UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

UNITED STATES OF AMERICA, PEOPLE OF THE STATE OF CALIFORNIA, ex rel. CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, et al., Plaintiffs, v. HVI CAT CANYON, INC., f/k/a GREKA OIL & GAS, INC., Defendant.	Case No. CV 11-5097 FMO (SSx) **FINDINGS OF FACT AND CONCLUSIONS OF LAW**

INTRODUCTION

This is a joint action brought by the United States of America (the "United States") and the State of California ("California" or the "State"), ex rel. California Department of Fish and Wildlife ("DFW") and California Regional Water Quality Control Board ("Regional Board") (collectively, "plaintiffs" or the "Government"), against defendant HVI Cat Canyon, Inc., formerly known as Greka Oil & Gas, Inc. ("defendant" or "HVI"), asserting claims for violations of the Clean Water Act ("CWA"), 33 U.S.C. §§ 1251, et seq.; the Oil Pollution Act of 1990 ("OPA"), 33 U.S.C. §§ 2701 et seq.; California Water Code §§ 13000 et seq.; and California Fish and Game Code §§ 5650, et seq. (See Dkt. 56, First Amended Complaint ("FAC") at ¶¶ 1, 187-222).

Before trial, the court granted in part and denied in part the United States' Motion for Partial Summary Judgment. (See Dkt. 307, Court's Order of May 20, 2018). The court granted the motion with respect to HVI's liability under § 311(b) of the CWA, 33 U.S.C. § 1321(b), and § 301(a) of the CWA, 33 U.S.C. § 1311(a), for 10 of the 12 oil spills at issue in the United States' complaint. (Id. at 38). The court also granted the motion with respect to HVI's liability under § 1002(a) of the OPA, 33 U.S.C. § 2702(a), in connection with three oil spills and one threatened spill, and ordered HVI to pay the United States $2,243,687 in removal costs. (Id.). The court denied the motion as to HVI's liability under the CWA for two oil spills at its Bell Facility on December 27, 2008, and May 1, 2009, that reached Spring Canyon Tributary, and HVI's liability under the OPA for removal costs related to a threatened discharge of oil in April 2008, from the Bell Facility's Gato Ponds into Sisquoc Creek. (Id. at 37-38). Specifically, the court found triable issues as to whether Spring Canyon Tributary and Sisquoc Creek possess a significant nexus to a traditional navigable water (TNW), which determines whether the spills are within the CWA's jurisdiction. (See id. at 37-38).

A bench trial was held on the following federal claims: (1) liability for the two remaining spills and civil penalties for the 12 spills at the Bell and Zaca/Davis Facilities for violations of § 311(b) of the CWA, 33 U.S.C. § 1321(b); (2) liability and civil penalties for violations of 40 C.F.R. Part 112 requiring Spill Prevention, Control, and Countermeasure ("SPCC") Plans at 11 facilities, and Facility Response Plans ("FRPs") at the Bell and Zaca/Davis Facilities; and (3) liability for removal costs under § 1002(a) of the OPA, 33 U.S.C. § 2702(a), stemming from a spill at the Bