens remained. Even though *vaquitas* were not targeted by *totoaba* poachers, their practices were estimated to have killed 90% of the vaquita population between 2011 and 2017.²⁵⁶ Undersecretary Pacchiano’s management of the issue, which became the subject of significant media attention in Mexico, was heavily criticized as ineffective.²⁵⁷

2. DGIRA Reviews the MIA and Considers It to Be Thorough, Comprehensive, and “Outstanding,” ExO Provides Additional Information Requested by SEMARNAT, and Undersecretary Pacchiano Expresses Concerns About Political Issues

114. As discussed above, DGIRA was the agency within SEMARNAT responsible for reviewing MIAs and drafting decisions approving, conditionally approving, or denying approval of projects on the basis of the submitted MIAs. [REDACTED]

[REDACTED]

115. DGIRA staff reviewed the MIA and found it to be thorough, comprehensive, and complete.²⁶⁰

116. ExO was in close contact with SEMARNAT throughout the evaluation process, with regular meetings between ExO and SEMARNAT’s scientists.²⁶¹

²⁵⁵ C-0159, E. Malkin, “Before Vaquitas Vanish, a Desperate Bid to Save Them,” The New York Times, 27 February 2017, p. 1.

²⁵⁶ C-0159, E. Malkin, “Before Vaquitas Vanish, a Desperate Bid to Save Them,” The New York Times, 27 February 2017, p. 2.

²⁵⁷ C-0159, E. Malkin, “Before Vaquitas Vanish, a Desperate Bid to Save Them,” The New York Times, 27 February 2017, p. 7.

²⁵⁸ [REDACTED]

²⁵⁹ [REDACTED]

²⁶⁰ [REDACTED]

²⁶¹ Lozano WS, ¶¶ 22, 27-44, 51-53, 65-67, 69-70.

117. On 14 August 2014, Mr. De Narvaez and Dr. Lozano of ExO briefly met with SEMARNAT’s then-Secretary Guerra to discuss the Project. Neither the Secretary nor anyone from his staff expressed any environmental concerns. The Secretary said that he would brief the President of Mexico on the Project.²⁶²
118. Immediately after that meeting, ExO met with then-Undersecretary Pacchiano and some of SEMARNAT’s experts, including an expert on whales and turtles, as well as SEMARNAT’s lawyers.²⁶³ Mr. De Narvaez and Dr. Lozano gave an overview of the Project and answered questions. Undersecretary Pacchiano commented that ExO would have to address any impact on turtles and noted that SEMARNAT would need to understand the extent of the dredging area and whether there could be disruption to whale migration patterns. He described turtles and whales as “political issues”—a theme that would resurface throughout the review process and subsequent Denial decisions, as discussed further below.²⁶⁴
119. ExO perceived that its first meeting with Undersecretary Pacchiano was a success, despite his cryptic reference to “political issues.”²⁶⁵ Consequently, on 3 September 2014 ExO submitted its original MIA to SEMARNAT.
120. On 28 September 2014, SEMARNAT notified ExO that the agency would be undertaking public consultations with regard to the Project, as was also typical.²⁶⁶ Ahead of those consultations, SEMARNAT asked ExO to publish summaries of the Project in one or more newspapers in Baja California Sur, as required under Article 34 of the LGEEPA and Article 41 of R-LGEEPA-EIA.²⁶⁷ ExO did so,²⁶⁸ and public consultations were held on 5 November 2014.²⁶⁹

²⁶² Lozano WS, ¶ 27.

²⁶³ Lozano WS, ¶ 28.

²⁶⁴ Lozano WS, ¶ 29.

²⁶⁵ Lozano WS, ¶ 31.

²⁶⁶ **C-0095**, Letter No. 08157 from SEMARNAT to ExO, 28 September 2014; Lozano WS, ¶ 27.

²⁶⁷ **C-0014**, LGEEPA, 5 June 2018, p. 36, art. 34; **C-0097**, R-LGEEPA-EIA, 31 October 2014, art. 41.

²⁶⁸ Lozano WS, ¶ 32; **C-0095**, Letter No. 08157 from SEMARNAT to ExO, 28 September 2014.

²⁶⁹ Lozano WS, ¶ 32.

121. On 21 November 2014, SEMARNAT issued a request for additional information, which included questions about whether there could be any potential impact from the Project on turtles, whales, or on primary production (i.e. the production of organic compounds, for example by photosynthesis, which is the base of the food chain)²⁷⁰. While ExO prepared its response, it continued to meet with SEMARNAT in person to discuss the Project and SEMARNAT's review of the MIA. These meetings were constructive, and importantly, SEMARNAT's scientists were satisfied with the answers given by ExO's representatives.²⁷¹
122. SEMARNAT did not suggest, for example, any belief that the Project might propose any potential, unknown environmental risks. Nor did any SEMARNAT official claim that the Project could have an adverse impact on the Gulf of Ulloa. Nor was any suggestion made that ExO's mitigation measures could be considered untested or insufficient, or that commercial or small-scale fisheries could be negatively impacted by the Project. Nevertheless, these very same officials would later cite each of the foregoing alleged risks as a basis for denying the MIA. Judging from the tone of the meetings, including the specific issues contemporaneously raised by SEMARNAT officials during them, ExO officials were led to believe that objective, scientific, and fair evaluation of the Project was being observed and, as such, they fully expected the MIA to be approved.²⁷²
123. In those discussions, SEMARNAT officials emphasized that the agency wanted ExO to look at ways of mitigating the effect of dredging on the water column by reducing the sediment plume.²⁷³ In addition, they stressed the need to ensure that mitigation measures were in place to protect turtles and monitor seabed recovery. At no point did any of the SEMARNAT officials who participated in these meetings suggest in the meetings that these were grounds to deny the Project.²⁷⁴

²⁷⁰ C-0100, Letter No. 09776 from SEMARNAT to ExO, 21 November 2014.

²⁷¹ Lozano WS, ¶¶ 34-35, 38-39.

²⁷² Lozano WS, ¶¶ 34-35, 39.

²⁷³ Lozano WS, ¶ 34; Newell WS, ¶ 25.5.

²⁷⁴ Lozano WS, ¶ 34.

124. In January and February 2015,²⁷⁵ while ExO continued to prepare its response to the request for additional information, its representatives met with INAPESCA and CONAPESCA. The purpose of these meetings was to explain the Project and the environmental assessments that had been undertaken and, in particular, the fact that the Project would not have an impact on fisheries resources. It was clear that INAPESCA and CONAPESCA were opposed to seabed dredging in principle because of the impact other dredging projects had on fisheries. In relation to ExO's Project, officials from these two agencies raised questions concerning whether the sediment plume dredging operations typically produced would affect pelagic fish,²⁷⁶ either directly or indirectly by adversely affecting primary production.²⁷⁷
125. Given the concerns raised by SEMARNAT, INAPESCA, and CONAPESCA, Odyssey decided²⁷⁸ to use the Eco-tube²⁷⁹ to discharge the non-economic material from the FPSP to about seven meters above the seabed²⁸⁰ (e.g. to 73 meters when dredging is at 80 meters). At that same time, ExO asked HR Wallingford to analyze the sediment plume that would result from using the Eco-tube. HR Wallingford's report, dated 29 July 2015 and entitled "Assessment of minimal impact mining operations," describes that work and its conclusions.²⁸¹ The report confirmed that the Eco-tube would return sediment "close to the bed and well below the euphotic zone"; consequently, "the vast majority of the released sediment will re-settle onto the bed in the vicinity of the pipe and very little will be released into the water column," essentially eliminating the sediment plume in surface waters, substantially reducing it deeper in the water column, and ensuring the "footprint"

²⁷⁵ Lozano WS, ¶¶ 36-37; Newell WS, ¶¶ 25.4-25.5.

²⁷⁶ Pelagic fish refers to the type of fish which are found in pelagic waters (i.e. upper layers of the water column which are not close to the coast).

²⁷⁷ Lozano WS, ¶ 37; Deltares ER1, Annex A, p. 46.

²⁷⁸ Lozano WS, ¶ 37; Newell WS, ¶¶ 25.5-25.6; Bryson WS, ¶ 173; Oppermann WS, ¶ 76.

²⁷⁹ Material could also be returned in a similar fashion via the dredging pipe of the TSHD: Bryson WS, ¶¶ 189, 190.

²⁸⁰ Newell WS, ¶ 25.6; Bryson WS, ¶ 173.

²⁸¹ **C-0002.09**, MIA, 21 August 2015, Annex 9, pp. 1-28.

of deposition is reduced to a small zone on the seabed.²⁸² Indeed, “the size of the area impacted by the plume when releasing excess sediment through an eco-pipe is tiny.”²⁸³

126. Using the proposed Eco-tube would have effectively eliminated any impact on primary production.²⁸⁴ These conclusions were summarized in the MIA²⁸⁵ and in the Additional Information provided by ExO in response to questions from SEMARNAT.²⁸⁶ ExO also provided HR Wallingford’s report to SEMARNAT as Annex 9 of the August 2015 MIA.²⁸⁷

127. On 5 March 2015, ExO filed a comprehensive 474-page response to the request for additional information.²⁸⁸ SEMARNAT officials did not ask so much as a single follow-up question after receiving ExO’s response.²⁸⁹

128. On 29 April 2015, ExO met with [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED].²⁹¹

3. DGIRA Concludes That the Project Should Be Conditionally Approved, but Undersecretary Pacchiano Intervenes, Citing Potential Harm to His Own

²⁸² **C-0002.09**, MIA, 21 August 2015, Annex 9, pp. 3, 11-14. *See also* p. 138, noting that use of the Eco-tube “completely eliminates the discharge of suspended sediments from the TSHD and greatly reduces the dispersion and sediment footprint in the seabed, because the water column through which dispersion occurs is reduced approximately 10 meters, as opposed to the entire water column of 80 m deep. The return of sediment close to the seabed at 73 m deep through an ‘eco-pipe’ will also facilitate placing material in areas that have been previously dredged, thus reducing changes in the bathymetry of those areas.”

²⁸³ Deltares ER1, Section 4.1.3, p. 23.

²⁸⁴ Newell WS, ¶ 25.6; Deltares ER1, Section 4.2, pp. 26-29.

²⁸⁵ **C-0002**, MIA, 21 August 2015, pp. 104-105.

²⁸⁶ **C-0005**, Additional Information, 3 December 2015, pp. 87-88, 203-204, 234-235.

²⁸⁷ **C-0005**, Additional Information, 3 December 2015, pp. 21-22; **C-0002.09**, MIA, 21 August 2015, Annex 9.

²⁸⁸ **C-0107**, Letter from ExO to SEMARNAT Submitting Additional information, 5 March 2015; **C-0108**, Additional Information Submitted to SEMARNAT, 5 March 2015.

²⁸⁹ Lozano WS, ¶¶ 38-39.

²⁹⁰ [REDACTED]; Lozano WS, ¶¶ 39, 84.

²⁹¹ [REDACTED]; Lozano WS, ¶ 39.

Political Career, and Demands That ExO Withdraw and Re-submit the MIA, Restarting the Clock for SEMARNAT’s Review

129. By May 2015, DGIRA was prepared to issue a decision authorizing the MIA in a conditional manner.²⁹² However, then-Undersecretary Pacchiano told the DGIRA staff that he was concerned his approval of the Project could affect his political standing in Baja California Sur, and therefore his broader political career.²⁹³
130. Alonso Ancira, the CEO of AHMSA, met with Undersecretary Pacchiano in June 2015.²⁹⁴ During that meeting, Mr. Pacchiano told Mr. Ancira that certain unidentified, interested parties had turned approval of the Project into a “political issue.” Secretary Pacchiano told Mr. Ancira that ExO should withdraw the MIA and re-file at a later date, along with letters of support from CONAPESCA, the government of Baja California Sur, and representatives of local fisheries operating in in the Gulf of Ulloa. Secretary Pacchiano did not equivocate about why he wanted ExO to withdraw its request for approval. Confirming that there was no legitimate, environmental basis for denying the permit, Secretary Pacchiano nonetheless prevailed upon Mr. Ancira to have ExO withdraw the request because it would have been politically inconvenient for the Secretary to issue any approvals at that time. On the other hand, Secretary Pacchiano explained, if ExO could obtain the approval or acquiescence of CONAPESCA and Gulf of Ulloa fisheries representatives, he assured Mr. Ancira that—under his leadership—the MIA approval process for the Project would be expedited.²⁹⁵
131. Undersecretary Pacchiano had no legal basis to request these letters, much less to condition proceeding with the statutory approvals process on their receipt. Nowhere in the applicable Mexican law is it provided that letters of support from local political actors must be obtained before a MIA can be considered, much less approved.²⁹⁶

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 In March 2015, Odyssey and an affiliate of AHMSA entered into a series of transactions, which included the extension of short-term debt financing. (Gordon WS, ¶ 67.) Following these transactions, AHMSA worked with Odyssey and ExO to obtain MIA approval and to advance the Project. (Gordon WS, ¶ 67.)

295

Lozano WS, ¶¶ 40-42.

296

Herrera ER, ¶ 59.

132. Nevertheless, upon learning of Secretary Pacchiano’s unorthodox and *ultra vires* demand, ExO concluded that it had no choice but to withdraw the MIA and obtain the letters of support—because it was obvious that, otherwise, the MIA would be denied.²⁹⁷ Thus, ExO reluctantly withdrew the MIA on 19 June 2015, intending to re-file it immediately.²⁹⁸ This meant the EIA process started afresh.²⁹⁹

4. ExO Re-Submits the MIA

133. ExO re-filed the MIA, with revisions, on 21 August 2015.³⁰⁰ The revisions reflected further work undertaken by ExO and its experts since the filing of the original version in September 2014, technical feedback from SEMARNAT, ExO’s discussions with CONAPESCA, INAPESCA, and others, as well as comments made in the public hearings.

134. ExO described the key enhancements to the Project in the Executive Summary. These included:³⁰¹

- a. The use of the Eco-tube to discharge the non-economic material seven meters from the seabed in order to minimize dispersion and the sediment plume.³⁰² As noted above, this eliminated any impact on primary production or the upper layers of the water column.
- b. Further toxicity studies by HR Wallingford and EA Engineering.³⁰³ The studies reinforced prior findings that dredging would not release toxic contaminants into the ecosystem and demonstrated that the Project would not breach water quality standards. ExO applied California sediment standards, as there was no Mexican equivalent.³⁰⁴
- c. The reduction in the size of the Concession (by 70.15%).³⁰⁵ ExO had concluded that these areas were less rich in phosphate resources in comparison to other parts of the Concession.³⁰⁶ Relinquishing them moved the Project site even

²⁹⁷ Lozano WS, ¶ 43; Gordon WS, ¶ 72.

²⁹⁸ Gordon WS, ¶ 74; Lozano WS, ¶ 44; **C-0115**, Letter from ExO to SEMARNAT, 19 June 2015.

²⁹⁹ Lozano WS, ¶ 42; [REDACTED].

³⁰⁰ **C-0002**, MIA, 21 August 2015. This replaced a version filed on 26 June 2015 (**C-0117**, Letter from ExO to SEMARNAT, 26 June 2015), which was incomplete: Lozano WS, ¶ 44.

³⁰¹ **C-0001**, Executive Summary, 21 August 2015.

³⁰² **C-0001**, Executive Summary, 21 August 2015, p. 2.

³⁰³ **C-0002.02**, MIA, 21 August 2015, Annex 2; **C-0002.04**, MIA, 21 August 2015, Annex 4.

³⁰⁴ **C-0002.04**, MIA, 21 August 2015, Annex 4, pp.36-37; Oppermann WS, ¶ 70.

³⁰⁵ **C-0005**, Executive Summary, 3 December 2015, p. 7; **C-0002**, MIA, 21 August 2015, pp. 11-12.

³⁰⁶ Lozano WS, ¶¶ 17, 45.3.

farther away from the migration routes of grey whales and coastal foraging areas for sea turtles, and meant that it did not overlap with fishing concessions.

- d. The proposal to introduce “ecological stops” to operations during the whale migration season.³⁰⁷
135. Because many of ExO’s prior discussions with SEMARNAT had focused on mitigation measures,³⁰⁸ the MIA also emphasized and expanded the discussion of its mitigation measures.³⁰⁹

5. ExO Participates in a Second Round of Public Consultations and Responds to Additional Information Requests Over Many Months

136. Mr. Pacchiano became the Secretary of SEMARNAT on 27 August 2015.³¹⁰ As he was preparing to assume the helm of SEMARNAT, another environmental controversy arose, this time related to *Caretta caretta* turtles. The United States Government had announced that it was considering imposing a fishing embargo against Mexico, as the absence of a regulatory program aimed at eliminating or at least reducing turtle “by-catch” was greatly impeding efforts to protect *Caretta caretta*.³¹¹ This is how SEMARNAT’s conduct in relation to the *Caretta caretta* was placed in the political spotlight.
137. Meanwhile, ExO participated in a second round of public consultations on 8 October 2015, which was necessary because the refiling of the MIA meant that, formally, the EIA started again.³¹²

³⁰⁷ C-0001, Executive Summary, 21 August 2015, pp. 2-3; C-0002, MIA, 21 August 2015, p. 24.

³⁰⁸ Adaptive management is an iterative process. In the case of the Project, it involves monitoring the effectiveness of the environmental impacts and proposed mitigation measures, and the modification of the same to ensure compliance with the high environmental standards Odyssey outline in the MIA and Additional Information.

³⁰⁹ C-0001, Executive Summary, 21 August 2015, pp. 18-27, 29 C-0002, MIA, 21 August 2015, pp 781-845.

³¹⁰ [REDACTED]; C-0132, “Nombran a Rafael Pacchiano Alamán secretario de Semarnat,” El Imparcial, 27 August 2015.

³¹¹ C-0129, E. Godoy, “México, en riesgo de un embargo pesquero por tortugas caguama,” Proceso.com, 14 August 2015.

³¹² Lozano WS, ¶¶ 47-48; C-0136, Public consultation notes, 8 October 2015.

138. On 30 October 2015, SEMARNAT issued a new request for additional information in relation to ExO's technically new MIA.³¹³ SEMARNAT specifically asked for:
- a. A more detailed description of the intended dredging areas within the mining Concession area;
 - b. A more detailed description of the dredging process;
 - c. More details on environmental impacts of the Project, focused on:
 - i. The Project's effect on the seabed;
 - ii. The discharge of the non-economic material and its potential effects on water turbidity;
 - iii. The sound that would be emitted by the dredging operations and its potential impact on marine wildlife;
 - iv. The Project's potential impact on whales;
 - v. The Project's potential impact on turtles; and
 - d. Whether ExO had consulted with local fisheries and fishing organizations.
139. These requests surprised ExO, given how Secretary Pacchiano had assured ExO that, if ExO complied with his unorthodox and politically-motivated request to withdraw its previous MIA, in addition to seeking included the requested letters of support with its new submission, he would expedite approval of the Don Diego MIA.³¹⁴ However, the EIA process had started afresh, and ExO decided to respond fully, incurring further investment of time and expense in order to consult its team of experts.³¹⁵ As well as consulting its team of experts, in November 2015, Odyssey also met with one of the world's leading turtle experts, Dr. Seminoff (the same Dr. Seminoff whose studies SEMARNAT relied on when denying the MIA), and his National Oceanic and Atmospheric Administration (NOAA) colleague Dr. Squires, at their offices in California. Their view was

³¹³ **C-0004**, Letter No. 07592 from SEMARNAT to ExO, 30 October 2015.

³¹⁴ Gordon WS, ¶ 70; Lozano WS, ¶ 53.

³¹⁵ Lozano WS, ¶¶ 53-54.

that the Project and turtles could co-exist in the Gulf of Ulloa, and that the Project was environmentally sound and socially responsible.³¹⁶

140. On 3 December 2015, ExO submitted a comprehensive, 377-page reply to SEMARNAT’s new request for additional information, which ExO termed “Anexo Técnico.”³¹⁷ The submission included a more detailed explanation of the use of the Eco-tube.³¹⁸ It also explained that the Project posed a very low risk to turtles because of the depth of dredging, the lack of suitable food in the active dredging area, and the low density of turtles in the Project area, noting that the Project area was not within the turtles’ habitat.³¹⁹ ExO also repeated its commitment to a comprehensive program of qualitative and quantitative monitoring (and, in the unlikely event it might become necessary, the pursuit of adaptive management) to regularly assess the ongoing impact of the Project on the region’s flora and fauna.³²⁰
141. Prior to this filing, on 27 November 2015, CONANP (Mexico’s National Commission of Natural Protected Areas) had sent ExO a note expressing concerns over the Project’s effects on marine wildlife, particularly with respect to whales and turtles.³²¹ ExO responded to CONANP’s queries in writing on 11 December 2015.³²² ExO also requested a meeting with Commissioner Del Mazo (CONANP’s highest authority) and his team of experts to talk through the Project and CONANP’s concerns.
142. CONANP agreed, and a long meeting took place on 28 February 2016.³²³ Dr. Newell and Dr. Lozano attended this meeting for ExO, among others. The meeting covered all of the issues CONANP had raised, but CONANP wanted to discuss seabed recovery in particular. At the end of the meeting, Commissioner Del Mazo told Dr. Newell and Dr. Lozano that

³¹⁶ Newell WS, ¶¶ 26.4-26.8; Gordon WS, ¶¶ 76-77; and **C-0137**, Email from D. De Narvaez to various, 18 November 2015.

³¹⁷ Lozano WS, ¶ 55; **C-0005**, Additional Information, 3 December 2015.

³¹⁸ **C-0005**, Additional Information, 3 December 2015, pp. 12, 87-88.

³¹⁹ **C-0005**, Additional Information, 3 December 2015, pp. 304, 309-313, 394-399, 401-406.

³²⁰ **C-0005**, Additional Information, 3 December 2015, pp. 328-364, 377-385.

³²¹ Lozano WS, ¶ 60; **C-0006**, CONANP opinion forwarded to ExO, 27 November 2015.

³²² Lozano WS, ¶ 60; **C-0007**, Letter from ExO to SEMARNAT responding to CONANP’s observations, 11 December 2015.

³²³ Lozano WS, ¶¶ 62-63.

CONANP was satisfied with their responses to its questions, and that he would let Secretary Pacchiano know. ExO's representatives left the meeting feeling extremely confident that they had fully addressed CONANP's environmental concerns.³²⁴

6. Secretary Pacchiano Becomes Upset When ExO Threatens Legal Action Over the Unwarranted Delay, Abruptly Ends a Meeting with ExO Representatives, and Orders DGIRA to "Find a Reason" to Deny Approval of the Project

143. In March 2016, seven months after re-submitting the MIA, and 18 months after submitting the original MIA, ExO representatives requested a meeting with Secretary Pacchiano to inquire about the status of the MIA approval.³²⁵ By then, and although ExO did not know this at the time, SEMARNAT's scientific staff at DGIRA had prepared a presentation to Secretary Pacchiano recommending SEMARNAT's approval of the Project, conditioned on the adoption of the mitigation measures alongside the submission of financial guarantee.³²⁶
144. The meeting took place on 12 March 2016. Secretary Pacchiano appeared to listen politely to Mr. Ancira provide an overview of the Project, as well as a summary of the additional meetings that had been held between ExO and SEMARNAT's scientists. When asked for his views on the Project, the Secretary was evasive. He did say that it would be up to the technical experts at SEMARNAT to decide whether the Project was environmentally feasible.³²⁷ However, after Mr. Ancira informed him that CONANP had already expressed its satisfaction with the Project, Secretary Pacchiano replied that he would not disclose his personal opinion.³²⁸
145. At this point, Mr. Ancira became impatient with the Secretary's unresponsiveness. After all, Secretary Pacchiano had already pressured ExO to withdraw the MIA in June 2015 on

³²⁴ It appears that CONANP may not have formally notified SEMARNAT that it was satisfied with the answers, as the 2018 Denial records CONANP's objection, although it states that its concerns were addressed in the Additional Information.

³²⁵ Lozano WS, ¶ 65.

³²⁶ [REDACTED]

³²⁷ Lozano WS, ¶¶ 65-66.

³²⁸ Lozano WS, ¶ 66.

the promise of an expedited approval for the Project—for which he had then admitted no legitimate (as opposed to purely political) barriers existed.³²⁹ ExO had re-submitted its MIA after re-engaging with the local community and with SEMARNAT’s scientists just as the Secretary had requested. Nevertheless, Secretary Pacchiano was eluding ExO’s questions, implicitly placing the Project’s future in doubt. Mr. Ancira accordingly told Secretary Pacchiano that if SEMARNAT did not issue a decision soon, ExO would have no choice but to appeal to the TFJA.³³⁰ Secretary Pacchiano was visibly upset by Mr. Ancira’s comment and abruptly ended the meeting.³³¹

146. Disheartened by the meeting, but mindful of the political concerns voiced by Pacchiano in May 2015³³² and determined to build technical support for the Project within SEMARNAT, ExO sent further documents to SEMARNAT in support of the Project in early April 2016.³³³ These documents emphasized the mitigation measures and adaptive management model that ExO intended to implement, and invited SEMARNAT to collaborate with ExO in relation to these measures. To allay SEMARNAT’s concerns in respect of fisheries, ExO offered to establish a committee, to include representatives from INAPESCA, which would meet every six months to evaluate the Project. ExO also provided a number of letters of support from leading Mexican fishing cooperative (such as the National Confederation of Fishing Cooperatives,³³⁴ Sociedad Cooperativa de Producción

³²⁹ [REDACTED]; Lozano WS, ¶ 42.

³³⁰ The TFJA is Mexico’s Administrative Law Tribunal. Mr. Ancira was effectively threatening an appeal under a *negativa ficta*. A *negativa ficta* appeal before the TFJA proceeds when the administrative agency does not rule on a matter in the legally required time frame to do so. In the latter case, the private party may appeal to the TFJA to hold the administrative agency in contempt. See **C-0158**, Ley Federal de Procedimiento Contencioso Administrativo, 27 January 2017, art. 17.

³³¹ Lozano WS, ¶ 67.

³³² See *infra* ¶ 254.

³³³ Lozano WS, ¶ 68.

³³⁴ **C-0145**, Letter from the Confederación Nacional Cooperativa Pesquera to SEMARNAT, 31 March 2016; Lozano WS, ¶ 68.

Pesquera Puerto San Carlos S.C.L.,³³⁵ FEDECOOP,³³⁶ and S.C.P.P. Pescadores de la Poza³³⁷) and whale watching tour operators.³³⁸

147. Nevertheless, and despite ExO’s best efforts to demonstrate the technical merits and local support for the Project, Secretary Pacchiano instructed the DGIRA staff to “find some reason upon which to deny the project,”³³⁹ saying ExO “had ‘breached an implicit agreement of cordiality.’”³⁴⁰
148. [REDACTED], but for the Secretary’s last-minute, *ultra vires* order to find some basis for denying the project, [REDACTED] [REDACTED] would have executed the resolution authorizing ExO’s MIA, subject only to certain additional mitigation and monitoring measures.³⁴¹ [REDACTED] [REDACTED] obligated under Mexican law to sign off on the Project’s approval—because the DGIRA had concluded that it would not affect the environment in a non-mitigatable way.³⁴²
149. At the time Secretary Pacchiano issued this directive, only a few days remained before the statutory deadline for issuing a decision. Given so little time to justify a complete reversal of course, DGIRA officials struggled to find a plausible justification to deny the Project. [REDACTED].³⁴³

335 **C-0144**, Letter from the Sociedad Cooperativa de Producción Pesquera to SEMARNAT, 30 March 2016; Lozano WS, ¶ 68.

336 **C-0142**, Letter from Fedecoop de la Capital to SEMARNAT, 30 March 2016; Lozano WS, ¶ 68.

337 **C-0143**, Letter from S CPP Pescadores de la Poza to SEMARNAT, 30 March 2016; Lozano WS, ¶ 68.

338 **C-0147**, Supporting letters sent by ExO to SEMARNAT, 6 April 2016.

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Lozano WS, ¶¶ 69-71; [REDACTED].



150. Unaware that, in an apparent fit of pique, Secretary Pacchiano had ordered [REDACTED] to contrive reasons for issuing a Denial, ExO representatives sought a meeting with [REDACTED] to discuss the project.³⁴⁴ Moreover, on 5 April 2016, ExO had sent a letter to DGIRA with a letter emphasizing the world-class mitigation measures that would be adopted for the Project and proposing a process for joint environmental evaluation of the Project between SEMARNAT and ExO.³⁴⁵ In relation to fisheries, ExO additionally offered to establish a committee composed of stakeholders that would meet to evaluate the Project every six months.³⁴⁶ These meetings would be attended by INAPESCA, among others.
151. On 6 April 20 ExO representatives finally met with [REDACTED] and were taken aback when [REDACTED] responded with the bombshell news that SEMARNAT was going to deny the Project based on its effect on turtles. He added that ExO would receive formal notification of the Denial on the following day.³⁴⁷ One of the ExO representatives at the meeting, Dr. Lozano, responded that [REDACTED] knew the Project would not affect turtles and that, even if it did, it would not affect significant numbers of individuals and certainly not the species, which [REDACTED] did not dispute. Dr. Lozano asked [REDACTED] to at least consider having SEMARNAT conditionally approve the MIA, with a requirement for ExO to monitor the specific impact on turtles and address any impact that might arise. [REDACTED] replied

³⁴⁴ Lozano WS, ¶¶ 69-70; [REDACTED].

³⁴⁵ **C-0148**, Letter from ExO to SEMARNAT, 5 April 2016.

³⁴⁶ **C-0148**, Letter from ExO to SEMARNAT, 5 April 2016.

³⁴⁷ Lozano WS, ¶¶ 70-72; [REDACTED].

that [REDACTED] had no choice but to deny the MIA, [REDACTED]

[REDACTED]”³⁴⁸

J. SEMARNAT Denies Environmental Approval of the Project, Citing Its Purported Impact on Sea Turtles

152. On 7 April 2016, ExO formally received SEMARNAT’s Denial (the “**First Denial**”).³⁴⁹ It was purported to have been issued under Article 35(III)(b) of LGEEPA, on the alleged basis that the Project would affect an endangered species, *viz.* the *Caretta caretta* turtle.³⁵⁰ Specifically, SEMARNAT’s Denial stated:

- a. Juvenile *Caretta caretta* use the Baja California Peninsula, and particularly the Gulf of Ulloa, as a shelter and feeding area, with 86.6% of ExO’s Project area used by *Caretta caretta* in this way, with (critically) a density of between one to 28 *Caretta caretta* turtles per km² in Polygons 1, 2, and 3 of the Project area and 54 to 85 in Polygons 4 and 5;³⁵¹
- b. Dredging in the Project area would disturb the distribution and local diversity of the benthic (seabed) organisms on which *Caretta caretta* feed, interrupting the trophic chain and *Caretta caretta* biological cycles;³⁵²
- c. ExO did not demonstrate how the Project, and in particular the disturbance of the seabed, would affect the feeding sources of *Caretta caretta*, nor did ExO propose measures guaranteeing sources of food for *Caretta caretta* (particularly the red crab, but also snails, mollusks, and other benthic fauna), and it was not valid to base the analysis of seabed recovery on studies from the North Sea and elsewhere;³⁵³ and
- d. The Marine Turtle Monitoring Program proposed by ExO would not be effective as: (i) it was not based on reliable scientific information, but was instead predicated on baseline studies unsupported by quantitative data; (ii) it was described in such a general and theoretical manner that it gave no confidence in the ability to protect *Caretta caretta* as a species; and (iii) it did not explain, from a technical standpoint, how it would mitigate the effect of dredging on the *Caretta caretta*’s trophic chain.³⁵⁴

³⁴⁸ Lozano WS, ¶ 70; [REDACTED]

³⁴⁹ **C-0008**, SEMARNAT Denial Decision, 7 April 2016; Lozano WS, ¶ 72.

³⁵⁰ **C-0014**, LGEEPA, 5 June 2018, art. 35(III)(b).

³⁵¹ **C-0008**, SEMARNAT Denial Decision, 7 April 2016, pp. 220-221.

³⁵² **C-0008**, SEMARNAT Denial Decision, 7 April 2016, pp. 221.

³⁵³ **C-0008**, SEMARNAT Denial Decision, 7 April 2016, pp. 174, 227-228.

³⁵⁴ **C-0008**, SEMARNAT Denial Decision, 7 April 2016, pp. 221-222.

153. Apart from the purported impact on *Caretta caretta* turtles, SEMARNAT's 2016 Denial also mentioned, albeit only in passing, and without properly justifying its claims, that the Project would also affect other endangered turtles, namely Olive Ridley, Leatherback, Hawksbill, and Green turtles.³⁵⁵
154. SEMARNAT purported to justify its assertion that the Project would harm turtles based on its statements:
- a. On the density of *Caretta caretta* in the Project area;
 - b. That *Caretta caretta* would ordinarily feed at the depth of 80 meters where dredging was to take place;
 - c. That the sea turtle protection measures included in the Project would not be effective;
 - d. That pelagic red crabs on the seabed were a major source of food for the *Caretta caretta*; and
 - e. That dredging of 1 km² per year would impact that food supply.
155. Contrived, as they were, to serve a result demanded by Secretary Pacchiano, none of these alleged bases for the Denial could survive scrutiny, as discussed in further detail below and in the expert report of Dr. Flores-Ramirez.³⁵⁶

K. ExO Submits a Petition for SEMARNAT to Review Its Wrongful Decision

156. On 29 April 2016, ExO petitioned SEMARNAT to review the First Denial.³⁵⁷ A review request for is an administrative recourse available under Mexican law that may be undertaken prior to judicial action, so as to provide the administrative agency with an opportunity to correct its wrongful conduct.³⁵⁸
157. In or around May 2016, ExO representatives met with Secretary Pacchiano a third time. Mr. Lozano remembers that he was told straight after the meeting that it was

³⁵⁵ **C-0008**, SEMARNAT Denial Decision, 7 April 2016, p. 229.

³⁵⁶ See generally S. Flores ER.

³⁵⁷ **C-0149**, Letter from ExO to SEMARNAT, 29 April 2016; Lozano WS, ¶ 73.

³⁵⁸ **C-0014**, LGEEPA, 5 June 2018, art. 176, 179.

conciliatory.³⁵⁹ Secretary Pacchiano informed ExO's representatives that he was willing to grant approval of the MIA after all; but there was a timing issue. He explained that the COP13 (United Nations Conference of the Parties to the Convention on Biological Diversity) was scheduled to take place in Cancún, México in December 2016. He explained that during the run-up to the conference, the Government of Mexico wanted to avoid any risk of any politico-environmental controversy erupting in relation to a "mining project," especially in an environmentally sensitive area such as the Gulf of Ulloa. Secretary Pacchiano again assured ExO representatives that, if they would simply play along, he would be in a position to support the Project and grant the MIA after the COP13 meeting.³⁶⁰

158. On 9 June 2016, ExO supplemented its legal submissions to SEMARNAT with a set of papers, which it collectively entitled a "Technical and Scientific Report." The report contained an introduction written by Mr. Oppermann and the following individual papers written by ExO's team of experts:

- a. By Dr. Newell: "Comments concerning the proposed dredging and seabed recovery processes related to the resolution from SEMARNAT over the Don Diego project";³⁶¹
- b. By Dr. Newell: "Comments concerning the feeding habits of the loggerhead turtle in the Bay of Ulloa and potential impacts generated by the project Don Diego referenced in the SEMARNAT resolution of 8 April 2016";³⁶²
- c. By Dr. Bradley Furman, Mr. Manuel Merello, and Mr. Erick Hawk, of Merello Marine Consulting: "Comments concerning food sources and the primary habitat of the loggerhead turtle in the Bay of Ulloa with emphasis on the importance of the red crab (*Pleuroncodes planipes*). Additional comments on the potential impacts of the Don Diego project on these food sources and habitat";³⁶³
- d. By Dr. Clarke: a paper on the protection measures proposed in relation to sea turtles, and the research on which it was based, entitled "Comments on the

³⁵⁹ Lozano WS, ¶ 75.

³⁶⁰ Lozano WS, ¶¶ 74-75. Although Mr. Lozano did not join that meeting, he was informed straight after it took place.

³⁶¹ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 3-12.

³⁶² **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 13-28.

³⁶³ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 29-31.

proposed measures at the Don Diego dredging project for the protection of sea turtles referring to the decision resolution from SEMARNAT of 8 April 2016;³⁶⁴

- e. By Mark Mussett: “Comments relating to turtle mitigation and compensation measures included in the MIA-R of the Don Diego project related to the decision resolution from SEMARNAT of 8 April 2016”;³⁶⁵
 - f. By William Castleton of Boskalis: “Comments concerning dredging operations, the proposed measures for the protection of turtles, according to the comments made by SEMARNAT on the decision resolution in relation to the Don Diego project on the Bay of Ulloa, BCS”;³⁶⁶
 - g. By Dr. Furman, Mr. Merello, and Mr. Hawk, of Merello Marine Consulting: “Comments concerning other species of turtles different from the loggerhead turtle (*Caretta caretta*) present in the Bay of Ulloa according to the comments on the decision resolution from SEMARNAT of April 8, 2016”;³⁶⁷
 - h. By Dr. Newell: “Comments concerning the baseline studies required for the Don Diego project, their implications on the environmental impacts as related to the decision resolution from SEMARNAT about the Don Diego project”;³⁶⁸
 - i. By Dr. Newell, with support from Dr. Pamela Neubert:³⁶⁹ “Comments concerning to the environmental impact statement for the Don Diego project related to the decision resolution from SEMARNAT of 8 April 2016”;³⁷⁰ and
 - j. By Dr. Newell: “Comments concerning the conservation of turtles in the Don Diego project in the Bay of Ulloa related to the decision resolution from SEMARNAT of 8 April 2016.”³⁷¹
159. ExO’s report constituted a comprehensive library of responses to the issues SEMARNAT had listed in its Denial, provided by a range of world-leading experts in each of their respective fields. In particular, their responses highlighted the errors and limitations of SEMARNAT’s conclusions in respect of turtle population densities,³⁷² demonstrated that

³⁶⁴ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 32-37.

³⁶⁵ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 38-49.

³⁶⁶ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 50-53.

³⁶⁷ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 54-56.

³⁶⁸ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 57-60.

³⁶⁹ Dr. Neubert is a benthic marine ecologist and invertebrate taxonomist with over 20 years’ experience in offshore environmental impact assessments.

³⁷⁰ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 61-68.

³⁷¹ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 69-77.

³⁷² **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 15-16.

the seabed at the dredging site was not part of the habitat or foraging areas for *Caretta caretta* and other turtle species,³⁷³ emphasized the turtle protection measures that ExO planned to implement,³⁷⁴ and explained why any pelagic red crabs on the seabed are not prey for *Caretta caretta*.³⁷⁵ ExO also reiterated its commitment to a limit of five *Caretta caretta* entrainment mortalities per annum, with any mortality prompting a re-evaluation of the sufficiency of contemporaneous management practices.³⁷⁶

L. After SEMARNAT Refuses to Consider ExO's Review Petition, ExO Appeals the Denial to Mexico's Federal Tribunal of Administrative Justice

160. After December 2016, SEMARNAT continued to delay its ruling on ExO's review petition even though the COP13 Convention had already taken place.³⁷⁷ Under Mexican law, SEMARNAT was required to rule on the petition within three months of filing.³⁷⁸ Not only did SEMARNAT fail to do so, but the petition actually sat with SEMARNAT for nine months without an answer.
161. With no ruling in sight, ExO filed a request for review by the TFJA at the end of January 2017.³⁷⁹ The grounds were *negative ficta*; viz., SEMARNAT had in effect denied a request for reconsideration by refusing to reply. It was only in the face of ExO's request to the TFJA that SEMARNAT finally answered the petition. On 27 February 2017, SEMARNAT simply issued a decision that largely repeated its original refusal.³⁸⁰ In doing so, it did not correct its errors in evaluating the MIA. For example, it did not even attempt to justify its blatant misinterpretation and misstatement of the studies on turtle density and distribution in the Gulf of Ulloa.
162. SEMARNAT refused to consider ExO's Technical and Scientific Report on the formalistic premises that it was not properly signed and was otherwise inadmissible because the

³⁷³ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 14-31.

³⁷⁴ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 32-37, 38-49, 50-53.

³⁷⁵ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 15, 26, 29-30.

³⁷⁶ **C-0151**, Technical and Scientific Report, 9 June 2016, p. 38.

³⁷⁷ Lozano WS, ¶ 76.

³⁷⁸ **C-0158**, Ley Federal de Procedimiento Contencioso Administrativo, 27 January 2017, art. 17

³⁷⁹ Lozano WS, ¶ 76.

³⁸⁰ **C-0160**, SEMARNAT Denial Resolution, 27 February 2017.

authors were not professionally registered in Mexico.³⁸¹ It did so notwithstanding the fact that both justifications were not legitimately available to it under applicable Mexican law. In so doing, SEMARNAT also disregarded the fact that it had purported to rely on studies authored by foreign experts in issuing its Denial, as well as the fact that such reports are commonly accepted and relied upon in the ordinary course of its EIAs.³⁸² SEMARNAT additionally rejected both the documentary and expert testimonial evidence provided by Odyssey on the basis that it was superfluous, because they had allegedly been considered by the DGIRA before it issued the Denial.³⁸³

163. On 6 June 2017, ExO appealed to the TFJA to quash SEMARNAT's First Denial.³⁸⁴

164. Under Mexican law, the TFJA does not have the authority to order SEMARNAT to issue a decision granting a MIA. Its authority is limited either to confirming the decision or vacating it and remanding it to the appropriate administrative agency.³⁸⁵ That being said, when the TFJA vacates and remands, it may impose additional constraints on how the administrative agency must conduct itself in issuing its new decision.³⁸⁶ As discussed below, that is what happened in this case.

M. The TFJA Throws Out SEMARNAT's April 2016 Decision

165. On 21 March 2018, the TFJA issued a unanimous decision annulling SEMARNAT's 7 April 2016 Denial.³⁸⁷ The TFJA's decision resoundingly confirmed SEMARNAT's Denial was legally unfounded and based on dubious scientific claims. The TFJA ruled, in conclusion,

³⁸¹ **C-0160**, SEMARNAT Denial Resolution, 27 February 2017, pp. 41-48.

³⁸² Herrera ER, ¶ 69.

³⁸³ **C-0160**, SEMARNAT Denial Resolution, 27 February 2017, pp. 39-41; Herrera ER, ¶¶ 68-69.

³⁸⁴ **C-0019**, Amendment to the annulment petitions of the 2016 Denial, 6 June 2017. This is an amendment to the previous nullity appeal claim that had been filed in April 2017 for *negativa ficta*, i.e. SEMARNAT's refusal to issue a decision with regards to ExO's review petition within the 3 months which are stipulated by Mexican law.

³⁸⁵ **C-0158**, Ley Federal de Procedimiento Contencioso Administrativo, 27 January 2017, art. 52.

³⁸⁶ **C-0158**, Ley Federal de Procedimiento Contencioso Administrativo, 27 January 2017, art. 52(IV).

³⁸⁷ **C-0170**, TFJA Ruling, 21 March 2018. The press reported that SEMARNAT was not notified until mid-April 2018 (**C-0171**, E. Méndez, "Negarán dragado de arena en Ulloa; resolución de la Semarnat," *Excelsior*, 19 April 2018).

that SEMARNAT should re-analyze the entirety of ExO's MIA and provide a scientifically-grounded and properly reasoned decision within four months.³⁸⁸

[I]t is justified to declare the **NULLITY of the contested decision as well as the originally appealed decision, for the purpose** that the authority, **within four months counted from the present judgment being finalized, shall issue a new resolution, resolving the plaintiff's request for authorization of the MIA in terms of the fourth paragraph of Article 35 of the Environmental Balance And Environmental Protection, which analyzes each and every aspect** that was set out in the application and its scope by the plaintiff, *including the mitigation measures proposed by the petitioner for the MIA*, and which are detailed in the extension of the demand to this trial, as well as also to analyze, where appropriate, other additional prevention and mitigation measures, in order to avoid, mitigate and compensate for the environmental impacts that may be produced with the project subject to authorization, so that in the event that the authority determines to authorize the project conditionally - [determination to be reasonably well-founded and motivated-] in terms of section II, of that legal provision, the authority conditions such authorization to comply with those prevention and mitigation measures; and having done so, the responding authority **properly grounds and reasons its determination**, *based on the most reliable scientific data available*, freely in the use of its powers and authorities, the aspects already mentioned and specified in the present judgment, *specifically to rule on the plaintiff's argument in the sense that the dredging activities of the project under consideration would be carried out at a depth that would not affect the habitat of the sea turtles in question*, leaving safe the powers of the Secretariat of Environment and Natural Resources (SEMARNAT) to resolve what is in law.

166. In its reasoning, the TFJA delineated several grave deficiencies of SEMARNAT's decision.³⁸⁹ These criticisms included, most notably:
- a. The Denial was not premised on the actual circumstances of sea turtles in relation to the Project (in particular at the depth of 80 meters),³⁹⁰ and
 - b. In issuing its Denial, SEMARNAT did not evaluate the mitigation measures ExO had proposed, including turtle protection measures such as turtle deflectors and

³⁸⁸ **C-0170**, TFJA Ruling, 21 March 2018, pp. 211-212 (italics added).

³⁸⁹ **C-0170**, TFJA Ruling, 21 March 2018, pp. 106-188.

³⁹⁰ **C-0170**, TFJA Ruling, 21 March 2018, pp. 108-114, 161-162.

tickler chains; the return of non-economic materials via the Eco-tube near the seabed floor, otherwise limiting the “plume”; and the “Building with Nature” techniques proposed to promote rapid regeneration and recolonization of the seabed.³⁹¹

N. In Utter Disregard for the TFJA’s Decision, SEMARNAT Fails to Reconsider Its Determination in Good Faith and Arbitrarily Denies the MIA a Second Time

167. Demonstrating a manifest disregard for the TFJA’s directions, within days of receiving the decision, SEMARNAT publicly declared that it would be maintaining its Denial. On 19 April 2019, the second oldest City of Mexico newspaper *Excelsior* published an article, titled “Negarán dragado de arena en Ulloa; resolución de la Semarnat” (“SEMARNAT will issue a resolution denying sand dredging operations in Ulloa”).³⁹² The first two paragraphs indicate that SEMARNAT had no intention of conducting a good faith review of the Project.³⁹³

The Secretariat of Environment and Natural Resources (Semarnat) announced that on April 13, the Federal Court of Fiscal and Administrative Justice (TFJFA) officially notified it of the decision ordering to repeat the review process for the Environmental Impact Statement (MIA), for the Don Diego seabed mining project in the Gulf of Ulloa, Baja California Sur.

In public summary, Semarnat stated that it will comply with the court’s order, **‘with the conviction that said project represents a threat to the integrity of the ecosystem, and therefore it will reinforce its technical and scientific justifications to confirm the original resolution, in other words, to deny the authorization.’**

168. The next day, the digital version of the Mexican newspaper, *Crónica Jalisco*, published an article with the headline: “Insistirá Semarnat en frenar proyecto minero submarino en BCS” (SEMARNAT will insist on halting the seabed mining project in BCS).³⁹⁴ The article

³⁹¹ **C-0170**, TFJA Ruling, 21 March 2018, pp. 166-167, 177-179.

³⁹² **C-0171**, E. Méndez, “Negarán dragado de arena en Ulloa; resolución de la Semarnat,” *Excelsior*, 19 April 2018.

³⁹³ **C-0171**, E. Méndez, “Negarán dragado de arena en Ulloa; resolución de la Semarnat,” *Excelsior*, 19 April 2018, pp. 1-2 (emphasis added).

³⁹⁴ **C-0173**, A. Cruz, “Insistirá Semarnat en frenar proyecto minero submarino en BCS,” *Cronica Jalisco*, 20 April 2018.

quoted SEMARNAT officials as stating that the agency would be preparing a better and more robust decision denying the Project:³⁹⁵

In light of the judgment from a federal court ordering the Secretariat of Environment and Natural Resources (Semarnat) to repeat the procedure that had resulted in the denial of the mining permit for the Don Diego deposit, in front of the Gulf of Ulloa, in Baja California Sur, **the federal agency informed *Crónica*, in an exclusive interview, that it is already preparing a more robust, technical and scientific argument, to again deny the permit requested** by Exploraciones Oceánicas, Mexican subsidiary of the multinational company Odyssey Marine Exploration.

‘Semarnat will comply with the court’s order with the conviction that said project represents a threat to the integrity of the ecosystem, and therefore it will reinforce the technical and scientific grounds to confirm the original resolution, in other words, to deny the authorization,’ explained the federal agency, in a public summary, in response to an enquiry made by this newspaper.

169. Consistent with these pronouncements, SEMARNAT scientists were given express instructions to deny the Project again. Secretary Pacchiano told the technical and legal team: “‘last time you had 4 days to write the denial, this time you have 4 months.’”³⁹⁶
170. [REDACTED]
[REDACTED], the decision to deny approval had already largely been drafted. [REDACTED] was advised that officials had been instructed to find grounds to refuse the Project.³⁹⁷
171. Leaving no doubt as to the outcome he required from the SEMARNAT officials under his authority and direction, Secretary Pacchiano went so far as to proclaim at a press conference in September 2018 that the agency was preparing a new Denial.³⁹⁸ During that press conference, Secretary Pacchiano said:³⁹⁹

³⁹⁵ C-0173, A. Cruz, “Insistirá Semarnat en frenar proyecto minero submarino en BCS,” *Cronica Jalisco*, 20 April 2018, pp. 1-2 (emphasis added).

³⁹⁶ [REDACTED]

³⁹⁷ [REDACTED]

³⁹⁸ C-0176, Los Cabos, 2018; C-0174, Transcript of Pacchiano Public Statements, September 2018.

³⁹⁹ C-0176, Video in Los Cabos, September 2018.

Regarding the status of the mining of Don Diego, they [ExO] filed an environmental impact a while ago, this was refused and they requested a revision of this decision before a tribunal. A judge determined that the Secretariat should reissue a new resolution and ***it is being drafted in the same sense as the original one, that is to deny it.***

172. Secretary Pacchiano’s declaration that the forthcoming denial was *fait accompli* stands in sharp contrast to his response to questions about a controversial mining project he had previously approved in Sierra de La Laguna. When asked whether SEMARNAT would be granting an extension on the MIA for that project, Secretary Pacchiano was notably more circumspect, proceeding in a manner consistent with SEMARNAT’s legal mandate.⁴⁰⁰

And, as for the, as for the mining in the Sierra de la Laguna, the status is that the presented environmental impact assessment was authorized a long time ago and they are now requesting only one change [to the MIA] that is being analyzed and eventually the resolution will be issued. ***I do not know if this will be affirmative or negative because there has to be, there has to be a deep analysis of whether or not it complies with existing environmental regulations.***

173. The TFJA’s March 2018 decision mandated SEMARNAT to provide a new decision within four months of notification. Nevertheless, seven months later, on 4 October 2018, Odyssey was once again forced to petition the TFJA for another *negative ficta* ruling.

174. With another legal challenge arising from its willful non-compliance with the applicable law pending, SEMARNAT issued its second denial of ExO’s Project on 12 October 2018 (the “**Second Denial**”).⁴⁰¹

175. [REDACTED] did not agree with the Denial or with the dubious scientific conclusions upon which it was based, [REDACTED]
[REDACTED]⁴⁰² [REDACTED]
[REDACTED] it was

⁴⁰⁰ C-0176, Video in Los Cabos, September 2018.

⁴⁰¹ C-0009, SEMARNAT Denial Decision, 12 October 2018.

⁴⁰² [REDACTED].

patently absurd to maintain that the Project would have any impact upon the *Caretta caretta* species as a whole.⁴⁰³ But that was what Mr. Pacchiano ultimately demanded [REDACTED] [REDACTED]—because that was the finding LGEEPA Article 35 required for the Denial to be legitimate as a matter of Mexican law.

176. A detailed summary of the Denial is contained in Annex B.
177. After SEMARNAT denied ExO’s Project a second time, it engaged in a press offensive, publishing and touting the Denial of the environmental permit. For example, immediately after SEMARNAT published this decision, Secretary Pacchiano used his personal Twitter account to share a link to SEMARNAT’s summary of the Don Diego Denial.⁴⁰⁴



178. This was the first time that Secretary Pacchiano had ever shared a link to one of SEMARNAT’s decisions (either approving or denying a MIA). This clearly was deliberate: Secretary Pacchiano intended to score an environmental “win” to advance his political career.

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C-0177, SEMARNAT Twitter Screenshot/R. Pacchiano Retweet, 18 October 2018 (Rafael Pacchiano A. retweeted: ‘SEMARNAT Mexico - We ratified our rejection of the sub-sea mining project Don Diego, in the Gulf of Ulloa, Baja California Sur.’).

O. Odyssey Commences NAFTA Proceedings and Simultaneously Appeals SEMARNAT’s Second Denial to the TFJA

179. Faced with such implacable and unprincipled official intransigence, Odyssey concluded that it had no option but to commence proceedings under Chapter 11 of the North American Free Trade Agreement (“**NAFTA**”), both on behalf of ExO and on its own behalf. On 4 January 2019, it filed its Notice of Intent (“**NOI**”),⁴⁰⁵ and on 5 April 2019, it filed its Notice of Arbitration (“**NOA**”).⁴⁰⁶
180. Shortly after commencing the NAFTA proceedings and consistent with its and ExO’s respective rights to pursue extraordinary relief locally under paragraphs 1 & 2 of NAFTA Article 1121, Odyssey and ExO appealed SEMARNAT’s 12 October 2018 Denial before the TFJA on 19 August 2019, requesting that the decision be annulled.⁴⁰⁷
181. The proceedings before the TFJA are ongoing.

P. Meanwhile, Mexico Has Approved Several Comparable Dredging Projects Proposed by Similarly-Situated Mexican Investors and Investment Enterprises

182. SEMARNAT approved or conditionally approved numerous comparable dredging projects between 2009 and 2018, notwithstanding the fact that all of those projects involved comparably inferior mitigation measures. Such projects included:
- a. Maintenance dredging for Port El Chaparrito and ESSA pumping stations (“**ESSA Project**”).⁴⁰⁸
 - b. Maintenance for Laguna Verde Nucleoelectric Plant (“**Laguna Verde Project**”).⁴⁰⁹
 - c. Executive Project for the integral sanitation system of Sayulita (“**Sayulita Project**”).⁴¹⁰

⁴⁰⁵ NAFTA Chapter Eleven Notice of Intent, 4 January 2019.

⁴⁰⁶ Notice of Arbitration, 5 April 2019.

⁴⁰⁷ **C-0186**, ExO’s Nullity Appeal before the TFJA, 19 August 2019.

⁴⁰⁸ **C-0103**, Dragado de mantenimiento del puerto “El Chaparrito” y canales de las estaciones de bombeo de ESSA, January 2008 (“**MIA ESSA Project**”).

⁴⁰⁹ **C-0138**, Manifestación de Impacto Ambiental Modalidad Particular (MIA-P) del Proyecto, “Actividades de Mantenimiento para la obra de toma de la Central Nucleoeléctrica Laguna Verde,” December 2015 (“**MIA Laguna Verde Project**”).

⁴¹⁰ **C-0113**, Manifestación de Impacto Ambiental Modalidad Particular del Proyecto Ejecutivo del Sistema Integral de Saneamiento en Sayulita, Nayarit (“**MIA Sayulita Project**”).

- d. Expansion of the Port of Veracruz in the Zona Norte (“**Veracruz Project**”).⁴¹¹
 - e. Port of Matamoros and its urban development area (“**Matamoros Project**”).⁴¹²
 - f. Maintenance dredging of the inner harbor in Port Santa Rosalía (“**Santa Rosalía Project**”).⁴¹³
183. In his expert report, Mr. Vladimir Pliego confirms that all of these projects are comparable to the Project and that they have all been granted a much more favorable treatment than the one afforded to the Project by SEMARNAT.⁴¹⁴
184. Indeed, most of these projects were considered and approved quickly, in compliance with the same statutory standards that were blatantly disregarded by SEMARNAT in relation to the ExO Project applications. For example, the ESSA and Veracruz Projects received approval in just about two months,⁴¹⁵ whereas SEMARNAT took more than seven months to issue its First Denial in this case.⁴¹⁶
185. Additionally, some of these projects—such as the Sayulita water treatment facility and the Laguna Verde nuclear facility—were conditionally approved even though their proponents had not presented well-developed environmental mitigation measures. For instance, one of the mitigation measures proposed by the sponsor in the Laguna Verde Project was “scaring away” endangered animals.⁴¹⁷ With respect to the Sayulita Project,

⁴¹¹ **C-0118**, Estudio de impacto ambiental del proyecto - Ampliación del Puerto de Veracruz en la Zona Norte en la Bahía de Vergara, Veracruz, México (“**MIA Veracruz Project**”).

⁴¹² **C-0034**, Manifestación de Impacto Ambiental Modalidad Regional Para el Puerto Matamoros y su Area de Desarrollo en Matamoros, Tamulipas (“**MIA Matamoros Project**”).

⁴¹³ **C-0135**, Manifestación de Impacto Ambiental Modalidad Regional Para el Proyecto Dragado de Mantenimiento en la Dársena en al Puerto de Santa Rosalía, B.C.S, June 2019 (“**MIA Santa Rosalia Project**”).

⁴¹⁴ Pliego ER, ¶¶ 232-401.

⁴¹⁵ **C-0103**, MIA ESSA Project, January 2008 (date of receipt of MIA: 21 February 2008); **C-0104**, Resolución - Dragado de mantenimiento del puerto "El Chaparrito" y canales de las estaciones de bombeo de ESSA, 19 May 2008 (“**ESSA Resolution**”), p. 1; **C-0118**, MIA Veracruz Project; **C-0119**, Resolución - Estudio de impacto ambiental del proyecto - Ampliación del Puerto de Veracruz en la Zona Norte en la Bahía de Vergara, Veracruz, México, 13 November 2013 (“**Veracruz Resolution**”).

⁴¹⁶ Herrera ER, ¶ 62.

⁴¹⁷ **C-0138**, MIA Laguna Verde Project, December 2015, pp. 252-258 (particularly p. 257).

one of the conditions that SEMARNAT imposed was updating the environmental plan to include indicators against which to measure success.⁴¹⁸

186. Finally, SEMARNAT has approved dredging MIAs even where the proposed projects would inevitably affect flora and fauna protected under NOM-022 and NOM-059. To the contrary, as analyzed *infra*,⁴¹⁹ all of these projects received much more favorable treatment than the Don Diego Project.

III. THE TRIBUNAL HAS JURISDICTION OVER ODYSSEY'S CLAIMS AGAINST MEXICO

187. The Tribunal has jurisdiction over Odyssey's claims against Mexico pursuant to the requirements of NAFTA Chapter 11, Part B. In the paragraphs that follow, Claimant will demonstrate how and why jurisdiction *ratione personae*, *ratione materiae*, and *ratione temporis* has been established in this case.

A. Odyssey Is a Protected Investor Under NAFTA

188. Pursuant to NAFTA Articles 1116 and 1117, an investor of a Party⁴²⁰ has the right to bring a claim on its own behalf or on behalf of an enterprise of another entity that the investor owns or controls. As a company incorporated and constituted under the laws of the State of Nevada in the United States of America, Odyssey therefore is a protected investor under NAFTA. Moreover, because it possesses a majority ownership of, and otherwise exercises control over, ExO—a company incorporated under the laws of Mexico—Odyssey is entitled to pursue a claim on ExO's behalf under Article 1117.

1. Jurisdiction *Ratione Personae* Has Been Established

189. Article 1116 (Claim by an Investor of a Party on Its Own Behalf) states, in relevant part:⁴²¹
- (1) An investor of a Party may submit to arbitration under this Section a claim that another Party has breached an obligation under:

⁴¹⁸ **C-0116**, Resolución - Manifestacion de Impacto Ambiental Modalidad Particular del Proyecto Ejectivo del Sistema Integral de Saneamiento en Sayulita, Nayarit, 26 April 2018 ("**Sayulita Resolution**").

⁴¹⁹ See *infra* ¶¶ 259-286.

⁴²⁰ Within the rubric of NAFTA, the term "Party" refers to one of the contracting States to the Treaty.

⁴²¹ **CL-0081**, North American Free Trade Agreement, 1994 ("**NAFTA**"), art. 1116(1).

(a) Section A or Article 1503(2) (State Enterprises), [. . .] and that the investor has incurred loss or damage by reason of, or arising out of, that breach.

190. NAFTA Article 1139 (Definitions) defines an “investor of a Party” to mean “a Party or state enterprise thereof, or a national **or an enterprise of such Party**, that seeks to make, is making or has made an investment.”⁴²²
191. The term “enterprise” is defined in Article 201 (Definitions of General Application) to include “any entity constituted or organized under applicable law, whether or not for profit, and whether privately-owned or governmentally-owned, including any corporation, trust, partnership, sole proprietorship, joint venture or other association.”⁴²³ Further, “[e]nterprise of a Party means an enterprise constituted or organized under the law of a Party.”⁴²⁴
192. Odyssey is a for-profit business incorporated in 1997 and constituted under the laws of the State of Nevada, U.S.A.⁴²⁵ It has remained a U.S. corporation throughout its entire corporate life. Its principal executive offices are located at 205 South Hoover Boulevard, Suite 210, Tampa, Florida 33609, and it is traded publicly on NASDAQ under the ticker OMEX.⁴²⁶ Odyssey is therefore an enterprise of a Party and, as discussed below, has made investments in Mexico. Accordingly, it is entitled under Article 1116 to submit claims to arbitration that Mexico has breached Chapter 11, Section A of NAFTA.⁴²⁷

2. The Tribunal Has Jurisdiction *Ratione Personae* Over Odyssey’s Claims Brought on Behalf of ExO Under Article 1117

193. Article 1117 (Claim by an Investor of a Party on Behalf of an Enterprise) provides in relevant part:⁴²⁸

⁴²² **CL-0081**, NAFTA, art. 1139 (emphasis added).

⁴²³ **CL-0081**, NAFTA, art. 201(1).

⁴²⁴ **CL-0081**, NAFTA, art. 201(1).

⁴²⁵ **C-0033**, Odyssey Marine Exploration, Inc. Certificate of Incorporation, 28 August 1997; **C-0094**, Odyssey Marine Exploration, Corporate Registration Statement, 8 July 2020; Gordon WS, ¶ 6.

⁴²⁶ **C-0094**, Odyssey Marine Exploration, Corporate Registration Statement, 8 July 2020; **C-0192**, Odyssey Marine Exploration, Inc. Common Stock (OMEX) Stock Quotes, Nasdaq, 7 July 2020; Gordon WS, ¶ 6.

⁴²⁷ **CL-0081**, NAFTA, art. 1116(1).

⁴²⁸ **CL-0081**, NAFTA, art. 1117(1).

(1) An investor of a Party, on behalf of an enterprise of another Party that is a juridical person that the investor owns or controls directly or indirectly, may submit to arbitration under this Section a claim that the other Party has breached an obligation under:

(a) Section A or Article 1503(2) (State Enterprises) [. . .].

194. In considering the language and purpose of Article 1117, NAFTA tribunals have found that it permits investors to assert claims on behalf of locally-incorporated subsidiaries that the investors directly or indirectly own or control. Thus, for example, in *Waste Management v. Mexico*, the tribunal allowed a U.S. investor to assert claims on behalf of its Mexican subsidiary, which the U.S. investor controlled indirectly, explaining:⁴²⁹

Article 1117 deals with the special situation of claims brought by investors on behalf of enterprises established in the host State. But it still allows such claims where the enterprise is owned or controlled ‘directly or indirectly’, i.e., through an intermediate holding company which has the nationality of a third State.

195. NAFTA does not define the term “control.” To interpret and ascribe meaning to the term, tribunals have looked to the concept of corporate control and whether the investor holds enough shares in the enterprise to confer the legal capacity to control it or otherwise exercise *de facto* control. For instance, in *B-Mex & Others v. Mexico*, the tribunal ruled an investor would be found to control an enterprise:⁴³⁰

whenever the investor: [1] owns all of the outstanding shares in an enterprise (an enterprise that the investor ‘owns’); [2] owns a lesser number of shares that is still sufficient in the specific circumstances to confer the legal capacity to control (an enterprise that the investor ‘controls’); or [3] does not own a number of shares sufficient to confer the legal capacity to control but is otherwise able to exercise *de facto* control (also an enterprise that the investor ‘controls’).

⁴²⁹ **CL-0121**, *Waste Management, Inc. v. United Mexican States II* (ICSID Case No. ARB(AF)/00/3) Award, 30 April 2004, ¶ 84.

⁴³⁰ **CL-0019**, *B-Mex, LLC and Others v. United Mexican States* (ICSID Case No. ARB(AF)/16/3) Partial Award, 19 July 2019, ¶ 205.

196. In a recent decision, *Nelson v. Mexico*, the tribunal drew on *Black's Law Dictionary* to conclude that control means "corporate control," and exists when there is "[o]wnership of more than 50% of the shares in a corporation."⁴³¹ It further noted that "it is undisputed by the Parties that majority ownership is a manner of legal control for purposes of NAFTA Article 1117."⁴³²
197. The relationship between Odyssey and ExO meets this test. At all relevant times, ExO was and continues to be a Mexican enterprise that Odyssey indirectly majority owns and controls.⁴³³ Constituted in 2012,⁴³⁴ ExO is 99.99% held by Oceánica Resources S. de R.L. ("**Oceánica**"), a Panamanian company.⁴³⁵ As Mark Gordon, Odyssey's CEO and Chairman of the Board, explains, "Odyssey holds 53.89% of Oceánica through its wholly-owned Bahamian subsidiary, Odyssey Marine Enterprises, Ltd., with an option to acquire over a 64% interest. Oceánica, in turn, holds 99.99% of ExO."⁴³⁶ A chart showing the holding structure is set out below:

⁴³¹ **CL-0127**, *Mr. Joshua Dean Nelson v. The United Mexican States* (ICSID Case No. UNCT/17/1) Final Award, 5 June 2020, ¶ 188.

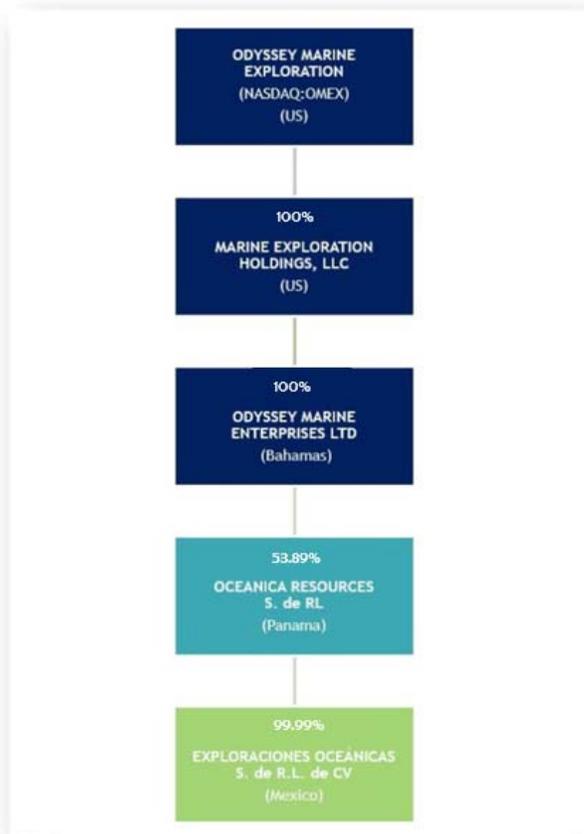
⁴³² **CL-0127**, *Mr. Joshua Dean Nelson v. The United Mexican States* (ICSID Case No. UNCT/17/1) Final Award, 5 June 2020, ¶ 198.

⁴³³ **C-0183**, Certificate of the Treasurer, ExO Stock Ownership, 29 March 2019; **C-0184**, Certificate of the Treasurer, Oceanica Stock Ownership, 29 March 2019; **C-0211**, Certificate of the Treasurer, OMEX Stock Ownership, 29 March 2019; **C-0212**, Certificate of the Treasurer, OMEX Enterprises Stock Ownership, 29 March 2019.

⁴³⁴ **C-0052**, ExO's Articles of Incorporation, 7 March 2012; **C-0226**, Exploraciones Oceánicas Shareholder Registry, 18 February 2013; **C-0057**, Amendment to EXO's Articles of Incorporation, 31 May 2013.

⁴³⁵ **C-0183**, Certificate of the Treasurer, ExO Stock Ownership, 29 March 2019.

⁴³⁶ Gordon WS, ¶ 7.



198. Based on the common interpretation of Article 1117 established in *Waste Management, B-Mex*, and *Nelson*, Odyssey controls ExO. Odyssey indirectly holds a majority interest in ExO, through Oceánica, meaning Odyssey exercises legal control over the enterprise. Specifically, as reflected above, Odyssey exercises such control through its majority ownership of Odyssey Marine Enterprises Ltd. which, in turn, owns 53.89% of Oceánica, which, in turn, owns 99.99% of ExO.⁴³⁷ This is why Odyssey stated, in a recent filing with the Securities and Exchange Commission, “we **control** Exploraciones Oceánicas, S. de R.L. de C.V. (“ExO”), a Mexican company that has exclusive mining permits for a significant

⁴³⁷ **C-0183**, Certificate of the Treasurer, ExO Stock Ownership, 29 March 2019; **C-0184**, Certificate of the Treasurer, Oceanica Stock Ownership, 29 March 2019; **C-0211**, Certificate of the Treasurer, OMEX Stock Ownership, 29 March 2019; **C-0212**, Certificate of the Treasurer, OMEX Enterprises Stock Ownership, 29 March 2019.

phosphate deposit.”⁴³⁸ Accordingly, Odyssey’s claims brought on behalf of ExO are properly before this Tribunal.

B. Jurisdiction *Ratione Materiae* Has Been Established

199. Jurisdiction *ratione materiae* has been established because it is manifest that the measures at issue related to Odyssey and/or ExO and that both sustained loss and/or damage arising from the adoption and maintenance of such measures in a manner inconsistent with Articles 1102, 1105, and 1110 of NAFTA. Odyssey’s claims are based on Mexico’s breach of the investment protections set forth in Section A of Chapter 11.⁴³⁹ Article 1101 of NAFTA describes the “Scope and Coverage” of these protections as applying to “measures adopted or maintained by a Party relating to (a) investors of another Party; (b) investments of investors of another Party in the territory of the Party [. . .].”⁴⁴⁰
200. Article 201 provides that “measure includes any law, regulation, procedure, requirement or practice.”⁴⁴¹ The measures at issue in this case are constituted in SEMARNAT’s treatment of Odyssey and ExO in relation to the Don Diego Project, including both positive acts—such as the issuance of denials that were consistent with Secretary Pacchiano’s political ambitions and/or personal whims rather than with applicable statutory standards and administrative law norms—and omissions—such as the inexplicable and *ultra vires* delays suffered with respect to SEMARNAT’s purported consideration of its Project MIA. The measures at issue in this claim also include the statutory standards and administrative law norms that should have been applied—objectively, rather than instrumentally—to the ExO Project’s MIA. They also include the practices, procedures, and requirements imposed by SEMARNAT in a more favorable manner to comparable dredging projects proposed by similarly situated Mexican investors and investment enterprises.

⁴³⁸ **C-0190**, Odyssey Marine Exploration, Inc. Form 10-K for the period ending 31 December 2019, 20 March 2020, p. 4.

⁴³⁹ See **CL-0081**, NAFTA, art. 1116(1), 1117(1).

⁴⁴⁰ **CL-0081**, NAFTA, art. 1101(1).

⁴⁴¹ **CL-0081**, NAFTA, art. 201(1).

201. It is submitted that no serious argument can be advanced to the effect that the aforementioned measures could not be seen as having “related” both to the investor, Odyssey, and to the entity responsible for seeking SEMARNAT’s approval of the Project, ExO, Claimant’s ownership and control of which has already been determinately established.
202. Article 1139 defines “investment” to include, *inter alia*: (i) an enterprise; (ii) an equity security of an enterprise; (iii) a debt security of an enterprise; (iv) a loan to an enterprise; (v) an interest in an enterprise that entitles the owner to a share in income or profits of the enterprise; or (vi) interests arising from the commitment of capital or other resources in the territory of a Party to economic activity in such territory, such as concessions.⁴⁴²
203. With respect to claims Odyssey brings on its own behalf, Odyssey has made qualifying investments in Mexico. These include Odyssey’s 53.89% shareholding in ExO, which is plainly “an equity security” and an “interest in an enterprise that entitles the owner to a share in income or profits of the enterprise,” as enumerated in Article 1139.⁴⁴³ In addition, Odyssey has funded the exploration work and concession fees, by financing ExO’s work and investment of resources in furtherance of the Don Diego Project.⁴⁴⁴
204. With respect to claims Odyssey brings on behalf of ExO, the Concession, the Don Diego Norte Concession, the Don Diego Sur Concession, and the associated rights are also covered investments. As discussed previously, the Concession comprises:
- Concession 240744, dated 28 June 2012, as subsequently modified by Concession 244813, dated 15 February 2016 (reducing the size of the parcel);
 - Concession 242994 (Sur), dated 29 April 2014; and
 - Concession 242995 (Norte), dated 29 April 2014.

⁴⁴² **CL-0081**, NAFTA, art. 1139.

⁴⁴³ **CL-0081**, NAFTA, art. 1139.

⁴⁴⁴ For example, **CL-0210** is a general ledger of 2012 which demonstrates the significant amounts ExO spent, and which Odyssey financed, for the exploration and development of the Don Diego Project. Longley WS, ¶ 37. In addition, concession fees were consistently paid by ExO, with the funds Odyssey provided it, as exemplified by **C-0202**, Permit Concession Fee Detail - Calculation and Proofs, 2012-2013.

205. Tribunals have regularly recognized that concessions constitute an investment for purposes of Article 1101. For example, In *Lion Mexico Consolidated v. Mexico*, the tribunal observed that the investment protections extend to concessions.⁴⁴⁵ The commitments of capital and time expended by Odyssey and ExO to explore the Concession area and develop the MIA are also covered by these investment protections. With Odyssey's support:
- a. ExO obtained the Concession and paid Mexico concession fees biannually.
 - b. ExO undertook seven cruises using Odyssey's chartered vessel, *Dorado Discovery*, to quantify and characterize the resource and collect baseline environmental data to prepare the MIA. Each cruise lasted between 30 to 40 days and was staffed by a 40-person (on average) crew, including technical personnel to operate the state-of-the-art subsea survey, operate exploration and drilling equipment, and collect samples. Odyssey also supported the offshore operations.
 - c. ExO engaged experts and consultants to evaluate the resource and develop the engineering solution to dredge and process the ore at sea.
 - d. ExO engaged a team of environmental consultants and experts to perform the technical and environmental analysis required to ensure the engineering solution was environmentally sustainable and to prepare the MIA. With Odyssey's support, ExO then devoted more than four years to the process of trying to obtain environmental approval.
 - e. Odyssey also provided managerial and general administrative support throughout the life of the Don Diego Project.
206. Accordingly, SEMARNAT's conduct, which forms the basis of the measures at issue in this arbitration, is attributable to Mexico. And, as discussed below, these measures directly

⁴⁴⁵ **CL-0067**, *Lion Mexico Consolidated v. United Mexican States* (ICSID Case No. ARB(AF)/15/2) Decision on Jurisdiction, 30 July 2018, ¶¶ 205, 207. See also **CL-0008**, *AIG Capital Partners Inc. and CJSC Tema Real Estate Company v. Republic of Kazakhstan* (ICSID Case No. ARB/01/6) Award, 7 October 2003, fn. 154: "It has been held in an ICSID Arbitral Award that the legal relation arising from a request for an investment licence and from a decision granting it can be deemed to be a sui generis relationship comparable to a contract. (See *AMCO Asia Corporation v. Republic of Indonesia* (1984) 24 International Legal Materials (1985) page 1030, ICCA Yearbook Vol. XIV 1989 p. 92 noted in a later ICSID award in *Antoine Goetz, et al. (Belgium) v. The Republic of Burundi* ICCA Yearbook – 2001 Vol. XXVI p. 24 at pp. 32–3, where the Claimants did not allege any contractual relationship and the relationship was held to be strictly unilateral in character.)."

damaged the value of Odyssey's shareholding in ExO and destroyed ExO's ability to monetize the Concession. The requirements of Article 1101(1) have thus been met.

C. The Dispute Meets NAFTA's Temporal Requirements

207. Odyssey made the relevant investments in the territory of Mexico after NAFTA came into effect on 1 January 1994.⁴⁴⁶ In addition, pursuant to paragraphs 1 and 4 of Annex 14-C of the USMCA, the instant arbitration constitutes a "pending claim" for which Mexico has promised to maintain its consent, including up until its final conclusion.⁴⁴⁷
208. Article 1116(2) provides that "[a]n investor may not make a claim if more than three years have elapsed from the date on which the investor first acquired, or should have first acquired, knowledge of the alleged breach and knowledge that the investor has incurred loss or damage."⁴⁴⁸ Odyssey has timely brought its claim. For Articles 1105 and 1110, SEMARNAT's wrongful denial of the MIA constitutes the crux of the measure at issue. The first, legally binding manifestation of such decision was officially rendered by SEMARNAT on 7 April 2016. Odyssey submitted the Request for Arbitration on 5 April 2019. The claim was therefore made within the three-year period established by Article 1116.
209. For Article 1102, the "measure" also comprises the "treatment" accorded by SEMARNAT to dredging projects pursued by similarly-situated investors and/or investment enterprises, for which approvals were granted under the same general statutory framework. The absolute earliest date upon which Odyssey or ExO could have learned of such disparate treatment, as well as the relative losses they would have incurred arising from such treatment, would have been 7 April 2016.
210. Article 1120(1) of NAFTA further requires that "six months have elapsed since the events giving rise to a claim" and the submission of a claim to arbitration.⁴⁴⁹ Here, the First Denial

⁴⁴⁶ **CL-0081**, NAFTA, art. 2203.

⁴⁴⁷ **CL-0135**, USMCA, Annex 14-C.

⁴⁴⁸ **CL-0081**, NAFTA, art. 1116(2).

⁴⁴⁹ **CL-0081**, NAFTA, art. 1120(1).

occurred on 7 April 2016, and Claimant did not seek arbitration until 5 April 2019, meaning that more than six months elapsed as required by Article 1120.⁴⁵⁰

211. Additionally, Article 1119 provides that the disputing investors shall deliver to the disputing Party written notice of their intention to submit a claim to arbitration at least 90 days before the claim is submitted. Here, Odyssey submitted the Notice of Intent to Mexico on 4 January 2019, and consultations took place at the beginning of April 2019. Odyssey then commenced arbitration on 5 April 2019. In total, 91 days elapsed between the NOI and the NOA, satisfying the 90-day requirement of Article 1119.
212. Given all of the above, Claimant has established both the admissibility and jurisdiction *ratione temporis* of and for its claims.

D. The Tribunal Has *Ratione Personae* Jurisdiction Over Mexico

213. The Tribunal's jurisdiction *ratione personae* over Mexico is clearly established by the Treaty. Article 1122 of NAFTA provides that Mexico "consents to the submission of a claim to arbitration in accordance with the procedures set out in this Agreement."⁴⁵¹ Mexico further agreed, in Article 1120, that an investor may bring a claim pursuant to "the UNCITRAL Arbitration Rules."⁴⁵²
214. In light of these provisions, the Tribunal has jurisdiction *ratione personae* over Mexico to hear Odyssey's claims brought in these proceedings under the UNCITRAL Arbitration Rules.

⁴⁵⁰ The time period between the First Denial and Odyssey's eventual decision to seek arbitration is largely explained by the fact that the TFJA ordered SEMARNAT to reconsider its severely biased and improper denial of ExO's MIA. While Odyssey's investment was expropriated on 7 April 2016 (as Claimant explains in greater depth below), Odyssey hoped that during this reconsideration, SEMARNAT would act appropriately and grant the environmental permit, thereby remediating the expropriation and eliminating the need for this action. This, of course, did not happen, and as a result, Odyssey has brought this action on its own behalf and on behalf of ExO.

⁴⁵¹ **CL-0081**, NAFTA, art. 1122(1).

⁴⁵² **CL-0081**, NAFTA, art. 1120(1).

E. Odyssey and ExO Have Waived Their Rights to Pursue Monetary Relief Before Domestic Courts in Mexico

215. NAFTA Articles 1121(1)(b) and 1121(2)(b) provide that Odyssey and ExO were required to “waive their right to initiate or continue” any domestic proceeding before Mexican administrative courts or tribunals when Odyssey submitted its claims to arbitration under NAFTA Chapter 11.⁴⁵³ They have done so. This waiver was submitted in connection with the Notice for Arbitration.⁴⁵⁴ Notably, these Articles do not require waiver of “proceedings for injunctive, declaratory or other extraordinary relief, not involving the payment of damages.”⁴⁵⁵
216. ExO’s appeal of SEMARNAT’s 12 October 2018 Denial to the TFJA (an administrative court), which seeks to overturn the Denial on Mexican legal grounds, is permitted under NAFTA. Indeed, the TFJA is only empowered to grant declaratory relief, i.e. to annul or to confirm SEMARNAT’s decision, not to award payment of damages.⁴⁵⁶ Moreover, if the TFJA annuls, it must remand to SEMARNAT for the latter to issue a new decision.⁴⁵⁷

IV. MERITS

A. Mexico Violated NAFTA Article 1105

217. Respondent violated NAFTA Article 1105 by unfairly and inequitably denying Claimant an environmental permit for the Project. It is well established that NAFTA requires the Parties to provide fair and equitable treatment to investments of investors of other Parties consistent with the minimum standard of treatment under customary international law. This minimum standard of treatment encompasses the obligation to provide fair and equitable treatment and full protection and security in a manner

⁴⁵³ **CL-0081**, NAFTA, art. 1121(1)(b), 1121(2)(b).

⁴⁵⁴ Notice of Arbitration, Annex.

⁴⁵⁵ **CL-0081**, NAFTA, art. 1121(1)(b), 1121(2)(b); *see also: CL-0129, Detroit International Bridge Company v. Government of Canada* (PCA Case No. 2012-25) Award on Jurisdiction, 2 April 2015, ¶¶ 316-319.

⁴⁵⁶ **C-0158**, Ley Federal de Procedimiento Contencioso Administrativo, 27 January 2017, art. 52.

⁴⁵⁷ **C-0158**, Ley Federal de Procedimiento Contencioso Administrativo, 27 January 2017, art. 52(IV). Although the law allows the TFJA to award damages in cases where there is a subjective right being questioned and the plaintiff requests damages, this is not the case here. Indeed, ExO’s request in its nullity appeal to the TFJA is for declaratory relief insofar as it solicits the tribunal to annul SEMARNAT’s decision. ExO does not request damages. *See C-0186*, ExO’s Nullity Appeal before the TFJA, 19 August 2019, pp. 196-197.

consistent with customary international law. This standard encapsulates, and its breach can be evinced by proof of nonconformity with, any of the following principles: **(i) transparency; (ii) good faith; (iii) treatment free from arbitrary and/or discriminatory conduct; (iv) due process; and (v) respect for reasonable expectations.**

218. As set forth in detail below, Respondent's conduct was inconsistent with the minimum standard as reflected in these principles, both individually and cumulatively. For avoidance of doubt, demonstrated inconsistency with any one of these principles suffices to establish a breach of the minimum standard of treatment codified in Article 1105. Taken together, Mexico's actions demonstrate a complete failure to honor its Article 1105 promise to abide by the minimum standard, both as it stood in 1994 and as its content has been jurisprudentially elaborated since NAFTA came into force.
219. At root, the facts underlying Respondent's breach of Article 1105 are not complicated and cannot be seriously contested. The career civil servants within SEMARNAT determined that the Project did not pose any non-mitigatable environmental risks and should be approved. The political appointee to whom these officials reported, Secretary Pacchiano, ordered them to come to the exact opposite conclusion. He did so not because he disagreed with them on the substance of their approval recommendation—which would have been inconceivable, given their collective expertise and experience contrasted against his complete lack thereof—but rather because he believed he could politically benefit from killing the Project instead of approving it.
220. Secretary Pacchiano abused the public authority entrusted to him for his own, personal gain. From the moment he ordered SEMARNAT officials to “find a reason” to permanently withhold approval for the Project, Secretary Pacchiano encumbered the Mexican State with international responsibility for his conduct which was not in good faith. In remaining steadfast in his resolve to prevent ExO from ever proceeding with the Project—even as he allowed the same approval process to work as intended for dredging project proposals from similarly-situated Mexican companies—Secretary Pacchiano only multiplied and magnified the extent of Respondent's breach. Rather than taking advantage of the TFJA remand to remedy the breach, Secretary Pacchiano obstinately doubled-down, directing

his officials to render a manifestly unreasonable conclusion which showed nothing but contempt for the TFJA and for the rule of law as a whole.

221. In following Secretary Pacchiano’s directive and denying the permit for illegitimate reasons, SEMARNAT forsook its statutory mandate and applicable environmental law. From the perspective of international law, SEMARNAT failed to accord good faith consideration to the evidence marshalled by ExO in support of the Project. Secretary Pacchiano’s secret marching orders twice forced SEMARNAT officials to act against their professional judgment, requiring them to ignore and mischaracterize both the evidence and the environmental policy considerations which should have governed their work. As explained further below, this predetermined outcome was not only *ultra vires* as a matter of Mexican law but also transgressed a litany of norms reflected in the general law principles of transparency and due process. But for Secretary Pacchiano’s injudicious and nakedly political interventions, the Project would have been allowed to proceed and ExO would have been able to sustainably exploit its Concession.

1. NAFTA Article 1105 and the Minimum Standard of Treatment

222. NAFTA Article 1105(1) provides that “[e]ach Party shall accord to investments of investors of another Party treatment in accordance with international law, including *fair and equitable treatment [FET]* and full protection and security [FPS].”⁴⁵⁸ As confirmed by the NAFTA Commission’s statement of 31 July 2001, the FET and FPS standards in Article 1105 reflect the customary international law minimum standard of treatment (“**MST**”).
223. As the *Pole & Talbot* tribunal observed, the customary international law MST is not “frozen in amber.”⁴⁵⁹ Indeed, even Respondent has previously admitted that “the standard is relative and that conduct which may not have violated international law [in]

⁴⁵⁸ **CL-0081**, NAFTA, art. 1105(1) (emphasis added).

⁴⁵⁹ **CL-0091**, *Pope & Talbot v. Canada* (UNCITRAL) Award in Respect of Damages, 31 May 2002, ¶ 57. See also **CL-0078**, *Mondev International Ltd. v. United States* (ICSID Case No. ARB(AF)/99/2) Award, 11 October 2002, ¶ 115; **CL-0063**, J. Paulsson and G. Petrochilos: “Neer-Ly Misled?” ICSID Review – Foreign Investment Law Journal, Vol. 22, Issue 2 (2007), p. 242.

the 1920's might very well be seen to offend internationally accepted principles today."⁴⁶⁰ NAFTA tribunals have commonly accepted this position, and there is no reason why this Tribunal should deviate from it.⁴⁶¹

224. In considering which MST norms are most applicable within the circumstances of this case, the Tribunal may consider reasons for decision rendered by other courts and tribunals seized with the application of international law, in addition to the writings of highly regarded legal scholars and jurists.⁴⁶² In other words, the Tribunal should not attempt to construe the MST, or the standards of fair and equitable treatment and full protection and security it includes, in the abstract or in a vacuum. It can and should avail itself of the legal doctrines emanating from these two, universally-acknowledged sources of international law.
225. As Judge Schwebel, former President of the International Court of Justice, explained, "when BITs prescribe treating the foreign investor in accordance with customary international law, they should be understood to mean the standard of international law

⁴⁶⁰ **CL-0077**, *Mondev International Ltd. v. United States* (ICSID Case No. ARB(AF)/99/2) Article 1128 Submission of the United Mexican States, 23 July 2002, p. 14.

⁴⁶¹ **CL-0005**, *ADF Group Inc. v. United States of America* (ICSID Case No. ARB(AF)/00/1) Award, 9 January 2003, ¶¶ 179, 181 ("[W]hat customary international law projects is not a static photograph of the minimum standard of treatment of aliens as it stood in 1927 when the Award in the *Neer* case was rendered," and accordingly, "[t]here appears no logical necessity and no concordant state practice to support the view that the *Neer* formulation is automatically extendible to the contemporary context of treatment of foreign investors and their investments by a host or recipient State."); **CL-0070**, *Merrill & Ring Forestry L.P. v. Canada* (UNCITRAL) Award, 31 March 2010, ¶ 204 ("No general rule of customary international law can thus be found which applies the *Neer* standard, beyond the strict confines of personal safety, denial of justice and due process."); **CL-0122**, *William Ralph Clayton, William Richard Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware, Inc. v. Government of Canada* (UNCITRAL) Award on Jurisdiction and Liability, 17 March 2015, ¶¶ 434-435 ("The starting point is generally the *Neer* case"; however, tribunals have "move[d] towards the view that the international minimum standard has evolved over the years towards greater protection of investors."); **CL-0053**, *Gami Investments, Inc. v. The Government of the United Mexican States* (UNCITRAL) Final Award, 15 November 2004, ¶ 95 ("[A] violation does not require proof of 'the kind of outrageous treatment referred to in the *Neer* case' [. . .] *Neer* was decided more than half a century before NAFTA saw the light of day."); **CL-0091**, *Pope & Talbot Inc. v. The Government of Canada* (UNCITRAL) Award in Respect of Damages, 31 May 2002, ¶ 60 ("[S]ince the 1920's, the range of actions subject to international concern has broadened beyond the international delinquencies considered in *Neer* to include the concept of fair and equitable treatment.").

⁴⁶² **CL-0124**, *Windstream Energy LLC v. Canada* (PCA Case No. 2013-22) Award, 27 September 2016, ¶¶ 351-353, 355-356, 361-362; See also, **CL-0134**, Statute of the International court of Justice, art. 38.1.d.

embodied in the terms of some two thousand concordant BITs.”⁴⁶³ Similarly, the tribunal in *Chemtura* noted, “the scope of Article 1105 of NAFTA must be determined by reference to customary international law. Such determination cannot overlook the evolution of customary international law, nor the impact of BITs on this evolution.”⁴⁶⁴

226. Many arbitrators have concerned themselves with the question of whether the FET and FPS standards mentioned in Article 1105(1) can or should be construed as autonomous in some cases or merely elucidative of the MST in others. The Tribunal does not need to resolve this controversy in order to adjudicate the instant dispute.⁴⁶⁵ Here, any distinction between the two is positions academic—because Mexico’s actions were so egregious that they would violate even the most conservative construction of the MST.
227. It is well accepted, moreover, that the MST is not a singular statement of treatment but should instead be construed as “an umbrella concept incorporating a set of rules that over the centuries have crystallized into customary international law in specific contexts.”⁴⁶⁶

⁴⁶³ **CL-0110**, S. Schwebel, *The Influence of Bilateral Investment Treaties on Customary International Law* (2004), pp. 29-30.

⁴⁶⁴ **CL-0033**, *Chemtura Corporation v. Government of Canada* (UNCITRAL) Award, 2 August 2010, ¶ 121.

⁴⁶⁵ **CL-0070**, *Merrill & Ring Forestry L.P. v. Canada* (UNCITRAL) Award, 31 March 2010, ¶ 210 (“A requirement that aliens be treated fairly and equitably in relation to business, trade and investment is the outcome of this changing reality and as such it has become sufficiently part of widespread and consistent practice so as to demonstrate that it is reflected today in customary international law as *opinio juris*. In the end, the name assigned to the standard does not really matter.”); **CL-0035**, *CMS Gas Transmission Company v. The Argentine Republic* (ICSID Case No. ARB/01/8) Award, 12 May 2005, ¶ 284 (“[T]he treaty standard of fair and equitable treatment [. . .] is not different from the international law minimum standard and its evolution under customary law.”); **CL-0098**, *Rumeli Telekom A.S. and Telsim Mobil Telekomikasyon Hizmetleri A.S. v. Republic of Kazakhstan* (ICSID Case No. ARB/05/16) Award, 29 July 2008, ¶ 611 (“[T]he treaty standard of fair and equitable treatment is not materially different from the minimum standard of treatment in customary international law.”); **CL-0014**, *Azurix Corp. v. The Argentine Republic* (ICSID Case No. ARB/01/12) Award, 14 July 2006, ¶ 361 (“[T]he minimum requirement to satisfy [the fair and equitable treatment] standard has evolved [. . .] its content is substantially similar whether the terms are interpreted in their ordinary meaning [. . .] or in accordance with customary international law.”).

⁴⁶⁶ **CL-0004**, *ADF Group Inc. v. United States of America* (ICSID Case No. ARB (AF)/00/1) Post-Hearing Submission of Respondent United States of America on Article 1105(1) and *Pope & Talbot*, 27 June 2002, p. 2; **CL-0090**, *Pope & Talbot Inc. v. The Government of Canada* (UNCITRAL) Award on the Merits of Phase 2, 10 April 2001, ¶ 115; **CL-0072**, *Methanex Corporation v. United States of America* (UNCITRAL) Memorial on Jurisdiction and Admissibility of Respondent United States of America, 13 November 2000, pp. 41-42. See also **CL-0027**, *Cargill, Incorporated v. United Mexican States* (ICSID Case No. ARB(AF)/05/2) Award, 18 September 2009, ¶ 268.

While the concept of “‘fair and equitable treatment’ is not precisely defined,”⁴⁶⁷ as noted by Dr. Muchlinski, it “offers a general point of departure in formulating an argument that the foreign investor has not been well treated by reason of discriminatory or other unfair measures being taken against its interests. It is, therefore, a concept that depends on the interpretation of specific facts for its content.”⁴⁶⁸

228. Within the context of NAFTA, the standard articulated by the tribunal in *Waste Management II* has been widely accepted as the starting point for construing the content of the FET standard within the context of any given case.⁴⁶⁹ As the *Waste Management*

⁴⁶⁷ **CL-0098**, *Rumeli Telekom A.S. and Telsim Mobil Telekomikasyon Hizmetleri A.S. v. Republic of Kazakhstan* (ICSID Case No. ARB/05/16) Award, 29 July 2008, ¶ 610.

⁴⁶⁸ **CL-0126**, C. Schreuer, “Fair and Equitable Treatment in Arbitral Practice,” *The Journal of World Investment & Trade* (2005), p. 365, citing: P.T. Muchlinski, *Multinational Enterprises and the Law*, Blackwell, Oxford, U.K., 1999, p. 625.

⁴⁶⁹ **CL-0121**, *Waste Management, Inc. v. United Mexican States II* (ICSID Case No. ARB(AF)/00/3) Award, 30 April 2004, ¶¶ 98-99. Cases that refer to *Waste Management II* are, e.g., **CL-0122**, *William Ralph Clayton, William Richard Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware, Inc. v. Government of Canada* (UNCITRAL) Award on Jurisdiction and Liability, 17 March 2015, ¶¶ 442-443 (“The formulation of the ‘general standard for Article 1105’ by the *Waste Management* Tribunal is particularly influential [. . .] While no single arbitral formulation can definitively and exhaustively capture the meaning of Article 1105, the Tribunal finds this quote from *Waste Management* to be a particularly apt one.”); **CL-0076**, *Mobil Investments Canada Inc. & Murphy Oil Corp. v. Government of Canada* (ICSID Case No. ARB(AF)/07/4) Decision on Liability and on Principles of Quantum, 22 May 2012, ¶ 141 (“The [*Waste Management*] tribunal identified the customary international law standard.”); **CL-0070**, *Merrill & Ring Forestry L.P. v. Canada* (UNCITRAL) Award, 31 March 2010, ¶ 199 (“*Waste Management* also identified unfair and inequitable treatment with conduct that is arbitrary, grossly unfair, unjust or idiosyncratic which, in so far as it also encompasses questions of due process, leads to an outcome which ‘offends judicial propriety.’”); **CL-0033**, *Chemtura Corporation v. Government of Canada* (UNCITRAL) Award, 2 August 2010, ¶¶ 122, 215; **CL-0027**, *Cargill, Incorporated v. United Mexican States* (ICSID Case No. ARB(AF)/05/2) Award, 18 September 2009, ¶ 283 (“The central inquiry therefore is: what does customary international law *currently* require in terms of the minimum standard of treatment to be accorded to foreigners? The *Waste Management II* tribunal concluded that a general interpretation was emerging from NAFTA awards”); **CL-0074**; *Methanex Corporation v. United States of America* (UNCITRAL) Final Award on Jurisdiction and Merits, 3 August 2005, Part IV, Chapter C, ¶ 12, Chapter D, ¶ 8 (referring to the fair and equitable treatment standard articulated in *Waste Management v. Mexico* with approval); **CL-0053**; *Gami Investments, Inc. v. The Government of the United Mexican States* (UNCITRAL) Final Award, 15 November 2004, ¶ 95 (“The ICSID tribunal in *Waste Management II* made what it called a ‘survey’ of standards of review applied by international tribunals dealing with complaints under Article 1105. It observed the emergence of a ‘general standard for Article 1105.’”). See also in the CAFTA context: **CL-0113**, *TECO Guatemala Holdings LLC v. The Republic of Guatemala* (ICSID Case No. ARB/10/17) Award, 19 December 2013, ¶ 455 (“The Arbitral Tribunal agrees with the many arbitral tribunals [including *Waste Management*] and authorities that have confirmed that such is the content of the minimum standard of treatment in customary international law.”); **CL-0095**, *Railroad Development Corporation (RDC) v. Republic of Guatemala* (ICSID Case No. ARB/07/23) Award, 29 June 2012, ¶ 219 (“The Tribunal finds that *Waste Management II* persuasively integrates the accumulated analysis of prior NAFTA Tribunals and reflects a balanced description of the minimum standard of

// tribunal noted:⁴⁷⁰

[T]he minimum standard of treatment of fair and equitable treatment is infringed by conduct attributable to the State and harmful to the claimant if the conduct is arbitrary, grossly unfair, unjust or idiosyncratic, is discriminatory and exposes the claimant to sectional or racial prejudice, or involves a lack of due process leading to an outcome which offends judicial propriety—as might be the case with a manifest failure of natural justice in judicial proceedings or complete lack of transparency and candour in an administrative process. In applying this standard it is relevant that the treatment is in breach of representations made by the host State which were reasonably relied on by the claimant.

229. This frequently-cited passage synthesizes Article 1105's FET-MST obligations as incorporating the following fundamental principles:⁴⁷¹

- a. **TRANSPARENCY AND CANDOR:** The host state must act in a transparent and candid manner;
- b. **GOOD FAITH:** The host state is obliged to act in good faith;
- c. **TREATMENT FREE FROM ARBITRARY CONDUCT:** The host state's conduct cannot be arbitrary, grossly unfair, unjust, idiosyncratic, discriminatory, or lacking in due process;
- d. **DUE PROCESS:** The host state must respect procedural propriety and due process; and
- e. **LEGITIMATE EXPECTATIONS:** The host state must respect the investor's reasonable expectations.

treatment. The Tribunal accordingly adopts the *Waste Management II* articulation of the minimum standard for purposes of this case.”).

⁴⁷⁰ **CL-0121**, *Waste Management, Inc. v. United Mexican States II* (ICSID Case No. ARB(AF)/00/3) Award, 30 April 2004, ¶ 98.

⁴⁷¹ See also **CL-0098**, *Rumeli Telekom A.S. and Telsim Mobil Telekomikasyon Hizmetleri A.S. v. Republic of Kazakhstan* (ICSID Case No. ARB/05/16) Award, 29 July 2008, ¶ 609. These same principles are similarly enunciated in *Rumeli's* discussion of FET, whereby the tribunal noted, “[T]he fair and equitable treatment standard encompasses *inter alia* the following concrete principles:- the State must act in a transparent manner;- the State is obliged to act in good faith;- the State's conduct cannot be arbitrary, grossly unfair, unjust, idiosyncratic, discriminatory, or lacking in due process;- the State must respect procedural propriety and due process. The case law also confirms that to comply with the standard, the State must respect the investor's reasonable and legitimate expectations.”).

a. Good Faith Is a Cornerstone of Fair and Equitable Treatment

230. Good faith, as Professor Bin Cheng noted, is “an indisputable rule of international law [. . .] [w]ithout this rule, ‘International law as well as civil law would be a mere mockery.’”⁴⁷² This was also observed by Dr. Mann, who went on to further observe, “[t]he paramount duty of States imposed by international law is to observe and act in accordance with the requirements of good faith.”⁴⁷³ Good faith, a cornerstone of international law, is inherently a principle of the MST’s FET standard. This was noted in a number of seminal NAFTA cases, including *S.D. Meyers* and *Waste Management II*.⁴⁷⁴
231. Related to the principle of good faith is the concept of abuse of right. As Professor Cheng stated in his seminal book, *General Principles of Law*, the principle of abuse of rights “precludes the form of the law from being used to cover the commission of what in fact is an unlawful act.”⁴⁷⁵ Discussing due process and abuse of right, Professor Cheng went on to further note:⁴⁷⁶

[W]henver the law leaves a matter to the judgment of the person exercising the right, this discretion must be exercised in good faith, and the law will intervene in all cases where this discretion is abused [. . .] Where the right confers upon its owner a discretionary power, this must be exercised honestly, sincerely, reasonably, in conformity with the spirit of the law and with due regard to the interests of others. All rights have to be exercised reasonably and in a manner compatible with both the contractual obligations of the party exercising them and the general rules and principles of the legal order. They must not be exercised fictitiously so as to evade such obligations or rules of law, or maliciously so as to injure

⁴⁷² **CL-0015**, B. Cheng, *General Principles of Law as Applied by International Court and Tribunals* (2006), p. 113.

⁴⁷³ **CL-0047**, F.A. Mann, “British Treaties for the Promotion and Protection of Investments,” 52 BYIL 241 (1981), p. 249.

⁴⁷⁴ **CL-0103** *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶ 134 (“Article 1105 of the NAFTA requires the Parties to treat investors of another Party in accordance with international law, including fair and equitable treatment. Article 1105 imports into the NAFTA the international law requirements of due process, economic rights, obligations of good faith and natural justice.”); **CL-0121**, *Waste Management, Inc. v. United Mexican States II* (ICSID Case No. ARB(AF)/00/3) Award, 30 April 2004, ¶ 138 (“A basic obligation of the State under Article 1105(1) is to act in good faith and form, and not deliberately to set out to destroy or frustrate the investment by improper means.”).

⁴⁷⁵ **CL-0015**, B. Cheng, *General Principles of Law as Applied by International Court and Tribunals* (2006), p. 122.

⁴⁷⁶ **CL-0015**, B. Cheng, *General Principles of Law as Applied by International Court and Tribunals* (2006), pp. 132, 136.

others. Violations of these requirements of the principle of good faith constitute abuses of right, prohibited by law.

232. These principles are clearly illustrated in the *Free Zones Permanent Court of International Justice (“PCIJ”) Case*. In that case, a bilateral treaty with Switzerland prohibited France from erecting customs barriers between the two countries. France, however, established what it termed “control cordons,” which, while not expressly deemed customs barriers, effectively functioned as customs control points. In considering the merits of the case, the PCIJ noted, “[a] reservation must be made as regards the case of abuses, of a right [“les cas d’abus de droit”], since it is certain that France must not evade the obligation to maintain the zones by erecting a customs barrier under the guise of a control cordon.”⁴⁷⁷ As the PCIJ further concluded, a state’s conduct that “could ostensibly be aimed at achieving a legitimate purpose may nevertheless be abusive if the State is unable to demonstrate that this was the actual purpose.”⁴⁷⁸ Of course, while a lack of good faith is sufficient to show a violation of Article 1105, as *Mondev* noted, “a State may treat foreign investment unfairly and inequitably without necessarily acting in bad faith.”⁴⁷⁹

b. A Host State Must Not Subject Foreign Investors to Arbitrary Conduct

233. As the ICJ held in the *ELSI* case, arbitrariness is simply “something opposed to the rule of law [. . .] It is a wilful disregard of due process of law.”⁴⁸⁰ It is “something done capriciously, without reason,”⁴⁸¹ or “a measure taken for reasons that are different from those put forward by the decision maker.”⁴⁸²

⁴⁷⁷ **CL-0030**, *Case of the Free Zones of Upper Savoy and the District of Gex (Fr. V. Switz.)*, 1932 P.C.I.J. (serA/B) No. 46, 7 June 1932, ¶ 225.

⁴⁷⁸ **CL-0026**, C. T. Kotuby and L. A. Sobota, *General Principles of Law and International Due Process* (2017), p. 112.

⁴⁷⁹ **CL-0078**, *Mondev International Ltd. v. United States* (ICSID Case No. ARB(AF)/99/2) Award, 11 October 2002, ¶ 116.

⁴⁸⁰ **CL-0028**, *Case Concerning Elettronica Sicula S.p.A. (ELSI) v. Italy* (ICJ) Judgment, 20 July 1989, ¶ 128.

⁴⁸¹ **CL-0080**, *National Grid P.L.C. v. Argentine Republic* (UNCITRAL) Award, 3 November 2008, ¶ 197.

⁴⁸² **CL-0043**, *EDF (Services) Limited v. Romania* (ICSID Case No. ARB/05/13) Award, 8 October 2009, ¶ 303; **CL-0064**, *Joseph Charles Lemire v. Ukraine* (ICSID Case No. ARB/06/18) Decision on Jurisdiction and Liability, 14 January 2010, ¶ 262; **CL-0106**, *SAUR International S.A. v. Argentine Republic* (ICSID Case No. ARB/04/4) Decision on Jurisdiction and Liability, 6 June 2012, ¶ 488; **CL-0050**, *Flughafen Zürich A.G. and Gestión e Ingeniería IDC S.A. v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB/10/19) Award, 18 November

234. A state action has been found to be arbitrary, for example, when it is “not founded on reason or fact, nor on the law [. . .] but on a mere fear reflecting national preference’,”⁴⁸³ or where it is “made for purely extraneous political reasons.”⁴⁸⁴
235. State action toward an investor that is driven by political considerations or expediency rather than legal standards is a classic form of arbitrary conduct. Mexico itself has acknowledged, in a recent submission in *PACC Offshore Services Holdings v. United Mexican States*, that state action breaches the minimum standard of treatment due an investor when it is taken as a result of “mass interest group or electoral pressure” or “pressure from special or narrow interest groups’.”⁴⁸⁵
236. Arbitrary conduct by host states often follows familiar patterns, which Christoph Schreuer distils as:⁴⁸⁶

a measure that inflicts damage on the investor without serving any apparent legitimate purpose; a measure that is not based on legal standards but on discretion, prejudice or personal preference; a measure taken for reasons that are different from those put forward by the decision maker; a measure taken in wilful disregard of due process and proper procedure.

237. NAFTA tribunals have addressed arbitrariness and fair and equitable treatment, finding violations in the following cases:
- a. In *S.D. Myers v. Canada*, Canada disallowed a U.S. corporation the ability to process Canadian PCBs on the basis of purported safety considerations. At the same time, Canada’s Minister of Environment declared: “The handling of PCBs should be done in Canada by Canadians.”⁴⁸⁷ The tribunal determined that the

2014, ¶ 585; **CL-0042**, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, fn. 811.

⁴⁸³ **CL-0097**, *Ronald S. Lauder v. The Czech Republic* (UNCITRAL) Final Award, 3 September 2001, ¶ 232.

⁴⁸⁴ **CL-0020**, *BP Exploration Company (Libya) Limited v. Government of Libyan Arab Republic* (Ad Hoc Arbitration) Final Award of Arbitrator, 10 October 1973, ¶ 111.

⁴⁸⁵ **CL-0085**, *Pacc Offshore Services Holdings LTD v. United Mexican States* (ICSID Case No. UNCT/18/5) Rejoinder on the Merits, 10 June 2020, ¶ 407. See also **CL-0020**, *BP Exploration Company (Libya) Limited v. Government of the Libyan Arab Republic* (Ad Hoc Arbitration) Final Award of Arbitrator, 10 October 1973, ¶ 111 (a governmental measure is arbitrary if it is “made for purely extraneous political reasons.”).

⁴⁸⁶ **CL-0024**, C. Schreuer, “Protection Against Arbitrary or Discriminatory Measures,” in: *The Future of Investment Arbitration*, Catherine Rogers and Roger Alford, eds. (2009), p. 188.

⁴⁸⁷ **CL-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶ 185.

basis for the measure was arbitrary because it was not based on environmental concerns, but instead on protectionist intent.⁴⁸⁸

- b. In *Metalclad v. Mexico*, pursuant to the relevant domestic law, a Mexican municipality was limited to considering only construction issues when granting or denying building permits. However, the municipality denied the permit on the basis of environmental concerns rather than on the basis of construction-related items. The tribunal found this to be arbitrary and therefore in violation of the minimum standard of fair and equitable treatment.⁴⁸⁹
 - c. In *Cargill v. Mexico*, the NAFTA tribunal recognized that a breach of Article 1105(1), on the basis of arbitrariness, arises “when the State’s actions [. . .] grossly subvert[] a domestic law or policy for an ulterior motive.”⁴⁹⁰
 - d. In *Pope & Talbot v. Canada*, the tribunal ruled that Canada breached Article 1105(1) by acting on prejudice rather than on reason or fact, by threatening the investor, denying its “reasonable requests for pertinent information,” and requiring the investor “to incur unnecessary expense and disruption in meeting [. . .] requests for information.”⁴⁹¹
238. DR-CAFTA tribunals, applying a standard very similar to NAFTA Article 1105, concur. In *Cervin Investissements v. Costa Rica*, for example, the tribunal defined an arbitrary measure as conduct “which does not follow the law, justice or reason, but is solely based on caprice.”⁴⁹²
239. In *Railroad Development Corporation v. Republic of Guatemala*, another DR-CAFTA case, the host state declared an investment “*lesivo*” (legally injurious to the state). Accepting that this was a legitimate state power, the tribunal nonetheless determined that the declaration constituted an arbitrary action and a breach of MST because “the *lesivo* remedy has been used under a cloak of formal correctness in defense of a rule of law” but, in that case, was in fact exercised for purposes of “exacting concessions unrelated to

⁴⁸⁸ **CL-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶ 263.

⁴⁸⁹ **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 93.

⁴⁹⁰ **CL-0027**, *Cargill, Incorporated v. United Mexican States* (ICSID Case No. ARB(AF)/05/2) Award, 18 September 2009, ¶ 293.

⁴⁹¹ **CL-0090**, *Pope & Talbot Inc. v. The Government of Canada* (UNCITRAL) Award on the Merits of Phase 2, 10 April 2001, ¶¶ 177-181.

⁴⁹² **CL-0031**, *Cervin Investissements S.A. and Rhone Investissements S.A. v. Republic of Costa Rica* (ICSID Case No. ARB/13/2) Award, 7 March 2017, ¶ 523.

the finding of *lesivo*.”⁴⁹³ Accordingly, the *Railroad Development Corporation* tribunal’s reason dictates that arbitrary state conduct should not be saved by a state’s attempts to wrap its illegal conduct in its legal sovereign powers.

240. Other cases outside the NAFTA or DR-CAFTA context provide further guidance on the concept of arbitrary conduct within the standard of fair and equitable treatment.

a. In *Abengoa v. Mexico*, the tribunal found that the closure of the investor’s plant purportedly for “the protection of the environment and public health”⁴⁹⁴ was in fact based on political considerations, and condemned this conduct on the grounds that it is “contrary to the minimum standard of treatment” for a State to use “the powers granted by the law for purposes unrelated to” the law.⁴⁹⁵ In so holding, it found it relevant that that the political group headed by the Mayor who boycotted the investor’s plant once elected “carried out its two electoral campaigns promising the population that the Plant would be closed.”⁴⁹⁶

b. In *Tecmed v. Mexico*, “the Mexican National Ecology Institute (INE) issued a resolution in which it refused to renew the operating permit of the claimant’s subsidiary, citing certain violations of the terms of the permit.”⁴⁹⁷ Mexico attempted to justify this decision by relying on reasons related to the protection of the environment.⁴⁹⁸ The tribunal rejected Mexico’s justifications in light of evidence that the primary reason to deny the renewal “related to the social or political circumstances and the pressure exerted on municipal and state authorities and even on INE itself created by such circumstances”⁴⁹⁹ rather than on good faith environmental considerations.

241. Indeed, it has been recognized that a host state’s arbitrary acts against foreign investors are particularly pernicious, striking at the heart of the protection of MST because

⁴⁹³ **CL-0095**, *Railroad Development Corporation (RDC) v. Republic of Guatemala* (ICSID Case No. ARB/07/23) Award, 29 June 2012, ¶ 234.

⁴⁹⁴ **CL-0112**, *Técnicas Medioambientales Tecmed, S.A. v. The United Mexican States* (ICSID Case No. ARB(AF)/00/2) Award, 29 May 2003, ¶ 125.

⁴⁹⁵ **CL-0002**, *Abengoa, S.A. y COFIDES, S.A. v. United Mexican States* (ICSID Case No. ARB(AF)/09/2) Award, 18 April 2013, ¶ 642.

⁴⁹⁶ **CL-0002**, *Abengoa, S.A. y COFIDES, S.A. v. United Mexican States* (ICSID Case No. ARB(AF)/09/2) Award, 18 April 2013, ¶ 650.

⁴⁹⁷ **CL-0026**, C. T. Kotuby & L. A. Sobota, *General Principles of Law and International Due Process* (2017), pp. 116-117.

⁴⁹⁸ **CL-0112**, *Técnicas Medioambientales Tecmed, S.A. v. The United Mexican States* (ICSID Case No. ARB(AF)/00/2) Award, 29 May 2003, ¶¶ 97, 121, 124,

⁴⁹⁹ **CL-0112**, *Técnicas Medioambientales Tecmed S.A. v. The United Mexican States* (ICSID Case No. ARB(AF)/00/2) Award, 29 May 2003, ¶ 132.

“[f]oreigners, who lack political rights, are more exposed than domestic investors to arbitrary actions of the host State.”⁵⁰⁰

c. A Host State Must Provide Due Process and Procedural Propriety

242. Adherence to the MST requires Respondent’s public officials to respect due process and procedural propriety in their dealings with foreign investors and investments. In discussing these concepts, Professors Dolzer and Schreuer observe, “[f]air procedure is an elementary requirement of the rule of law and a vital element of FET.”⁵⁰¹ Professor Montt similarly notes that due process “undoubtedly forms a part of the FET standard,” adding that it was similarly beyond question that the principle must be applied to administrative and executive branch acts and not just acts of the judiciary.⁵⁰² Expanding on this description, Professor Schill explains:⁵⁰³

As long-standing customary international law recognizes, and as many tribunals applying investment treaties have decided, fair and equitable treatment embraces elements of due process specifically, administrative and judicial due process. Fair and equitable treatment is thus closely connected to the proper administration of civil and criminal justice, arguable another general principle of law found in international and domestic legal systems.

243. Ultimately, the principle of due process pursuant to the MST requires that Mexico make decisions solely based upon relevant, known, and established criteria rather than for an improper purpose,⁵⁰⁴ and its regulatory powers—namely, its power to regulate activities

⁵⁰⁰ **CL-0065**, *Joseph Charles Lemire v. Ukraine* (ICSID Case No. ARB/06/18) Award, 28 March 2011, ¶ 57.

⁵⁰¹ **CL-0093**, R. Dolzer and C. Schreuer, *Principles of International Investment Law* (2012), p. 154.

⁵⁰² **CL-0100**, S. Montt, *State Liability in Investment Treaty Arbitration: Global Constitutional and Administrative Law in the BIT Generation* (2012), pp. 348-349, citing: *International Thunderbird Gaming Corporation v. The United Mexican States* (UNCITRAL) Award, 26 January 2006, ¶¶ 197, 200.

⁵⁰³ **CL-0102**, S. Schill, *General Principles of Law and International Investment Law*, in: *International Investment Law: The Sources of Rights and Obligations*, Tarcisio Gazzini and Eric De Brabandere (2012), pp. 170-171.

⁵⁰⁴ See, e.g., **CL-0118**, *Tulip Real Estate Investment and Development Netherlands B.V. v. Republic of Turkey* (ICSID Case No. ARB/11/28) Award, 10 March 2014, ¶ 418; **CL-0051**, *Fouad Alghanim and Sons Co. for General Trading & Contracting, W.L.L. and Mr. Fouad Mohammed Thunya Alghanim v. Hashemite Kingdom of Jordan* (ICSID Case No. ARB/13/38) Award, 14 December 2017, ¶ 367; **CL-0074**, *Methanex Corporation v. United States* (UNCITRAL) Final Award on Jurisdiction and Merits, 3 August 2005, Pt. III, Ch. A, ¶¶ 101-102.

such as offshore mineral dredging—cannot be used for illegitimate purposes cloaked under the guise of legitimacy.

d. A Host State May Not Frustrate Investments Established and Operated in a Manner Consistent with the Legitimate Expectations of a Foreign Investor

244. In considering Article 1105 violations, tribunals have also considered whether investors have suffered loss because they reasonably relied, to their eventual detriment, on legitimate expectations generated by the regulatory environment maintained, or any express promises made, by the host State or by the conduct of officials attributable to that State.
245. In *Metalclad*, for example, the tribunal observed, “Mexico failed to ensure a transparent and predictable framework for Metalclad’s business planning and investment. The totality of these circumstances demonstrates a lack of orderly process and timely disposition in relation to an investor of a Party acting in the expectation that it would be treated fairly and justly in accordance with the NAFTA.”⁵⁰⁵ Accordingly, the relevant legal and regulatory framework existing before the measure in question may inform the investor’s legitimate expectations, which may in turn form a basis for the tribunal’s consideration of whether the host state breached Article 1105.
246. The *Bilcon* NAFTA tribunal has also found that the investor’s legitimate expectations are a “factor that may be part of an overall analysis of whether treatment has breached the minimum standard of fairness.”⁵⁰⁶

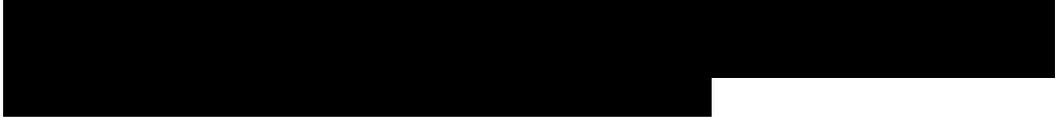
⁵⁰⁵ **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 99; **CL-0105**, *Saluka Investments BV (The Netherlands) v. The Czech Republic* (UNCITRAL) Partial Award, 17 March 2006, ¶¶ 301-302. See also, **CL-0045**, *Electrabel S.A. v. The Republic of Hungary* (ICSID Case No. ARB/07/19) Decision on Jurisdiction, Applicable Law and Liability, 30 November 2012, ¶ 7.75 (“It is widely accepted that the most important function of the fair and equitable treatment standard is the protection of the investor’s reasonable and legitimate expectations”); **CL-0056**, *Gold Reserve Inc. v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)09/1) Award, 22 September 2014, ¶ 570.

⁵⁰⁶ **CL-0122**, *William Ralph Clayton, William Richard Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware, Inc. v. Government of Canada* (UNCITRAL) Award on Jurisdiction and Liability, 17 March 2015, ¶ 282.

247. Ultimately, U.S. and Canadian investors in Mexico are entitled to conduct their business, including establishing and operating their investments, in reasonable reliance upon legitimate expectations, such as the expectation that Mexican government officials will perform their duties without bias, for a proper purpose, candidly, reasonably, and in conformity with Mexican law, and that they would make good on any express assurances it has extended to the investor.

2. The Evidence Demonstrates that Mexico’s Treatment of Odyssey and ExO Violated the Minimum Standard of Treatment

248. The evidence of Mexico’s arbitrary treatment of Claimant falls into three primary categories, each of which is addressed in turn below:

- a. 
- i. that SEMARNAT staff reviewed the MIA, determined that the Project would not have any non-mitigatable impact on the environment, and were prepared to approve it;
- ii. that Rafael Pacchiano, Undersecretary and later Secretary of SEMARNAT, nevertheless directed  on two occasions to “find a reason” to deny the MIA in order to further his personal political ambitions and to retaliate against a representative of Claimant who Secretary Pacchiano believed had failed to show him sufficient respect; and
- iii. that SEMARNAT staff therefore denied the MIA on a basis they knew to be pretextual and absurd, *viz.* that the Project would have impact an entire species of sea turtles.
- b. Contemporaneous public statements by Secretary Pacchiano and SEMARNA confirm that Secretary Pacchiano would not and did not allow the MIA to be reviewed in good faith, and that its Denial was thus a forgone conclusion; and
- c. SEMARNAT’s own written Denial decisions, which were so flimsy, disingenuous, and self-evidently inconsistent with the undisputed facts, proper scientific analysis, and the relevant law that they serve only to confirm the lack of good faith and arbitrary nature of both Denials.

- a.  **Demonstrates that the MIA Denial Was**

Manifestly Arbitrary and the Product of a Process Conducted in the Absence of Good Faith and Without Due Process

249. Normally, tribunals presented with allegations of arbitrary state action must rely on inference and circumstantial evidence. This is not one of those cases. [REDACTED]

[REDACTED]

250. [REDACTED]

251. [REDACTED] testimony can be summarized as follows:⁵⁰⁸

- [REDACTED] DGIRA was prepared to issue a decision conditionally authorizing the MIA.⁵¹⁰
- However, then-Undersecretary Pacchiano expressed concerns that approval of the Project could affect his political standing in Baja California Sur, and therefore his broader political career, and he thus orchestrated matters so as to require ExO to withdraw and resubmit the MIA.⁵¹¹ This had the effect of restarting the “clock,” or extending the date by which SEMARNAT was required to approve or deny the MIA.

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[REDACTED]

Denial, and that it was based on the same political and retaliatory motives as the initial Denial.⁵¹⁸

[REDACTED]

252.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁵¹⁹

253.

[REDACTED] testimony can be summarized as follows:⁵²⁰

- [REDACTED] all of the information SEMARNAT had requested from ExO was satisfactorily provided.⁵²²
- DGIRA concluded that the MIA should be approved subject to certain mitigation measures to which ExO had already agreed, but in late March 2016, two weeks before SEMARNAT was scheduled to issue its decision, Secretary Pacchiano informed his staff that he would not approve the Project.⁵²³ To justify this denial, he alleged that one of the individuals affiliated with the Project had “breached an implicit agreement of cordiality” in a recent meeting concerning the Project.⁵²⁴ [REDACTED] understood this to mean that Secretary Pacchiano had felt personally insulted by something this individual had said at the meeting.
- Secretary Pacchiano ordered the staff to “find a reason” to deny the Project, implicitly admitting that there was no known basis to do so. [REDACTED]
[REDACTED]⁵²⁵
- There was no scientific evidence that the *Caretta caretta* species or its habitat would be impacted by the Project, and this assertion was mere pretext to hide Secretary Pacchiano’s true motivations.⁵²⁶

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[REDACTED]

did not act.⁵³³ As Dr. Lozano recalls, Secretary Pacchiano “became visibly upset and abruptly ended the meeting.”⁵³⁴

- Following that meeting, ExO requested a meeting with [REDACTED]. Dr. Lozano attended the meeting along with others. [REDACTED] stated that SEMARNAT was going to deny the MIA because of the effects dredging would have on the *Caretta caretta* turtles. Dr. Lozano responded [REDACTED] that there was no basis for such a determination.⁵³⁵ [REDACTED] 36
- The next day, ExO received SEMARNAT’s written decision denying the MIA.⁵³⁷
- ExO requested another meeting with Secretary Pacchiano following the denial of the MIA. At this meeting, Pacchiano stated that the COP13 (United Nations Conference of the Parties to the Convention on Biological Diversity) was scheduled to take place in Cancún, Mexico in December 2016 and that he did not want to approve the MIA in advance of that meeting to avoid political controversy,⁵³⁸ thus admitting that the decision had always been based on politics, not science.

b. SEMARNAT’s Own Public Statements Demonstrate That the MIA Denial Was Arbitrary and That, Acting on Marching Orders from the Top, It Never Intended to Give Claimant Due Process

255. SEMARNAT’s own public statements confirm that it did not and would not properly and fairly evaluate the MIA and that its denial was a forgone conclusion. For example, as detailed in the Factual Background, immediately following the TFJA Decision annulling the Denial, SEMARNAT publicly stated that it would deny the requested permit again, demonstrating that it had no intention of engaging in a good faith review on the merits.⁵³⁹
256. One month before SEMARNAT issued the Second Denial, Secretary Pacchiano held a press conference in Baja California Sur to pronounce that the Project would be denied, whereas with respect to another pending application, he declined to predict the outcome, stating that a “deep analysis” was required.⁵⁴⁰

⁵³³ Lozano WS, ¶¶ 65-67.

⁵³⁴ Lozano WS, ¶ 67; Gordon WS, ¶ 79.

⁵³⁵ Lozano WS, ¶¶ 69-70.

⁵³⁶ Lozano WS, ¶ 70.

⁵³⁷ **C-0008**, SEMARNAT Denial Decision, 7 April 2016.

⁵³⁸ Lozano WS, ¶ 75; Gordon WS, ¶ 83.

⁵³⁹ *See supra* ¶¶ 171-178.

⁵⁴⁰ *See supra* ¶ 172.

257. Finally, after SEMARNAT denied ExO's Project a second time, it took the unusual step of touting the denial publicly, with Secretary Pacchiano using his personal Twitter account to link to a summary of the decision, demonstrating that he perceived the denial as beneficial to his personal political image.⁵⁴¹

c. SEMARNAT's Written Decisions Demonstrate that the MIA Denial Was Arbitrary

258. Given the evidence summarized above, it should come as no surprise that the written decisions by SEMARNAT denying the MIA are wholly unsound, are based on blatant misrepresentations, ignore clear evidence, flagrantly disregard the law, and are plainly pretextual, such that they can only be the product of an arbitrary, extralegal process, which is what occurred here.

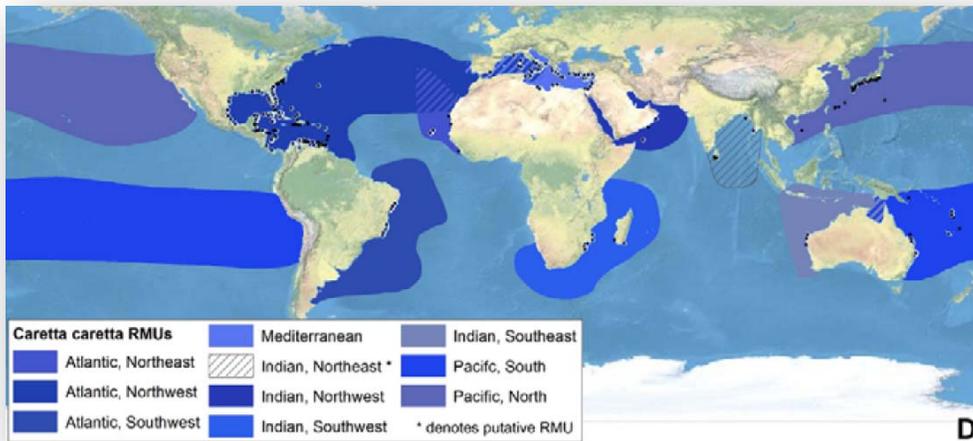
259. As described above, on 7 April 2016, SEMARNAT issued a decision denying environmental permission for the Project.⁵⁴² SEMARNAT's stated basis for the Denial was the Project's purported impact on the *Caretta caretta* turtle habitat, citing Article 35.III.b of LGEEPA, which requires an impact on the species as a whole.

260. It is true that the *Caretta caretta*, an endangered species, can be found in the Gulf of Ulloa, where the Project was to take place, but it is quite wrong to say that the Project affects the species' habitat. Indeed, *Caretta caretta* can be found in tropical and temperate waters across the world. This is demonstrated by the following image, which reflects the widespread presence of the *Caretta caretta* turtle throughout much of the world's oceans and seas.⁵⁴³

⁵⁴¹ See *supra* ¶ 177.

⁵⁴² **C-0008**, SEMARNAT First Denial, 7 April 2016.

⁵⁴³ **C-0198**, Wallace, et al., "Regional Management Units for Marine Turtles: A Novel Framework for Prioritizing Conservation and Research across Multiple Scales," PLoS ONE, 2010, p. 4.



261. The rest of the Denial reflects a pre-ordained conclusion, not rooted in fact, reason, or law, as underscored by the TFJA’s nullification of the denial.

262. In the memorable words of Secretary Pacchiano, the second time around, the SEMARNAT staff had four months instead of four days to come up with pretextual grounds on which to deny the permit.⁵⁴⁴ SEMARNAT’s Second Denial was therefore more detailed and less noticeably sloppy, lending it a veneer of legitimacy that the First Denial lacked. But, upon a modest examination that veneer is quickly stripped away, revealing the Second Denial to have been as much the predetermined process of a process corrupted from the top as the first had also proved to be.

(i) *SEMARNAT’s Assertion that the Project Would Affect the Caretta caretta Turtle Species Was Based on a Blatant Misrepresentation of the Facts*

263. As explained in the report of Mr. Herrera, an expert on Mexican environmental and administrative law, a MIA may be denied under Mexican law only on the specific grounds contained in Article 35(III) of LGEEPA.⁵⁴⁵ Otherwise, a MIA must be authorized under Article 35(I) or conditionally approved under Article 35(II).

264. Mexican law provides that a project may be denied under Article 35(III)(b) of the LGEEPA

⁵⁴⁴ [REDACTED]

⁵⁴⁵ Herrera ER, ¶ 55; C-0014, LGEEPA, 5 June 2018, art. 35(III).

only when it materially affects an endangered species “as a whole.” Affecting an individual or some individuals of a species is not legally sufficient.⁵⁴⁶ Thus, SEMARNAT has approved projects even where a substantial proportion of the endangered and/or protected species would be affected because the project would not affect the species as whole.⁵⁴⁷

265. As noted in paragraph 152 above, SEMARNAT either wholly or primarily denied the August 2015 MIA under Article 35(III)(b) of LGEEPA on the basis that it would affect the *Caretta caretta*.⁵⁴⁸
266. Because the *Caretta caretta* is an endangered species, a project that affected *Caretta caretta* as a species could legitimately be denied under Article 35(III)(b). Before denying project approval, however, SEMARNAT should assess whether that impact could be removed by appropriate mitigation measures, should they have been imposed as part of a conditional approval.⁵⁴⁹ Denial must be treated as the *ultima ratio* course of action.⁵⁵⁰
267. In this case, the Project would not affect *Caretta caretta* at all because of its location (depth,⁵⁵¹ temperature,⁵⁵² and lack of food sources⁵⁵³) and the proven turtle protection measures that had been incorporated,⁵⁵⁴ as explained in paragraphs 105 and 106 and Annex B, paragraphs 8 to 16. However, on any basis, it is plain that that there is no prospect that annual dredging of approximately 1 km² could affect *Caretta caretta* as a species, whether considered at a global level, across the tropical and temperate oceans and seas that the species inhabits⁵⁵⁵ (such as the North Pacific population),⁵⁵⁶ or even as part of the population of the species specifically in the Gulf of Ulloa.⁵⁵⁷ It is noteworthy in

⁵⁴⁶ **C-0014**, LGEEPA, 5 June 2018.

⁵⁴⁷ Pliego ER, ¶¶ 27(A), 232-234, 300-305.

⁵⁴⁸ **C-0014**, LGEEPA, 5 June 2018, art. 35(III)(b).

⁵⁴⁹ Herrera ER, ¶ 57; Pliego ER, ¶¶ 76-78.

⁵⁵⁰ Herrera ER, ¶ 57.

⁵⁵¹ S. Flores ER, ¶¶ 23, 46-47, 66-74.

⁵⁵² S. Flores ER, ¶¶ 23, 46-47, 66-74.

⁵⁵³ S. Flores ER, ¶¶ 24, 77-82.

⁵⁵⁴ Clarke WS, ¶¶ 60-63.

⁵⁵⁵ S. Flores ER, ¶¶ 34-39.

⁵⁵⁶ S. Flores ER, ¶¶ 40-45.

⁵⁵⁷ S. Flores ER, ¶¶ 46-65.

this context that SAGARPA (the Mexican Fishing and Agricultural Ministry), permitted an annual 90-loggerhead take limit on fishermen in the Gulf of Ulloa in June 2016.⁵⁵⁸ According to this regulation, this number was reached through the application of the precautionary principle.⁵⁵⁹ This is striking since SEMARNAT spuriously relied on this same principle to deny the Project because of its purported effects on turtles.⁵⁶⁰

268. When subjected to the slightest scrutiny, SEMARNAT's assertion that the Project would affect *Caretta caretta* turtles was so obviously wrong that it is necessarily revealed for what it was—a *post hoc* justification contrived to achieve a predetermined result. Indeed, it appears that SEMARNAT realized (i) that the *Caretta caretta* is endangered and (ii) that it is found within the Gulf of Ulloa, and attempted to use these two facts to create a pretext to justify denying the MIA as it was instructed to do by Secretary Pacchiano. [REDACTED]

269. To achieve this illegal objective, SEMARNAT needed to ignore or misrepresent the facts in fundamental ways.

270. First, SEMARNAT officials deliberately ignored the fact that *Caretta caretta* has a global distribution in temperate and tropical waters.⁵⁶²

271. Second, SEMARNAT's reasons for the decision included a blatantly and obviously false representation about the range and distribution of the species.

a. SEMARNAT asserted that 10% to 30% of the Project area overlaps with the range or surface distribution of *Caretta caretta* turtles in the Gulf of Ulloa. Again, that is not true. The Project area overlaps only marginally with the core distribution of *Caretta caretta*.⁵⁶³

b. The Seminoff Study also suggested that *Caretta caretta* in the Gulf of Ulloa have a mean annual home range of 55,468.5 km², with an annual core area of 5,098.1

⁵⁵⁸ **C-0010**, Fishing Agreement, 23 June 2016. This is annual take is still binding today see **C-0011**, Fishing Agreement, 25 June 2018.

⁵⁵⁹ **C-0010**, Fishing Agreement, 23 June 2016.

⁵⁶⁰ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 329-331, 509-510

⁵⁶¹ [REDACTED]

⁵⁶² S. Flores ER, ¶¶ 34-39.

⁵⁶³ S. Flores ER, ¶¶ 103-107.

km² and an estimated population across that area of 43,226 individuals (ranging from 15,017 to 100,044 individuals).⁵⁶⁴ The Peckham Study identified a core range of 4,115 km².⁵⁶⁵

- c. SEMARNAT also willfully ignored the distribution of *Caretta caretta* by depth. The studies it relied upon to suggest that the Project would be situated in the habitat of *Caretta caretta* considered only the distribution of *Caretta caretta* by longitude and latitude.
 - e. The Second Denial did not consider studies showing that the water temperature in the dredging area was typically below the turtles' optimum temperature, despite ExO citing those studies to SEMARNAT. The failure to consider the distribution of turtles by depth was repeated in the 2018 Denial, despite the TFJA Decision's specific instruction that SEMARNAT should do so.
272. Third, SEMARNAT grossly inflated the population density for *Caretta caretta* within the Project area.
- a. SEMARNAT claimed that there are one to 28 *Caretta caretta* turtles per km² in Polygons 1, 2, and 3 of the Project area, and 54 to 85 *Caretta caretta* turtles per km² in Polygons 4 and 5 of the Project area.⁵⁶⁶
 - b. This claim was patently false. The Seminoff Study found a population density of 0.65 turtles per km² (ranging from 0.577-0.747 km² across three years).⁵⁶⁷ Indeed, the maximum recorded population density of *Caretta caretta* ever reported in a scientific study is 3.5 turtles per km² in the Chesapeake Bay in the United States.⁵⁶⁸
 - c. SEMARNAT thus overstated the turtle density by approximately *100 times*. SEMARNAT did this by blatantly misrepresenting the Peckham Study, conflating the frequency of return of *Caretta caretta* individuals to an area with the population density.⁵⁶⁹

⁵⁶⁴ **C-0072**, J. A. Seminoff, et al., "Loggerhead sea turtle abundance at a foraging hotspot in the eastern Pacific Ocean: implications for at-sea conservation," *Endangered Species Research*, 2014, p.213.

⁵⁶⁵ **C-0038**, S. Peckham, et al., "Small-Scale Fisheries Bycatch Jeopardizes Endangered Pacific Loggerhead Turtles," *Plos ONE*, 2007

⁵⁶⁶ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 290-291.

⁵⁶⁷ **C-0072**, J.A. Seminoff, et al., "Loggerhead sea turtle abundance at a foraging hotspot in the eastern Pacific Ocean: implications for at-sea conservation," *Endangered Species Research*, 2014, p. 213.

⁵⁶⁸ **C-0072**, J.A. Seminoff, et al., "Loggerhead sea turtle abundance at a foraging hotspot in the eastern Pacific Ocean: implications for at-sea conservation," *Endangered Species Research*, 2014, p. 215.

⁵⁶⁹ *See supra* ¶ 39.

- d. This gross inflation of density was plainly intended to misleadingly suggest that the dredging would take place in a turtle-rich environment, and therefore create the false impression that the Project created a high risk to turtles.
- e. This error was articulated in the 2016 Denial⁵⁷⁰ and was repeated in the 2018 Denial,⁵⁷¹ despite Odyssey pointing it out repeatedly.⁵⁷² SEMARNAT did not even attempt to evaluate ExO's arguments on this point in the 2018 Denial, although it did review and (incorrectly) cite the population density reported in the Seminoff Study at length in another section of its second decision.⁵⁷³
273. SEMARNAT ought to have contextualized the possible impact of dredging an area of approximately 1 km², in which the population density averaged only 0.65 *Caretta caretta* turtles per km². This was not done.
274. Fourth, in a last-ditch attempt to show that the Project would have an impact on turtles, SEMARNAT asserted that dredging would affect pelagic red crab (*Pleuroncodes planipes*), which was said to be *Caretta caretta*'s food source. This is also false and deliberately misleading. The extent to which *Caretta caretta* in the Gulf of Ulloa even eat pelagic red crab was and remains a matter of scientific debate.⁵⁷⁴ In any event, *Caretta caretta* typically eat red crab in its juvenile phase in the upper layers of the water column, not the adults on the seabed, and it was even beyond debate for SEMARNAT that the juveniles will not be affected by the dredging.⁵⁷⁵
275. In summary, SEMARNAT could only justify its contrived Denial by (i) misrepresenting the global distribution of *Caretta caretta*, which are, in fact, widely distributed throughout every ocean in the world, (ii) overstating by 100 times the density of *Caretta caretta* within the Project area, and (iii) misrepresenting the basic facts about red crabs.
276. Good faith exercise of public authority does not and cannot involve consistent and willful reliance on patently false claims, especially when maintained in the face of specific

⁵⁷⁰ **C-0008**, SEMARNAT Denial Decision, 7 April 2016, pp. 219-220.

⁵⁷¹ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 290-291.

⁵⁷² For example, in **C-0019**, Amendment to the annulment petition of the 2016 Denial, 6 June 2017; **C-0169**, Technical and Scientific Report, 9 June 2016, pp. 15-26; and **C-0021**, Closing arguments for annulment petition of the 2016 Denial, 7 September 2017.

⁵⁷³ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 236-270, 283-287.

⁵⁷⁴ Second Expert Report of Deltares, dated 5 August 2020 ("**Deltares ER2**"), Sections 5.1 and 7, pp. 13, 17.

⁵⁷⁵ Deltares ER2, Sections 5.1 and 7, pp. 13, 17.

remand instructions to the contrary. In short, SEMARNAT's treatment of ExO's Project MIA was the epitome of an arbitrary action that deprived Claimant of the fair and equitable treatment to which it is entitled under international law.

(ii) The Additional "Off-the-Shelf" Pretexts Offered by SEMARNAT in the Second Denial Were Invalid and Could Not Obscure Its True Motivations

277. After being rebuked by the Mexican courts, SEMARNAT sought to disguise its maltreatment of ExO by adding additional purported reasons for the Second Denial. Looking as though they had just been plucked "off the shelf," as it were, none of these pretexts could have provided a valid basis, under Mexican law, to deny the Project had been if they were factually correct (which they were not) or had officials made any serious attempt to apply them within the specific context of ExO's Project (which they did not).
278. For example, SEMARNAT claimed that "biodiversity loss will be unavoidable because mining directly destroys the habitat and indirectly deteriorates great volumes of the water column and seabed areas, given the generation of sediment plumes enriched with bioavailable metals."⁵⁷⁶ It further asserted that organisms would be exposed to "metals and acid waste."⁵⁷⁷ Notably, SEMARNAT never suggested that the kind of sediment plume generated by near-surface discharge would have affected any endangered or protected species. As explained above, this rationale could not possibly have provided a valid legal basis, under applicable Mexican law, for denying approval of the Project.
279. In any event, the statement was pure boilerplate, referring to the effects of "deep seabed mining" without analysis of whether the Project would engender these effects. Such sophistry again reflected an arbitrary, unfair process, as such assertions simply could not have been made in good faith.
280. In addition, among other things, SEMARNAT: (i) ignored the analysis presented in the MIA showing that the Eco-tube largely eliminates sediment plumes in the water column; (ii) did not even attempt to identify any similarities between the Project and deep seabed

⁵⁷⁶ C-0009, SEMARNAT Denial Decision, 12 October 2018, p. 505.

⁵⁷⁷ C-0009, SEMARNAT Denial Decision, 12 October 2018, p. 318.

projects to which SEMARNAT attempted to compare it; and (iii) ignored evidence that the Project would not have released sediment or sediment plumes enriched in bioavailable materials, or metals and acid waste.⁵⁷⁸

281. The 2018 Denial also appeared to suggest, in a variety of ways, that the Project would have a material impact on the Gulf of Ulloa as a whole. Such extraordinary claims, being manifestly undeserving of any credence, further evinced the complete absence of any objective evaluation of the circumstances. As an initial matter, the annual area affected by dredging would be approximately 1 km², out of a total Concession area now totalling 800 km², with the SAR comprising 17,737.48 km² (meaning that, at most, only 0.0056% would have been dredged per year). SEMARNAT officials did not even bother attempting to explain how the Project could possibly have had a material impact on the entire Gulf of Ulloa. As explained by Mr. Vladimir Pliego, an environmental impact assessment expert, that is undoubtedly because they simply could not.⁵⁷⁹
282. SEMARNAT also asserted that ExO had failed to study whether the Project would have had any impact on primary productivity and the trophic network (the set of interconnected food chains in a given ecosystem). In making this assertion, SEMARNAT officials simply ignored the fact that the use of Eco-tube would have effectively eliminated any effect on primary production.⁵⁸⁰
283. SEMARNAT further ventured that there would be a significant impact on benthic organisms (those associated with the seabed, whether buried, on, or moving or living in its vicinity), adding that remediation of the seabed was not a realistic expectation for the Gulf of Ulloa, incorrectly claiming that remediation science was still nascent and wrongly asserting that ExO's assessment of seabed recovery had been based exclusively on studies

⁵⁷⁸ As Deltares states: "Sediments [. . .] [are] separated mechanically without any addition of acid or other chemicals [. . .] There is also no release of metals as the sediments are not metal rich." Deltares ER1, Section 5.2, p.38. Furthermore, given the insolubility of the sedimentary materials, and as recognised in studies by CalScience, EA Engineering, and HR Wallingford, the Project will remain within water and sediment quality requirements. Deltares ER1, Section 4.2, pp. 26-29; **C-0002.2**, MIA, 21 August 2015, Annex 2; **C-0002.03**, MIA, 21 August 2015, Annex 3; **C-0002.04**, MIA, 21 August 2015, Annex 4.

⁵⁷⁹ Pliego ER, ¶¶ 21-22, 140, 204, 209.

⁵⁸⁰ Deltares ER1, Section 4.2, pp. 26-29.

conducted in the North Sea.⁵⁸¹ This repeated similar allegations it made in the First Denial.

284. In short, this was yet another example of a failed attempt to backfill a decision that did not even have the support of those responsible for drafting and executing the decision it was contrived to support. Far from shoring up Secretary Pacchiano’s desired result, it instead contributes to the inevitable conclusion that both Denial decisions were irretrievably marked by arbitrariness. Among other things:

- The finding was again based on the erroneous comparison of the Project with deep seabed mining projects, which use dramatically different mining techniques to extract different resources in different environments.⁵⁸²
- The actual, annual impact of the Project would have been limited to an approximately 1 km² area of low biodiversity and low abundance.
- The North Sea data was, in fact, the best data available,⁵⁸³ as it was based on a long-running program sponsored by the Government of the United Kingdom.
- Seabed recovery would have taken place fairly rapidly,⁵⁸⁴ and although the exact period of time required for full recovery was open to reasonable debate, expert consensus indicated that the scale would have been on the order of several years.⁵⁸⁵
- ExO had always intended to carry out detailed monitoring and adaptive management of seabed restoration, just as Deltares had recommended.⁵⁸⁶

285. Finally, because the MIA explained in detail the mitigation measures that would have been incorporated into the Project, SEMARNAT was compelled to come up with a basis to dismiss these as well. Unable to criticize them on their merits, SEMARNAT resorted to the argument that the mitigation measures proposed by ExO were untested and otherwise insufficient.⁵⁸⁷ Nevertheless, as Mr. Pliego notes: “Having revised all mitigation

⁵⁸¹ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 326, 486, 505-506.

⁵⁸² Deltares ER1, Section 5.1, pp. 36-38.

⁵⁸³ Newell WS, ¶ 24.3.

⁵⁸⁴ Deltares ER1, Section 4.3, pp. 29-32.

⁵⁸⁵ Newell WS, ¶ 24; **C-0002**, MIA, 21 August 2015, pp. 793-795; Deltares ER1, Section 4.3 pp. 29-32.

⁵⁸⁶ Newell WS, ¶¶ 22.7, 25; **C-0002**, MIA, 21 August 2015, pp. 800-802; Deltares ER1, Sections 4.3.4 and 4.6.1, pp. 31, 34.

⁵⁸⁷ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 470.

measures and SEMARNAT's statements with respect to the same, I am in disagreement with the conclusions that the proposed measures are general and unproven. In my opinion, the mitigation measures were sufficiently developed and they even exceed the expectations that SEMARNAT usually handles in the PEIA. The proposed measures are also framed in a scheme to comprehensively address the issues, which enhances them and provides better scenarios for compliance. The majority of the proposed measures are commonly applied by SEMARNAT [. . .] and they are routinely monitored by different areas of the Secretariat, notably PROFEMA and CONANP."⁵⁸⁸

286. In addition, this claim by SEMARNAT ignored evidence that the mitigation measures were, in fact, proven; as Deltares acknowledges, the TSHD dredging mitigation measures proposed by ExO were based on "well-tuned dredging process[es]" developed by the four largest European dredging companies (as well as several others) over recent decades; similarly, Dr. Clarke acknowledges the tried and tested nature of the turtle mitigation measures ExO adopted in respect of the Project.⁵⁸⁹ SEMARNAT also falsely asserted⁵⁹⁰ that adaptive management was not included in the Project, when it plainly was.⁵⁹¹ In any event, under the normal environmental impact assessment process, the mitigation measures are proposed in a generic manner in the MIA and then developed in further detail jointly with SEMARNAT once the MIA is authorized in response to conditions SEMARNAT requires to address environmental impacts.⁵⁹² Criticisms of the mitigation measures were thus, under no circumstances, a valid basis for denying the MIA.

287. The evidence, as summarized above, establishes that Respondent's conduct was manifestly arbitrary and the product of a process entirely lacking in good faith or due

⁵⁸⁸ Pliego ER, ¶¶ 179-181.

⁵⁸⁹ *For example, see* Deltares ER1, Sections 3.2 and 4.6, pp. 14, 34-35, and Clarke WS, ¶¶ 20-54

⁵⁹⁰ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 499-501.

⁵⁹¹ *See, for example, C-0002*, MIA, 21 August 2015, pp. 895, 911; Newell WS, ¶ 24.6; Clarke WS, ¶¶ 41-54, 67.9; Pliego ER, ¶ 163; Deltares ER1, Summary, pp. 5, 14.

⁵⁹² Pliego ER, ¶ 76.

process, and accordingly that Respondent has breached its obligations under Article 1105(1).

288. Respondent's conduct is closely analogous to the conduct in *Tecmed*. There, the tribunal found that Mexico violated its FET obligations because it submitted a landfill seeking an environmental permit to an irregular process since the landfill "had become a nuisance due to political reasons relating to the community's opposition."⁵⁹³ Speaking of the process, the *Tecmed* tribunal went on to note that it "had a material adverse effect on [the claimant's] ability to get to know clearly the real circumstances on which the maintenance or validity of the Permit depended" and that, as a result, Mexico's conduct "conflicts with what a reasonable and unbiased observer would consider fair and equitable."⁵⁹⁴
289. Respondent's actions also bear a similarity to Mexico's actions in *Abengoa*. In that case, the tribunal determined that Mexico violated its FET obligations when a mayor forced the closure of a plant on the basis of political considerations and when such considerations were "totally disconnected from any legitimate consideration regarding the environment, public health or the respect of legality."⁵⁹⁵ As the *Abengoa* tribunal concluded, "[it] is also contrary to the minimum level of treatment the State's use of the powers granted by the law for purposes unrelated to its purposes."⁵⁹⁶ Here, just like in *Abengoa*, SEMARNAT abused its (environmental) regulatory powers for purposes entirely extraneous to its (political/personal) end.
290. Conduct is also "arbitrary" when an administrative body "without legal authority or fair notice [. . .] [creates] a new standard of assessment rather than fully carrying out the

⁵⁹³ **CL-0112**, *Tecnicas Medioambientales Tecmed S.A. v. The United Mexican States* (ICSID Case No. ARB(AF)/00/2) Award, 29 May 2003, ¶ 164.

⁵⁹⁴ **CL-0112**, *Tecnicas Medioambientales Tecmed S.A. v. The United Mexican States* (ICSID Case No. ARB(AF)/00/2) Award, 29 May 2003, ¶¶ 165-166.

⁵⁹⁵ **CL-0002**, *Abengoa, S.A. y COFIDES, S.A. v. United Mexican States* (ICSID Case No. ARB(AF)/09/2) Award, 18 April 2013, ¶ 650.

⁵⁹⁶ **CL-0002**, *Abengoa, S.A. y COFIDES, S.A. v. United Mexican States* (ICSID Case No. ARB(AF)/09/2) Award, 18 April 2013, ¶ 642.

mandate defined by applicable law,”⁵⁹⁷ or “grossly subverts a domestic law or policy for an ulterior motive.”⁵⁹⁸ As set forth above, in denying the MIA, SEMARNAT blatantly disregarded Mexican environmental law and articulated bases for denial that are impermissible under Mexican law. Specifically, Mexican law provides that a project may be denied under Article 35(III)(b) of the LGEEPA only when it materially affects an endangered species “as a whole” and that before denying approval, SEMARNAT must assess whether that impact could be removed by appropriate mitigation measures. SEMARNAT entirely subverted that law and created a new standard when it denied the MIA on impermissible grounds and failed to consider mitigation measures, as required by Mexican law. Thus, even Mexico’s stated (pretextual) grounds for denial were illegal and arbitrary.

291. Furthermore, even state action “ostensibly [. . .] aimed at achieving a legitimate purpose [such as protecting the environment] may nevertheless be abusive if the State is unable to demonstrate that this was the actual purpose.”⁵⁹⁹ Or, as the tribunal put it in *Railroad Development Corporation v. Republic of Guatemala*, even a legitimate state power cannot be used to achieve an illegitimate purpose.⁶⁰⁰ Here, the Tribunal need only consider Secretary Pacchiano’s directive to “find a reason” to deny the MIA in order to conclude that the actual purpose of SEMARNAT’s Denial was not to protect the environment (much less to protect turtles) but to protect Secretary Pacchiano’s political capital and, as least as bad, to retaliate against a person who Secretary Pacchiano believed had “insulted” him personally.

⁵⁹⁷ **CL-0122**, *William Ralph Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware, Inc. v. Government of Canada* (UNCITRAL) Award on Jurisdiction and Liability, 17 March 2015, ¶ 591.

⁵⁹⁸ **CL-0027**, *Cargill, Incorporated v. United Mexican States* (ICSID Case No. ARB(AF)/05/2) Award, 18 September 2009, ¶ 293.

⁵⁹⁹ **CL-0026**, C. T. Kotuby and L.A. Sobota, *General Principles of Law and International Due Process* (2017), p. 112.

⁶⁰⁰ **CL-0095**, *Railroad Development Corporation (RDC) v. Republic of Guatemala* (ICSID Case No. ARB/07/23) Award, 29 June 2012, ¶ 234.

292. In sum, Secretary Pacchiano “deliberately to set out to destroy or frustrate the investment by improper means.”⁶⁰¹ He did so because he evidently believed that result would benefit him personally, thus abusing the authority delegated to him under statute and the Mexican constitution for a manifestly improper purpose.
293. The denial of the environmental permit was thus “not based on legal standards but on excess of discretion, prejudice or personal preference, and taken for reasons that [were] different from those put forward by the decision maker.”⁶⁰²
294. Mexico therefore violated its obligations under Article 1105(1) to the severe detriment of Odyssey and ExO. If it had instead acted in a manner consistent with its NAFTA and international law obligations, it would have granted the environmental permit, and ExO would have been able to exploit the phosphate deposit.

B. Mexico Failed to Provide Full Protection and Security to Odyssey’s Investment, Violating Article 1105(1)

295. Article 1105(1) of NAFTA also requires each Party to accord investors “full protection and security.”⁶⁰³ This protection, as the NAFTA Free Trade Commission clarified, does “not require treatment in addition to or beyond that which is required by the customary international law minimum standard of treatment of aliens.”⁶⁰⁴ Customarily, the FPS standard includes the State’s obligation to provide protection and security to investments through the enforcement of laws and by maintaining and making available a legal system capable of providing adequate remedies against harms.⁶⁰⁵

⁶⁰¹ **CL-0121**, *Waste Management, Inc. v. United Mexican States II* (ICSID Case No. ARB(AF)/00/3) Award, 30 April 2004, ¶ 138.

⁶⁰² **CL-0042**, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶ 578. *See also* ¶ 614: “In the Tribunal’s eyes, all of these exchanges show that the rescission of February 2011 was not based on legal standards but based on reasons that are different from those put forward by the decision-maker. This constitutes a clear form of arbitrary conduct and as such is contrary to FET.”

⁶⁰³ **CL-0081**, NAFTA, art. 1105(1).

⁶⁰⁴ **CL-0082**, NAFTA Free Trade Commission, Note of Interpretation of Certain Chapter 11 Provisions, 31 July 2001, p. 2.

⁶⁰⁵ **CL-0025**, C. Schreuer, Full Protection and Security, J. INT’L DISP. SETTLEMENT (2010), p. 1 (“tribunals have found that provisions of this kind also guaranteed legal security enabling the investor to pursue its rights effectively.”).

296. As Professor Foster has explained, state practice and *opinio juris* show that, under customary international law, “full protection and security” obliges the host State “to possess and make available an adequate *legal system*, featuring such protections as appropriate remedial mechanisms, due process, and a right to compensation for expropriation.”⁶⁰⁶ Similarly, Professor Walde explains that the FPS standard extends beyond police protection and includes economic regulatory powers:⁶⁰⁷

This obligation would not only be breached by active and abusive exercise of State powers but also by the omission of the State to intervene where it had the power and duty to do so to protect the normal ability of the investor’s business to function [. . .] a duty, enforceable by investment arbitration, to use the powers of government to ensure the foreign investment can function properly on a level playing field, unhindered and not harassed by the political and economic domestic powers that be.

297. Similarly, investment arbitration tribunals acknowledge that full protection and security covers legal protection.

- In *CME v. Czech Republic*, the tribunal found that the Czech Republic had breached its obligation to accord full protection and security due to the actions of its regulatory body, the Czech Media Council, which was “targeted to remove the security and protection” of claimants’ investments.⁶⁰⁸ As the *CME* tribunal explained, “[t]he host State is obligated to ensure that neither by amendment of its laws **nor by actions of its administrative bodies is the agreed and approved security and protection of the foreign investor’s investment withdrawn or devalued**. This is not the case. The Respondent therefore is in breach of this obligation.”⁶⁰⁹
- In *Azurix v. Argentina*, the tribunal likewise found that full protection and security goes beyond physical security, observing, “full protection and security [. . .] is not

⁶⁰⁶ **CL-0052**, G. Foster, “Recovering ‘Protection and Security’: The Treaty Standard’s Obscure Origins, Forgotten Meaning, and Key Current Significance” (2012), p. 1103.

⁶⁰⁷ **CL-0111**, T. W. Walde, “Energy Charter Treaty-based Investment Arbitration” (2004), p. 391.

⁶⁰⁸ **CL-0034**, *CME Czech Republic B.V. v. The Czech Republic* (UNCITRAL) Partial Award, 13 September 2001, ¶ 613.

⁶⁰⁹ **CL-0034**, *CME Czech Republic B.V. v. The Czech Republic* (UNCITRAL) Partial Award, 13 September 2001, ¶ 613 (emphasis added).

only a matter of physical security; the stability afforded by a secure investment environment is as important from an investor's point of view."⁶¹⁰

- In *Biwater Gauff v. Tanzania*, a seminal case on this issue, the tribunal took note of the reasoning laid down in *Azurix* and found that the qualification of the terms "protection" and "security," together with the word "full," implied a "State's guarantee of stability in a secure environment, both physical, commercial and legal."⁶¹¹ The tribunal further observed that it would "be unduly artificial to confine the notion of 'full security' only to one aspect of security, particularly in light of the use of this term in a BIT, directed at the protection of commercial and financial investments."⁶¹²
- In *Renée Rose Levy de Levi v. Peru*, the tribunal acknowledged that "the standard of full protection and security has gone from referring to mere physical security and has evolved to include, more generally, the rights of investors."⁶¹³

298. Accordingly, Mexico's obligation under the full protection and security standard of Article 1105(1) was to grant Odyssey and ExO legal and commercial security and protection. By denying Claimants environmental approval based on improper motives, and where based on the law and reason, the permit should have been granted, all as set forth above, Mexico undermined the "stability [of the Claimant's] investment environment" through the actions of one of its "administrative bodies,"⁶¹⁴ thus violating Article 1105(1).

C. Mexico Violated NAFTA Article 1110(1)'s Prohibition on Indirect Expropriations

1. Mexico Is Prohibited From Engaging in Illegal Indirect Expropriations

299. Article 1110(1) of NAFTA addresses direct and indirect expropriations. It provides that:⁶¹⁵

⁶¹⁰ **CL-0014**, *Azurix Corp. v. Argentine Republic* (ICSID Case No. ARB/01/12) Award, 14 July 2006, ¶ 408. See also three other cases against Argentina which reached the same conclusion as the *Azurix* tribunal: **CL-0107**, *Siemens A.G. v. Argentine Republic* (ICSID Case No. ARB/02/8) Award, 17 January 2007, ¶ 303; **CL-0037**, *Compañía de Aguas del Aconquija S.A. and Vivendi Universal SA v. Argentina* (ICSID Case No. Arb/97/3) Award, 20 August 2007, ¶ 7.4.14; **CL-0080**, *National Grid P.L.C. v. Argentine Republic* (UNCITRAL) Award, 3 November 2008, ¶ 189.

⁶¹¹ **CL-0018**, *Biwater Gauff (Tanzania) Ltd. v. United Republic of Tanzania* (ICSID Case No. ARB/05/22) Award, 24 July 2008, ¶ 729.

⁶¹² **CL-0018**, *Biwater Gauff (Tanzania) Ltd. v. United Republic of Tanzania* (ICSID Case No. ARB/05/22) Award, 24 July 2008, ¶ 729.

⁶¹³ **CL0096**, *Renée Rose Levy de Levi v. Republic of Peru* (ICSID Case No. ARB/10/17) Award, 26 February 2014, ¶ 406.

⁶¹⁴ **CL-0014**, *Azurix Corp. v. The Argentine Republic* (ICSID Case No. ARB/01/12) Award, 14 July 2006, ¶ 301, 408.

⁶¹⁵ **CL-0081**, NAFTA, art. 1110(1).

No Party may directly or indirectly nationalize or expropriate an investment of an investor of another Party in its territory or take a measure tantamount to nationalization or expropriation of such an investment ('expropriation'), except: (a) for a public purpose; (b) on a non-discriminatory basis; (c) in accordance with due process of law and Article 1105(1) [setting forth the minimum standard of treatment under international law]; and (d) on payment of compensation in accordance with paragraphs 2-6.

300. As described in *Fireman's Fund v. Mexico*, these factors focus on the nature of the state's conduct and its legitimacy and include "whether the measure is within the recognized police powers of the host State; the (public) purpose and effect of the measure; whether the measure is discriminatory; the proportionality between the means employed and the aim sought to be realized; and the bona fide nature of the measure."⁶¹⁶ NAFTA Article 1110 prohibits both "direct" and "indirect" acts of expropriation.
301. Direct expropriation occurs where the state measure effects a transfer of formal legal title from the investor to another entity, most typically to itself. Indirect expropriation occurs where the state has not effected formal transfer of title in an investment, but has adopted measures having the effect of substantially depriving an investor of the value of its investment. *Metalclad* provides a framework for determining whether an indirect expropriation has occurred:⁶¹⁷

[E]xpropriation under NAFTA includes not only open, deliberate and acknowledged takings of property, such as outright seizure or formal or obligatory transfer of title in favour of the host State, but also covert or incidental interference with the use of property which has the effect of depriving the owner, in whole or in significant part, of the use or reasonably-to-be-expected economic benefit of property even if not necessarily to the obvious benefit of the host State.

302. In *Glamis v. Mexico*, the tribunal similarly noted, "an expropriation does not occur through a formal action such as nationalization. Instead, in an indirect expropriation,

⁶¹⁶ **CL-0049**, *Fireman's Fund Insurance Company v. The United Mexican States* (ICSID Case No. ARB(AF)/02/01) Award, 17 July 2006, ¶ 176(j).

⁶¹⁷ **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 103.

some entitlements inherent in the property right are taken by the government or the public so as to render almost without value the rights remaining with the investor.”⁶¹⁸ This was echoed in *Pope & Talbot v Canada*, where the tribunal determined indirect expropriation “requires a substantial deprivation.”⁶¹⁹ Since then, the “substantial deprivation test” has become the relevant benchmark.

303. This was further explained in *Merrill & Ring v. Canada*, where the tribunal noted, “[t]he standard of substantial deprivation identified in *Pope & Talbot*, and followed by many other decisions, both in the context of NAFTA and other investment protection agreements, is the appropriate measurement of the requisite degree of interference” for purposes of analyzing a claim of indirect expropriation.⁶²⁰
304. Ultimately, substantial deprivation, or the destruction of an investor’s capacity to earn a commercial return, can take numerous forms: where an investor is prevented from generating commercial return out of its investment;⁶²¹ where an investor loses the expected economic benefit of its investment;⁶²² where the most viable economic use of the investment is rendered worthless;⁶²³ or where the economic value of the investment has been destroyed altogether.⁶²⁴ Ultimately, though, “[t]he effects of the host State’s

⁶¹⁸ **CL-0055**, *Glamis Gold, Ltd. v. United States of America* (UNCITRAL) Award, 8 June 2009, ¶ 355.

⁶¹⁹ **CL-0089**, *Pope & Talbot Inc. v. The Government of Canada* (UNCITRAL) Interim Award, 26 June 2000, ¶ 102.

⁶²⁰ **CL-0070**, *Merrill & Ring Forestry L.P. v. Canada* (UNCITRAL) Award, 31 March 2010, ¶ 145; see also **CL-0049**, *Fireman’s Fund Insurance Company v. The United Mexican States* (ICSID Case No. ARB(AF)/02/01) Award, 17 July 2006, ¶ 176(c) (“The taking must be a substantially complete deprivation of the economic use and enjoyment of the rights to the property, or of identifiable distinct parts thereof (i.e., it approaches total impairment).”).

⁶²¹ **CL-0021**, *Burlington Resources Inc. v. Republic of Ecuador* (ICSID Case No. ARB/08/5) Decision on Liability, 14 December 2012, ¶ 398.

⁶²² **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 103; **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 240; **CL-0037**, *Compañía de Aguas del Aconquija S.A. and Vivendi Universal SA v. Argentina* (ICSID Case No. Arb/97/3) Award, 20 August 2007, ¶¶ 7.5.11-7.5.16.

⁶²³ **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 246.

⁶²⁴ **CL-0112**, *Técnicas Medioambientales Tecmed, S.A. v. The United Mexican States* (ICSID Case No. ARB (AF)/00/2) Award, 29 May 2003, ¶ 115; **CL-0045**, *Electrabel S.A. v. The Republic of Hungary* (ICSID Case No. ARB/07/19) Decision on Jurisdiction, Applicable Law and Liability, 30 November 2012, ¶ 6.62; **CL-0034**, *CME Czech Republic B.V. v. The Czech Republic* (UNCITRAL) Partial Award, 13 September 2001, ¶ 604.

measures are dispositive, not the underlying intent, for determining whether there is expropriation.”⁶²⁵

305. In determining whether an expropriation has occurred, NAFTA tribunals consider a number of factors. Specifically, “the practice of NAFTA tribunals has been to follow a three-step approach focusing on (i) whether there is an investment capable of being expropriated, (ii) whether that investment has in fact been expropriated, and (iii) whether the conditions set forth in Article 1110(1)(a)-d) have been satisfied.”⁶²⁶
306. The fundamental requirement for an expropriation is that the claimant is substantially deprived of the use and benefits of its investment or property.⁶²⁷ To determine whether a state’s conduct constitutes an expropriation, tribunals focus on “the actual effect of the measures on the investor’s property.”⁶²⁸ Generally, while the host state’s intent may play a role in determining whether its conduct was expropriatory, the state’s intent is not decisive and is, at most, a secondary consideration. However, proof of intent may be useful in assessing responsibility. The Polaris for determining whether an expropriation occurred are the effects of the measure, which is normally determined through a straightforward economic assessment.
307. Expropriation is not limited to tangible property or physical assets, but can also occur with a broad range of economically significant rights. As Judge Rosalyn Higgins noted, “the notion of ‘property’ is not restricted to chattels. Sometimes rights that might seem more

⁶²⁵ **CL-0049**, *Fireman’s Fund Insurance Company v. The United Mexican States* (ICSID Case No. ARB(AF)/02/01) Award, 17 July 2006, ¶ 176(f) (emphasis added); see also **CL-0018**, *Biwater Gauff (Tanzania) Ltd. v. United Republic of Tanzania* (ICSID Case No. ARB/05/22) Award, 24 July 2008, ¶ 463 (concluding that expropriation is generally measured “by reference to the effect of the relevant acts, rather than the intention behind them.”).

⁶²⁶ **CL-0033**, *Chemtura Corporation v. Government of Canada* (UNCITRAL) Award, 2 August 2010, ¶ 242.

⁶²⁷ **CL-0095**, *Railroad Development Corporation (RDC) v. Republic of Guatemala* (ICSID Case No. ARB/07/23) Award, 29 June 2012, ¶ 151.

⁶²⁸ **CL-0001**, A. Redfern, M. Hunter et al, *Redfern and Hunter on International Arbitration* (2009), ¶ 8.83; **CL-0036**, *Compañía del Desarrollo de Santa Elena, SA v. The Republic of Costa Rica* (ICSID Case No. ARB/96/1) Final Award, 17 February 2000, ¶ 77: “There is ample authority for the proposition that a property has been expropriated when the effect of the measures taken by the state has been to deprive the owner of title, possession or access to the benefit and economic use of his property.”

naturally to fall under the category of contract rights are treated as property.”⁶²⁹ In conceptualizing the rights implicated by an expropriation, the tribunal in *ADC Affiliate v. Hungary* referred to a colloquy between Professor van den Berg and Professor Crawford, during which the latter explained that an investment includes the associated undertakings, bundle of rights, and legitimate investment-backed expectations.⁶³⁰

Thus the rights of the Project Company disappeared as a result of legislative acts attributable to the Hungarian state [. . .] This had the effect, direct and intended, of destroying the enterprise in which the claimants were directly involved and which was their investment, and of doing so without any compensation [. . .] The Chorzów case is fascinating because it prefigures so much of this and there is a very nice account of what constitutes the enterprise [. . .] [Citing Chorzow Factory] ‘[a]n undertaking as such is an entity entirely distinct from the lands and buildings necessary for its working [. . .] and in the present case, it can hardly be doubted that, in addition to the real property which belonged to the Reich, there were property, rights and interests, such as patents and licenses, probably of a very considerable value, the private character of which cannot be disputed.’ That carried right through the case up to the questions that were asked to the experts; what they were asked to value was the undertaking, in this case we would say the investment. So the short answer is that what was expropriated was that bundle of rights and legitimate expectations.

308. The ADC tribunal agreed, finding that the host state’s acts caused the investor’s company to lose its value, thereby affecting the claimant’s rights and thwarting legitimate expectations. As the tribunal noted, “it is the opinion of the Tribunal that Professor Crawford articulated the matter correctly. There can be no doubt whatsoever that the legislation passed by the Hungarian Parliament and the Decree had the effect of causing the rights of the Project Company to disappear and/or become worthless. The Claimants lost whatever rights they had in the Project and their legitimate expectations were

⁶²⁹ CL-0094, R. Higgins, “*The Taking of Property by the State: Recent Developments in International Law*” (1982/III), p. 271.

⁶³⁰ CL-0003, *ADC Affiliate Limited & ADC & ADMC Management Limited v. Republic of Hungary* (ICSID Case No. ARB/03/16) Award, 2 October 2006, ¶ 303.

thereby thwarted.”⁶³¹ Accordingly, an expropriation, whether direct or indirect, destroys the value not only of tangible property and rights but also intangible interests.

309. Numerous cases have found that an expropriation occurs when a state regulatory body fails to provide, or revokes, a permit.
- a. In *Tethyan v. Pakistan*, a tribunal determined that the claimant’s investment in a yet-to-be-built mine was indirectly expropriated because the relevant licensing authority rejected the investor’s mining lease application, noting, “the Tribunal finds that the denial of [claimant’s lease application] was a measure having an effect equivalent to expropriation.”⁶³²
 - b. In *Metalclad v. Mexico*, a NAFTA tribunal found that a Mexican municipality’s non-issuance of a permit was a measure tantamount to expropriation in violation of NAFTA Article 1110(1), noting, “[b]y permitting or tolerating the conduct of Guadalcazar in relation to Metalclad which the Tribunal has already held amounts to unfair and inequitable treatment breaching Article 1105 and by thus participating or acquiescing in the denial to Metalclad of the right to operate the landfill, notwithstanding the fact that the project was fully approved and endorsed by the federal government, Mexico must be held to have taken a measure tantamount to expropriation in violation of NAFTA Article 1110(1).”⁶³³
 - c. In *Técnicas Medioambientales Tecmed, S.A. v. Mexico*, a tribunal determined that Mexico expropriated an investor’s investment when it failed to renew a hazardous waste landfill permit.⁶³⁴
 - d. In *Abengoa v. Mexico*, a tribunal determined that Mexico expropriated an investor’s investment when it revoked an operating license of a newly built hazardous waste facility.⁶³⁵
 - e. In *Bear Creek v. Peru*, a tribunal determined that Peru expropriated an investor’s investment when it revoked a concession to operate a silver mine.⁶³⁶

⁶³¹ **CL-0003**, *ADC Affiliate Limited & ADC & ADMC Management Limited v. Republic of Hungary* (ICSID Case No. ARB/03/16) Award, 2 October 2006, ¶ 304.

⁶³² **CL-0116**, *Tethyan Copper Company Pty Limited v. Islamic Republic of Pakistan* (ICSID Case No. ARB/12/1) Award, 12 July 2019, ¶ 156.

⁶³³ **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 104.

⁶³⁴ **CL-0112**, *Técnicas Medioambientales Tecmed S.A. v. The United Mexican States* (ICSID Case No. ARB(AF)/00/2) Award, 29 May 2003, ¶¶ 172-174

⁶³⁵ **CL-0002**, *Abengoa, S.A. y COFIDES, S.A. v. United Mexican States* (ICSID Case No. ARB(AF)/09/2) Award, 18 April 2013, ¶ 673.

⁶³⁶ **CL-0016**, *Bearcreek Mining Corporation v. Republic of Peru* (ICSID Case No. ARB/14/21) Award, 30 November 2017, ¶ 429.

- f. In *South American Silver v. Bolivia*, a tribunal determined that Bolivia expropriated an investor's investment when it revoked a series of mining authorizations and transferred them back to the state.⁶³⁷

2. Mexico Illegally Expropriated Odyssey's Investment in Violation of Article 1110(1)

310. Mexico unlawfully expropriated Claimant's investment, including the bundle of rights and expectations they embraced, when it capriciously, arbitrarily, and on severely faulty premises denied the environmental permit.
311. Based on the evidence and discussion above, it is clear that this expropriation was illegal. The expropriation was not for a public purpose, but rather to foster Secretary Pacchiano's political standing and facilitate his personal score-settling. It was the very epitome of discriminatory, as evidenced not just by the fact that ExO was singled out based on a perceived slight to Secretary Pacchiano, but also by SEMARNAT's own public statements in which it forthrightly declared that ExO's MIA would be denied without review, while another MIA pending at the same time would be reviewed properly and based on the merits.
312. This case, therefore, is fundamentally different from NAFTA cases in which a tribunal found a valid exercise of the state's police powers for environmental reasons. For example, in *Chemtura*, the tribunal considered that the Canadian government's ban of lindane based-products was taken in accordance with the administrative authority's competence, in a non-discriminatory way, and "motivated by the increasing awareness of the dangers presented by lindane for human health and the environment."⁶³⁸ Here, by contrast, we have state scientists' powers of appreciation being overridden by purely political considerations, and in the process, defying the law, ignoring proper process, and ignoring relevant scientific and other technical data.

⁶³⁷ **CL-0108**, *South American Silver Limited (Bermuda) v. the Plurinational State of Bolivia* (PCA Case No. 2013-15) Award, 22 November 2018, ¶ 539 *et seq.*

⁶³⁸ **CL-0033**, *Chemtura Corporation v. Government of Canada* (UNCITRAL) Award, 2 August 2010, ¶ 266.

313. Ultimately, there is no serious question that Mexico's broken MIA review process and failure to issue the environmental permit deprived Odyssey, and ExO, of the value, legitimate expectations, and associated bundle of rights of their investment. Indeed, it is beyond dispute that having an environmental permit was a condition precedent for operating and monetizing the phosphate deposit. Without a permit to engage in dredging operations, Claimant and ExO could not operate the Don Diego phosphate field. SEMARNAT's unlawful denial of that permit, therefore, severely reduced, if not eliminated, the value of the Concessions and the company holding the Concessions, ExO.

D. Mexico Violated NAFTA Article 1102

1. Mexico Is Obligated to Treat NAFTA Investments in a Manner No Less Favorable Than It Accords to Domestic Investors

314. Pursuant to Article 1102 of NAFTA, each party must grant investors of another party equal treatment under the law.⁶³⁹

1. Each Party shall accord to investors of another Party treatment no less favorable than that it accords, in like circumstances, to its own investors with respect to the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments.

2. Each Party shall accord to investments of investor of another Party treatment no less favorable than that it accords, in like circumstances, to investments of its own investors with respect to the establishment, acquisition, expansion, management, conduct, operation, and sale or other disposition of investments.

315. To demonstrate that a host state breached its obligations under NAFTA Article 1102, an investor must show that:

- The foreign investor or investment is in like circumstances to local investors or investments;
- The host state treats the investor, or its investment, with treatment less favorable than it gives local investors or investments; and

⁶³⁹ CL-0081, NAFTA, art. 1102.

- The host state’s treatment is with respect to the establishment, acquisition, expansion, management, conduct, operation, sale, or other disposition of investments.

316. Generally, NAFTA tribunals applying Article 1102 apply a three-step analysis to determine whether there is a breach of national treatment. As the tribunal in *ADM v. Mexico* explained, “[p]ursuant to the ordinary meaning of Article 1102, the Arbitral Tribunal shall: (i) identify the relevant subjects for comparison; (ii) consider the treatment each comparator receives; and (iii) consider any factors that may justify any differential treatment.”⁶⁴⁰

a. Like Circumstances

317. As the tribunal in *S.D. Meyers* stated, “the interpretation of ‘like’ must depend on all circumstances of each case.”⁶⁴¹ As it further explained, “[t]he concept of ‘like circumstances’ invites an examination of whether a non-national investor complaining of less favourable treatment is in the same ‘sector’ as the national investor. The Tribunal takes the view that the word ‘sector’ has a wide connotation that includes the concepts of ‘economic sector’ and ‘business sector.’”⁶⁴²

318. However, in assessing likeness, the *Bilcon* tribunal noted the importance of avoiding an overly parochial approach, explaining, “the purpose of national treatment is to protect investors as compared to local producers, and this cannot be done by addressing exclusively the sector in which the particular activity is conducted.”⁶⁴³ Furthermore, the

⁶⁴⁰ **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 196; **CL-0041**, *Corn Products International Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/1) Decision on Responsibility, 15 January 2008, ¶ 117; **CL-0005**, *ADF Group Inc. v. United States of America* (ICSID Case No. ARB(AF)/00/1) Award, 9 January 2003, ¶ 153; **CL-0090**, *Pope & Talbot Inc. v. Government of Canada* (UNCITRAL) Award on the Merits of Phase 2, 10 April 2001, ¶ 73 *et. seq.*

⁶⁴¹ **CL-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶ 244.

⁶⁴² **CL-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶ 250; *see also* **CL-0068**, *Marvin Feldman v. Mexico* (ICSID Case No. ARB(AF)/99/1) Award, 16 December 2002, ¶ 172 (applying a similar test, noting, “the Tribunal holds that the companies which are in like circumstances, domestic and foreign, are the trading companies, those in the business of purchasing Mexican cigarettes for export, which for purposes of this case are CEMSA and the corporate members of the Poblano Group.”).

⁶⁴³ **CL-0122**, *William Ralph Clayton, William Richard Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware, Inc. v. Government of Canada* (UNCITRAL) Award on Jurisdiction and Liability, 17 March 2015, ¶ 693; *see also* ¶ 697: “The *Belleoram* Project [a comparable project to that presented by Claimant] involved

tribunal in *Bilcon* went on to note:⁶⁴⁴

Article 1102 refers to situations where investors or investments find themselves in ‘like circumstances’. The language is not restricted as it is in some other trade-liberalizing agreements, such as those that refer to ‘like products’. Article 1102 refers to the way in which either the investor or investment is treated, rather than confining concerns over discrimination to comparisons between similar articles of trade. Moreover, the operative word in Article 1102 is ‘similar’, not ‘identical’. In addition to giving the reasonably broad language of Article 1102 its due, a Tribunal must also take into account the objects of NAFTA, which include according to Article 102(1)(c) ‘to increase substantially investment opportunities in the territories of the Parties.’

319. Moreover, the tribunal in *ADM v. Mexico* also noted, “it is the Tribunal’s view that when no identical comparators exist, the foreign investor may be compared with less like comparators, if the overall circumstances of the case suggest that they are in like circumstances.”⁶⁴⁵

developing a quarry and terminal project that would have covered six times the area and produced up to 300% more rock annually than the proposed project at Whites Point [Bilcon’s project]. An official of Canada itself noted that the Whites Point Quarry and Belleoram Projects were ‘very similar.’ The Belleoram Project was to be carried out by a Canadian controlled company with the financial support of federal Canada. The Belleoram Project was located one kilometre away from populated areas. It was geared to the export market. It was not subjected to a JRP process. Only the marine terminal was assessed for the purposes of the laws of federal Canada. Many of the issues considered in the review were similar to those at Whites Point. Indeed, federal officials recognized early on in the Bilcon process that ‘many of the environmental concerns will be similar’ to Belleoram. The comprehensive study route was adopted for the purposes of the laws of Canada and completed in only a year and a half. The report identified a variety of likely significant adverse effects and considered that all of them would be mitigated to a satisfactory extent by the adoption of mitigation measures that could reasonably be applied. The Tribunal emphasizes again that it does not preclude the possibility that different outcomes could still have been reasonably obtained in Whites Point and Belleoram if the same standard had been applied. What is of critical importance here is that the Whites Point project did not receive the expected and legally mandated application, for the purposes of federal Canada environmental assessment, of the essential evaluative standard under the CEEA.”

⁶⁴⁴ **CL-0122**, *William Ralph Clayton, William Richard Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware, Inc. v. Government of Canada* (UNCITRAL) Award on Jurisdiction and Liability, 17 March 2015, ¶ 692.

⁶⁴⁵ **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 202.

320. Finally, NAFTA tribunals have also held that investors are in comparable circumstances when they are subjected to the same legal regime or regulations.⁶⁴⁶ As the *Grand River* tribunal notes: “the identity of the legal regime(s) applicable to a claimant and its purported comparators to be a compelling factor in assessing whether like is indeed being compared to like for purposes of Articles 1102 and 1103.”⁶⁴⁷ Ultimately, as Professor Vandeveldelde cautioned, it is important that “ensuring competitive equality does not exhaust the purpose of a non-discrimination provision.”⁶⁴⁸

b. Treatment Less Favorable Than Treatment of Local Investors or Investments

321. The second factor under Article 1102 requires a determination of whether the investor or investment in like circumstances has suffered treatment less favorable than treatment of a local investor or investment. As the tribunal in *ADM v. Mexico* noted:⁶⁴⁹

Article 1102 prohibits treatment which discriminates on the basis of the foreign investor’s nationality. Nationality discrimination is established by showing that a foreign investor has unreasonably been treated less favorably than domestic investors in like circumstances. Accordingly, Claimants and their investment are entitled to the best level of treatment available to any other domestic investor or investment operating in like circumstances, including the domestic cane sugar producers.

322. In *S.D. Meyers*, the tribunal related “treatment” to require a practical impact on the investment and not merely motive or intent.⁶⁵⁰ However, motive and intent may provide insight into the nature of the treatment.⁶⁵¹

⁶⁴⁶ **CL-0005**, *ADF Group, Inc. v. United States* (ICSID Case No. ARB(AF)/00/1) Award, 9 January 2003, ¶ 156; **CL-0091**, *Pope & Talbot Inc. v. The Government of Canada* (UNCITRAL) Award in Respect of Damages, 31 May 2002, ¶ 88; **CL-0068**, *Marvin Feldman v. Mexico* (ICSID Case No. ARB(AF)/99/1) Award, 16 December 2002, ¶¶ 171-172; **CL-0074**, *Methanex Corporation v. United States of America* (UNCITRAL) Final Award on Jurisdiction and Merits, 3 August 2005, Part IV, Chapter B, ¶¶ 18-19.

⁶⁴⁷ **CL-0057**, *Grand River Enterprises Six Nations, Ltd. and others v. United States of America* (UNCITRAL) Award, 12 January 2011, ¶ 167.

⁶⁴⁸ **CL-0066**, K. Vandeveldelde, *Bilateral Investment Treaties* (2010), p. 341.

⁶⁴⁹ **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 205.

⁶⁵⁰ **CL-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶ 254.

⁶⁵¹ **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶¶ 209-210 (noting “both the intent and

c. Any Factors Justifying Differential Treatment

323. The final factor for a tribunal to consider is whether there are any factors justifying different treatment between the investor or investment and domestic investors or investments. In effect, this is an affirmative defense, which is only addressed after like circumstances and disparate treatment are identified. As the tribunal in *Feldman* demonstrated, once “the Claimant has made a *prima facie* case for differential and less favorable treatment,” the host state can attempt to address how, objectively, the conduct was not a denial of equal competitive opportunities in light of the strictures of Article 1102.⁶⁵²

E. Mexico Treated Odyssey’s Investment in a Manner Less Favorable Than It Accorded Domestic Investors

324. Not only did SEMARNAT deny ExO’s environmental permit for capricious, arbitrary, and discriminatory reasons, but it also treated projects owned by Mexican government entities differently than ExO’s Don Diego Project. In so doing, Mexico violated Article 1102 of NAFTA.

325. In order to assist in this analysis, Claimant engaged Mr. Vladimir Pliego, an expert on environmental impact, asking him to consider whether SEMARNAT’s October 2018 Denial is consistent or inconsistent with the treatment that Mexico gave to other, locally-owned comparable dredging projects.⁶⁵³ In order to conduct his analysis, Mr. Pliego focused on six dredging projects, owned by Mexican-government affiliated entities and located within Mexico’s coastal ecosystem, which SEMARNAT conditionally approved between April 2008 and December 2019. The projects which form the heart of Mr. Pliego’s analysis are:

- **MEXICAN OWNED DREDGING PROJECT NUMBER 1:** This project dredges the navigation channel within El Chaparrito’s inner harbor, the seawater collection canals and other canals within Exportadora de Sal (“**ESSA Project**”).⁶⁵⁴ The

effects of the Tax show the discriminatory nature of the measure [. . .] the Tax was enacted for the purpose of protecting the domestic Mexican sugar industry from foreign competitors [. . .]”).

⁶⁵² **CL-0068**, *Marvin Feldman v. Mexico* (ICSID Case No. ARB(AF)/99/1) Award, 16 December 2002, ¶ 187.

⁶⁵³ Pliego ER, ¶¶ 7, 232-401.

⁶⁵⁴ **C-0103**, MIA ESSA Project, January 2008, p. 5.

project's sponsor is a Mexican state sponsored entity, Exportadora de Sal, S.A. de C.V.⁶⁵⁵ The project is located within six environmental conservation initiatives: (i) a UNESCO World Heritage Site, (ii) a UNESCO Man and Biosphere reserve, (iii) a Ramsar site, (iv) a Biosphere Reserve as defined by the LGEEPA, (v) Priority Marine Region No. 5 (RMP 5) El Vizcaíno, and (vi) Priority Marine Site No. 6 (SPM 6) Ojo de Liebre-Guerrero Negro-Manuela.⁶⁵⁶

- **MEXICAN OWNED DREDGING PROJECT NUMBER 2:** This project dredges the inner harbor, inlet canal, and inlet that form the breakwaters of the Central Nucleoeléctrica (“**Laguna Verde Project**”).⁶⁵⁷ The project's sponsor is a Mexican state sponsored entity, Federal Electricity Commission (CFE—Comisión Federal de Electricidad), which is owned exclusively by the federal government.⁶⁵⁸ The project is located within two environmental conservation initiatives: (i) Priority Marine Region for Conservation No. 49 (RMP 49) Lagoon Verde Antón-Lizardo, and (ii) Priority Marine Site No. 58 (SPM 58) Coastal Wetlands of the Center of Veracruz.⁶⁵⁹
- **MEXICAN OWNED DREDGING PROJECT NUMBER 3:** This project builds Sayulita's integral water treatment system (“**Sayulita Project**”), which includes (i) the rehabilitation, substitution, and expansion of the existing Wastewater Treatment Plant, (ii) the rehabilitation of a part of the existing collector, (iii) building a gabion structure on part of the Sayulita River, and (iv) installing a submarine transmitter.⁶⁶⁰ This project is sponsored by the Nayarit state government, through the State Commission of Potable Water and Sewage System of Nayarit, a public entity.⁶⁶¹ The project is located within an environmental conservation initiative, Priority Marine Region No. 22 (RMP 22) Bay of Banderas. Moreover, the project is also situated within the “Zone[s] of Influence” of both the Marieta Islands National Park and the Marías Islands Biosphere Reserve.⁶⁶²
- **MEXICAN OWNED DREDGING PROJECT NUMBER 4:** This project expands the Port of Veracruz by building two breakwaters, a turning basin, braking space, nine types of dock terminals, and 30 docking stations (“**Veracruz Project**”).⁶⁶³ Dredging of the seafloor is contemplated to locate the canals and turning basins, as well as all areas that vessels need to enter, exit, and maneuver in the port.⁶⁶⁴ The project is sponsored by Administración Portuaria Integral de Veracruz, S.A. de C.V., which

⁶⁵⁵ **C-0103**, MIA ESSA Project, January 2008, p. 7.

⁶⁵⁶ **C-0103**, MIA ESSA Project, January 2008, p. 15; Pliego ER, ¶¶ 239-244.

⁶⁵⁷ **C-0138**, MIA Laguna Verde Project, December 2015, p. 12.

⁶⁵⁸ **C-0138**, MIA Laguna Verde Project, December 2015, pp. 9-10; Pliego ER, ¶ 248.

⁶⁵⁹ **C-0138**, MIA Laguna Verde Project, December 2015, pp. 87-90; Pliego ER, ¶ 249.

⁶⁶⁰ **C-0113**, MIA Sayulita Project, p. 13; Pliego ER, ¶ 251.

⁶⁶¹ **C-0113**, MIA Sayulita Project, p. 8; Pliego ER, ¶ 254.

⁶⁶² Pliego ER, ¶¶ 255-256.

⁶⁶³ **C-0118**, MIA Veracruz Project, pp. 12-13.

⁶⁶⁴ **C-0118**, MIA Veracruz Project, p. 106; Pliego ER, ¶ 259.

is owned by the federal government.⁶⁶⁵ The project is located within (i) a Ramsar site, and (ii) Priority Marine Region No. 49 (RMP 49) Verde-Antón Lizardo Lagoon. The project is also adjacent to the “zone of influence” of the Veracruz Reef System National Park and Priority Marine Site No. 58 (SPM 58) Coastal Wetlands of the Center of Veracruz.⁶⁶⁶

- **MEXICAN OWNED DREDGING PROJECT NUMBER 5:** This project expands the Port of Matamoros and its urban development area by dredging the Higuierillas Canal and building an urban development, fishing infrastructure, a port, facilities for the Secretariat of the Marine, government offices, roads, a network of potable water, sanitary drainage, and electricity networks, among others (“**Matamoros Project**”).⁶⁶⁷ The project’s sponsor is the Administración Portuaria Integral de Tamaulipas, S.A. de C. V., owned by the State of Tamaulipas.⁶⁶⁸ The project is located within the city of Matamoros, in an area that is subject to two environmental conservation initiatives, including (i) a Ramsar site, and (ii) the Madre Lagoon Area of Protection of Flora and Fauna.⁶⁶⁹
- **MEXICAN OWNED DREDGING PROJECT NUMBER 6:** This project dredges the inner harbor of Port Santa Rosalía (“**Santa Rosalía Project**”).⁶⁷⁰ The sponsor is the Administración Portuaria Integral de Baja California Sur, S.A. de C. V., which is majority-owned by the State of Baja California Sur.⁶⁷¹ It is adjacent to an area that is subject to one environmental conservation initiative, the El Vizcaíno Biosphere Reserve, which is a Federal Natural Protected Area.⁶⁷²

1. These Six Projects Are in “Like Circumstances” to the Don Diego Project

326. The first criterion in any Article 1102 claim is identifying whether there are projects in “like circumstances.”⁶⁷³ In considering this question, Mr. Pliego looked at six principal similarities between the Don Diego Project and the aforementioned projects.⁶⁷⁴

⁶⁶⁵ **C-0118**, MIA Veracruz Project, p. 2; Pliego ER, ¶ 262.

⁶⁶⁶ **C-0118**, MIA Veracruz Project, p. 287; Pliego ER, ¶¶ 263-266.

⁶⁶⁷ **C-0034**, MIA Matamoros Project, pp. 1-40, 77; Pliego ER, ¶¶ 268-269.

⁶⁶⁸ **C-0034**, MIA Matamoros Project, p. 7; Pliego ER, ¶ 271.

⁶⁶⁹ **C-0034**, MIA Matamoros Project, pp. 3, 201-202, 213; Pliego ER, ¶ 272.

⁶⁷⁰ **C-0135**, MIA Santa Rosalía Project, June 2019, p. 10; Pliego ER, ¶ 275.

⁶⁷¹ **C-0135**, MIA Santa Rosalía Project, June 2019, p. 8; Pliego ER, ¶ 276.

⁶⁷² **C-0135**, MIA Santa Rosalía Project, June 2019, p. 53; Pliego ER, ¶ 277.

⁶⁷³ **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 196.

⁶⁷⁴ Pliego ER, ¶¶ 279-280.

- *First:* Like the Don Diego Project, all of these projects are dredging projects. Additionally, the other projects use suction dredgers, like the Don Diego Project, with the exception of the ESSA Project and the Sayulita Project.⁶⁷⁵
- *Second:* All projects were required to seek a MIA authorization from SEMARNAT before commencing operations under the LGEEPA.⁶⁷⁶ Thus, they are all governed by the same “legal regime,” which, as stated above, is a key factor in determining whether the projects are in “like circumstances.”⁶⁷⁷
- *Third:* All of the projects take place in “coastal ecosystems” as defined by Mexican law.⁶⁷⁸
- *Fourth:* all projects involve significant impacts on the seabed and its organisms, given the nature of the dredging activities.⁶⁷⁹
- *Fifth:* all projects may impact the water column because of sediment plumes derived from the dredging activity. This will include impact on the quality of the water, as well as the generation of turbidity.⁶⁸⁰
- *Sixth:* all projects reported the temporary or permanent presence of protected and or endangered species listed in the NOM-059 endangered/protected species regulation in the areas surrounding the projects. In fact, there are at least one or more endangered sea turtles in the contiguous areas of all of the projects, including *Caretta caretta*, *Chelonia mydas*, *Eretmochelys imbricata*, *Lepidochelys olivacea*, *Dermochelys coriacea*, *Chelonia agassizii*, and *Lepidochelys kempii*.⁶⁸¹

327. Moreover, as Mr. Pliego determines: “[t]he central idea is that, with the framework of the environmental impact assessment process as an axis, the projects are comparable for at least three legal-technical reasons (activity, regulations and location) and three practical elements derived from potential environmental impacts, which are considered as critical points of comparison: impacts on protected species under NOM-059-SEMARNAT-2010, the seabed and the water column.”⁶⁸² Indeed, it is the legal-technical similarities and the

⁶⁷⁵ Pliego ER, ¶¶ 282-288.

⁶⁷⁶ Pliego ER, ¶¶ 289-293.

⁶⁷⁷ *See supra* ¶¶ 317-320.

⁶⁷⁸ Pliego ER, ¶¶ 294-299.

⁶⁷⁹ Pliego ER, ¶¶ 306-312.

⁶⁸⁰ Pliego ER, ¶¶ 313-317.

⁶⁸¹ Pliego ER, ¶¶ 300-305.

⁶⁸² Pliego ER, ¶ 280.

environmental impact of the comparator projects which render them in “like circumstances”.⁶⁸³

328. Additionally, as identified by the *Grand River* tribunal, since Claimant’s project and the comparator projects share an “identity of legal regime(s).”⁶⁸⁴ The legal regime at issue is, of course, SEMARNAT’s legal mandate under Mexican law to properly and fairly review these projects and either grant or deny them an environmental permit.

2. ExO’s MIA Was Evaluated in a Less Favorable Manner in Comparison to All Other Mexican State-Backed Dredging Projects

329. The second element, when assessing an Article 1102 claim, is whether the foreign investor was treated less favorably. Here, it is unquestionable that there was disparate treatment between the Mexican-owned dredging projects and the Don Diego Project.

330. While all these projects, by the very fact that they are dredging projects, raise the same environmental concerns, the six comparator projects raise considerably more concerns than the Don Diego Project. The main cause of these concerns is the fact that the other dredging projects are located very near the coast, while the Don Diego Project is located approximately 22 km from the coast at its closest point on the edge of the continental shelf and at a depth of 80 meters.⁶⁸⁵ These factors increase the environmental impact of the other six projects *vis-à-vis* the Don Diego Project. As Mr. Pliego explains:⁶⁸⁶

[T]he waters in the immediate coastal zone are of high ecological sensitivity and comprise a wide range of habitats for invertebrate communities and the food web that supports fish, birds and

⁶⁸³ While it is undeniable that the Don Diego Project would have dredged more material from the seabed than the other projects, this does not change the fact that these projects are in “like circumstances” to Don Diego. A “like circumstances” analysis does not require finding a mirror image for comparator companies. As the tribunal in *Bilcon* noted, “the operative word in Article 1102 is ‘similar’, not ‘identical’.” (**CL-0122**, *William Ralph Clayton, William Richard Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware, Inc. v. Government of Canada* (UNCITRAL) Award on Jurisdiction and Liability, 17 March 2015, ¶ 692). And here, like in *S.D. Meyers*, all of the projects are “in the same ‘sector’ as the national investor[s]” at issue (**CL-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶ 25). That sector, of course, is dredging.

⁶⁸⁴ **CL-0057**, *Grand River Enterprises Six Nations, Ltd., et al. v. United States of America* (UNCITRAL) Award, 12 January 2011, ¶ 167.

⁶⁸⁵ Pliego ER, ¶¶ 331-333.

⁶⁸⁶ Pliego ER, ¶¶ 336-337.

juvenile mammals. They are also areas that support sites of high primary productivity from algae and seagrasses, as well as lagoons and other sites that are nursery grounds for juvenile fish and breeding and/or feeding areas for several species of sea turtles, sea mammals and birds.

Conversely [. . .] at the site where the Don Diego Project will be developed, on the seabed at 80 meters depth, primary productivity is very limited, the benthic biological community is sparse and the temperature at depth is around 14 degrees C. This makes the seabed at the ExO site unsuited for turtles, and also for demersal fish. In addition, biological production is driven by upwelling which supports a pelagic food web that will not be affected by dredging at the seabed. In other words, the seabed at the ExO site presents environmental characteristics which can be considered of low environmental sensitivity in comparison with the coastal ecosystems and shallow areas referenced, and the Don Diego Project is specifically designed to minimize any impacts on the water column by the introduction of the eco-tube. Therefore, the Don Diego Project will produce fewer environmental impacts than the other dredging projects.

331. Particularly, when one compares these projects using the main criteria—namely, impact on endangered turtle species, seabed impact, water column impact, and sufficiency of mitigation measures—it is obvious that the comparator projects have the potential to cause significantly greater environmental damage than Don Diego. After reviewing the other projects, Mr. Pliego emphasizes this point, noting, “[i]t is clear that all of the projects considered would be carried out in far more environmentally sensitive areas, and in the majority of cases with ecological conditions and biodiversity that is much more vulnerable than that present at the Don Diego Project site; in other words, in the comparator projects, there exists a higher probability of affecting fauna, flora and the environment, due to the higher levels of biodiversity and the projects being nearer to coastal activities. [. . .] [I]f these other projects were conditionally approved (subject to monitoring), then it is my opinion that the Don Diego Project, which is located at a less vulnerable site and adopts better mitigation measures, should have also been approved.”⁶⁸⁷

⁶⁸⁷ Pliego ER, ¶ 359.

a. **Discriminatory Scrutiny Over the Projects' Effects on Protected/Endangered NOM-59 Sea Turtles**

332. As mentioned above, the six comparator projects and the Don Diego Project would conduct dredging in areas in which they could conceivably interact with endangered and/or protected turtles, as listed in NOM-59 (the regulatory document listing protected and endangered species). However, the Don Diego Project was the only project which was denied pursuant to Article 35(III)(b) of LGEEPA for allegedly affecting *Caretta caretta* and other sea turtles.
333. Claimant has already proven that the Project's effect on turtles is either nonexistent or negligible.⁶⁸⁸ However, the standard enunciated by SEMARNAT, when assessing Don Diego's MIA, was markedly more stringent than the standard applied to the comparator projects when evaluating their effects on endangered and/or protected sea turtles.
334. In refusing the environmental permit for Don Diego, SEMARNAT stated, "the law does not stipulate that a negative has to be supported on a serious or significant adverse effect, it only empowers the environmental authority to deny a request upon the existence of an adverse effect against species classified in a given special risk or protection [. . .]."⁶⁸⁹ By this, SEMARNAT appears to mean that *any impact* on individual members of an endangered and/or protected species is a basis for denial. That standard, however, had never been articulated, much less applied by SEMARNAT in the past, and it certainly was not applied by SEMARNAT in any of the comparable projects described above. It appears, rather, that it was tailor-made to deny Claimant its environmental permit. [REDACTED]

[REDACTED].⁶⁹⁰

[REDACTED]

⁶⁸⁸ See *supra* ¶¶ 259-296.

⁶⁸⁹ C-0009, SEMARNAT Denial Decision, 12 October 2018, p. 512.

⁶⁹⁰ [REDACTED]

335. Moreover, while SEMARNAT denied approval of the Project despite its extensive turtle protection measures, SEMARNAT approved the other projects affecting endangered turtles (including *Caretta caretta*) even though none of them proposed *any* turtle-specific mitigation measures. Given that those other projects involved dredging operations in shallower waters, turtle protection measures were, if anything, much more of a requirement for these other projects. Specifically, *Caretta caretta* spend most of their time in depths between 0 to 40 meters, precisely the dredging depth for all of the other projects, all of which SEMARNAT approved.
336. More generally, in evaluating the comparator projects, SEMARNAT applied a much more lenient standard with regards to their potential impact on endangered species. All of the comparator projects had the potential to affect various NOM-059-2010 endangered species.⁶⁹¹ However, in contrast to SEMARNAT’s treatment of Claimants, SEMARNAT appears to have taken a “trust and do not bother to verify” approach to these other projects. For example:
- **ESSA Project:** This project would be carried out in shallow waters (average of 8.41 meters) in an area inhabited by five types of endangered sea turtles (*Caretta caretta*, *Chelonia mydas agassizi*, *Eretmochelys imbricata*, *Lepidochelys olivacea*, and *Dermochelys coriacea*).⁶⁹² Thus, there was a high probability that at least some individuals would be entrained in the dredging operations. When determining that the project could proceed, however, SEMARNAT explained that although “dredging could interfere with *marine fauna*—turtles or marine mammals,” given that after “many years, no incidents involving dredgers have been reported,” the project could proceed.⁶⁹³
 - **Sayulita Project:** While the Sayulita Project contemplates a potential impact on six species of turtles in danger of extinction (*Chelonia mydas*, *Eretmochelys imbricata*, *Lepidochelys olivacea*, *Dermochelys coriacea*, *Chelonia agassizii*, and *Lepidochelys kempii*),⁶⁹⁴ SEMARNAT simply accepted the sponsor’s statement that “given that the work will take place only in the beach zone and in a minimal area, turtle

⁶⁹¹ Pliego ER, ¶¶ 300-305.

⁶⁹² Pliego ER, ¶¶ 301, 308(b).

⁶⁹³ **C-0104**, ESSA Resolution, 19 May 2008, p. 55.

⁶⁹⁴ Pliego ER, ¶ 301.

nesting sites will not be affected.”⁶⁹⁵ Again, the project was approved and no turtle mitigation measures were imposed.

337. In contrast to the approach it applied in those cases, where no mitigation measures were proposed, in the case of the Project, SEMARNAT used the mitigation measures as a weapon, claiming, without scientific support, that the “mitigation measures with respect to impact over *loggerhead turtles shows that the petitioner* does foresee direct impact over individual turtles, derived from the dredging activities.”⁶⁹⁶
338. Finally, unlike the Project, some of the other projects will completely destroy the sea turtles’ habitat within the project area. For example, the dredging in the Port of Veracruz Project would destroy significant amounts of the *Acropora palmata* coral. As explained in the expert report of Mr. Pliego, “[t]his coral constitutes the habitat of the endangered *Eretmochelys imbricata* sea turtle, which will be affected as a result of the dredging.”⁶⁹⁷ Nevertheless, SEMARNAT approved the project and dismissed any effect on the corals, as “they are abundantly represented in other reefs.”⁶⁹⁸ SEMARNAT did not investigate or address how the destruction of the coral would affect the *Eretmochelys imbricate*’s habitat. Conversely, hundreds of pages were devoted to falsely claiming that the Project would affect the tridimensional water column, which allegedly constitutes the *Caretta caretta*’s habitat, according to SEMARNAT.
339. Ultimately, “[i]t is difficult to understand SEMARNAT’s criteria,” as Mr. Pliego concludes, “when evaluating the impact on protected species in relation to the other projects. Indeed, SEMARNAT has approved projects with a high probability of affecting endangered species and yet it has denied the Don Diego project with almost no probability of affecting protected species given its location and its mitigation measures.”⁶⁹⁹

⁶⁹⁵ **C-0116**, Sayulita Resolution, 26 April 2018, p. 21.

⁶⁹⁶ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 500 (emphasis added).

⁶⁹⁷ Pliego ER, ¶ 364.

⁶⁹⁸ **C-0119**, Veracruz Resolution, 13 November 2013, p. 27.

⁶⁹⁹ Pliego ER, ¶ 372.

b. More Favorable Scrutiny Over the Projects’ Potential Effects on the Seabed Organisms

340. SEMARNAT’s discriminatory treatment of the Project extended to its analysis of the Project’s potential effects on the seabed. In all six comparator projects, the diversity of organisms on the seafloor is greater than that in the Don Diego Project because the latter takes place at greater depth with less light penetration.⁷⁰⁰ Accordingly, the dredging activity, which inherently affects seabed life and its organisms, would have more acute impact on the seabed in the comparator projects. However, only the Don Diego decision calls into question the ability of benthic organisms to recolonize the dredged areas or the time it takes for them to do so.⁷⁰¹ For example:

- **Don Diego:** As a basis for denying Don Diego its environmental permit, SEMARNAT concluded that the impact the Don Diego Project could have on the seafloor due to the elimination of sediments could not be avoided, remediated, or mitigated,⁷⁰² and asserts that the science that justifies benthic recovery is “nascent.”⁷⁰³
- **ESSA Project:** In stark contrast, the ESSA Project decision acknowledges that while dredging temporarily destroys the aquatic habitat,⁷⁰⁴ “it is reported by the literature that a dredged zone is susceptible to accepting opportunistic species that colonize the area.”⁷⁰⁵ SEMARNAT issued this decision in 2008, *10 years before* SEMARNAT dubbed the science supporting benthic recovery “nascent.”
- **Laguna Verde Project:** SEMARNAT endorsed the view that benthic organisms in the area would recover quickly for this project.⁷⁰⁶
- **Santa Rosalía Project:** This project presents an even more jarring example, as SEMARNAT uncritically accepts what the project’s sponsor considers a “natural mitigation measure” with no evaluation of the project’s concrete effect on the benthos. As SEMARNAT writes, “benthic and pelagic marine flora and fauna affected by the deposition of dredged material will be able to return to the site

⁷⁰⁰ Pliego ER, ¶ 311.

⁷⁰¹ Pliego ER, ¶¶ 373-374.

⁷⁰² **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 509-510.

⁷⁰³ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 508.

⁷⁰⁴ **C-0104**, ESSA Resolution, 19 May 2008, p. 59.

⁷⁰⁵ **C-0104**, ESSA Resolution, 19 May 2008, p. 59.

⁷⁰⁶ **C-0110**, Resolución - Manifestación de Impacto Ambiental Modalidad Particular (MIA-P) del Proyecto, "Actividades de Mantenimiento para la obra de toma de la Central Nucleoeléctrica Laguna Verde," 27 January 2017 ("**Laguna Verde Resolution**"), pp. 35-36.

and recolonize it when turbidity as a result of the dredge process disappears [. . .] allowing the partial recovery of the original site conditions.”⁷⁰⁷

341. What makes SEMARNAT’s conduct here even more shocking is that none of the other project sponsors provided anything close to the wealth of scientific papers assessing recolonization of benthic communities that Claimant presented.⁷⁰⁸
342. Finally, SEMARNAT did not raise the point about recolonization in either the Sayulita Project or the Veracruz Project, although they did not identify impact on benthic organisms as environmental impacts in their respective MIAs.⁷⁰⁹ What is worse, SEMARNAT approved the Veracruz Project’s MIA regardless of the sponsor’s omission of information indicating the location of a wastewater treatment plant.⁷¹⁰

c. More Favorable Scrutiny in Relation to the Impact on the Water Column

343. SEMARNAT’s disparate treatment of the Don Diego Project is also evident from how it addressed the various projects’ effects on the water column. In denying the Don Diego Project, SEMARNAT states that as a result of the Project’s operations, there will be an “increase in turbidity and suspended solids in the water column.”⁷¹¹ SEMARNAT also notes, “even so, biodiversity loss will be unavoidable, because mining directly destroys the habitat and indirectly deteriorates great volumes of the water column and seabed areas, given the generation of sediment plumes enriched with bioavailable metals.”⁷¹² Finally, SEMARNAT concludes, “it is known that no remediation action can be applied to water columns.”⁷¹³
344. Once more, leaving aside the inaccuracy of those statements and the inapplicability of the literature upon which SEMARNAT’s assumptions were based, as explained in the

⁷⁰⁷ **C-0122**, Resolución - Dragado de mantenimiento en la Dársena en el Puerto de Santa Rosalía, B.C.S., 10 December 2019 (“**Santa Rosalía Resolution**”), p. 26.

⁷⁰⁸ Pliego ER, ¶¶ 399-400.

⁷⁰⁹ **C-0116**, Sayulita Resolution, 26 April 2018, pp. 28-29; **C-0119**, Veracruz Resolution, 13 November 2013, pp. 80-86.

⁷¹⁰ Pliego ER, ¶ 395.

⁷¹¹ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 475.

⁷¹² **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 505.

⁷¹³ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 326.

expert report of Deltares,⁷¹⁴ they imply inconsistent treatment in comparison to the way in which all other projects were evaluated.⁷¹⁵ For instance:

- In the **Laguna Verde Project**, the dredging process will, unlike the Don Diego Project, produce significant sediment plume dispersion.⁷¹⁶ Despite the project's MIA proposing plainly insufficient mitigation measures to counter the effect on the water column, SEMARNAT endorsed the view that "benthic organisms in the area "tolerate variations in the concentration of solids suspended in the water column."⁷¹⁷
- For the **ESSA Project**, SEMARNAT determined that while dredging generates effects on the water column given turbidity and the resuspension of solids, it dismissed this as an adverse impact of minimal intensity and temporary character until the water column returns to its normal conditions.⁷¹⁸
- The sponsor of the **Port of Veracruz Project** acknowledged that the dredging operations will cause sediment plume dispersion. To counter this, the MIA proposed a monitoring measure to ensure that light penetration would not fall below 25%.⁷¹⁹ SEMARNAT did not even scrutinize this measure when approving the project, even though, with respect to the Don Diego Project, SEMARNAT conclusory asserted that that there was "no remediation action available for the water column."⁷²⁰
- Finally, in its approval of the **Santa Rosalía Project**, SEMARNAT simply restated the sponsor's statement that geotextile nets (permeable fabrics to filter sediments) would be placed around the perimeter and removed once the turbidity had cleared.⁷²¹ As Mr. Pliego explains, however, "geotextile nets do not eliminate sediment plume dispersion. Rather, they decrease the amount, but the water column's turbidity and primary production will still be affected. This contrasts with the Don Diego Project, which adopted a no-plume dispersion technology, completely eliminating any impact on the euphotic layers of the water column and therefore any impact on the processes of primary production."⁷²²

⁷¹⁴ Deltares ER1, Summary and Section 5, pp. 6, 36-40.

⁷¹⁵ Pliego ER, ¶¶ 377, 383, 389, 400.

⁷¹⁶ **C-0002**, MIA, 21 August 2015, pp. 592-603.

⁷¹⁷ **C-0110**, Laguna Verde Resolution, 27 January 2017, pp. 35-36; **C-0138**, MIA Laguna Verde Project, December 2015, p. 41.

⁷¹⁸ **C-0104**, ESSA Resolution, 19 May 2008, p. 58.

⁷¹⁹ **C-0119**, Veracruz Resolution, 13 November 2013, pp. 44, 105-106.

⁷²⁰ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 326.

⁷²¹ **C-0122**, Santa Rosalía Resolution, 10 December 2019, p. 25.

⁷²² Pliego ER, ¶ 381.

d. More Favorable Scrutiny Over the Sufficiency and Applicability of Mitigation Measures

345. While comparing the MIAs of Don Diego and the comparator projects, Mr. Pliego remarks, “[t]he Don Diego MIA is very complete and is scientifically supported; indeed, it is based on world-class researchers and institutions. It adequately identifies the environmental impacts and proposes wholesome and complementary prevention, mitigation, restoration and compensation measures that have been tried and tested as effective in dredging projects around the world,” while other projects were approved even though the MIAs included vague or inexistent mitigation measures.⁷²³ Despite this, SEMARNAT criticizes the Don Diego measures for being too vague, general, and not detailed enough.⁷²⁴
346. As Mr. Pliego states, “SEMARNAT conditionally approved all of the other projects despite their vague or, in many cases, non-existent measures.”⁷²⁵ He then goes on to explain that for the comparator projects, the mitigation measures “did not need to be specific and extremely detailed,” as was required of ExO.⁷²⁶ Moreover, as Mr. Pliego notes, in the case of Don Diego, the mitigation measures “need[ed] to be proposed in the MIA,” but this was “not the case of most of the other comparable projects.”⁷²⁷
347. As stated above, the most startling feature of the comparison is that none of the other projects adopted mitigation measures to prevent affecting sea turtles while dredging, even though endangered sea turtles are present in all of the projects’ areas.⁷²⁸ And in spite of this, all other projects were approved.

3. There Were No Factors Justifying Differential Treatment

348. The last component of the three-pronged test for Article 1102 deals with whether there were any factors to justify the differential treatment.⁷²⁹ In this case, not only are there

⁷²³ Pliego ER, ¶¶ 400-401.

⁷²⁴ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 474

⁷²⁵ Pliego ER, ¶ 399.

⁷²⁶ Pliego ER, ¶ 399.

⁷²⁷ Pliego ER, ¶ 399.

⁷²⁸ Pliego ER, ¶ 235(a).

⁷²⁹ **CL-0068**, *Marvin Feldman v. Mexico* (ICSID Case No. ARB(AF)/99/1) Award, 16 December 2002, ¶ 187.

no justifications for the unequal treatment, but SEMARNAT actually should have scrutinized the other projects more closely because they were located in protected areas. Indeed, unlike the Don Diego Project, all of the other projects under consideration were located in environmentally sensitive areas, as determined by Mexican law. For example:

- The **ESSA Project** is located within a UNESCO World Heritage Site, a UNESCO Man and Biosphere Reserve, a Ramsar site, and is designated as a Biosphere reserve under Mexican legislation.
- The **Sayulita Project** contemplates the installation of a submarine transmitter in the zone of influence of a federal Natural Protected Area (“**ANP**”). SEMARNAT generically states that the project “is in compliance with what is established in the management program of the Federal ANP.”⁷³⁰ However, SEMARNAT did not get into the details on how the ANP’s ecosystem would be altered by the development of the project.
- The **Laguna Verde Project** is located within a Priority Marine Region for Conservation, as well as a Marine Priority Site. This factor was not weighed by SEMARNAT in conditionally approving the project.
- With respect to the **Port of Veracruz Project**, SEMARNAT simply noted that due to environmental degradation, the project area was not included in the Veracruz Reef System National Park.

349. When addressing the ecological spatial significance of these projects, Mr. Pliego explains, “their location in environmentally-sensitive areas should have required a more careful analysis by SEMARNAT at the moment of authorizing their MIAs and evaluating the environmental impacts of the projects. Indeed, it is not the same to authorize a dredging project in an UNESCO Man and Biosphere Reserve, like SEMARNAT did in the ESSA Project, than in an area with no environmentally binding regional protection, like the area where the Don Diego Project would have been developed.”⁷³¹

⁷³⁰ **C-0116**, Sayulita Resolution, 26 April 2018, pp. 15-16, 32.

⁷³¹ Pliego ER, ¶ 345.

350. Even though the comparable projects raised greater concerns regarding impact to endangered and/or protected species, the seabed, and the water column, and their deficient mitigation measures, SEMARNAT conditionally approved all of them.⁷³²
351. The treatment experienced by Claimant during SEMARNAT’s consideration of ExO’s MIA, and as memorialized in SEMARNAT’s decision, demonstrates treatment that was not consistent with the “treatment available to any other domestic investor or investment operating in like circumstances.”⁷³³ While Claimant has, in conjunction with its claim under the minimum standard of treatment, explained the motive for SEMARNAT’s disparate treatment, that motive is not required in the final analysis and only provides insight into the nature of the treatment.⁷³⁴
352. Consequentially, because all six projects analyzed in this section were sponsored by state-affiliated companies, are “in like circumstances” to the Don Diego Project, and have been granted more favorable treatment “for the purposes of environmental assessment,” Mexico has breached Article 1102 of NAFTA.

V. ODYSSEY IS ENTITLED TO COMPENSATION FOR RESPONDENT’S NAFTA BREACHES

353. Respondent’s wrongful conduct has caused significant and direct harm to Odyssey and ExO by preventing any exploitation of ExO’s valuable Concession rights. In accordance with well-settled principles of international law, Odyssey seeks full reparation for the losses caused by Mexico’s internationally wrongful acts consistent with the standard enunciated by the Permanent Court of International Justice (“PCIJ”) in *Chorzów Factory*.⁷³⁵

⁷³² Pliego ER, ¶¶ 233, 390-399.

⁷³³ **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 205.

⁷³⁴ **CO010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 209-210 (noting “both the intent and effects of the Tax show the discriminatory nature of the measure [. . .] the Tax was enacted for the purpose of protecting the domestic Mexican sugar industry from foreign competitors [. . .]”).

⁷³⁵ See, e.g., **CL-0103**, *S.D. Myers Incorporated v Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶¶ 311-313, citing: **CL-0029**, *Case Concerning Rights of Minorities in the Factory at Chorzow (Germany v. Poland)* (PCIJ) Judgment, 13 September 1928, and **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, art. 31.

354. Odyssey’s claim for damages is explained and quantified in the accompanying report submitted by Professor Pablo Spiller and Pablo Lopez Zadicoff of Compass Lexecon (the “**Compass Lexecon Report**”) and the witness statement of John D. Longley, Jr., President and Chief Operating Officer of Odyssey.
355. Professor Spiller and Mr. Lopez Zadicoff are economics experts with substantial experience in the valuation and quantification of damages, including in cases involving the mining industry. In the Compass Lexecon Report, they explain and apply the appropriate methodology for assessing the fair market value of ExO as of the date of the breach, drawing upon:
- a. The independent expert report of Dr. Ian Christopher Selby, a marine geologist with over 30 years of experience in the marine minerals industry, including serving as the Mineral and Infrastructure Manager at The Crown Estate,⁷³⁶ where he was responsible for the marine mineral resources and infrastructure rights offshore the United Kingdom, and before that as Resources Manager or Resources and Operations Director for two of the largest marine aggregate companies in the world (Tarmac and Hanson).⁷³⁷ Dr. Selby opines on the Don Diego Project’s resource assessment and the volume and characterization of its resources, the technical feasibility of the dredging engineering concept to extract those resources, and the reasonableness of the associated cost and production estimates.⁷³⁸
 - b. The independent expert report of Dr. Colm Sheehan, a Partner at Anthony D Bates Partnership (“**ADBP**”) LLP, a consulting engineering firm recognized as one of the leading independent dredging consultancies in the world. Dr. Sheehan has a PhD in dredged material management, is a Chartered Engineer (CEng), a Fellow of the Institute of Engineers Ireland (FIEI), and serves on the Board of Central Dredging Association (CEDA) UK Committee. Here, Dr. Sheehan uses his expertise with dredging feasibility studies and project management in support of Dr. Selby’s

⁷³⁶ Established by an act of the UK Parliament, the Crown Estate is a £14.3 billion real estate business in the UK. Its portfolio includes substantial rural and coastal assets and management of the entire seabed around England, Wales, and Northern Ireland. Selby ER, ¶ 8; <https://www.thecrownestate.co.uk/>.

⁷³⁷ Selby ER, ¶ 8 and Annex 1, Curriculum Vitae. Dr. Selby currently serves as the Director of Sustainable Geoscience at the University of Plymouth, focusing on natural resource management issues. He also consults with governments (at national and local levels) and the industry through his consultancy Geoconsilium Ltd.

⁷³⁸ Selby ER, ¶ 10.

report to validate the reasonableness of estimates regarding the production rates, as well as the OPEX and CAPEX costs, of the Project's dredging component.⁷³⁹

- c. The independent expert report of Glenn A. Gruber, the Managing Member of Phosphate Beneficiation LLC. With over 45 years of experience in metallurgical and mineral processing engineering, including process plant engineering and design, pilot plant testing, feasibility studies, and due diligence studies, Mr. Gruber is a Qualified Person under NI 43-101 in phosphate beneficiation. Mr. Gruber provides an assessment of the technical feasibility of the processing component of the Don Diego Project (the FPSP) and the Project's ability to meet production targets.
- d. The independent expert report prepared by David Fuller, Technical Director of Lomond & Hill and Managing Director of Consulmet Australia. Lomond & Hill is a leading independent provider of mining analysis and research services to commodity and mining companies. Mr. Fuller has over 19 years of experience in the analysis, design, construction, assessment, and upgrade of mineral processing plants. He opines on "the capital and operating expenditure estimates (CAPEX and OPEX) for the Floating Production and Storage Platforms (FPSPs) for Odyssey's Don Diego phosphate project."⁷⁴⁰
- e. The NI 43-101 Technical Report, prepared by QP Henry Lamb of Mineral Resources Associates ("**MRA**"). MRA is an independently-owned and operated geologic consulting firm and, through a Consulting Agreement, provided professional services to the Project. Mr. Lamb is a professional geologist with 40 years of experience in the exploration, evaluation, development, maintenance, and operation of phosphate rock mines and beneficiation plants in multiple countries.⁷⁴¹
- f. The independent expert report of Dr. Peter Heffernan of CRU Consulting, the world's leading fertilizer consultancy, which maintains a "dedicated phosphate research team, [. . .] covering the entire phosphate value chain to virtually all the world's leading phosphate producers."⁷⁴² Dr. Heffernan has over 30 years of industry experience and is the former Managing Consultant of CRU's fertilizer consulting practice. Before joining CRU, he led the research and development programs at the International Fertilizer Development Center ("**IFDC**") and held director-level positions with Bunge North America and IMC Global (now part of

⁷³⁹ Selby ER, Annex 3; Expert Report of ADBP, dated 4 September 2020 ("**ADBP ER**").

⁷⁴⁰ Lomond & Hill ER, p. 1.

⁷⁴¹ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 67.

⁷⁴² Heffernan ER, p. 1.

Mosaic). CRU opines on “the marketability of phosphate rock with the characteristics and volumes anticipated from Don Diego production.”⁷⁴³

356. In his witness statement, Mr. Longley addresses two critical aspects of valuing this Project that are not captured by Compass Lexecon’s valuation: (i) the Project’s strategic value as one of the lowest cost providers of phosphate rock in the world and, because of its size, an important counter to Morocco’s market dominance; and (ii) the “lost opportunity” to explore and develop parts of the Don Diego deposit that were not included within the NI 43-101 Technical Report.
357. Drawing from these reports, the Compass Lexecon Report, and Odyssey’s estimates of the Project’s strategic value and the value of the lost opportunity to explore and develop further parts of the Don Diego deposit, Odyssey estimates the damages caused by Mexico’s wrongful conduct as set forth in in the table below:

| Claim Category | Value | + Interest (13.95%) (9.4.2020) |
|--|-------------------|---------------------------------------|
| Compass Fair Market Value: (Gross of Taxes) | ██████████ | ██████████ |
| Compass Fair Market Value: (Net of Taxes) | ██████████ | ██████████ |
| Strategic Value: | ██████████ | ██████████ |
| Value of Lost Opportunity: | ██████████ | ██████████ |
| Total (Net of Taxes) | \$1,047.3M | \$1,862.6M |
| Total (Gross of Taxes): | \$1,383.4M | \$2,364.7M |

358. The reasonableness of this amount is confirmed by contemporaneous third-party valuations of the Project. In 2014, one of the leading investment banks in the world valued the Don Diego Project at between US\$ 2.2 billion to US\$ 3.5 billion, depending on the discount rate.⁷⁴⁴ In benchmarking the Project, the investment bank stated that it was “one of the best phosphate assets under development,”⁷⁴⁵ and “a large, high-grade

⁷⁴³ Heffernan ER, p. 2.

⁷⁴⁴ C-0090, Investment Bank Valuation, 29 July 2014.

⁷⁴⁵ C-0090, Investment Bank Valuation, 29 July 2014, p. 11.

deposit,”⁷⁴⁶ “with the best economic profile compared to other mines.”⁷⁴⁷ Indeed, in comparing the Don Diego Project to other phosphate projects, the investment bank concluded the Don Diego Project would have the lowest operating expenditure per tonne in the world. While the production assumptions underlying this valuation have evolved, there is no question that the Don Diego Project is unparalleled and highly valuable.

359. In the sections that follow, Odyssey outlines (i) the applicable standard for compensation; (ii) the quantum of compensation owed by Mexico; and (iii) applicable interest; in addition to (iv) addressing the subsidiary issue of taxation in the relation to the Award.

A. The Appropriate Standard for Reparation Is Full Compensation

360. Article 1135 of NAFTA provides that where a tribunal renders a final award against one of the state Parties, it may “only” award separately or combination “monetary damages and any applicable interest,” and/or “restitution of property” (with a monetary proxy amount in the event that the respondent Party elects not provide restitution), plus costs in accordance with the applicable arbitration rules.⁷⁴⁸
361. As addressed further above, Article 1110 sets out the conditions for lawful expropriation of an investment, consistent with the applicable rules of international law. The expropriatory measure must have been adopted or maintained for public purpose and on a non-discriminatory basis consistent with the MST standard of FET, which includes due process. In addition, the measure must provide for compensation equivalent to the fair market value of the expropriated investment, which must be paid without delay in a freely transferable G7 currency.⁷⁴⁹
362. Although NAFTA does not prescribe a specific standard of compensation for breaches of other provisions contained in Chapter 11, Part A, tribunals which have awarded damages for breaches of provisions such as Articles 1102 or 1105 have consistently adopted the

⁷⁴⁶ **C-0090**, Investment Bank Valuation, 29 July 2014, p. 12.

⁷⁴⁷ **C-0090**, Investment Bank Valuation, 29 July 2014, p. 13.

⁷⁴⁸ **CL-0081**, NAFTA, art. 1135.

⁷⁴⁹ **CL-0081**, NAFTA, art. 1102.

customary international law approach to awarding monetary damages based on the principle of full reparation.⁷⁵⁰

363. The same approach has been almost universally adopted by tribunals awarding damages under other investment protection treaties.⁷⁵¹ As the tribunal in *Gemplus v. Mexico* noted, “[a]s to the general approach to the assessment of compensation, the Tribunal accepts the general guidance provided by the well-known passage in the PCIJ’s decision in *Chorzów Factory* 1928 PCIJ, Series A, No 17 (Merits), 47, as invoked by both the Claimants and the Respondent [Mexico].”⁷⁵²
364. It is, by now, axiomatic that under customary international law, the compensation standard for injuries caused by a state’s intentionally wrongful act is full reparation.⁷⁵³ As the PCIJ famously articulated in the *Chorzów Factory* case:⁷⁵⁴

⁷⁵⁰ **C-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶¶ 311-315; **C-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 275; **C-0124**, *Windstream Energy LLC v. Government of Canada* (PCA Case No. 2013-22) Award, 27 September 2016, ¶ 473; **C-0027**, *Cargill, Incorporated v. United Mexican States* (ICSID Case No. ARB(AF)/05/2) Award, 18 September 2009, ¶¶ 554, 556, 559.

⁷⁵¹ **CL-0003**, *ADC Affiliate Limited & ADC & ADMC Management Limited v. Republic of Hungary* (ICSID Case No. ARB/03) Award, 2 October 2006, ¶ 481 (“Since the BIT does not contain any *lex specialis* rules that govern the issue of the standard for assessing damages in the case of an unlawful expropriation, the Tribunal is required to apply the default standard contained in customary international law in the present case.”); **CL-0069**, *Masdar Solar & Wind Cooperatief U.A. v. Kingdom of Spain* (ICSID Case No. ARB/14/1) Award, 16 May 2018, ¶ 548 (applying customary international law to determine remedies for breaches of Article 10 of the Energy Charter Treaty because Article 10 does not address remedies or reparations for breaches of the Treaty’s protections); **CL-0022**, *Burlington Resources Inc. v. Republic of Ecuador* (ICSID Case No. ARB/08/5) Decision on Reconsideration and Award, 7 February 2017, ¶ 160 (“In the Tribunal’s view, the appropriate standard of compensation in this case is the customary international law standard of full reparation. Article III(1) only describes the conditions under which an expropriation is considered lawful; it does not set out the standard of compensation for expropriations resulting from breaches of the Treaty.”); **CL-0104**, *Saipem S.p.A. v. People’s Republic of Bangladesh* (ICSID Case No. ARB/05/7) Award, 30 June 2009, ¶ 201 (declining to apply a BIT article addressing the standard of compensation for lawful expropriation where it found the expropriation was unlawful, and resorting instead “to the relevant principles of customary international law and in particular to the principle set out by the Permanent Court of Justice in the *Chorzów Factory* case.”); **CL-0042**, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶ 846.

⁷⁵² **CL-0054**, *Gemplus, et al. v. United Mexican States* (ICSID Case Nos. ARB(AF)/04/3 and ARB(AF)/04/4) Award, 16 June 2010, Part XII, ¶ 12-51.

⁷⁵³ **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, art. 31.

⁷⁵⁴ **CL-0029**, *Case concerning Rights of Minorities in the factory at Chorzow (Germany v. Poland)* (PCIJ) Judgment, 13 September 1928, p. 47 (emphasis added).

The essential principle contained in the actual notion of an illegal act—a principle which seems to be established by international practice and in particular by the decisions of arbitral tribunals—is that **reparation must, as far as possible, wipe out all the consequences of the illegal act and reestablish the situation which would, in all probability, have existed if that act had not been committed.**

365. The full reparation standard is also reflected in the International Law Commission’s Articles on State Responsibility for Internationally Wrongful Acts, which obligate states “to make full reparation” for the injuries caused by their internationally wrongful acts.⁷⁵⁵ The Articles of State Responsibility broadly define “injury” to include “any damage, whether material or moral.”⁷⁵⁶
366. They also indicate that, as a matter of customary international law, compensation “shall cover any financially assessable damage including loss of profits insofar as it is established.”⁷⁵⁷ Investment treaty tribunals have consistently cited and relied upon these fundamental concepts of damages and reparation in rendering damages awards. For instance, the *Occidental* tribunal noted, “[t]he availability of consequential loss in international law is uncontroversial. The starting point is the principle of ‘full reparation’, expressed by the Permanent Court of International Justice in the *Chorzów Factory* case as follows [. . .] [t]herefore, the Tribunal accepts the submission of the Claimants that, in principle, consequential damage is a valid head of loss in international law.”⁷⁵⁸

⁷⁵⁵ **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, art. 31. The Commentary to the ILC Articles is explicit in its endorsement of *Chorzów Factory*, stating “The obligation placed on the responsible State by article 31 is to make ‘full reparation’ in the *Factory at Chorzów* sense.” **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, Commentary to art. 31, p. 91.

⁷⁵⁶ **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, art. 31. It also provides confirmation that full reparation can be effectuated through restitution, compensation, or satisfaction, either separately or combination. See **CL-0059**, ILC Draft Articles on State Responsibility, art. 34.

⁷⁵⁷ **CL-0059**, ILC Draft Articles on State Responsibility, art. 36. Various investment tribunals have relied on Article 36 of ARSIWA, including: **CL-0131**, *Perenco Ecuador Limited v. Republic of Ecuador* (ICSID Case No. ARB/08/6) Award, 27 September 2019, ¶ 74; **CL-0069**, *Masdar Solar & Wind Cooperatief U.A. v. Kingdom of Spain*, ICSID Case No. ARB/14/1, Award, 16 May 2018, ¶ 565; **CL-0064**, *Joseph Charles Lemire v. Ukraine* (ICSID Case No. ARB/06/18) Award, 28 March 2011, ¶ 155.

⁷⁵⁸ **CL-0083**, *Occidental Petroleum Corp. and Occidental Exploration and Production Co. v. The Republic of Ecuador* (ICSID Case No. ARB/06/11) Award, 5 October 2012, ¶¶ 792-797.

367. Much like the ILC experts did in drafting the Articles on State Responsibility, investment treaty tribunals have consistently invoked the principle of full reparation enunciated in *Chorzów Factory* as the applicable standard for assessing compensatory damages.⁷⁵⁹ The *S.D. Myers* tribunal, for instance, observed that “[t]he principle of international law stated in the *Chorzow Factory (Indemnity)* case is still recognized as authoritative on the matter of general principle.”⁷⁶⁰ Similarly, in *Metalclad*, a tribunal presided over by Sir Eli Lauterpacht endorsed *Chorzów Factory* and explained that an award “should, as far as is possible, wipe out all the consequences of the illegal act and reestablish the situation which would in all probability have existed if that act had not been committed (the *status quo ante*).”⁷⁶¹
368. As the tribunal in *ADC v. Hungary* noted, in reference to the *Chorzów Factory* case, the value of compensatory damages must reflect the contemporaneous value of a wrongfully frustrated investment in light of the host state’s commitments, constituting a bundle of rights and legitimate expectations which it considered to be part and parcel of the fundamental value in claimants’ investments.⁷⁶² And, as the tribunal in *ATA v. Jordan* explained, “the Tribunal wishes to emphasize that an investment is not a single right but is, like property, correctly conceived of as a bundle of rights, some of which are inseparable from others and some of which are comparatively free-standing.”⁷⁶³

⁷⁵⁹ **CL-0003**, *ADC Affiliate Limited & ADC & ADMC Management Limited v. Republic of Hungary* (ICSID Case No. ARB/03/16) Award, 2 October 2006, ¶ 493 (“there can be no doubt about the present vitality of the *Chorzów Factory* principle, its full current vigor having been repeatedly attested to by the International Court of Justice.”); **CL-0037**, *Compañía de Aguas del Aconquija S.A. and Vivendi Universal SA v. Argentina* (ICSID Case No. Arb/97/3) Award, 20 August 2007, ¶¶ 8.2.4-8.2.5; **CL-0107**, *Siemens A.G. v. The Argentine Republic* (ICSID Case No. ARB/02/8) Award, 17 January 2007, ¶ 351; **CL-0035**, *CMS Gas Transmission Company v. The Argentine Republic* (ICSID Case No. ARB/01/8) Award, 12 May 2005, ¶ 400.

⁷⁶⁰ **CL-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶ 311.

⁷⁶¹ **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 122; **CL-0123**, *William Ralph Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware v. Government of Canada* (PCA Case No. 2009-04) Award on Damages, 10 January 2019, ¶ 114.

⁷⁶² **CL-0003**, *ADC Affiliate Limited & ADC & ADMC Management Limited v. Republic of Hungary* (ICSID Case No. ARB/03/16) Award, 2 October 2006, ¶ 303.

⁷⁶³ **CL-0012**, *ATA Construction, Industrial and Trading Company v. Hashemite Kingdom of Jordan* (ICSID Case No. ARB/08/2) Award, 18 May 2010, ¶ 96.

369. Article 31 of the Articles of State Responsibility provides:⁷⁶⁴

1. The responsible State is under an obligation to make full reparation for the injury caused by the internationally wrongful act.

2. Injury includes any damage, whether material or moral, caused by the internationally wrongful act of a State.

370. Accordingly, this Tribunal should be guided by these principles and, as such consider the nature of the wrong, the relationship it bears to the harm, and the nature (and value) of the bundle of expropriated rights and expectations. Here, in light of the testimony of [REDACTED], Lozano and the expert witnesses, there is little question that as a consequence of Mexico's refusal to grant the MIA, which resulted from Secretary Pacchiano's illegitimate political interests, ExO has been forced to halt the Project.

371. In light of the above stated principles, the aim of a monetary award in this case must also be to wipe out all of the consequences of Mexico's wrongful conduct and return Odyssey to the position it would have been in had Mexico not breached the treaty.⁷⁶⁵ In applying this standard, tribunals have adopted a variety of approaches to ensure the investor is made whole. This has included, among other things, valuing the investment at the date of the award rather than the date of the measure when its value has increased⁷⁶⁶ and the award of consequential damages. As the tribunal in *Siemens v. Argentina* explained:⁷⁶⁷

The key difference between compensation under the Draft Articles and the *Factory at Chorzów* case formula, and Article 4(2) of the Treaty is that under the former, **compensation must take into account 'all financially assessable damage' or 'wipe out all the**

⁷⁶⁴ **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, art. 31.

⁷⁶⁵ **CL-0042**, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶¶ 847-849; **CL-0037**, *Compañía de Aguas del Aconquija SA and Vivendi Universal SA v. Argentine Republic* (ICSID Case No. ARB/97/3) Award, 20 August 2007, ¶ 8.2.7 (observing "the level of damages awarded in international investment arbitration is supposed to be sufficient to compensate the affected party fully and to eliminate the consequences of the state's action"); **CL-0086**, *Petrobart Limited v. Kyrgyz Republic* (SCC Case No. 126/2003) Award, 29 March 2005, pp. 78-79; **CL-0058**, I. Marboe, *Calculation of Compensation and Damages in International Investment Law* (2009), pp. 35-36 (explaining that for unlawful expropriations and other treaty breaches, compensation should put the injured party back in the "financial situation [it] would be in if the unlawful act had not been committed").

⁷⁶⁶ **CL-0038**, *ConocoPhillips Petrozuata BV and others v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB/07/30) Decision on Jurisdiction and the Merits, 3 September 2013, ¶¶ 342-343.

⁷⁶⁷ **CL-0107**, *Siemens A.G. v. The Argentine Republic* (ICSID Case No. ARB/02/8) Award, 17 January 2007, ¶ 352.

consequences of the illegal act’ as opposed to compensation ‘equivalent to the value of the expropriated investment’ under the Treaty. Under customary international law, Siemens is entitled not just to the value of its enterprise as of May 18, 2001, the date of expropriation, but also to any greater value that enterprise has gained up to the date of this Award, plus any consequential damages.

372. While Claimant bears the burden of proof establishing the quantum of damages that would satisfy the full reparation standard, the decision in *Charles Lemire v. Ukraine* teaches that “[o]nce causation has been established, and it has been proven that the in bonis party has indeed suffered a loss, less certainty is required in proof of the actual amount of damages; for this latter determination Claimant only needs to provide a basis upon which the Tribunal can, with reasonable confidence, estimate the extent of the loss.”⁷⁶⁸ Similarly, in *Crystallex*, the tribunal noted, “once the *fact* of future profitability is established and is not essentially of speculative nature, the amount of such profits need not be proven with the same degree of certainty.”⁷⁶⁹ Here, Claimant more than exceeds this guidance when establishing the nature of the loss it suffered as a result of Mexico’s wrongful acts.

B. Compensation Should Reflect the Fair Market Value of the Entirety of ExO’s Concession and Claimant’s Investment in Mexico

373. To give effect to the principle of full reparation, compensation in this case should reflect the fair market value of the entirety of Claimant’s investment in Mexico, as encapsulated in the contemporaneous value of ExO, the business of which exclusively concerned development of the Project.⁷⁷⁰ As indicated in the Commentaries that accompany the

⁷⁶⁸ **CL-0065**, *Joseph Charles Lemire v. Ukraine* (ICSID Case No. ARB/06/18) Award, 28 March 2011, ¶ 246.

⁷⁶⁹ **CL-0042**, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶ 875; see also ¶ 871, going further and noting that “a considerable difficulty that would make it unconscionable to prove the amount (rather than the existence) of damages with absolute precision does not bar their recovery altogether. Arbitral tribunals have been prepared to award compensation on the basis of a reasonable approximation of the loss, where they felt confident about the fact of the loss itself. In the Tribunal’s view, this approach may be particularly warranted if the uncertainty in determining what exactly would have happened is the result of the other party’s wrongdoing.”

⁷⁷⁰ **CL-0042**, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶ 850; see also **CL-0035**, *CMS Gas Transmission Company v. The*

Articles of State Responsibility, “[c]ompensation reflecting the capital value of property taken or destroyed as the result of an internationally wrongful act is generally assessed on the basis on the ‘fair market value’ of the property lost.”⁷⁷¹

374. The principles enunciated in the Articles on State Responsibility are also reflected in the jurisprudence of the Iran-U.S. Claims Tribunal, where fair market value was characterized as “the price that a willing buyer would pay to a willing seller in circumstances in which each had good information, each desired to maximize his financial gain, and neither was under duress or threat.”⁷⁷²

375. International tribunals have consistently used fair market value to calculate damages both in the context of expropriations and for other violations of international obligations.⁷⁷³ As the tribunal in *Crystallex v. Venezuela* recognized, awarding compensation based on

Argentine Republic (ICSID Case No. ARB/01/8) Award, 12 May 2005, ¶ 410; **CL-0014**, *Azurix Corp. v. The Argentine Republic* (ICSID Case No. ARB/01/12) Award, 14 July 2006, ¶ 424.

⁷⁷¹ **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, Commentary to art. 36, pp. 102-103.
⁷⁷² **CL-0109**, *Starrett Housing Corporation, Starrett Systems, Inc. and Others v. The Government of the Islamic Republic of Iran, Bank Markazi Iran and Others* (IUSCT Case No. 24) Final Award No. 314-24-1, 14 August 1987, ¶ 277. See also **CL-0125**, World Bank, “Guidelines on the Treatment of Foreign Direct Investments,” in *Legal Framework for the Treatment of Foreign Investment*, Vol II (1992) (“**World Bank Guidelines**”), Guideline IV(5), pp. 41-42; **CL-0114**, *Tenaris SA. and Talta – Trading e Marketing Sociedade Unipessoal Lda. v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB/11/26) Award, 29 January 2016, ¶¶ 557, 56 (“In examining the suitability of the agreed price as an adequate expression of Fair Market Value, the transaction must satisfy at least the following conditions: (a) Both buyer and seller must be willing and able, neither acting under compulsion (b) The transaction must be at arm’s length (c) The transaction must take place in an open and unrestricted market (d) Both buyer and seller must have reasonable knowledge of the relevant facts.”); **CL-0099**, *Rusoro Mining Ltd. v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/12/5) Award, 22 August 2016, ¶ 756 (“The fair market value which the State must pay is that which an innocent, uninformed third party would pay, having no knowledge of the State’s pre-expropriation (but post-investment) policy towards the expropriated company and its sector.”).

⁷⁷³ See, e.g., **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 118; **CL-0017**, *Bernardus Henricus Funnekotter and others v. Republic of Zimbabwe* (ICSID Case No. ARB/05/6) Award, 22 April 2009, ¶ 124; **CL-0056**, *Gold Reserve Inc. v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/09/1) Award, 22 September 2014, ¶¶ 674, 681; **CL-0014**, *Azurix Corp. v. The Argentine Republic* (ICSID Case No. ARB/01/12) Award, 14 July 2006, ¶ 424; **CL-0035**, *CMS Gas Transmission Company v. The Argentine Republic* (ICSID Case No. ARB/01/8) Award, 12 May 2005, ¶ 410; **CL-0060**, J Crawford, *The International Law Commission’s Articles on State Responsibility: Introduction, Text And Commentaries* (2002), p. 225: “Compensation reflecting the capital value of property taken or destroyed as the result of an internationally wrongful act is generally assessed on the basis of the ‘fair market value’ of the property lost.” **CL-0037**, *Compañía de Aguas del Aconquija S.A. and Vivendi Universal SA v. Argentina* (ICSID Case No. Arb/97/3) Award, 20 August 2007, ¶ 8.2.7 (“regardless of the type of investment, and regardless of the nature of the illegitimate measure, the level of damages awarded in international investment arbitration is supposed to be sufficient to compensate the affected party fully and to eliminate the consequences of the state’s action.”).

the investment's fair market value ensures that the injured party is restored to the situation it would have been in *but for* the internationally wrongful acts.⁷⁷⁴

It is well-accepted that reparation should reflect the 'fair market value' of the investment. Appraising the investment in accordance with the fair market value methodology indeed **ensures that the consequences of the breach are wiped out and that the situation which would, in all probability, have existed if the wrongful acts had not be committed is reestablished.**

376. A breach of Articles 1102, 1105, or 1110 of NAFTA will require Respondent to compensate Claimant, giving full effect to the principle of full reparation,⁷⁷⁵ which is coterminous with the fair market value of the investment.⁷⁷⁶ Here, as a result of the Respondent's breach of Articles 1102, 1105 and 1110, Odyssey's and ExO's ability to monetize the Don Diego Project was reduced to nil. Accordingly, the appropriate measure of damages, pursuant to the *Chorzów Factory* standard, is the fair market value of the Don Diego Project prior to SEMARANT's first denial of the MIA, regardless of whether the Tribunal finds a breach of only one or of all three of the aforementioned articles.

C. Methodologies to Determine the Fair Market Value of the Don Diego Project

377. The particular method (or methods) for assessing an investment's fair market value depends on the nature of the investment and the circumstance and characteristics of the

⁷⁷⁴ **CL-0042**, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶ 850.

⁷⁷⁵ **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 122; **CL-0123**, *William Ralph Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware v. Government of Canada* (PCA Case No. 2009-04) Award on Damages, 10 January 2019, ¶ 114; **CL-0103**, *S.D. Myers, Inc. v. Government of Canada* (UNCITRAL) Partial Award, 13 November 2000, ¶¶ 311-315; **CL-0010**, *Archer Daniels Midland Company and Tate & Lyle Ingredients Americas, Inc. v. United Mexican States* (ICSID Case No. ARB(AF)/04/5) Award, 21 November 2007, ¶ 275; **CL-0124**, *Windstream Energy LLC v. Canada* (PCA Case No. 2013-22) Award, 27 September 2016, ¶ 473.

⁷⁷⁶ **CL-0034**, *CME Czech Republic B.V. v. The Czech Republic* (UNCITRAL) Partial Award, 13 September 2001, ¶¶ 616-618; **CL-0008**, *AIG Capital Partners, Inc. and CJSC Tema Real Estate Company v. Republic of Kazakhstan* (ICSID Case No. ARB/01/6) Award, 7 October 2003, ¶ 12.1.1; **CL-0132**, *Hrvatska Elektroprivreda d.d. v. Republic of Slovenia* (ICSID Case No. ARB/05/24) Award, 17 December 2015, ¶¶ 363-366; **CL-0115**, *Tenaris S.A. and Talta - Trading e Marketing Sociedade Unipessoal Lda. v. Bolivarian Republic of Venezuela II* (ICSID Case No. ARB/12/23) Award, 12 December 2016, ¶ 396; **CL-0133**, *SolEs Badajoz GmbH v. Kingdom of Spain* (ICSID Case No. ARB/15/38) Award, 31 July 2019, ¶ 476.

specific case.⁷⁷⁷ Thus, for instance, in *Crystallex v. Venezuela*, the tribunal recognized that the techniques or methods of valuation may vary from case to case:⁷⁷⁸

Tribunals may consider any techniques or methods of valuation that are generally acceptable in the financial community, and whether a particular method is appropriate to utilize is based on the circumstances of each individual case. A tribunal will thus select the appropriate method basing its decision on the circumstances of each individual case [. . .].

378. In this case, Compass Lexecon has quantified the damages to ExO and Odyssey incurred as a result of Mexico’s illegal conduct by using two methods; the first is a Discounted Cash Flow (“DCF”) analysis (an income method), [REDACTED], [REDACTED],⁷⁷⁹ and the second is a real options valuation [REDACTED] [REDACTED] [REDACTED].⁷⁸⁰
379. In the circumstances of this case, these methods result in a base valuation, but that valuation is undercompensatory because it does not capture two fundamental attributes of the Don Diego Project: (i) its strategic value, both as a function of the deposit’s size and location, and as its operating and capital cost structure, which would make Don Diego one of the lowest-cost sources of phosphate in the world; and (ii) the lost opportunity to explore and develop parts of the Don Diego Deposit that were not included within the NI 43-101 Technical Report, which is massive.⁷⁸¹ Thus, to truly achieve the full reparation standard—to ensure that the consequences of Respondent’s wrongful conduct are wiped out and to reestablish the situation which, in all probability would have existed if the wrongful acts had not be committed⁷⁸²—these heads of loss must be included in the Award.

⁷⁷⁷ CL-0059, ILC Draft Articles on State Responsibility with Commentaries, Commentary to art. 36, pp. 102-103.

⁷⁷⁸ CL-0042, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶ 886.

⁷⁷⁹ Compass Lexecon ER, ¶ 8.

⁷⁸⁰ Compass Lexecon, ER ¶¶ 11-12.

⁷⁸¹ Longley WS, ¶ 22-47.

⁷⁸² CL-0042, *Crystallex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶ 850.

1. The Valuation Date

380. The date of valuation is 7 April 2016, the date of SEMARNAT's first Denial. Compass Lexecon has calculated the compensation payable for Mexico's breaches based on the Project's fair market value at a date immediately before SEMARNAT denied the MIA and eviscerated the value of Odyssey's investment.

2. Compass Lexecon's Application of The DCF Method to Phase I

381. Professor Spiller and Mr. López Zadicoff of Compass Lexecon arrived at ExO's fair market value using a *but-for* scenario where Secretary Pacchiano did not subvert the MIA approval process, [REDACTED], the MIA would have been granted and the Project would have proceeded. As Compass Lexecon explains, the "fair market value standard is compatible with the value an asset may transact for had it been adequately marketed as of the date of valuation. As such, our valuation methodology attempts to replicate the price discovery mechanism that would have occurred in a due diligence process for the Don Diego Project as of the Date of Valuation."⁷⁸³

382. In selecting and applying its valuation methods, Compass Lexecon was informed by the Canadian Institute of Mining, Metallurgy and Petroleum's guidelines and standards on the valuation of mineral properties ("**CIMVAL**"),⁷⁸⁴ the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists ("**VALMIN**") Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets,⁷⁸⁵ the Project's stage of exploration and development, and the expert testimony of other relevant experts.

⁷⁸³ Compass Lexecon ER, ¶ 44.

⁷⁸⁴ **C-0196**, CIMVAL Standards and Guidelines for Valuation of Mineral Properties, 2003 (the "**CIMVAL Standards 2003**").

⁷⁸⁵ **C-0195**, Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets, 2015 (the "**VALMIN Code 2015**").

383. At a general level, the CIMVAL and VALMIN group mineral properties “for convenience” into different buckets based on their stage of development.⁷⁸⁶
- a. CIMVAL uses the concepts of Exploration Properties, Mineral Resource Properties, Development Properties, and Production Properties.⁷⁸⁷
 - b. VALMIN uses the concepts of Early-Stage Exploration Projects, Advanced Exploration Projects, Pre-Development Projects, Development Projects, and Production Projects.⁷⁸⁸
 - c. For Mineral Resource Properties (CIMVAL)⁷⁸⁹ and Pre-Development Projects (VALMIN),⁷⁹⁰ CIMVAL and VALMIN recommend an income-based valuation approach “in some cases” and the market-based approach for “all.”
 - d. For Development Properties (CIMVAL)⁷⁹¹ and Development Projects (VALMIN),⁷⁹² CIMVAL and VALMIN recommend both income and market-based approaches for “all.”⁷⁹³

⁷⁸⁶ **C-0196**, CIMVAL Standards and Guidelines for Valuation of Mineral Properties, 2003 (the “**CIMVAL Standards 2003**”), G3.2; **C-0197**, The CIMVAL Code for the Valuation of Mineral Properties, 2019 (the “**CIMVAL Code 2019**”), § 3.3.3, p. 15.

⁷⁸⁷ **C-0197**, CIMVAL Code 2019, § 3.3.3, p.15.

⁷⁸⁸ **C-0195**, VALMIN Code 2015 §, 14 (definition of Mineral Asset).

⁷⁸⁹ The CIMVAL 2003 Standards and Guidelines defines a Mineral Resource Property as “a Mineral Property which contains a Mineral Resource that has not been demonstrated to be economically viable by a Feasibility Study or Prefeasibility Study. Mineral Resource Properties may include past producing mines, mines temporarily closed or on care-and-maintenance status, advanced exploration properties, projects with Prefeasibility or Feasibility Studies in progress, and properties with Mineral Resources which need improved circumstances to be economically viable.” **C-0196**, CIMVAL Standards 2003, p. 10.

⁷⁹⁰ The VALMIN Code 2015 defines a Pre-Development Projects as “Tenure holdings where Mineral Resources have been identified and their extent estimated (possibly incompletely), but where a decision to proceed with development has not been made. Properties at the early assessment stage, properties for which a decision has been made not to proceed with development, properties on care and maintenance and properties held on retention titles are included in this category if Mineral Resources have been identified, even if no further work is being undertaken.” **C-0195**, VALMIN Code 2015, § 14, p. 38 (definition of Mineral Asset).

⁷⁹¹ The CIMVAL 2003 Standards and Guidelines defines a Development Project as “a Mineral Property that is being prepared for mineral production and for which economic viability has been demonstrated by a Feasibility Study or Prefeasibility Study and includes a Mineral Property which has a Current positive Feasibility Study or Prefeasibility Study but which is not yet financed or under construction.” **C-0196**, CIMVAL Standards 2003, p. 8.

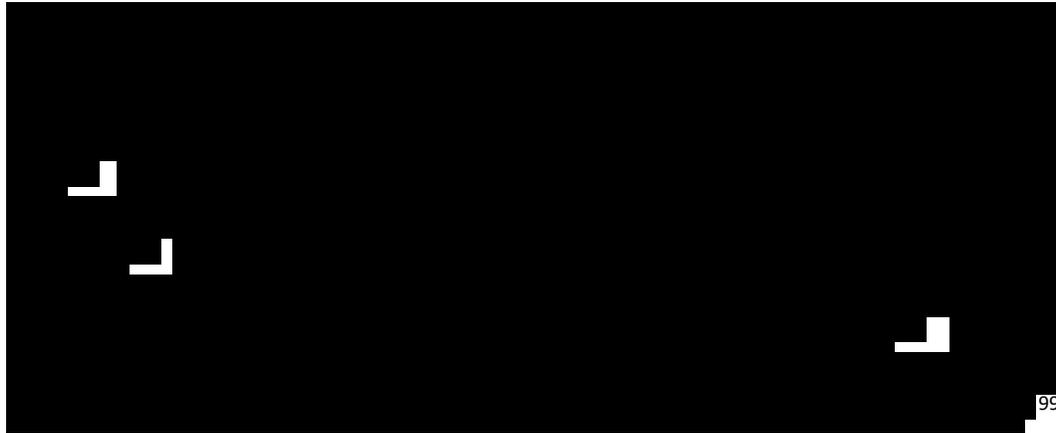
⁷⁹² The VALMIN Code 2015 defines a Development Project as “Tenure holdings for which a decision has been made to proceed with construction or production or both, but which are not yet commissioned or operating at design levels. Economic viability of Development Projects will be proven by at least a Pre-Feasibility Study.” **C-0195**, VALMIN Code 2015, § 14, p. 38 (definition of Mineral Asset).

⁷⁹³ **C-0197**, CIMVAL Code 2019, § 3.3.3.; **C-0195**, VALMIN Code 2015, § 8.3, Table 1.

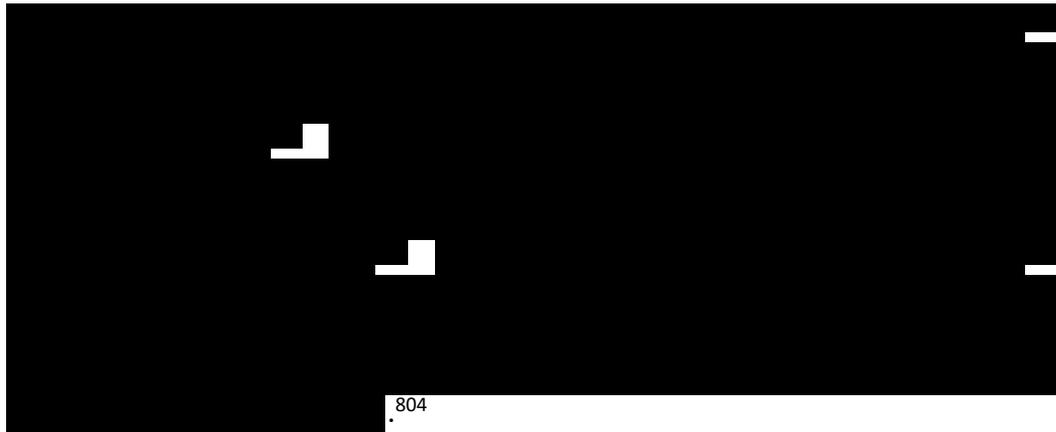
384. Importantly, CIMVAL acknowledges that there are no clear-cut boundaries between the project categories and that some mineral properties may fall into more than one category.⁷⁹⁴ The Don Diego Project was one of those properties.

385. As reflected in the business plan and financial model prepared by Odyssey's management in September 2015, Odyssey planned to commercialize the Project in two phases.⁷⁹⁵

a.



b.



794 **C-0196**, CIMVAL Standards 2003, G3.2; **C-0197**, CIMVAL Code 2019, § 3.3.3, p. 15.

795

796 ; Longley WS, ¶ 10; Bryson WS, ¶¶ 167-69, 174, 185.

797 ; Longley WS, ¶ 10; Bryson WS, ¶¶ 194-202.

798 Longley WS, ¶¶ 10, 13.

799

800 Longley WS, ¶ 14.

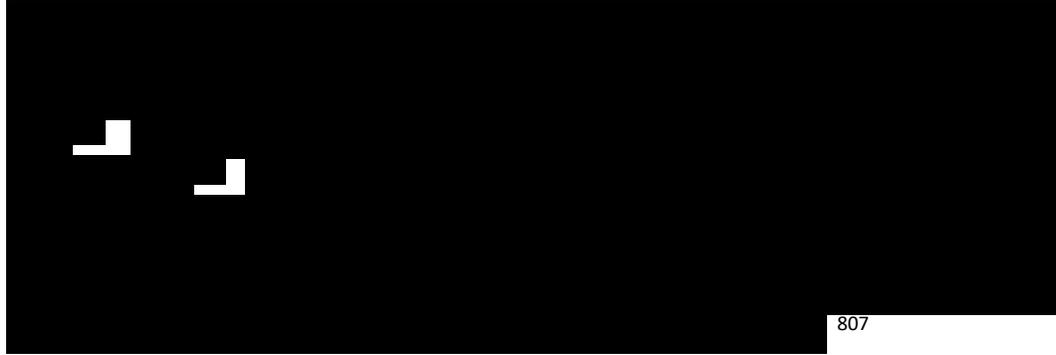
801 Longley WS, ¶ 14.

802 Longley WS, ¶ 14.

803 Selby ER, ¶¶ 75-85.

804 Longley WS, ¶¶ 15, 41; **C-0209**, Coring Campaign 4.5 Budget, 16 March 2016.

c.



386. In their approach to valuing damages, Professor Spiller and Mr. López Zadicoff recognized that Odyssey and ExO were not planning (or preparing) to divest the Project when SEMARNAT denied the MIA and thus, because they had no need to do so, had not yet collated and packaged the information that would otherwise feed into a formal Pre-Feasibility Study.⁸⁰⁸ Accordingly, they adopted the perspective of a willing buyer conducting due diligence and considered the Project information and data that was available at that time, together with the expert reports of Dr. Selby, Dr. Sheehan, Mr. Gruber, and Mr. Fuller, who themselves considered the contemporaneous Project data and information, and opine on the Project’s level of development within their respective fields of expertise.⁸⁰⁹

387. The collective opinion of the industry and technical experts is that as of 7 April 2016, the Project was at a Pre-Feasibility level. For example:

- a. Dr. Selby opines that the “volume estimation and classification of the Don Diego resources” are at “a PFS confidence level,”⁸¹⁰ and that “conservative assumptions [. . .] have been adopted for the calculation, which would meet the standard required for a PFS.”⁸¹¹
- b. Dr. Sheehan concludes that “[b]ased on the production variables assumed (e.g. volume per load, cycle time) the direct costs developed are reasonable and in line with market rates for a Pre-Feasibility Study (PFS)-level assessment,”⁸¹² and that

⁸⁰⁵ Longley WS, ¶ 17.
⁸⁰⁶ [Redacted]
⁸⁰⁷ Longley WS, ¶¶ 19-21.
⁸⁰⁸ Compass Lexecon ER, ¶ 7.
⁸⁰⁹ Compass Lexecon ER, ¶ 7.
⁸¹⁰ Selby ER, ¶ 85.
⁸¹¹ Selby ER, ¶ 132.
⁸¹² Lomond & Hill ER, p. 4.

Longley WS, ¶ 17.

“the high level of confidence in these figures would meet the industry standard for a PFS.”⁸¹³

- c. Mr. Gruber states “the block flow diagrams, material balances, and process descriptions prepared as part of the Process Study are prefeasibility level.”⁸¹⁴
- d. Mr. Fuller testifies that “the Odyssey CAPEX estimates can be best characterised as Class 4 AACE estimates,” as are “typically prepared for Prefeasibility Studies.”⁸¹⁵

388. Based on these expert opinions, Professor Spiller and Mr. López Zadicoff concluded that Phase I of the Project is properly classified as a Development Property/Project,⁸¹⁶ and therefore that it should be valued using an income approach.

389. The method they use is a DCF, which “measures the value of an asset by computing the Free Cash Flows to the Firm (**FCFF**) that the company can be reasonably expected to generate in the future by exploiting such asset, discounted at a rate that reflects the company’s cost of raising capital.”⁸¹⁷

390. Using an income approach in these circumstances is consistent with the valuation guidelines promulgated by the mining industry and consistent with the Project’s characteristics and stage, which included the development of reliable cash flow forecasts and risk adjustments. This is because once the resource is discovered and characterized, the drivers of project value can be estimated with a reasonable level of certainty:

- a. The methods for quantifying and characterizing resources is well established;

⁸¹³ Lomond & Hill ER, p. 5.

⁸¹⁴ Expert Report of Glenn Gruber, dated 4 September 2020 (“**Gruber ER**”), p. 1.

⁸¹⁵ Lomond & Hill ER, pp. 2, 18.

⁸¹⁶ Compass Lexecon ER, ¶¶ 51, 54. 

⁸¹⁷ Compass Lexecon ER, ¶ 45. As defined in The World Bank Guidelines: “‘discounted cash flow value’ means the cash receipts realistically expected from the enterprise in each future year of its economic life as reasonably projected minus that year’s expected cash expenditure, after discounting this net cash flow for each year by a factor which reflects the time value of money, expected inflation, and the risk associated with such cash flow under realistic circumstances. Such discount rate may be measured by examining the rate of return available in the same market on alternative investments of comparable risk on the basis of their present value.” **CL-0125**, World Bank Guidelines, art. IV(6).

- b. The quantity and quality of the minerals can be estimated independently and provides a reliable basis for input assumptions;
 - c. Output is sold in developed international markets reducing revenue uncertainty;
 - d. Market information informs future pricing and provides an objective basis for future cash flows;
 - e. The mining and processing engineering and technology can be independently validated; and
 - f. Detailed information about anticipated capital expenditures, operational expenditures, and production schedules has been developed and can be independently validated.
391. From a valuation perspective, mining and other extractive projects are qualitatively different than non-extractive businesses without an operating history, such as, for example, a real estate venture in Kazakhstan,⁸¹⁸ the production and selling of various wires and cable products in Iran,⁸¹⁹ or the development and operation of a hazardous waste facility.⁸²⁰ Unlike those types of investments, an extractive project has a more definitive product and a verified market demand that normally exhibits a higher degree of liquidity and predictability.
392. In their treatise on Damages in International Investment Law, Dr. Sergey Ripinsky and Mr. Kevin Williams further explained why one could predict future revenues of an extractive project, with or without a prior record of profitable operations:⁸²¹

[A]n investor obtains a concession for the exploration and exploitation of oil: the investor will carry a risk of not discovering oil and thus losing the totality of its investment. At the same time, **once the exploration campaign proves successful, the major risk of the investment is gone, and one should be able to predict with reasonable certainty the range of revenues that the concession**

⁸¹⁸ See **CL-0008**, *AIG Capital Partners Inc. and CJSC Tema Real Estate Company v. Republic of Kazakhstan* (ICSID Case No. ARB/01/6) Award, 7 October 2003.

⁸¹⁹ **CL-0087**, *Phelps Dodge International Corp. v. The Islamic Republic of Iran* (IUSCT Case No. 135) Award, 19 March 1986.

⁸²⁰ **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 118.

⁸²¹ **CL-0101**, S. Ripinsky and K. Williams, *Damages in International Investment Law* (2008), pp. 283-284 (emphasis added).

will generate, even without a prior record of profitable operations. Perhaps with such situations in mind, it has been suggested that lost profits should be awarded where they can be proven with reasonable certainty and calculated on a ‘rational basis,’ even if the claimant is a new business [. . .].

393. Their point—that a commodity-based business (be it oil, as in the above-quoted example, or phosphate, like the Don Diego Project) lends itself more easily to a lost profits analysis—was endorsed by the tribunal in *Gold Reserve*.⁸²² In that case, the tribunal determined that:⁸²³

Although the Brisas Project was never a functioning mine and therefore did not have a history of cashflow which would lend itself to the DCF model, the Tribunal accepts [. . .] that **a DCF method can be reliably used in the instant case because of the commodity nature of the product** and detailed mining cashflow analysis previously performed.

394. Likewise, the *Crystellex* tribunal accepted that income in mining projects can be forecasted with a reasonable degree of certainty:⁸²⁴

Furthermore, gold, unlike most consumer products or even other commodities, is less subject to ordinary supply-demand dynamics or market fluctuations, and especially in the case of open pit gold mining as in Las Cristinas, is an asset whose costs and future profits

⁸²² [Fn distinguishing cases]

⁸²³ **CL-0056**, *Gold Reserve Inc. v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)09/1) Award, 22 September 2014, ¶ 830 (emphasis added). Tribunals have chosen to approach the valuation of other commodity-based disputes on a sunk costs basis. However, those cases, from a quantum perspective, are meaningfully different. For example, in *Bear Creek v. Peru*, the tribunal declined using a DCF because the claimant “had not received many of the government approvals and environmental permits it needed to proceed.” **CL-0016**, *Bearcreek Mining Corporation v. Republic of Peru* (ICSID Case No. ARB/14/21) Award, 30 November 2017, ¶ 600. In *Bilcon v. Canada*, the tribunal declined lost profits because “without a high degree of certainty as to regulatory approval, it goes without saying that no damages based on the profitable operation of the quarry can be awarded.” **CL-0123**, *William Richard Clayton, Douglas Clayton, Daniel Clayton and Bilcon of Delaware, Inc. v. Government of Canada* (PCA Case No. 2009-04) Award on Damages, 10 January 2019, ¶ 276. In *South American Silver*, the tribunal was wary of granting damages on an income based approach because there was “serious doubt as to” the mine’s “economic viability.” **CL-0108**, *South American Silver Limited (Bermuda) v. the Plurinational State of Bolivia* (PCA Case No. 2013-15) Award, 22 November 2018, ¶ 823. In *Copper Mesa*, the tribunal accepted calculating compensation on the basis of sunk costs because the “methodologies are too uncertain, subjective and dependent upon contingencies, which cannot fairly be assessed by the Tribunal.” **CL-0040**, *Copper Mesa Mining Corp. v. The Republic of Ecuador* (PCA Case No. 2012-2) Award, 15 March 2016, ¶ 7.24.

⁸²⁴ **CL-0042**, *Crystellex International Corporation v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB(AF)/11/2) Award, 4 April 2016, ¶ 879 (emphasis added).

can be estimated with greater certainty. **The Tribunal thus accepts that predicting future income from ascertained reserves to be extracted by the use of traditional mining techniques – as is the case of Las Cristinas – can be done with a significant degree of certainty, even without a record of past production.**

In short, the Claimant has established the fact of future profitability, as it had completed the exploration phase, the size of the deposits had been established, the value can be determined based on market prices, and the costs are well known in the industry and can be estimated with a sufficient degree of certainty.

395. Ultimately, there will be uncertainties in any income approach. Here, where there are uncertainties, Compass Lexecon has addressed them within the cash flows and through the use of a discount rate that takes into account the Project's level of development. In doing so, Compass Lexecon has put forth a conservative assessment.
396. Professor Spiller and Mr. López Zadicoff's starting point is the [REDACTED] and the resources estimated in the NI 43-101 Technical Report.⁸²⁶
397. Relying on the expert opinions of Dr. Selby, Dr. Sheehan, Mr. Gruber, Mr. Fuller, Dr. Heffernan, and Mr. Kunz, Professor Spiller and Mr. López Zadicoff tested the reasonableness of the assumptions driving that model and made any necessary adjustments.
- a. **Permitting:** Compass Lexecon assumes, in this *but for* world, the Project's MIA would have been granted. Based on the expert legal opinion of Mr. Kunz that the MIA was the last regulatory hurdle, that only four permits remained and that they would follow, Professor Spiller and Mr. López Zadicoff further assume ExO would be able to start contracting and commissioning works as of the Date of Valuation.
- b. **Resources and Production:** Dr. Selby opines that there is [REDACTED] resources with a [REDACTED] of being upgraded to probable reserves.⁸²⁷ To estimate cash flows, Professor Spiller and Mr. López Zadicoff conservatively assume an [REDACTED] conversion rate from probable reserves into production, resulting in [REDACTED] to be extracted in Phase I.⁸²⁸

825 [REDACTED]

826 C-0084, Henry Lamb, NI 43-101 Technical Report, 30 June 2014.

827 Selby ER, ¶¶ 79, 84.

828 Compass Lexecon ER, ¶ 68. The [REDACTED] conversion rate is conservative due to the nature of the resource and method of extraction. In his witness statement, Mr. Bryson discusses the advantages of dredging versus

Given Phase I's projected run of mine, [REDACTED]
[REDACTED]⁸²⁹ Mr. Gruber confirms that at run of mine, product yield will result in [REDACTED]
[REDACTED] that can be split [REDACTED]
[REDACTED], consistent with [REDACTED].⁸³⁰

- c. **Phosphate Prices:** Based on Dr. Heffernan's analysis and conclusions regarding phosphate markets and pricing, Professor Spiller and Mr. López Zadicoff [REDACTED] and adjust Project cash flows accordingly.⁸³¹ Dr. Heffernan forecasts that the FOB selling nominal price corresponding [REDACTED] would have ranged from [REDACTED] over the modified period for Phase I. [REDACTED] would have ranged from [REDACTED] over the same period.⁸³²
- d. **Operating and Capital Expenditures:** Dr. Selby, Dr. Sheehan, Messrs. Gruber and Fuller independently validate the feasibility of the engineering solution and design, and the reasonableness of the Project's projected OPEX and CAPEX. Professor Spiller and Mr. López Zadicoff rely upon their decisions when considering relevant project costs.⁸³³
- e. **Income Taxes and Royalties:** Professor Spiller and Mr. López Zadicoff adjust Phase I cash flows for Mexico's corporate income tax of 30%, royalty tax of 7.5% and Odyssey's exposure to dividend taxes based on the holding structure which it totals at 9.75%.⁸³⁴
- f. **Discount Rate:** Professor Spiller and Mr. López Zadicoff use the discount rate of 13.95% to adjust the Project's Phase I cash flows for the pre-operational/ PFS stage of the project and to reflect the time value of money.⁸³⁵ To arrive at the discount rate, they use a risk free rate of 2.12% (a measure of time value of money);⁸³⁶ an industry risk rate of 5.50% (capturing risks affecting the metals and

traditional terrestrial mining as it relates to extraction techniques and the ability to convert resources into production. (Bryson WS, ¶ 19.) He explains that with open pit terrestrial mines, "considerations often include the angle and stability of walls" and "rock mechanics." (Bryson WS, ¶ 19.) These concerns can (and do) limit recovery and affect the ability to convert reserves into production. (Bryson WS, ¶ 21.) This risk is much more limited in dredging projects, especially here, where the resource area is large, relatively flat, and in many areas sits exposed on the seafloor. (Bryson WS, ¶¶ 18, 21.)

⁸²⁹ Compass Lexecon ER, ¶ 70(a).

⁸³⁰ Compass Lexecon ER, ¶ 70(b); Gruber ER, pp. 11, 20.

⁸³¹ Compass Lexecon ER, ¶ 95.

⁸³² Heffernan ER, p. 4.

⁸³³ Selby ER, ¶¶ 123-124, 126-128, 131-133; Lomond & Hill ER, pp. 3-6; Gruber ER, pp. 1, 18-20; Lomond & Hill ER, ¶¶ 5.4.1-5.4.5, 7.3.3-7.3.6.

⁸³⁴ Compass Lexecon ER, ¶¶ 83-85.

⁸³⁵ Compass Lexecon ER, ¶¶ 8(g), 87-88.

⁸³⁶ Compass Lexecon ER, ¶ 89(a).

mining industry);⁸³⁷ a Mexican country risk rate of 2.79% (the incremental return demanded by investors from an investment in a county where risks are greater than more stable economies);⁸³⁸ and a pre-operational risk rate of 3.50% (a discount to account for pre-operational risk).⁸³⁹

398. Based on the foregoing, Professor Spiller and Mr. López Zadicoff conclude that the value for Phase I of the Project is [REDACTED] as of the Date of Valuation prior to a gross-up for Mexican taxes on the Award.⁸⁴⁰

3. Compass Lexecon's Application of the Real Options Valuation to Phase II

399. To value Phase II, Professor Spiller and Mr. López Zadicoff determined a Real Options Valuation ("ROV") methodology was appropriate.⁸⁴¹ They adopted this approach because although Phase II was at an earlier stage of development than Phase I, this did not mean Phase II was speculative, "as it is based on substantial resources and would be based on the same offshore technology as Phase I (at a PFS level) that guarantees a low extraction cost, as well as the sale of a commodity such as phosphate."⁸⁴² [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]⁸⁴³

400. The ROV analysis "recognizes that the buyer of the asset would have a right, but not an obligation, to develop Phase II. As such, we value Phase II as of the Date of Valuation taking into account that the buyer will only move forward if market conditions and the results of further exploration and design undertaken while performing Phase I prove favorable."⁸⁴⁴ Professor Spiller and Mr. López Zadicoff further explain:

The first step in the ROV valuation is to compute the gross cash-flows to be generated by the Project and the required capital expenditures [. . .] by adjusting and vetting the information

⁸³⁷ Compass Lexecon ER, ¶ 89(b).
⁸³⁸ Compass Lexecon ER, ¶ 90(a).
⁸³⁹ Compass Lexecon ER, ¶ 90(b).
⁸⁴⁰ Compass Lexecon ER, ¶ 13.
⁸⁴¹ Compass Lexecon ER, ¶ 10.
⁸⁴² Compass Lexecon ER, ¶ 10.
⁸⁴³ Compass Lexecon ER, ¶ 9.
⁸⁴⁴ Compass Lexecon ER, ¶ 11.

contained in the [REDACTED] based on how a willing buyer would have undertaken a due diligence process. Once the gross cash flows and capital expenditures are assessed, we discount them to the Date of Valuation at an appropriate discount rate and apply the ROV framework first outlined by Dr. Margrabe.

401. In order to do this, Compass Lexecon first addresses the expected total production of Phase II. In doing so, Compass Lexecon begins with the assumption that during Phase I, [REDACTED] of ore would be extracted, leaving [REDACTED] available for further extraction. Relying upon Dr. Selby, Compass Lexecon estimates [REDACTED]
[REDACTED]
[REDACTED].⁸⁴⁵

402. In the MIA, Claimant requests an annual ore extraction rate of 7 mtpa of phosphate sand.⁸⁴⁶ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

403. From early on in the Project's development, [REDACTED]
[REDACTED]. As a matter of practice, Mr. Pliego explains that it is not uncommon for projects of the magnitude of the Project to seek changes to the configuration of the Project.⁸⁴⁷ Particularly, Mr. Pliego notes that increasing the amount of dredged phosphate sands [REDACTED]
[REDACTED] will not require a new MIA.⁸⁴⁸

⁸⁴⁵ Compass Lexecon ER, ¶ 96.
⁸⁴⁶ C-0002, MIA, 21 August 2015, p. 23.
⁸⁴⁷ Pliego ER, ¶ 424.
⁸⁴⁸ Pliego ER, ¶¶ 420-422.

But even if it does, SEMARNAT should authorize the new MIA from an environmental standpoint.⁸⁴⁹

404. Further, as discussed above, the Concession was a bundle of rights. Within that bundle of rights exists not only the ability to extract phosphate sand in a manner consistent with the MIA (i.e. seven million tonnes of phosphate sand), but also an ability to seek sensible modifications to the MIA. One of those sensible modifications is an increased extraction of phosphate rock in a process consistent with the one laid out in the MIA.

405. Compass Lexecon then incorporates CRU's marketability analysis, determining that a buyer conducting diligence on Don Diego would [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁸⁴⁹ Pliego ER, ¶ 426.
⁸⁵⁰ Compass Lexecon ER, ¶¶ 97-98.

406. Having the inputs needed to determine cash flow and expenses, Compass Lexecon goes on to define other elements needed for a Real Options Valuation:
- a. Option Purchase Date: The date assigned to the option is the date of expropriation, 7 April 2016.
 - b. Option Expiration Date: The date in which an investor, at the latest, has to make a decision on proceeding with Phase II. [REDACTED]
 - c. Option Maturity: This is the length of time between the Option Purchase Date and the Option Expiration Date, [REDACTED]
 - d. Underlying Value: This is the underlying value of the option, which is “the present value of the Phase II (without considering initial capital investments) calculated as of the Date of Valuation that is as of the Option Purchase date. We therefore take the cash-flow components described above, and discount them by Phase II WACC. The Phase II WACC differs from the WACC calculated for Phase I in that we use a higher pre-operational risk-premium (commensurate with the lower level of definition of the Project), at 5.50%.”⁸⁵¹
 - e. Strike Price: The present value, as of valuation date, of the capital expenses required for Phase II, [REDACTED]. These expenses are discounted using Phase II WACC.
 - f. Volatility: The measure of how much the present value of the project and the investment cost is expected to fluctuate over time. The higher the volatility the more optionality that it grants. Compass Lexecon “calculate the price volatility (expected fluctuation of the project value) at [REDACTED]”⁸⁵².
407. Using these inputs and relying upon the Margrabe formula for a European call option, which provides a basis for exchanging one asset (Don Diego proceeding with Phase I) for another asset (Don Diego proceeding with Phase II). Using this formula, and the aforementioned inputs, Compass Lexecon calculates the fair market value of Phase II.

⁸⁵¹ Compass Lexecon ER, ¶ 113(b).

⁸⁵² Compass Lexecon, ER, ¶ 113(d).



4. Full Reparation Must Include the Project's Strategic Value

408. The Don Diego Deposit's size, location, and cost structure combine to make it strategically valuable, not just to Mexico but more broadly as a way to diversify and reduce reliance on Morocco and North Africa for the supply of phosphate rock.
409. As discussed previously, Morocco is an essential supplier of phosphate rock in the global market. As Dr. Heffernan describes, "[t]he [phosphate] rock industry has long been dominated by OCP (Office Chérifien des Phosphates) in Morocco [. . .] The country supplies phosphates to virtually all major importing markets and FOB Morocco is the generally accepted benchmark for phosphate rock prices."⁸⁵³ And while estimates vary, there is no question that Morocco and the Western Sahara hold the majority of the world's phosphate reserves.⁸⁵⁴ As Mr. Longley explains, this "means that Morocco's political stability, economic policy or other events that could impact Morocco's phosphate production have the potential to disrupt global phosphate supply and cause price shocks."⁸⁵⁵

⁸⁵³ Heffernan ER, § 5.1.

⁸⁵⁴ **C-0155**, A. Kasprak, "The Desert Rock That Feeds the World," *The Atlantic*, 29 November 2016, p. 2. Some estimates put the figure as high as 80%. *See also* **C-0046**, F. Pearce, "Phosphate: A Critical Resource Misused and Now Running Low," *Yale Environment* 360, 7 July 2011, p. 2.

⁸⁵⁵ Longley WS, ¶ 24.

410. These risks are not theoretical. When Morocco cut production in 2008, it touched off a series of events that ended with phosphate rock prices spiking by 800% and the food index followed suit.⁸⁵⁶ In addition, the supply disruptions caused by Arab Spring and the civil war in Syria have further exposed the dangers of being dependent on one country or one region for such a critical resource.⁸⁵⁷
411. The value of Don Diego is further reinforced by the Project's unquestionable strategic value. Mr. Longley also explains this, noting, "it would provide Mexico with a real and meaningful opportunity to end dependence on foreign imports of phosphate rock and fertilizers, but also because it would offer a way to counter the market dominance of Morocco in phosphate."⁸⁵⁸
412. The Don Diego Project, with its large amounts of phosphate, close to the Americas, and with relatively easy access to the Pacific Rim countries, "provide[s] an alternative source of phosphate rock for companies looking to diversify their supply or move away from Moroccan rock at extremely competitive price."⁸⁵⁹ This competitive price is underscored by the fact that Don Diego's "operating and capital expenditure would make Don Diego one of the lowest cost producers of phosphate rock in the world."⁸⁶⁰
413. Further, among what Mr. Longley terms the Project's "intrinsic features," there is no fixed infrastructure (such as roads or electricity transmission lines);⁸⁶¹ there is no top-soil, vegetation or material to clear (such as in an open pit mine);⁸⁶² there are no reclamation or remediation costs (the tailing are returned to the seafloor);⁸⁶³ and the entire operation

⁸⁵⁶ See **C-0046**, F. Pearce, "Phosphate: A Critical Resource Misused and Now Running Low," Yale Environment 360, 7 July 2011, p. 3.

⁸⁵⁷ **C-0188**, D. Carrington, "Phosphate fertiliser 'crisis' threatens world food supply," The Guardian, 6 September 2019, p. 2.

⁸⁵⁸ Longley WS, ¶ 22.

⁸⁵⁹ Longley WS, ¶ 27; Gordon WS, ¶ 33(c).

⁸⁶⁰ Longley WS, ¶ 27; Heffernan ER, p. 74 ("At these costs the Don Diego mine would be the lowest cost produce in the world for its Phase I sized product.").

⁸⁶¹ Longley WS, ¶ 28.

⁸⁶² Longley WS, ¶ 29.

⁸⁶³ Longley WS, ¶ 28.

is mobile, which allows for selective dredging and easy expansion into new areas of the resource.⁸⁶⁴

414. These features enhance the value of Don Diego in ways that are not captured by the DCF of Phase I or the option value of Phase II. From the perspective of a potential purchaser, the Don Diego Project would be “an important strategic play.”⁸⁶⁵ Offensively, it allows the purchaser to secure “a large, low-cost phosphate resource in a geopolitically advantaged location”; while defensively, it prevents a competitor from realizing these benefits and “capitalizing on a project that has distinct advantages in cost, location, grade and environmental impact.”⁸⁶⁶

415. To compensate Odyssey and ExO, Mr. Longley concludes Compass Lexecon’s valuation of Phase I and Phase II of the Project should be increased by 15%.⁸⁶⁷

5. Full Reparation Must Include ExO and Odyssey’s Lost Opportunity

416. Beyond the amounts noted above, ExO and Odyssey also suffered harms arising out of the “lost opportunity” to explore and develop parts of the Don Diego deposit that were not included within the NI 43-101 Technical Report. This “lost opportunity” stands outside of the fair market value of Phase I or Phase II, which Compass Lexecon quantified.

417. In the NI 43-101 Technical Report, Mr. Lamb recognized Odyssey and ExO had only just begun to quantify and characterize the Don Diego Deposit, which was open to the north, to the south, to the west and as to depth.⁸⁶⁸ Mr. Lamb also confirmed that the Don Diego Norte and Sur Concessions had “significant potential to increase [ExO’s] phosphorite resources.”⁸⁶⁹ Indeed, the limited exploration Odyssey and ExO had conducted of the Don Diego Norte Concession had already increased the amount of measured, indicated and inferred resources by 94.7 million tonnes.⁸⁷⁰

⁸⁶⁴ Longley WS, ¶ 28.

⁸⁶⁵ Longley WS, ¶ 32.

⁸⁶⁶ Longley WS, ¶ 32.

⁸⁶⁷ Longley WS, ¶ 33.

⁸⁶⁸ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 13.

⁸⁶⁹ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 14.

⁸⁷⁰ **C-0223**, Don Diego West Resource Estimate With Northern Extension, 21 August 2014.

418. But for the denial of the MIA, Odyssey and ExO would have commenced a new coring campaign to further explore, quantify and characterize the resource.⁸⁷¹ That opportunity was interrupted because of Mexico’s wrongful acts.
419. In his witness statement, Mr. Longley helps both to conceptualize the Project’s exploratory potential and to give it value. He explains:
- a. The resource assessment in the NI 43-101 Technical Report is based on samples and assays for only 18% of the Concession Area (original Concession as reduced in 2015).⁸⁷² This data “strongly suggest[s]” “the potential for identifying additional resources is high.”⁸⁷³
 - b. ExO’s total Concession area—the original Concession less reduction, Don Diego Norte and Don Diego Sur—is 1,148 km². ExO has “not yet sampled and evaluated over 936 km² of the Concessions that ExO holds (the reduced Concession, Don Diego Norte and Don Diego Sur Concessions).”⁸⁷⁴
 - c. In the areas that have been sampled, “[t]here is also evidence that the deposit runs deeper (or is thicker) in many places. We know this because over [REDACTED] of the assayed cores terminated in ore [REDACTED]. Based on available data, we fully expect that with additional coring and sampling, the resource estimate will significantly increase.”⁸⁷⁵
 - d. “[U]tilizing the resource attributes from Mr. Lamb’s resource assessment (i.e. average grade 18.1% P₂O₅, depth, percent of explored area reporting to phosphate resource [REDACTED] etc.), we are confident the ore resource tonnes would grow by [REDACTED] of contained P₂O₅.”⁸⁷⁶
420. To quantify this lost opportunity, Mr. Longley assigns a reasonable value for the *in situ* contained P₂O₅ of [REDACTED] per tonne and multiples it by the [REDACTED] of

⁸⁷¹ Longley WS, ¶ 41; **C-209**, Coring Campaign 4.5 Budget, 16 March 2016.

⁸⁷² Longley WS, ¶ 38.

⁸⁷³ **C-0084**, Henry Lamb, NI 43-101 Technical Report, 30 June 2014, p. 76.

⁸⁷⁴ Longley WS, ¶¶ 36, 38.

⁸⁷⁵ Longley WS, ¶ 39.

⁸⁷⁶ Longley WS, ¶ 43. The concept of “contained P₂O₅” means the amount of P₂O₅ in the ore tonnes as opposed to the amount of ore tonnes, which also includes other material like seashells and sand. (Longley WS, ¶ 43.) To arrive at the amount of “contained P₂O₅,” Mr. Longley used the following formula: (tonnes of ore)(P₂O₅) = contained tonnes P₂O₅. (*Id.*)

contained P₂O₅ Odyssey estimates the Concessions contain.⁸⁷⁷ This result gives a value of [REDACTED] for the lost opportunity of exploring and developing the further parts of the Don Diego Deposit not included within the NI 43-101 Technical Report.⁸⁷⁸

421. In *Gemplus S.A., SLP S.A., Gemplus Industrial S.A. de C.V. and Talsud S.A. v. The United Mexican States* the tribunal endorsed the “lost opportunity” approach for these type of valuation exercises.⁸⁷⁹ As the tribunal explained, when an opportunity was not sufficiently developed to use an income approach, that a “lost chance was clearly not 100%; nor was it manifestly 0%” and accordingly in such circumstances such a lost opportunity “has a monetary value for the purpose of Article 36 of the ILA Articles and the indemnities for compensations provided by [] BITs.”⁸⁸⁰
422. Ultimately, in light of the factors noted by Mr. Longley a “the hypothetical willing seller of the Claimants’ shares and their hypothetical willing buyer, as business people, would have been able to strike a price”⁸⁸¹ for the opportunity to further explore and develop the concession beyond what was envisioned in Phase I and Phase II. Because of Mexico’s wrongful actions, ExO and Odyssey lost the opportunity to establish and develop the true extent of the Don Diego Deposit, and Mexico is therefore obliged under NAFTA and international law to provide compensation for its wrongful acts.

D. Full Reparation Requires Odyssey and ExO to Be Awarded Compound Pre- and Post-Award Interest

423. Full compensation under customary international law requires the award of interest.⁸⁸² Like the award of damages, the purpose of an award of interest is to put the injured party

⁸⁷⁷ Longley WS, ¶ 47.

⁸⁷⁸ Longley WS, ¶ 47.

⁸⁷⁹ **CL-0054**, *Gemplus, et al. v. United Mexican States* (ICSID Case Nos. ARB(AF)/04/3 and ARB(AF)/04/4) Award, 16 June 2010.

⁸⁸⁰ **CL-0054**, *Gemplus, et al. v. United Mexican States* (ICSID Case Nos. ARB(AF)/04/3 and ARB(AF)/04/4) Award, 16 June 2010, Part XIII, ¶¶ 13-97, 13-98.

⁸⁸¹ **CL-0054**, *Gemplus, et al. v. United Mexican States* (ICSID Case Nos. ARB(AF)/04/3 and ARB(AF)/04/4) Award, 16 June 2010, Part XIII, ¶ 99.

⁸⁸² **CL-0037**, *Compañía de Aguas del Aconquija SA and Vivendi Universal SA v. Argentine Republic* (ICSID Case No ARB/97/3) Award, 20 August 2007, ¶ 9.2.1 (“the liability to pay interest is now an accepted legal principle); **CL-0036**, *Compañía de Desarrollo de Santa Elena SA v. Republic of Costa Rica* (ICSID Case No. ARB/96/1) Final Award, 17 February 2000, ¶¶ 96-97; **CL-0023**, C. Brower & J. Sharpe, “Awards of Compound

in the economic position it would have been in had the state not acted wrongfully. The award of interest is, therefore, best understood as an integral element of reparation, rather than an amount that is awarded in addition to reparation.⁸⁸³

424. Because of this, the full reparation principle should animate all aspects of an award of interest, from the appropriate interest rate, to whether the interest should compound, to how frequently it should compound.
425. Article 1135 provides the Tribunal with some guidance as to how it may render its final award, stating, “Where a Tribunal makes a final award against a Party, the Tribunal may award, separately or in combination, only: (a) monetary damages and any applicable interest.”⁸⁸⁴ The payment of interest is a well-accepted principle of full reparation, as Draft Article 38(1) notes: “[i]nterest on any principal sum [. . .] shall be payable when necessary to ensure full reparation. The interest rate and mode of calculation shall be set so as to achieve that result.”⁸⁸⁵
426. In order to compensate Claimant fully, the Tribunal should issue an award with pre-award interest at a rate equivalent to the WACC⁸⁸⁶ of a typical investor in a pre-operational mining project in Mexico. Compass Lexecon calculates the relevant WACC as 13.95%.

Interest in International Arbitration; The Aminoil NonPrecedent,” *Transnational Dispute Management*, No. 5 (2006), p. 155; **CL-0061**, J. Gotanda, “Awarding Interest in International Arbitration” in Vol 90 of The American Journal of International Law, 1996, p. 40.

⁸⁸³ **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, art. 38(1) (“Interest on any principal sum due under this chapter shall be payable when necessary in order to ensure full reparation. The interest rate and mode of calculation shall be set so as to achieve that result.”); **CL-0011**, *Asian Agricultural Products Ltd. (AAAPL) v. Republic of Sri Lanka* (ICSID Case No. ARB/87/3) Final Award, 27 June 1990, ¶ 114 (noting that “case-law elaborated by international arbitral tribunals strongly suggests that in assessing liability due to losses incurred the interest becomes an integral part of the compensation itself”); **CL-0075**, *Middle East Cement Shipping and Handling Co SA v. Arab Republic of Egypt* (ICSID Case No. ARB/99/6) Award, 12 April 2002, ¶ 174 (“[I]nternational jurisprudence and literature have recently, after detailed consideration, concluded that interest is an integral part of the compensation due.”); **CL-0061**, J. Gotanda, “Awarding Interest in International Arbitration” in Vol 90 The American Journal of International Law, 1996, p. 40.

⁸⁸⁴ **CL-0081**, NAFTA, art. 1135(1).

⁸⁸⁵ **CL-0081**, NAFTA, art. 38(1).

⁸⁸⁶ The WACC is a value reflecting the weighted average after-tax cost of a company’s capital sources, including both equity and debt.

427. Moreover, because a state’s duty to make reparation arises immediately after its unlawful actions cause harm,⁸⁸⁷ interest should run “from the date when the principal sum should have been paid until the date the obligation to pay is fulfilled.”⁸⁸⁸ In other words, full compensation requires the award of pre- and post-award interest.⁸⁸⁹ Ultimately, in applying the *Chorzów Factory* standard of full reparation, the Tribunal should issue an award with compounding interest.⁸⁹⁰
428. In addition, consistent with the principle of full reparation, pre-award interest should compound annually.⁸⁹¹ The rationale behind the award of compound interest is discussed by Professor John Gotanda, a recognized expert on damages and compensation in international arbitration, who has examined this issue closely:⁸⁹²

In the modern world of international commerce, almost all financing and investment vehicles involve compound, as opposed

⁸⁸⁷ **CL-0071**, *Metalclad Corporation v. The United Mexican States* (ICSID Case No. ARB(AF)/97/1) Award, 30 August 2000, ¶ 128

⁸⁸⁸ **CL-0059**, ILC Draft Articles on State Responsibility with Commentaries, art. 38(2).

⁸⁸⁹ **CL-0037**, *Compañía de Aguas del Aconquija S.A. and Vivendi Universal SA v. Argentina* (ICSID Case No. Arb/97/3) Award, 20 August, ¶ 11.1; **CL-0092**, *PSEG Global Inc., et al. v. Republic of Turkey* (ICSID Case No. ARB/02/5) Award, 19 January 2007, ¶¶ 348, 351; **CL-0086**, *Petrobart Limited v. Kyrgyz Republic* (SCC Case No. 126/2003) Award, 29 March 2005, pp. 88-89.]

⁸⁹⁰ **CL-0083**, *Occidental Petroleum Corp. and Occidental Exploration and Production Co. v. The Republic of Ecuador* (ICSID Case No. ARB/06/11) Award, 5 October 2012, ¶ 834 describes compound rates as “the norm” in recent ICSID cases; see also **CL-0037**, *Compañía de Aguas del Aconquija S.A. and Vivendi Universal SA v. Argentina* (ICSID Case No. Arb/97/3) Award, 20 August 2007, ¶ 9.2.4 (“To the extent there has been a tendency of international tribunals to award only simple interest, this is changing, and the award of compound interest is no longer the exception to the rule”); **CL-0044**, *El Paso Energy International v. The Argentine Republic* (ICSID Case No. ARB/03/15) Award, 31 October 2011, ¶ 746 (“The Tribunal shares the view expressed by these awards that compound interest reflects economic reality and will therefore better ensure full reparation of the Claimant’s damage.”).

⁸⁹¹ **CL-0003**, *ADC Affiliate Limited and ADC & ADMC Management Limited v. Republic of Hungary* (ICSID Case No. ARB/03/16) Award, 2 October 2006, ¶ 522 (noting “tribunals in investor-State arbitrations in recent times have recognized economic reality by awarding compound interest”); **CL-0056**, *Gold Reserve Inc. v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB (AF)/09/01) Award, 22 September 2014, ¶ 854 (“[T]he Tribunal does not accept Respondent’s contention that pre-Award interest should be awarded on a ‘simple’ basis. While awarding simple interest was once the norm in investment arbitration [. . .] the Tribunal agrees with Claimant that there has been an evident shift in investment treaty cases in recent years towards awarding compound interest.”); **CL-0014**, *Azurix Corp. v. Argentine Republic* (ICSID Case No. ARB/01/12) Award, 14 July 2006, ¶ 440; **CL-0039**, *Continental Casualty Company v. The Argentine Republic* (ICSID Case No. ARB/03/09) Award, 5 September 2008, ¶¶ 308-313; **CL-0048**, F. Mann, *Further Studies in International Law* (1990), p. 385 (stating “compound interest may be and, in the absence of special circumstance should be awarded to the claimant as damages by international tribunals”).

⁸⁹² **CL-0062**, J. Gotanda, “Compound Interest in International Disputes,” *Law and Policy in International Business*, Vol. No. 34, Issue 2 (2003), p. 439.

to simple, interest. Thus, it is neither logical nor equitable to award a claimant only simple interest when the respondent's failure to perform its obligations in a timely manner caused the claimant either to incur finance charges that included compound interest or to forego opportunities that would have had a compounded effect on its investment.

429. As the *Continental Casualty Company* tribunal put it, compounding recognizes the time value of Claimant's losses and "reflects economic reality in modern times" where "[t]he time value of money in free market economies is measured in compound interest."⁸⁹³ The weight of authority in an international investment decision thus supports an award of compound interest, as the tribunal observed in *Gemplus and Talsud v. Mexico*:⁸⁹⁴

[T]he current practice of international tribunals (including ICSID) is to award compound and not simple interest. **In the Tribunal's opinion, there is now a form of 'jurisprudence constante' where the presumption has shifted from the position a decade or so ago with the result it would now be more appropriate to order compound interest, unless shown to be inappropriate in favour of simple interest, rather than vice-versa.**

430. In line with the foregoing, the Tribunal should award Claimant compound interest on all compensation payable, and the compounding period should be annual.
431. In addition, if Mexico does not promptly pay awarded damages, Claimant is entitled to compound interest running from the date of the award until payment is made in full. Post-award interest is required in order to compensate Claimant for "the additional loss incurred from the date of the award to the date of final payment."⁸⁹⁵ Consequently, any delays in Mexico's payment of the award should be accounted for in post-award interest.

⁸⁹³ **CL-0039**, *Continental Casualty Company v. The Argentine Republic* (ICSID Case No. ARB/03/09) Award, 5 September 2008, ¶ 309.

⁸⁹⁴ **CL-0054**, *Gemplus, et al. v. United Mexican States* (ICSID Case Nos. ARB(AF)/04/3 and ARB(AF)/04/4) Award, 16 June 2010, Part XVI, ¶ 16-26 (emphasis added).

⁸⁹⁵ **CL-0013**, *Autopista Concesionada de Venezuela, CA v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB/00/05) Award, 23 September 2003, ¶ 380. Accord **CL-0084**, *OKO Panki Oyj and others v. Estonia* (ICSID Case No. ARB/04/6) Award, 19 November 2007, ¶ 345.

E. Tax

432. Compass Lexecon’s valuation is net of Mexican tax. As a result, any taxation by Mexico on an eventual award in these proceedings would result in Claimant being effectively taxed twice for the same income. This runs counter to the purpose of the award, which is to put Claimant in the financial position it would have been in had Mexico not breached its obligations under the Treaty.⁸⁹⁶ Accordingly, Claimant requests that the Tribunal (i) award damages to ExO based on the Compass Lexecon valuation of Phase I and II on Mexican pre-tax basis and gross-up all other damages awarded for applicable Mexican taxes; or (ii) declare that any award is net of all applicable Mexican taxes and that Mexico may not tax or attempt to tax the award; and (ii) order Mexico to indemnify Claimant with respect to any Mexican taxes imposed on the award.

VI. REQUEST FOR RELIEF

433. For the foregoing reasons, Claimant respectfully submits that the Tribunal should:
- a. **DECLARE** that the Tribunal has jurisdiction to entertain all of Claimant’s claims under Chapter 11 of NAFTA, as set forth in this proceeding;
 - b. **DECLARE** that Mexico violated NAFTA Article 1105(1) by failing to accord Claimant and ExO with treatment in accordance with international law including fair and equitable treatment and full protection and security;
 - c. **DECLARE** that Mexico violated NAFTA Article 1110(1) by indirectly expropriating Claimant’s and ExO’s investments;
 - d. **DECLARE** that Mexico violated NAFTA Article 1102 by according Claimant and ExO with treatment less favorable than it accords, in like circumstances, to its own investors;

⁸⁹⁶ **CL-0099**, *Rusoro Mining Limited v. Bolivarian Republic of Venezuela* (ICSID Case No. ARB (AF)/12/5) Award, 22 August 2016, ¶¶ 852-855 (recognizing that if Venezuela were to tax the award, it could “reduce the compensation ‘effectively’ received,” and therefore declaring that “the compensation, damages and interest granted in this Award are net of any taxes imposed by [Venezuela]” and ordering Venezuela “to indemnify [the investor] with respect to any Venezuelan taxes imposed on such amounts”); **CL-0088**, *Philips Petroleum Company Venezuela Limited and ConocoPhillips Petrozuata BV v. Petróleos de Venezuela SA* (ICC Case No 16848/JRF/CA) Final Award, 17 September 2012, ¶¶ 313, 333(1)(viii); **CL-0115**, *Tenaris SA and Talta – Trading e Marketing Sociedade Unipessoal LDA v. Bolivarian Republic of Venezuela II* (ICSID Case No. ARB/12/23) Award, 12 December 2016, ¶¶ 788-792.

- e. **ORDER** that Mexico pay Claimant and ExO money damages of no less than \$2,364,700,000 (gross of taxes) plus compounding interest of 13.95%, when the Tribunal issues its final award;
 - f. **ORDER** Mexico to reimburse Claimant the full costs of the arbitration, including without limitation, all arbitrators' fees and other costs, all of the Center's administration fees, attorneys' fees and other costs, fees, and expenses incurred by Claimant in connection with pursuing this arbitration, in an amount to be calculated at the conclusion of these proceedings and payable in U.S. dollars;
 - g. **DECLARE** that the Tribunal's arbitral award shall be immediately enforceable notwithstanding any recourse filed against it; and
 - h. **ORDER** such further relief as the Tribunal considers appropriate.
434. Claimant hereby expressly reserves the right to supplement, add, or amend the claims asserted in this Memorial, including the right to update its damages calculations, according to the circumstances considered in the course of arbitration proceedings.

Dated: 4 September 2020
New York, NY
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Annex A—The MIA: A Readers' Guide

1. Chapter I provided general information about the Project, including, for example, its name, location, and lifetime.⁸⁹⁷
2. Chapter II described the Project in detail.⁸⁹⁸ For example, the summary given in the presentation noted the following key points:⁸⁹⁹
 - The objective of the Project was to extract approximately seven million tonnes of phosphate sand (including non-economic material) per year by dredging, over the 50 years of the Project life;
 - Dredging would be carried out at seabed depths of about 80 meters average, with the dredger moving at a speed of one or two knots over the work area;
 - The surface area of the Project was 91,267 hectares, divided into five polygonal areas, each of which would be worked over a 10-year period;
 - For any given year, the operational area of the Project would be just 1 km wide by 10 km long, being the surface area of the operations.
 - To further mitigate dredging impacts and allow for regeneration of the seabed in ADAs, dredging operations would only occur over a tiny portion of the overall Concession area in any given year.
 - The annual ADA affected by dredging would be a strip approximately 3.5 km long and about 200 to 300 meters wide. This amounts to approximately 1 km² in total each year. There would be 10 ADAs in each operational area in each decade of the Project.⁹⁰⁰
 - The volume of annual dredging would be between four and six million m³ of material, including the sedimentary mantle (thin layer or overburden) covering the phosphate sands, extracting approximately seven million tons of unprocessed resource material annually, with roughly 50% being returned to the seabed.
3. Chapter II then described the proposed operations in detail, including the move to what ExO viewed as the “best practice possible” of combining the non-economic material from

⁸⁹⁷ C-0002, MIA, 21 August 2015, pp. 1-6.

⁸⁹⁸ C-0002, MIA, 21 August 2015, pp. 7-119.

⁸⁹⁹ C-0002, MIA, 21 August 2015, pp. 23-50.

⁹⁰⁰ C-0005, Additional Information, 3 December 2015, pp. 33-36.

the TSHD and FPSP and discharging it from the FPSP via the Eco-tube close to the seabed.⁹⁰¹ Among other things, the remainder of the chapter:

- Summarized the economic justification for the Project, indicating that it supported Mexico's strategic need to self-supply a rich source of phosphate fertilizer to feed its population for the next century;⁹⁰²
- Described the dredging process at length, as well as the processes to separate, dry, and transport the phosphate;⁹⁰³
- Explained why other dredging methods had been discounted, because they were not feasible and/or had adverse environmental impacts;⁹⁰⁴
- Identified the intended work areas;⁹⁰⁵
- Compared the environmental impact of the Project to the much higher impact of land mining;⁹⁰⁶ and
- Noted that ExO had returned 70.15% of the original Concession area (mining title), which would return areas nearer the shoreward migration routes of grey whales⁹⁰⁷ and the foraging areas of turtles.⁹⁰⁸

4. The chapter also noted that the detailed studies, environmental conditions, and extensive knowledge of available dredging engineering allowed ExO to reach the following conclusions:⁹⁰⁹

- Any potential impact on the limited benthic (seabed) fauna of the dredging zone would be restricted to a small footprint in the ADA and the small deposition zone of sediment discharged near the seabed.
- The primary effects of dredging would be confined to the area immediately under the draghead and the furrow that the draghead leaves. This would be limited to the very small work area in Don Diego, which would be less than 1 km² per year.

⁹⁰¹ See discussion at **C-0002**, MIA, 21 August 2015, pp. 39-47.

⁹⁰² **C-0002**, MIA, 21 August 2015, pp. 126-129.

⁹⁰³ **C-0002**, MIA, 21 August 2015, pp. 35-77.

⁹⁰⁴ For example, see **C-0002**, MIA, 21 August 2015, pp. 30-35.

⁹⁰⁵ See, for example, **C-0002**, MIA, 21 August 2015, pp. 10-11, 55-69.

⁹⁰⁶ See, for example, **C-0002**, MIA, 21 August 2015, pp. 10-11.

⁹⁰⁷ See, for example, **C-0002**, MIA, 21 August 2015, pp. 11-13.

⁹⁰⁸ See, for example, **C-0002**, MIA, 21 August 2015, Chapter I, p. 15, Fig. II.4.

⁹⁰⁹ **C-0002**, MIA, 21 August 2015, pp. 48-49.

- The effects of sediment dispersion from the discharge of non-economic material from the FPSP pumped through the Eco-tube to a depth seven meters from the seabed, with the horizontal dispersion limited to 200 meters of the discharge point, and the plume extending to four meters above the surface of the seabed.⁹¹⁰ There is no dispersion of suspended sediments into the water column, and there is no impact on fish or larvae (ichthyoplankton) in the water column.
 - This minimized the possibility of visible plume on the surface and any impact on primary production. ExO noted that there was no evidence of contamination affecting marine fauna, based on detailed studies of resilience and eco-toxicity conducted on a variety of organisms sensitive to contamination and sediment concentration. The relevant reports from EA were contained in Annex 2 to the MIA.
5. ExO also noted its plan to use the discharged material to fill the furrows of previously dredged areas. This was to support seabed regeneration and ensure that there would be no deposition outside the boundaries of the previously dredged areas, and would mean there would be no impact on the fisheries of the Gulf of Ulloa.
 6. Annexes 4 and 9 to the MIA contained the HR Wallingford Reports that supported the water quality and plume analysis.
 7. Chapter III identified the set of laws, regulations, and international treaties that ExO considered when putting together the MIA, and explained how the Project complied with them.⁹¹¹
 8. Chapter IV described, in detail, the characteristics of the SAR in which the Project sat, including description and analysis of the quality of the abiotic environment (physical conditions), the seabed, the biotic environment (living organisms), and economic activities.⁹¹² This chapter also addressed potential impacts on the SAR. Key points included:
 - The SAR was delimited from hydrodynamic behavior, such as coastal currents and upwellings (upward movement of cooler nutrient-rich water towards the ocean surface, replacing warmer and typically nutrient-limited water), and the physical

⁹¹⁰ For example, see **C-0002**, MIA, 21 August 2015, pp. 39-70 and the reports at **C-0002.09**, MIA, 21 August 2015, Annex 9.

⁹¹¹ **C-0002**, MIA, 21 August 2015, pp. 119-192.

⁹¹² **C-0002**, MIA, 21 August 2015, pp. 193-544.

configuration of the coastal and marine environment. It totals 1,773,747.71 hectares. The hydrodynamic behavior defined the distribution of plankton, the materials in suspension, and sedimentation in the SAR.⁹¹³

- The Gulf of Ulloa is a significant component of the SAR.⁹¹⁴
- The chapter described key characteristics and areas of the SAR and Concession area, both from the available studies and from field data surveys carried out in the environmental cruises.
- The Project has an ADA of only 1 km² per year (as compared to approximately 20,000 km² for the Gulf of Ulloa as a whole).
- As noted above, the Oceanographic Campaigns included specific studies and analyses of water-quality and sediment types. Those studies showed that any release of heavy metals in sediments would be within the maximum permissible limits for heavy metals set by the relevant Mexican standard, NOM-021-SEMARNAT-2000.⁹¹⁵ Tests assessing the potential for the release of heavy metals from sediment also demonstrated that heavy metals are diluted to concentrations within water quality standard NOM-001-SEMARNAT-1996.⁹¹⁶
- The SAR is rich in biodiversity, but the seabed of the Project area mainly comprises broad flat plains of unconsolidated sediments, with grey and green granular material, clays, sands, and muds, and is “poorly populated” in comparison with other areas of the SAR.⁹¹⁷
- The biotic environment (living organisms) was also described in detail, principally drawing on available studies but also supported by fieldwork undertaken during the Oceanographic Campaigns:
 - That work covered the water column and the benthos or benthic zone (the community of organisms that live on, in, or near the seabed).
 - Further information was contained in Annex 1, describing the pelagic (open sea) communities and summarizing the studies to identify organisms within the Project area; Annex 6, describing marine sightings during the Oceanographic Campaigns; and Annex 16, summarizing the benthic (seabed) communities.

⁹¹³ **C-0002**, MIA, 21 August 2015, pp. 199-210.

⁹¹⁴ **C-0193**.

⁹¹⁵ See, e.g., **C-0002**, MIA, 21 August 2015, pp. 346-347, Table IV.4 and IV.5.

⁹¹⁶ See, e.g., **C-0002**, MIA, 21 August 2015, p. 348, Table IV.7.

⁹¹⁷ **C-0002**, MIA, 21 August 2015, p. 534.

- The analysis identified 29 species of fauna in the SAR that were included in some risk category in NOM-059-SEMARNAT-2010, the relevant Mexican standard that identifies the conservation status of native flora and fauna.⁹¹⁸ The MIA considered whether the Project impacted those fauna (or others) and appropriate measures to avoid or mitigate any impacts.
- The conclusion was that no at-risk species were present in the dredged areas, and the species found in the ADA were widespread in the SAR, including the pelagic red crab (or tuna crab, *Pleuroncodes planipes*). Resilience and toxicology studies were carried out on the red crab and other species. The results are not of concern and were considered in Chapter V.
- Further, it was explained that no species at risk are endemic to (i.e. only inhabit) the Project area, let alone any of the ADAs, which were described as “characterized by an almost total absence of organisms.”⁹¹⁹
- The MIA also noted that it was possible that some individual turtles might pass through the work area (i.e. the Operational Active Area), but it was highly unlikely that turtles would be present “near the bottom of the project area” (i.e. the ADA).⁹²⁰ This was because of food poverty at that depth and because studies show that turtles spend most of their time at the surface or in shallow waters.⁹²¹ The MIA included a graphic showing the Project area in relation to the habitat of the loggerhead turtle, recorded in a turtle refuge proposal published by SEMARNAT.⁹²²
- In addition, as noted above, the Chief Project Scientist Dr. Newell considered there would be a fairly rapid recovery of the seabed communities in the sandy substrate of the ADA because of these species’ high capacity for recolonization and community growth, so any local impact would be temporary.
- Two environmental impacts were considered that could impact the water column: dispersion of sediment plumes and noise. As noted above, the sediment plume from surface discharge was considered acceptable (and was normal practice in Mexico) but theoretical because of the use of the Eco-tube, and any increase in turbidity and of solids in suspension would be temporary and local and would not occur in the upper layers of the water column where primary production takes place.

⁹¹⁸ **C-0002**, MIA, 21 August 2015, pp. 429-431.

⁹¹⁹ **C-0002**, MIA, 21 August 2015, p. 477.

⁹²⁰ **C-0002**, MIA, 21 August 2015, p. 424.

⁹²¹ See, for example, **C-0002**, MIA, 21 August 2015, pp. 424-330425

⁹²² **C-0002**, MIA, 21 August 2015, p. 426.

- Sound modelling was addressed in the reports of HR Wallingford, which were appended as Annex 13 of the MIA. There was no material issue.
- The MIA noted that the primary economic activities in the SAR were fishing and tourism, although not within the Project area, adding that fishing techniques were unregulated, as there was no Fisheries Management Program. It also noted that boat traffic generated from whale-watching could alter the behavior and well-being of grey whales.⁹²³
- The MIA noted ExO’s conclusion that there would be no conflict between dredging and processing operations and fishing or tourism activities.
- In relation to fisheries:
 - The MIA noted that the area targeted for dredging is in a low-fish zone 40 km from the coast, only sporadically frequented by commercial or smaller local fisheries.
 - Given the naturally low numbers of bottom-dwelling fish, low catch numbers, and because the sands look like mud, with none of the structures like reefs, shoals, and drop offs that fish prefer, ExO was advised that fishermen refer to the area as “Los Lodos” or “the silts” and have historically avoided the water column directly above the Don Diego Deposit.
 - Further, in the MIA, Odyssey agreed that it would cede a significant portion of the area to the east of the original Concession,⁹²⁴ precluding any overlap with the legal concessions of regional fisheries in these shallower waters and migration routes of grey whales.
 - The MIA noted Odyssey’s agreement that fishing ships could, if they wished, fish in the Concession area with the exception of a 500-meter berth around extraction vessels while they are in operation.
 - The MIA also noted that, while any impact on fisheries was considered to be minimal or non-existent, Odyssey’s proposal nonetheless included a mechanism to compensate fisheries for any losses proved attributable to the dredging operation.
- The MIA also concluded that the Project would have no impact on tourism.⁹²⁵ Operations were to take place approximately 40 km from the coast, and would be invisible from the shoreline and have no impacts on coastline amenities. The

⁹²³ **C-0002**, MIA, 21 August 2015, p. 225.

⁹²⁴ **C-0012**, Concession Title No. 240744, 27 June 2012.

⁹²⁵ **C-0002**, MIA, 21 August 2015, pp. 10, 50, 127-128, 136-137, 541-543, 1019.

Project also had no need for adjacent shore-based facilities that might otherwise affect the Baja California Sur area leisure and tourism industry.

9. Chapter V built on the analysis of Chapter IV and identified, described, and evaluated at length the potential environmental impacts of the Project, including cumulative and residual impacts, based on each phase of the intended operations.⁹²⁶
10. The risks were evaluated on a deliberately conservative basis, using a variety of tools and processes recommended to ExO by QVGA to meet the requirements of the LGEEPA and the R-LGEEPA-EIA, as well as international standards and guidance published by SEMARNAT on completing MIAs, in particular with the following requirements:⁹²⁷
 - Rating the environmental impact in terms of the relevance of possible impacts on the functional integrity of ecosystems;
 - Developing this rating in the context of the SAR, so the evaluation related to the system and not only to the Project area;
 - Ensuring that the Project focused on maintaining the integrity of the ecosystems present in the SAR; that is, the composition of habitats that exist, the diversity of species, and, consequently, their ability to function as an integrated system;
 - Aiming to reduce and avoid impacts that eliminate habitats and/or species or that destroy their structure, to ensure the Project preserves the conditions that allow mobility and viability of species;
 - Ensuring that the Project does not compromise the basic structure and functioning of the ecosystem;
 - Ensuring that the Project has a policy of developing actions to prevent and mitigate environmental impacts, as well as complying with environmental legislation and continuously improving the environmental management system, consistent with international sustainability indicators; and
 - Ensuring that appropriate mitigation measures were put in place for events of low likelihood but potentially significant impact.

⁹²⁶ C-0002, MIA, 21 August 2015, pp. 545-768.

⁹²⁷ C-0002, MIA, 21 August 2015, p. 767.

11. The primary tools were interaction matrices, but QVGA also used “cause-effect interaction graphs or networks.”⁹²⁸
12. In addition to his general assistance with development of the MIA, Dr. Newell drafted Annex 12 of the MIA, entitled “Environmental Impact Assessment of the Trailing Suction Hopper Dredger (TSHD),”⁹²⁹ which described the main and secondary impacts of the dredging process and measures that ExO would take to eliminate or mitigate those impacts. That work fed directly into the mitigation measures that ExO proposed as part of the Project. For example, Dr. Newell noted various aspects of the environment that would support seabed recovery and various elements of the dredging operations that were intended to facilitate that recovery.
13. The aspects of the environment susceptible to impact were considered to be:
 - Abiotic (physical conditions), comprising the following components: geomorphology and the seabed, water column, and the air;
 - Biotic (living organisms), comprising the following components: benthic (seabed) organisms and marine fauna and ecosystems; and
 - Socioeconomic, comprising the following components: local productive activities such as fishing and benefits to the regional economy.
14. Each of these components was further sub-divided into “*factors*” to consider.⁹³⁰
15. Potential negative and positive impacts of the Project were identified, and then evaluated, as described in Chapter V.⁹³¹
16. For example, issues considered to be low likelihood but high impact included the following:
 - Loss of individual sea turtles was identified as a cumulative significant risk, even though ExO concluded that it was a low risk because it was highly unlikely that turtles would be present “near the bottom of the project area,” or near the

⁹²⁸ See also **C-0002**, MIA, 21 August 2015, pp. 557-558.

⁹²⁹ **C-0002.12**, MIA, 21 August 2015, Annex 12.

⁹³⁰ See the table at **C-0002**, MIA, 21 August 2015, pp. 556-557.

⁹³¹ The potential impacts were also described in narrative form in Chapter VII; see the tables at Section VII.2, under the heading “Scenarios.” **C-0002**, MIA, 21 August 2015, pp. 923-931.

draghead.⁹³² This was because ExO wanted to ensure that everything was done to avoid the loss of any individual.

- Alteration of seawater quality and increased turbidity and suspension of solids were also identified as significant risks, although the development of the dredging process to use the Eco-tube and the plume modelling and water quality work done by HR Wallingford had demonstrated only minimal and local plume impact and no breach of water quality standards.
17. The overall conclusion was that none of the potential impacts would affect the environmental sustainability of the Project, particularly with the appropriate mitigation measures in place. This included the conclusion that there would be no impact on the viability of species of fauna under any category of protection in NOM-059-SEMARNAT-2010.
18. Other specific conclusions were summarized in Chapter V of the MIA:
- The mineral deposit and its components are not toxic, as confirmed through objective empirical tests.
 - The size of the dispersion and deposition “footprint” of sediments is small and conforms to the results and experiences of dredging mineral aggregates in other parts of the world (indeed, this comment did not emphasize that the use of the Eco-tube would exceed international standards).
 - The direct impact on resident marine fauna in the operational areas is unavoidable, but the impact is small in terms of surface area, and the Project area is a biotope that includes low biodiversity.
 - The size of the ADA is limited, and it is likely there would be a rapid recolonization and recovery of dredged areas by the nematodes and polychaetes (both, in layman terms, types of worm) that are present.
 - There will be negligible effects on primary productivity in the shallower euphotic zone, given that the non-economic material would be discharged close to the seabed via the Eco-tube.
 - The sound frequencies and decibel levels emanating from a TSHD are similar to those of other vessels of a similar or smaller size.

⁹³² C-0002, MIA, 21 August 2015, p. 424.

- Expected sound levels are in all cases well below the documented levels that could cause any temporary or permanent physical harm to marine life. Behavioral responses to sound by species of marine fauna, mainly marine mammals, would be minor and limited to the vicinity of the TSHD and FPSP. Sound from dredging activities would not reach the coastal lagoons that grey whales use to give birth.
 - The impact on the habitat of marine fauna species in the ADA would be reduced with the implementation of mitigation measures.
 - All potential contaminants that may occur in the water column would be from the existing sediments and would be within the limits established by the CE-CCA-001/89 Marine Aquatic Life Protection Quality Criteria standards.
19. Chapter VI of the MIA summarized the measures that Odyssey planned to take to prevent, mitigate, and rectify the negative environmental impacts that had been identified and evaluated by the tools and processes described in Chapter V.⁹³³ This was to be achieved through a series of coordinated programs. In addition, the MIA noted that the Project would be subject to any additional measures required by SEMARNAT, although ExO intended its mitigation programs to be comprehensive and to adhere to international standards.
20. A key focus of the program was the monitoring of the Project's implementation to ensure that the conclusions ExO had reached on environmental impact, for example on plumes, proved to be accurate and to ensure ExO could rapidly take steps to make any adjustments that were necessary.
21. In addition, the MIA noted that the programs were designed to verify compliance with obligations, to implement good environmental practices and applicable eco-technologies, to obtain environmental certifications, and to develop compliance indicators.
22. The starting point was the "Environmental Treatment and Management System" Program,⁹³⁴ which was intended to be an over-arching program with the following objectives:

⁹³³ C-0002, MIA, 21 August 2015, pp. 769-916.

⁹³⁴ C-0002, MIA, 21 August 2015, pp. 773-779.

- To ensure and verify compliance with all environmental obligations, including applicable legislation and regulations and any terms and conditions imposed by SEMARNAT in a project authorization;
 - To track the environmental health status of the marine ecosystem, using the information in Chapter IV as a baseline;
 - To ensure compliance with the voluntary mitigation, prevention, and compensation measures proposed in the MIA;
 - To ensure necessary reporting to SEMARNAT (and to other agencies); and
 - To ensure the effectiveness of other programs.
23. Eleven other programs were envisaged and integrated as part of the Environmental Treatment and Management System, as described in detail in Chapter VI of the MIA.⁹³⁵
24. The following programs were particularly significant given the content of SEMARNAT's October 2018 Denial:
- Post-Dredging Seabed Restoration Program:⁹³⁶
 - The benthic (seabed) worms and small crustaceans that live in and on the seabed within the ADAs are abundant in the Project area, and thus the dredging impact would be local.
 - This program intended to address the adverse impact on the local distribution and diversity and habitat loss of benthic organisms in the ADAs.
 - The primary objective was to establish, implement, and supervise monitoring strategies, activities, and indicators for seabed regeneration and recovery actions to address the direct impact of dredging.
 - The program aimed at addressing the changes in seabed topography in the dredged area. The plan was to increase the complexity of the habitat after the dredging by depositing the returned material in a series of mounds to create a more varied environment and encourage regeneration. This idea came from the successful "Building with Nature" program developed by a consortium of private and sector organizations, including Boskalis

⁹³⁵ C-0002, MIA, 21 August 2015, pp. 779-911.

⁹³⁶ C-0002, MIA, 21 August 2015, pp. 784-802.

- Chapter VI summarized the key principles of the restoration program:
 - In year one, the residual sand and shells discharged from the FPSP would be discharged near the east of the ADA to form a mound on the seabed, a feature of the seabed topography that is known to provide a more varied and robust habitat in the “Building with Nature” program and elsewhere.
 - From year two onwards, the residual sand and shells would be deposited within the ADA after the year one dredging had ended to facilitate recolonization and regeneration of the benthos.
 - Dredging would be carried out in such a way that strips of the seabed would remain temporarily non-dredged to improve recolonization rates in adjacent dredging areas. The dredging would be carried out sequentially.
 - The dredger would then return to the first of the areas not previously dredged, at which point ExO expected that the adjacent areas would have been recolonized and would provide a source of colonizing species for the adjacent dredging area.
- Surveys for tracking the recolonization process were to be conducted at six-month intervals and compared to pre-dredging baselines.⁹³⁷ The range and recovery of the benthic fauna were to be closely monitored with the same technology developed by the UK Marine Management Organization (“MMO”).
- Marine Turtle Protection Program in Ulloa Bay:⁹³⁸
 - The impact of the Project on sea turtles was expected to be minimal because there are very few turtles at the depths at which the dredging would be carried out.⁹³⁹ Nonetheless, the program established monitoring, mitigation, and prevention measures for the protection of sea turtle populations in order to address the potential effects of the Project.
 - The program incorporated measures successfully used in the United States and other places where dredging occurs in shallow water, and based on the conservative principle that the risk of loss of a single turtle requires specific mitigation measures.

⁹³⁷ C-0002, MIA, 21 August 2015, pp. 801-802.

⁹³⁸ C-0002, MIA, 21 August 2015, pp. 803-817.

⁹³⁹ C-0002, MIA, 21 August 2015, p. 804.

- In addition, Odyssey committed to supporting efforts for the conservation of sea turtles, in particular supporting sanctuaries and turtle hatcheries.
- Marine Fish and Benthic Invertebrate Monitoring Protection Program:⁹⁴⁰
 - This program was developed to monitor the biological resources on the seabed of the ADA in order to mitigate any environmental impact of the dredging process and therefore any impact on the distribution, diversity, and habitat of benthic (seabed) animals.
 - In addition, the program aimed at addressing any impact on individuals of the ichthyofauna species, marine mammal species, and cartilaginous fish, and any consequent impact on fishing.
 - The MIA noted that the monitoring methods and requirements for determining the nature and extent of the impact of dredging are well established for the marine aggregates industry. It summarized a 2011 study entitled “Guidelines for conducting benthic studies in marine aggregate extraction areas,” which had been adopted as a standard by the MMO and approved as a standard procedure by the International Council for the Exploration of the Sea.⁹⁴¹ The procedures were summarized in the MIA.
 - ExO also agreed to provide SEMARNAT with annual independent reports describing the sampling program, quality control and analytical procedures, and the results of the sampling.
- Program for the Protection of Marine Fauna and Acoustic Monitoring of the Marine Environment:⁹⁴² This program aimed to establish a range of mitigation, prevention, and compensation measures to address environmental impacts from any noise pollution from the Project, as well as monitoring. The program particularly aimed to monitor protected species and drew on the sound modelling analysis undertaken by HR Wallingford.
- Marine Bird Protection Program:⁹⁴³ This program aimed to avoid any impact of the Project on seabirds, whether or not they are listed as protected in NOM-059-SEMARNAT-2010.
- Comprehensive Waste Treatment Program:⁹⁴⁴ This program established procedures for the collection, separation, and disposal of solid waste, hazardous

⁹⁴⁰ C-0002, MIA, 21 August 2015, pp. 818-830.

⁹⁴¹ C-0002, MIA, 21 August 2015, pp. 820-821.

⁹⁴² C-0002, MIA, 21 August 2015, pp. 830-843.

⁹⁴³ C-0002, MIA, 21 August 2015, pp. 844-845.

⁹⁴⁴ C-0002, MIA, 21 August 2015, pp. 846-861.

solids, and liquids, in addition to measures for the reduction in its volume. It has three sub-programs: Non-Hazardous Waste Treatment Subprogram, Wastewater Treatment Subprogram, and Hazardous Waste Treatment Subprogram.

- Atmospheric Emissions Control Program:⁹⁴⁵ This program described procedures to minimize air pollution. It has three sub-programs: Atmospheric Emissions Monitoring and Control Subprogram, Energy Efficiency Subprogram, and Meteorological Parameter Monitoring Subprogram.
- Emergency Care and Environmental Contingencies Program:⁹⁴⁶ This program aimed at preventing work accidents during the operation and maintenance phase of the Project, as well as measures to minimize the impact of natural catastrophic events, such as hurricanes.
- Environmental Education Program:⁹⁴⁷ This program aimed to raise awareness among operational personnel working on the TSHD and FPSP regarding the protection, preservation, and conservation of the marine ecosystem.
- Marine Environment Water Quality Control and Monitoring Program, and the Marine Environment Plume Sediment Control and Monitoring Program:⁹⁴⁸
 - These related programs aimed to ensure that seawater quality remained within permissible limits and to avoid turbidity and sediment in the water column, in particular to ensure there was no negative impact on primary productivity.
 - The program intended to monitor, in particular, the plume from the discharge of non-economic material via the Eco-tube against water quality standards, and to implement procedures to adjust the dredging or transportation process if any limits were exceeded.
 - Parameters to be monitored included temperature and pH, salinity, dissolved oxygen, total organic carbon (“**TOC**”), heavy metals, nutrients such as phosphorous and nitrogen, and primary production.
 - Monitoring results would be reported to SEMARNAT.
 - Operations were to be designed to minimize the sediment plume, even with the use of the Eco-tube. For example, the route and direction of the

⁹⁴⁵ **C-0002**, MIA, 21 August 2015, pp. 861-870.

⁹⁴⁶ **C-0002**, MIA, 21 August 2015, pp. 871-887.

⁹⁴⁷ **C-0002**, MIA, 21 August 2015, pp. 887-893.

⁹⁴⁸ **C-0002**, MIA, 21 August 2015, pp. 894-911.

TSHD was to be aligned with sea currents and tides to minimize the impact of the dredging.

25. Chapter VII of the MIA was entitled “Environmental Forecasts and Alternative Evaluation”⁹⁴⁹ and compared three scenarios: the scenario without the Project, the Project without mitigation measures, and the Project with mitigation measures. The conclusion was that, given the wider benefits, the most desirable scenario was the Project with mitigation measures, as adverse impacts would be “temporary and/or minimal, provided that mitigation measures are carried out.”⁹⁵⁰ The latter point related primarily to seabed recovery.
26. Chapter VIII of the MIA was entitled “Identification of the Methodological Instruments and Technical Elements that Support the Results of the Environmental Impact Statement.”⁹⁵¹ It provided additional information regarding the methodologies used in the MIA; for example, to characterize the SAR, to assess the biotic elements present in the area, and to identify and evaluate environmental impacts.
27. Chapter VIII also provided further information about the reports and information contained in the annexes to the MIA and contained a bibliography and glossary.⁹⁵²
28. The Annexes submitted alongside the MIA, which contain the underlying technical studies and reports on which the MIA was based, were ordered thematically along the following lines:
 - Annex 1⁹⁵³—List of Species Present in the Project Area;
 - Annex 2⁹⁵⁴—Toxicology;
 - Annex 3⁹⁵⁵—Sedimentation;

⁹⁴⁹ **C-0002**, MIA, 21 August 2015, pp. 917-931.

⁹⁵⁰ **C-0002**, MIA, 21 August 2015, p. 930.

⁹⁵¹ **C-0002**, MIA, 21 August 2015, pp. 932-1035.

⁹⁵² **C-0002**, MIA, 21 August 2015, pp. 1020-1035.

⁹⁵³ **C-0002**, MIA, 21 August 2015, pp. 982-992; **C-0002.01**, MIA, 21 August 2015, Annex 1.

⁹⁵⁴ **C-0002**, MIA, 21 August 2015, pp. 992-994; **C-0002.02**, MIA, 21 August 2015, Annex 2.

⁹⁵⁵ **C-0002**, MIA, 21 August 2015, pp. 994-1002; **C-0002.03**, MIA, 21 August 2015, Annex 3.

- Annex 4⁹⁵⁶—Water Quality;
- Annex 5⁹⁵⁷—Currents;
- Annex 6⁹⁵⁸—MARPOL Convention;
- Annex 7⁹⁵⁹—Physical Oceanography;
- Annex 8⁹⁶⁰—Bioturbation;
- Annex 9⁹⁶¹—Dispersion Plume;
- Annex 10⁹⁶²—Sound Model;
- Annex 11⁹⁶³—Regional Bathymetry;
- Annex 12⁹⁶⁴—Impacts of Dredging;
- Annex 13⁹⁶⁵—Impacts of Sound on Marine Mammals;
- Annex 14⁹⁶⁶—Biological Recovery; and
- Annex 15⁹⁶⁷—ROV Video of the Project Area.

⁹⁵⁶ **C-0002**, MIA, 21 August 2015, pp. 1002-1004; **C-0002.04**, MIA, 21 August 2015, Annex 4.
⁹⁵⁷ **C-0002**, MIA, 21 August 2015, pp. 1004-1006; **C-0002.05**, MIA, 21 August 2015, Annex 5.
⁹⁵⁸ **C-0002**, MIA, 21 August 2015, pp. 1006-1007; **C-0002.06**, MIA, 21 August 2015, Annex 6.
⁹⁵⁹ **C-0002**, MIA, 21 August 2015, pp. 1007-1014; **C-0002.07**, MIA, 21 August 2015, Annex 7.
⁹⁶⁰ **C-0002**, MIA, 21 August 2015, pp. 1014-1015; **C-0002.08**, MIA, 21 August 2015, Annex 8.
⁹⁶¹ **C-0002**, MIA, 21 August 2015, pp. 1015-1017; **C-0002.09**, MIA, 21 August 2015, Annex 9.
⁹⁶² **C-0002**, MIA, 21 August 2015, pp. 1017-1018; **C-0002.10**, MIA, 21 August 2015, Annex 10.
⁹⁶³ **C-0002**, MIA, 21 August 2015, p. 1018; **C-0002.11**, MIA, 21 August 2015, Annex 11.
⁹⁶⁴ **C-0002**, MIA, 21 August 2015, pp. 1018-1019; **C-0002.12**, MIA, 21 August 2015, Annex 12.
⁹⁶⁵ **C-0002**, MIA, 21 August 2015, p. 1020; **C-0002.13**, MIA, 21 August 2015, Annex 13.
⁹⁶⁶ **C-0002**, MIA, 21 August 2015, p. 1020; **C-0002.14**, MIA, 21 August 2015, Annex 14.
⁹⁶⁷ **C-0002**, MIA, 21 August 2015, p. 1020; **C-0002.15**, MIA, 21 August 2015, Annex 15.

Annex B—Denial Categories

1. SEMARNAT relies on impacts that can be grouped into seven categories.

Reasons for Denying the Project Under Article 35(iii)(b) of LGEEPA:

- The impact on sea turtles as a species; and
- The impact on other protected or endangered species;⁹⁶⁸

Environmental Impacts Supporting Those Reasons:

- The impact of deep seabed mining and sediment plumes;
 - Regional ecological or other impacts, being impacts on:⁹⁶⁹
 - Primary production (the growth of phytoplankton through photosynthesis, which is the foundation of the marine food web);⁹⁷⁰
 - The trophic network generally (the food web); or
 - The Gulf of Ulloa as a whole, as a Biological Action Center (“**BAC**”);
 - Untested and insufficient mitigation measures, including a lack of adaptive management;⁹⁷¹
 - Impacts on benthic organisms (and the unproven nature of the seabed remediation measures selected);⁹⁷² and
 - Impacts on pelagic communities and, therefore, fishing.⁹⁷³
2. Much of SEMARNAT’s reasoning, in itself, demonstrates the lack of good faith applied in making the decision, which is explained by [REDACTED].⁹⁷⁴
 3. In addition, SEMARNAT asserts that there is insufficient scientific evidence to determine whether the environment will be gravely and irreversibly damaged by the Project, and therefore purport to have concluded that the MIA should be denied based on the

⁹⁶⁸ C-0009, SEMARNAT Denial Decision, 12 October 2018, pp. 468-486.

⁹⁶⁹ C-0009, SEMARNAT Denial Decision, 12 October 2018, pp. 222-223.

⁹⁷⁰ C-0009, SEMARNAT Denial Decision, 12 October 2018, pp. 107-125; Deltares ER1, Annex A, p. 46.

⁹⁷¹ C-0009, SEMARNAT Denial Decision, 12 October 2018, pp. 323, 329-388, 499-505.

⁹⁷² C-0009, SEMARNAT Denial Decision, 12 October 2018, pp. 326, 483-488, 505-506.

⁹⁷³ C-0009, SEMARNAT Denial Decision, 12 October 2018, pp. 122-125, 135-137, 483-488.

⁹⁷⁴ [REDACTED]

“precautionary principle.”⁹⁷⁵ This finding is primarily based on SEMARNAT’s comparison between the Project and deep seabed mining, considered below, and is unjustified because of the flaws in that comparison.

4. Further, this was not a reason stated in the 2016 Denial, nor was it raised during SEMARNAT’s evaluation of the Project prior to the 2016 Denial, its information requests, or in its meetings with ExO.⁹⁷⁶ Throughout the evaluation of the MIA, SEMARNAT clearly considered that it had sufficient information to assess the impacts of the Project.
5. Mr. Herrera, a Mexican environmental law expert and professor, explains that the precautionary principle is applied in Mexico when:⁹⁷⁷
 - There exists the risk of serious or irreversible damage;
 - There is lack of scientific certainty about the possible risks; or
 - There is uncertainty about the possible consequences.
6. Here, there is no risk of serious or irreversible damage to the environment. As Deltares notes, the Project uses a “well-established work method, using a Trailing Suction Hopper Dredge (TSHD) with well-tested techniques to *minimize environmental impact*,”⁹⁷⁸ and the “extraction process employs well-established techniques minimizing physical environmental impact.”⁹⁷⁹
7. The MIA, and the 2018 Denial itself, show that the potential risks are known with certainty and are capable of being anticipated, controlled, measured, and reduced, in each case based on experience elsewhere (for example, in relation to key aspects of the 2018 Denial such as sea turtle mortality, sediment plumes, and restoration of the seabed). As noted above, Deltares concludes that “All of the aspects that meet a precautionary approach as

⁹⁷⁵ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 512.

⁹⁷⁶ Lozano WS, ¶ 84.

⁹⁷⁷ Herrera ER, ¶ 84.

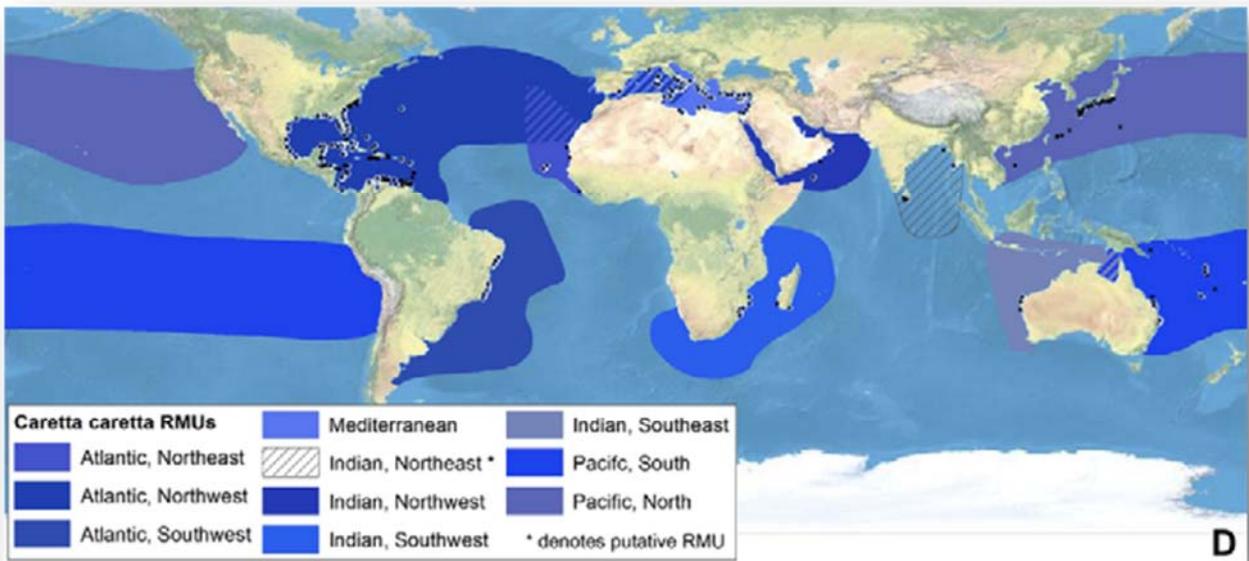
⁹⁷⁸ Deltares ER1, Summary, p. 1.

⁹⁷⁹ Deltares ER1, Section 3.2, p. 14.

described in Durden et al., (2017) [referenced below] are addressed or proposed in the ExO project.”⁹⁸⁰

The Impact of the Project on Sea Turtles

8. The idea that the Project could have an impact on the *Caretta caretta* species as a whole, as would need to be the case to deny approval under Article 35, is patently absurd.
9. First, it fails to take into the global range of *Caretta caretta*. While it is true that the *Caretta caretta* can be found in the Gulf of Ulloa, where the Project was to take place, they also inhabit wide swaths of the world’s oceans, including the North and South Pacific, the North and South Atlantic, the Indian Ocean, and the Mediterranean Sea, as demonstrated by the following image:⁹⁸¹



10. Second, it fails to take into account their regional distribution. For example, a 2007 study by Peckham and others identified a core area within which Gulf of Ulloa *Caretta caretta* were concentrated of 4,115 km².⁹⁸² Subsequently, the leading study in the field, the

⁹⁸⁰ Deltares ER1, Section 5.1, p. 37.

⁹⁸¹ **C-0198**, Wallace, et al., “Regional Management Units for Marine Turtles: A Novel Framework for Prioritizing Conservation and Research across Multiple Scales,” PLoS ONE, 2010, p.4; S. Flores ER, ¶¶ 34-36.

⁹⁸² **C-0038**, S. Peckham, et al., “Small-Scale Fisheries Bycatch Jeopardizes Endangered Pacific Loggerhead

Seminoff Study, found that *Caretta caretta* in the Gulf of Ulloa have a mean annual home range of 55,468.5 km², with an annual core area of 5,098.1 km², and a population of 38,396 to 49,712 individual turtles.⁹⁸³ These ranges can be favorably compared to an annual dredging area of about 1 km² in the Project.

11. Third, it relies on a massively inflated figure for the population density of *Caretta caretta*:

- SEMARNAT falsely asserts that the population density of *Caretta caretta* in the Project area is between one to 28 *Caretta caretta* turtles per km² in Polygons 1, 2, and 3 of the Project area, and 54 to 85 in Polygons 4 and 5.⁹⁸⁴ It created a diagram showing that density against the Project's polygon work areas, and relied on that in the Denial.⁹⁸⁵
- Detailed analysis of *Caretta caretta* density and abundance in the Gulf of Ulloa (as well as their range) is contained in the Seminoff Study.⁹⁸⁶ That study reported the results of aerial surveys to determine the density, abundance, and distribution of loggerhead turtles in the Gulf of Ulloa between 2005 and 2007
- The estimated range of population density in the Gulf of Ulloa reported in the Seminoff study over three years is 0.577-0.747 (average of 0.650) per km².⁹⁸⁷
- The extraordinary difference between these density figures and those asserted by SEMARNAT arises because SEMARNAT misrepresented data showing the frequency of return of *Caretta caretta* individuals to an area with the population density of *Caretta caretta* (e.g. the fact that an individual turtle returned to a particular km² 20 times does not mean there is density of 20 turtles in that km²).⁹⁸⁸
- The frequency data was taken by SEMARNAT from a study by Peckham and others entitled "Small-Scale Fisheries Bycatch Jeopardizes Endangered Pacific

Turtles," PLoS ONE, 2007; S. Flores ER, ¶¶ 22(iii).

⁹⁸³ **C-0072**, J.A. Seminoff, et al., "Loggerhead sea turtle abundance at a foraging hotspot in the eastern Pacific Ocean: implications for at-sea conservation," Endangered Species Research, 2014, p. 213.

⁹⁸⁴ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 290-291; **C-0008**, SEMARNAT Denial Decision, 7 April 2016, pp. 220-221.

⁹⁸⁵ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 290, Fig. 2; **C-0008**, SEMARNAT Denial Decision, 7 April 2016, p. 221.

⁹⁸⁶ **C-0072**, J, J.A. Seminoff, et al., "Loggerhead sea turtle abundance at a foraging hotspot in the eastern Pacific Ocean: implications for at-sea conservation," Endangered Species Research, 2014, pp. 212-214

⁹⁸⁷ **C-0072**, J, J.A. Seminoff, et al., "Loggerhead sea turtle abundance at a foraging hotspot in the eastern Pacific Ocean: implications for at-sea conservation," Endangered Species Research, 2014, p. 13.

⁹⁸⁸ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 290-291; S. Flores ER, ¶ 84; Newell WS, ¶¶ 33-36.

Loggerhead Turtles” (the “**Peckham Study**”),⁹⁸⁹ in particular Figure 1,⁹⁹⁰ which was replicated in the 2016 Denial⁹⁹¹ (and subsequently in the 2018 Denial).⁹⁹² The goal of the Peckham Study was to assess the overlap between the range of *Caretta caretta* and small-scale fisheries by assessing their range and movement, not to assess the density of the wider *Caretta caretta* population.⁹⁹³

- The extent of the error can be seen by the fact that the Seminoff Study reports that the highest density of *Caretta caretta* ever found was 3.5 km² in the Chesapeake Bay in the United States.⁹⁹⁴
- SEMARNAT reached the conclusion on population density despite quoting extensively from the Seminoff Study in the 2018 Denial, including in relation to turtle density,⁹⁹⁵ but the SEMARNAT ignored the study when asserting that the density of *Caretta caretta* turtles in the Project area ranged from one to 85 turtles per km².⁹⁹⁶
- Further, SEMARNAT persisted in the inflation of *Caretta caretta* density in the Second Denial, despite ExO pointing out the error in the Technical and Scientific Report.⁹⁹⁷ SEMARNAT did not even attempt to address those points.

12. Fourth, the second Denial does not evaluate the distribution of *Caretta caretta* at depth or the likelihood of finding *Caretta caretta* on the seabed at the 80-meter average depth of the Project. Nor do any of the studies cited by SEMARNAT in its Denials.

- For example, the studies by Peckham and Seminoff consider only the distribution of *Caretta caretta* by longitude and latitude, based on surface or near surface observations (e.g. less than three meters), with a correction factor being applied

⁹⁸⁹ **C-0038**, S. Peckham, et al., “Small-Scale Fisheries Bycatch Jeopardizes Endangered Pacific Loggerhead Turtles,” Plos ONE, 2007. The study involved the tagging and movement tracking of 30 loggerhead turtles between 1996 and 2005 using satellite telemetry data.

⁹⁹⁰ **C-0038**, S. Peckham, et al., “Small-Scale Fisheries Bycatch Jeopardizes Endangered Pacific Loggerhead Turtles,” Plos ONE, 2007, p. 2. Fig. 1 is a utilization distribution map showing the number of occasions each turtle was tracked in a particular square kilometer (ranging from 0 to 230 occasions).

⁹⁹¹ **C-0008**, SEMARNAT Denial Decision, 7 April 2016, p. 221.

⁹⁹² **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 289.

⁹⁹³ **C-0038**, S. Peckham, et al., “Small-Scale Fisheries Bycatch Jeopardizes Endangered Pacific Loggerhead Turtles,” Plos ONE, 2007, p. 1.

⁹⁹⁴ **C-0072**, J. J.A. Seminoff, et al., “Loggerhead sea turtle abundance at a foraging hotspot in the eastern Pacific Ocean: implications for at-sea conservation,” Endangered Species Research, 2014, p. 215. That finding may also have included sightings of other species of turtle.

⁹⁹⁵ See, for example, **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 264-269, 284, 287. Indeed, SEMARNAT includes a facsimile of the full Seminoff Study on pp. 264-269 of the Denial.

⁹⁹⁶ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 290-291.

⁹⁹⁷ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 16-17.

to sightings to take account of turtles that may have been at these depths at point of overflight.

- Assessing the presence of *Caretta caretta* at the depth of the dredging is obviously an essential part of the evaluation of the impact the Project could have on the species. In any event, the TFJA had directed SEMARNAT “specifically to rule on the plaintiff's argument [. . .] that the dredging activities of the project [. . .] would be carried out at a depth that would not affect the habitat of the sea turtles in question.”⁹⁹⁸
- It should be inferred that SEMARNAT did not analyze the likelihood of *Caretta caretta* being encountered in the areas to be dredged, as they are not part of the habitat of *Caretta caretta* for the reasons summarized in the expert report of Professor Flores-Ramirez.⁹⁹⁹
- As explained by Professor Flores-Ramirez,¹⁰⁰⁰ the distribution of the *Caretta caretta* by depth is mainly determined by the interaction between the water temperature and the body size of the individuals (as well as food supply). This is because the metabolism of the *Caretta caretta* depends on the temperature of the surrounding environment, and individuals actively seek optimal water temperatures where metabolism is most efficient. Juvenile turtles, which make up the bulk of the Gulf of Ulloa population, show the greatest dependency on water temperature.¹⁰⁰¹ Research suggests a typical minimum temperature of 15°C and preferable optimal temperature of 17°C or more for *Caretta caretta* turtles.¹⁰⁰² In the Project area, that means the habitat of *Caretta caretta* turtles is typically at a maximum of 60 meters, well above the depths at which the dredging will take place.¹⁰⁰³
- This means that turtles would not typically forage for food in the dredging area, even if a food source were present.

13. However, fifth, the seabed at 80 meters would not in any event be a foraging area for turtles:

⁹⁹⁸ C-0170, TFJA Ruling, 21 March 2018, p. 212.

⁹⁹⁹ S. Flores ER, ¶¶ 23, 59-60.

¹⁰⁰⁰ S. Flores ER, ¶¶ 23, 59-60.

¹⁰⁰¹ S. Flores ER, ¶ 72; C-0044, S. Peckham, et al., “Demographic implications of alternative foraging strategies in juvenile loggerhead turtles *Caretta caretta* of the North Pacific Ocean,” *Marine Ecology Progress Series*, March 2011.

¹⁰⁰² S. Flores ER, ¶¶ 71-76; C-0078, O. Zaitsev, et al., “Oceanographic conditions over the continental shelf off Magdalena Bay (Mexico) in 2011–2012,” *Ciencias Marinas*, 4 March 2014.

¹⁰⁰³ S. Flores ER, ¶¶ 23, 66; albeit that in autumn, seabed temperatures will be within the optimal range of *Caretta caretta*.

- The most dominant species groups are small nematode and polychaete worms, with the areas being relatively poor in terms of species density and biomass.¹⁰⁰⁴ These are not prey for *Caretta caretta*.¹⁰⁰⁵
 - SEMARNAT suggests that pelagic red crabs would be affected by the Project, and indirectly *Caretta caretta*, as they feed on red crabs. However, it is incorrect that pelagic red crabs have any material presence on the seabed in the areas where ExO was to dredge. That was ExO's conclusion in the MIA,¹⁰⁰⁶ which has been confirmed in the Deltares Report entitled "Exploraciones Oceanicas: Potential effects on the red crab, *Pleuroncodes planipes*."¹⁰⁰⁷ That report notes that pelagic red crabs have a juvenile stage in the water column (not on the seabed) and an adult stage on the seabed, but typically at depths well below the Project area. Deltares concludes: "The habitat of the pelagic stages does not appear to be affected. The habitat of the benthic adult stages appears to be mostly outside the range of influence, although particularly in spring some individuals may be present at the bed in the Concession area. This is only a small part of the population in and around the SAR. The benthos at the concession site appears to be unimportant to the species as a source of food. The main conclusion is therefore that the population of red crab *P. planipes* in and around the Gulf of Ulloa is unlikely to be affected by the proposed activities at the ExO-Project site."¹⁰⁰⁸
 - Further, red crabs are typically prey for *Caretta caretta* in their pelagic juvenile phase, which would not be affected by the dredging, and in any event, the juveniles and adults are abundant in the Gulf of Ulloa.¹⁰⁰⁹ This was confirmed by Deltares¹⁰¹⁰ and has also been confirmed in a paper by Merello Marine, an environmental consultancy specializing in sea turtles which was retained by Odyssey to advise following the First Denial.¹⁰¹¹
14. SEMARNAT also asserts that ExO's mitigation measures do not address the impact of the Project on the habitat of *Caretta caretta* and focus only on entrainment.¹⁰¹²
15. This entirely misses the point that entrainment is the most significant threat posed to sea turtles encountering dredging operations, and it is right that it is the focus of mitigation

¹⁰⁰⁴ **C-0002**, MIA, 21 August 2015, pp. 463-464; Deltares ER1, Section 4.3.1, pp. 29-30.

¹⁰⁰⁵ Deltares ER1, Section 4.5.2, p. 33.

¹⁰⁰⁶ **C-0002**, MIA, 21 August 2015, pp. 381-382, 422-423.

¹⁰⁰⁷ Deltares ER2, Section 6, pp. 15-16.

¹⁰⁰⁸ Deltares ER2, Summary, p. 4.

¹⁰⁰⁹ S. Flores ER, ¶ 24.

¹⁰¹⁰ Deltares ER2, Section 7, p. 17.

¹⁰¹¹ **C-0151**, Technical and Scientific Report, 9 June 2016, pp. 29-31.

¹⁰¹² **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 500.

measures.¹⁰¹³ SEMARNAT did not evaluate the proven success of the turtle protection measures that ExO proposed, despite the TFJA's express direction for SEMARNAT to analyze those measures.¹⁰¹⁴

16. In any event, ExO's mitigation measures are not directed only at entrainment, as SEMARNAT suggests. ExO's Marine Turtle Protection Program, outlined in Chapter VI of the August 2015 MIA,¹⁰¹⁵ the Additional Information,¹⁰¹⁶ and the Technical and Scientific Report,¹⁰¹⁷ commits to supporting efforts for the conservation of sea turtles, in particular supporting sanctuaries and turtle hatcheries. Also, the mitigation measures related to the return of the non-economic material beyond the euphotic zone and surface waters and up to 7 meters above the seafloor prevents changes into the turbidity of the upper water column where turtles (if any) could be found.¹⁰¹⁸

Impact on Other Protected or Endangered Species

17. SEMARNAT asserts, without any detailed explanation, that the Project would affect other protected or endangered species, (and pelagic fish, and therefore fisheries) without explaining how, save to assert that it would arise because of the impact of deep seabed mining, sediment plumes generated by the Project, and the Project's impact on red crab, benthic organisms, and primary production. Red crabs are addressed above in the context of sea turtles. The other issues are addressed below.

The Impact of Deep Seabed Mining and Sediment Plumes

18. In the 2018 Denial (but not in the 2016 Denial), SEMARNAT concluded that **“loss of biodiversity will be unavoidable because mining directly destroys a habitat and indirectly degrades large volumes of the water column and areas of the seabed due to the generation of sediment plumes that are enriched with bioavailable materials.”**¹⁰¹⁹

¹⁰¹³ Clarke WS, ¶ 31; S. Flores ER, ¶ 123.

¹⁰¹⁴ S. Flores ER, ¶¶ 125-126.

¹⁰¹⁵ C-0002, MIA, 21 August 2015, pp. 803-817.

¹⁰¹⁶ C-0005, Additional Information, 3 December 2015, pp.28-29, 332-335.

¹⁰¹⁷ C-0151, Technical and Scientific Report, 9 June 2016, pp. 32-49.

¹⁰¹⁸ Pliego ER, ¶¶ 137-141.

¹⁰¹⁹ C-0009, SEMARNAT Denial Decision, 12 October 2018, p. 508.

SEMARNAT added that the Project would alter the composition and transport of sediments, alter the quality of seawater, and increase the turbidity of the water column.

19. These conclusions are founded on the assertion that the dredging would generate sediment plumes by near-surface discharge of non-economic material and water. The 2018 Denial does not evaluate the introduction of the Eco-tube to avoid near-surface discharge, eliminate sediment plumes in surface layers where primary production occurs, and effectively eliminate the sediment plume in lower layers, although it acknowledges its use.¹⁰²⁰ Deltares concludes, for example, that it is clear¹⁰²¹ “the size of the area impacted by the plume when releasing excess sediment through an eco-pipe is tiny,”¹⁰²² and adds that because “*use of the eco-pipe completely prevents dispersal of any dredge material into the photic zone, it is clear that there can be no effect on primary production.*”¹⁰²³
20. Compounding and extending that error, SEMARNAT based its findings on deep seabed mining (i.e. mining in very deep water) rather than on dredging at the depth of the Project. The key studies relied upon by SEMARNAT were:
- A study by Miller and others (2018) entitled “An overview of seabed mining including the current state of development, environmental impacts and knowledge gaps, 2018”¹⁰²⁴ (the “**Miller Study**”);
 - A study by Durden and others (2017) entitled “A procedural framework for robust environmental management of deep-sea mining projects”¹⁰²⁵ (the “**Durden1 Study**”);

¹⁰²⁰ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 72.

¹⁰²¹ Referring to the Eco-tube as the eco-pipe.

¹⁰²² Deltares ER1, Section 4.1.3, p. 23.

¹⁰²³ Deltares ER1, Section 4.2.3, p. 28 (emphasis added).

¹⁰²⁴ **C-0168**, K. A. Miller, et al., “An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps,” *Frontiers in Marine Science*, ResearchGate, 10 January 2018.

¹⁰²⁵ **C-0156**, J.M. Durden, et al., “A procedural framework for robust environmental management of deep-sea mining projects using a conceptual model,” *Marine Policy* 84, 2017.

- A study by Durden and others (2018) entitled “Environmental Impact Assessment Process for Deep-Sea Mining in the Area,”¹⁰²⁶ which refers to deep-sea mining outside the jurisdiction of national areas (the “**Durden2 Study**”); and
 - A study by Van Dover and others (2016) entitled “Biodiversity loss from deep-sea mining”¹⁰²⁷ (the “**Van Dover Study**”).
21. SEMARNAT stated that the Miller Study “is considered the most reliable scientific information” due to its “specificity, knowledge, marketing and recent data,” and said that it is “owned and adopted by [SEMARNAT] as technical support for the assessment of the project.”¹⁰²⁸
22. The 2018 Denial does not evaluate whether the Project can be fairly compared to the deep seabed mining projects considered in the Miller, Durden, and Van Dover Studies, nor does it identify any similarities between the Project and these deep seabed projects. The comparison is invalid, as explained by Deltares.¹⁰²⁹ Whilst SEMARNAT relies on literature regarding policy and ecology for deep seabed mining, it neglects to reference literature on dredging or shallow marine sediment projects.
23. Section 5.1 of the Deltares Report, for example, identifies the key differences between deep seabed mining and the Project, noting that the Miller Study “focuses on deep/abyssal sea mining using different techniques in different habitats to mine polymetallic nodules, cobalt crusts, and seafloor massive sulfides associated with hydrothermal vents. These habitats typically exist below 2000 m. There is no doubt that the novel mining techniques described in the [Miller Study] are very destructive of extremely sensitive and slow forming habitats, that are not well understood [. . .] This is in contrast with the mining technique being applied in the ExO project, which is well understood, and [a] common approach used worldwide to dredge for maintenance purposes or to extract aggregates in far shallower water depths.”¹⁰³⁰

¹⁰²⁶ **C-0166**, J. M. Durden, et. al., “Environmental Impact Assessment Process for Deep-Sea Mining in ‘the Area’,” Marine Policy 87 (2018).

¹⁰²⁷ **C-0162**, Van Dover, et al., “Biodiversity loss from deep-sea mining,” Nature Geoscience, 1 July 2017.

¹⁰²⁸ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 318.

¹⁰²⁹ Deltares ER1, Summary, p. 6, and Section 5.1, pp. 36-38.

¹⁰³⁰ Deltares ER1, Section 5.1, pp. 36-37 (emphasis added).

24. The Durden1 and Durden2 Studies discuss environmental impact assessment frameworks for environmental management of deep seabed mining outside of national jurisdictions, in what UNCLOS calls the “Area” which is managed by the International Seabed Authority (“ISA”).¹⁰³¹ However, Mexico has its own environmental legislation and a detailed and well-established environmental impact assessment process.
25. SEMARNAT emphasises the following quote from the Durden2 Study, in relation to mining within the jurisdiction of the ISA: “[a] high degree of uncertainty exists in all aspects of the environmental management of [underwater mining] projects: a lack of environmental understanding at all spatial and temporal scales; mining and support technologies that are still under development; and environmental regulations that are still in draft form.”¹⁰³² The paper outlines ways of dealing with these uncertainties through application of the precautionary principle and adaptive management.
26. However, as Deltares states, “[t]his paper is taken out of context by Semarnat as the lack of understanding refers to deep sea (1000 m+) habitats, to mining techniques that are very different than those well-tested methods proposed in the ExO project, with a history of tested mitigation measures [. . .] and the area covered by the ExO project is within the remit of Mexican environmental regulations.”¹⁰³³
27. Deltares concludes, “[a]ll of the aspects that meet a precautionary approach as described in [the Durden1 Study] are addressed or proposed in the ExO project.”¹⁰³⁴
28. Further, potentially unlike areas of deep seabed mining, the dredged areas will recover relatively quickly, although there is a debate as to the precise period.¹⁰³⁵ ExO intended to take steps to monitor and accelerate that recovery through the placement of non-economic material in dredged furrows (per the “Building with Nature” Program) by

¹⁰³¹ See generally: **CL-0130**, United Nations Convention on the Law of the Sea, art. 133-155.

¹⁰³² **C-0009**, SEMARNAT Denial Decision, 12 October 2018, p. 329; **C-0166**, J. M. Durden, et. al., “Environmental Impact Assessment Process for Deep-Sea Mining in ‘the Area’,” *Marine Policy* 87 (2018), p. 195.

¹⁰³³ Deltares ER1, Section 5.1, p. 37.

¹⁰³⁴ Deltares ER1, Section 5.1, p. 37.

¹⁰³⁵ Deltares ER1, Section 5.3, pp. 38-39; Newell WS, ¶ 24.4.

staggering annual work areas to allow recolonization from adjacent undisturbed deposit areas and through adaptive monitoring programs.¹⁰³⁶

Ecological or Regional Impacts on the BAC, Primary Production, etc.

29. The 2018 Denial comprises a series of statements that appear to suggest the Project would have a material impact on the wider Gulf of Ulloa. SEMARNAT describes the area as a “Biological Action Center.”¹⁰³⁷ This is a term used in Spanish language literature (Centros de Actividad Biológica) to indicate areas of extremely high productivity and a rich ecosystem.¹⁰³⁸ The description is apt for the Gulf of Ulloa as a whole.¹⁰³⁹ However, the areas ExO will dredge are low in biodiversity. Deltares concludes, for example, that the dredging area “is a tiny fraction of the total of the Gulf of Ulloa and it is a section where the benthic fauna is small and poor in biomass, compared to other areas. *We therefore expect little effect of the dredging activities via the food web.*”¹⁰⁴⁰
30. As noted above, the annual area affected by dredging would be a strip approximately 3.5 km long and about 200 to 300 meters wide.¹⁰⁴¹ This amounts to just 1 km² in total each year, out of a total Concession of 1,148 km², with the SAR comprising 17,737.48 km² (i.e. 0.0056% would be dredged per year).
31. The existence of the BAC, and its characteristics, are driven by global or regional properties, such as oceanographic circulation and processes, the structure of the shoreline, and regional upwelling of colder waters.¹⁰⁴² Only modifications to these large-scale factors and events could alter the BAC. SEMARNAT does not explain how the Project could possibly affect these processes or have any impact on biomass, nutrients, and plankton on a regional level. This is invariably because it could not.¹⁰⁴³

¹⁰³⁶ **C-0002**, MIA, 21 August 2015, pp. 689-690, 786, 794, 895, 911.

¹⁰³⁷ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 222-223.

¹⁰³⁸ Deltares ER1, Annex A, p. 45.

¹⁰³⁹ Newell WS, ¶¶ 44.3-44.4.

¹⁰⁴⁰ Deltares ER1, Section 4.5, p. 33 (emphasis added).

¹⁰⁴¹ **C-0002**, MIA, 21 August 2015, pp. 654-655.

¹⁰⁴² Deltares ER1, Section 4.2.2, pp. 27-28; Newell WS, ¶ 44.4.

¹⁰⁴³ Newell WS, ¶ 40.4.

32. SEMARNAT asserts that the Project would reduce primary production (being the growth of phytoplankton, which is the base of the marine food web) in the Gulf of Ulloa.¹⁰⁴⁴ However, primary production takes place in the euphotic zone,¹⁰⁴⁵ which in the Gulf of Ulloa is well above the dredging areas, although its depth can vary.¹⁰⁴⁶ The 2018 Denial asserts that primary production will be reduced because of sediment plumes caused by the dredging. That assertion, again, ignores the intended use of the Eco-tube to deposit non-economic materials seven meters above the seabed, well below the layers of water in which primary production takes place. Deltares concludes, for example, that “[u]se of the eco-pipe completely prevents dispersal of any dredge material into the photic zone, [and] it is clear that there can be no effect on primary production, either by reducing light availability or by increasing phosphate levels.”¹⁰⁴⁷ In any event, the sediment plumes modelled without the Eco-tube for the September 2014 MIA demonstrate that the impact of near-surface discharge is local and could not affect primary production across the Gulf of Ulloa.
33. SEMARNAT asserts that ExO did not develop a study with any specific model to identify impact on primary productivity and the trophic network in the region,¹⁰⁴⁸ and suggests that ExO did not consider cumulative and synergistic impacts in the MIA.¹⁰⁴⁹ This was not suggested by SEMARNAT in the 2016 Denial, nor did it come up in its meetings with ExO.
34. The assertion simply ignores the studies based on a wide range of oceanographic and biological analyses, including baseline studies of the Gulf of Ulloa, which form the basis of the MIA.¹⁰⁵⁰ Those studies, which were coordinated by Dr. Newell working in tandem with MESL¹⁰⁵¹ and SAMS,¹⁰⁵² included analyses of the composition of benthic and

¹⁰⁴⁴ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 373, 493; Deltares ER1, Annex A, p. 46.
¹⁰⁴⁵ Contrary to SEMARNAT’s assertion that the loss of benthic organisms could affect primary production: see Deltares ER1, Section 4.3.1, pp. 29-30.
¹⁰⁴⁶ Deltares ER1, Section 4.2.3, pp. 28-29.
¹⁰⁴⁷ Deltares ER1, Section 4.2, p. 26.
¹⁰⁴⁸ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 492-493.
¹⁰⁴⁹ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 479, 504, 506.
¹⁰⁵⁰ Newell WS, ¶ 242; Lozano WS, ¶¶ 13-18.
¹⁰⁵¹ **C-0102**, MESL Don Diego Marine Ecological Report 2014, 21 January 2015.
¹⁰⁵² **C-0002.08**, MIA, 21 August 2015, Annex 8.

epibenthic communities present in the Project area, their resilience and recovery rates, and methods to minimize impacts on these species (the results of which are detailed above).¹⁰⁵³ The comment also ignores the HR Wallingford report entitled “Assessment of minimal impact mining operations.”¹⁰⁵⁴

35. SEMARNAT used “network diagrams” to model significant, residual, and cumulative impacts of the Project, to compare with the impacts identified and assessed by ExO. Network diagrams are a well-known initial measure to evaluate the possible environmental impacts of a project, although their use is not mandated in the relevant legislation nor in guidelines issued by SEMARNAT.¹⁰⁵⁵ However, network diagrams only summarize what the potential impacts might be. Other tools evaluate the alleged impacts and their relative importance.
36. The MIA was compiled¹⁰⁵⁶ by former SEMARNAT officials who have moved to private practice and used a number of valid tools to assess the environmental impact, including geographical information systems (“GIS”), cause-effect interaction networks (a form of network diagram), interaction matrices, and expert opinions. The criteria and attributes used in the identification, characterization, and evaluation of the environmental impacts of the Project are clear and based on objective information. Chapter V of the MIA evaluates significant, residual, and cumulative impacts, in light of the information contained in the previous sections of the document, but with different methodologies applying similar principles.

Untested and Insufficient Mitigation Measures, Including a Lack of Adaptive Management

37. SEMARNAT also suggested in the 2018 Denial that the mitigation measures proposed by ExO were untested and insufficient, and should have included adaptive management. SEMARNAT had not suggested this to ExO in the meetings regarding the MIA.¹⁰⁵⁷ Further,

¹⁰⁵³ **C-0002.12**, MIA, 21 August 2015, Annex 12.

¹⁰⁵⁴ **C-0121**, HR Wallingford Report, “Assessment of minimal impact mining operations,” 29 July 2015.

¹⁰⁵⁵ Pliego ER, ¶ 197.

¹⁰⁵⁶ Oppermann WS, ¶ 51.

¹⁰⁵⁷ Lozano WS, ¶ 35.

the 2016 Denial made no reference to the purported inadequacy of ExO's mitigation measures.

38. Here, responsibly and helpfully, and in accordance with LGEEPA, ExO had proposed detailed mitigation measures that SEMARNAT could have adopted or developed as a basis for other conditions.¹⁰⁵⁸ These measures targeted the potential environmental impacts identified in the August 2015 MIA.¹⁰⁵⁹ Key examples include the package of turtle protection measures in relation to the risk of turtle mortalities, the introduction of the Eco-tube to minimize sediment plumes and any impact on primary production and pelagic fish, and the measure to promote seabed recovery. It is not correct to describe these programs as untested, as described above

- The Project uses well-established dredging techniques with well-tested techniques to minimize environmental impact.¹⁰⁶⁰
- The package of sea turtle protection measures is based on significant research in the United States as to the best ways to protect turtles from dredging and reflects mandatory regulatory guidance issued by the NMFS in detailed Biological Opinions.
- Similarly, the Post-Dredging Seabed Restoration Program drew heavily on detailed research of analogous benthic organisms in the North Sea.¹⁰⁶¹

39. Further, SEMARNAT's Denial in respect of mitigation measures was based on two false assertions. The first was that adaptive management was not included in the Project, and the second was that ExO did not consider establishing biological corridors with dredging activity.

40. Adaptive management was always a key theme of the Project.¹⁰⁶² It had been discussed between ExO and SEMARNAT in the discussions following the submission of the September 2014 MIA and the August 2015 MIA.¹⁰⁶³ ExO's adaptive management

¹⁰⁵⁸ **C-0002**, MIA, 21 August 2015, pp. 769-916.

¹⁰⁵⁹ Pliego ER, ¶¶ 163-164.

¹⁰⁶⁰ Deltares ER1, ¶¶ 3.1-3.5.

¹⁰⁶¹ Newell WS, ¶¶ 24.3-24.4.

¹⁰⁶² Newell WS, ¶ 27; Lozano WS, ¶¶ 46, 68; **C-0002**, MIA, 21 August 2015, pp. 779-783.

¹⁰⁶³ Lozano WS, ¶ 46; **C-0005**, Additional Information, 3 December 2012, pp. 327, 331, 372, 376; **C-0147**, Supporting letters sent by ExO to SEMARNAT, 6 April 2016.

programs included real-time monitoring of the dredging operations, with processes to identify, quantify, and report any environmental impacts of the Project and to adjust those processes as necessary.¹⁰⁶⁴ Specific measures included, for example: the monitoring and reporting of benthic in-fauna levels and (if necessary) application of corrective actions to promote seabed recovery;¹⁰⁶⁵ the deployment of independent observers on board the TSHD to monitor and report any turtle mortalities;¹⁰⁶⁶ the use of acoustic and visual monitoring to determine when to suspend dredging in line with whale calving migrations;¹⁰⁶⁷ the monitoring of sea water and sedimentation to ensure standards are adhered to, and the adjustment of dredging procedures if these standards are not met;¹⁰⁶⁸ the monitoring of turbidity and levels of suspended solids;¹⁰⁶⁹ and the implementation of additional measures (such as the restriction or relocation of dredging activities) if necessary.¹⁰⁷⁰

41. In addition, biological corridors were expressly included in the Program for Seabed Restoration.¹⁰⁷¹ As Mr. Pliego explains, “[u]nder the annual dredging scheme, the no-dredging areas and the temporary no-dredging areas serve as biological corridors, especially given the three-dimensional medium. Thus, considering the dredging for a year, the connectivity of habitats and ecosystems is sufficient. Given this scheme, it seems nonsensical to look for connectivity between the two parts that divide a dredging line that as a width of 200 meters on the ocean floor.”¹⁰⁷²

Impacts on Benthic Organisms (and the Unproven Nature of the Seabed Remediation Measures Selected)

42. SEMARNAT suggested in its 2018 Denial that there will be significant impact on benthic organisms (those associated with the seabed, whether buried, on, or moving or living in

¹⁰⁶⁴ See, for example, **C-0002**, MIA, 21 August 2015, pp. 895, 911; Lozano WS, ¶ 46.

¹⁰⁶⁵ **C-0002**, MIA, 21 August 2015, pp. 800-802.

¹⁰⁶⁶ **C-0002**, MIA, 21 August 2015, pp. 816-817.

¹⁰⁶⁷ **C-0002**, MIA, 21 August 2015, p. 839.

¹⁰⁶⁸ **C-0002**, MIA, 21 August 2015, pp. 895-896.

¹⁰⁶⁹ **C-0002**, MIA, 21 August 2015, pp. 903-911

¹⁰⁷⁰ **C-0002**, MIA, 21 August 2015, pp. 912-915.

¹⁰⁷¹ **C-0002**, MIA, 21 August 2015, pp. 786-787.

¹⁰⁷² Pliego ER, ¶ 175.

its vicinity), and that remediation of the seabed is not realistic or proven in the Gulf of Ulloa. SEMARNAT describes the remediation science as nascent and disparages ExO's assessment of seabed recovery based on studies in the North Sea.¹⁰⁷³ This finding appears to support the suggestion that the Project will affect the marine food web, and therefore *Caretta caretta* and other protected species. SEMARNAT did not produce evidence, citations or studies to quantitatively contravene ExO's assertions as included in the MIA.

43. It is correct that most of the organisms living in a dredged area will not survive the direct dredging process,¹⁰⁷⁴ as is true of all dredging projects. Here, however, the annual impact is limited to a 1 km² area of low biodiversity and with low abundance than exists in the wider SAR, which comprises 17,737.48 km².
44. SEMARNAT's assertions are infected by its invalid comparison between dredging and deep seabed mining. As explained by Dr. Newell, ExO's restoration program was based on detailed studies from the North Sea, undertaken during a long-running program sponsored by the United Kingdom government.¹⁰⁷⁵ That was the best data available, as the types of benthic organisms are similar to those in the Gulf of Ulloa, and there are no studies of seabed recovery from dredging in the Project area. Ongoing monitoring would have been used to adapt recovery efforts as necessary.
45. ExO's conclusion, which Deltares supports, is that seabed recovery would take place and the impact of the dredging would be temporary, although there is debate as to exactly how long this would take.¹⁰⁷⁶ However, even if the recovery took twice as long as predicted, there would be a relatively rapid rate of recolonization of the areas where the dredging has ceased. As Dr. Newell says: "Many of the small species inhabiting the area have a short life span and rapid rate of breeding. Other organisms are mobile and capable of migrating into previously dredged areas. Moreover, many of the species that have limited powers of movement, such as burrowing sea cucumbers (holothuroids), produce

¹⁰⁷³ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 172, 326, 505-506, 508.

¹⁰⁷⁴ Deltares ER1, Section 4.3.2, p. 30.

¹⁰⁷⁵ Newell WS, ¶ 24.3.

¹⁰⁷⁶ Newell WS, ¶ 24.4; **C-0002**, MIA, 21 August 2015, pp. 793-795; Deltares ER1, Sections 4.3.3 and 4.3.4, pp. 31-31.

a large amount of larvae that circulate in the plankton (a term for a large range of pelagic organisms that are carried by currents and tides) and recolonise areas following settlement. Studies have also shown that biological communities inhabiting sandy areas (like the Project area) have greater capacity for recolonisation than those from reef areas.”¹⁰⁷⁷ ExO intended,¹⁰⁷⁸ as Deltares recommends,¹⁰⁷⁹ to carry out detailed monitoring and adaptive management of seabed restoration, which ExO had already considered in its Project plans.

Impact on Pelagic Communities and Therefore Fishing

46. SEMARNAT suggests that the Project will impact pelagic communities and therefore fishing.¹⁰⁸⁰ This appears to be based on its comparison of the Project with deep seabed mining, the impact on primary production, and the impact on red crab. These issues are addressed above. This is not a valid ground for denying a MIA.

¹⁰⁷⁷ Newell WS, ¶ 24.4.

¹⁰⁷⁸ Newell WS, ¶¶ 24.6, 27; **C-0002**, MIA, 21 August 2015, pp. 793-795.

¹⁰⁷⁹ Deltares ER1, Section 4.3.4, pp. 31-32.

¹⁰⁸⁰ **C-0009**, SEMARNAT Denial Decision, 12 October 2018, pp. 122-125, 135-137, 483-488.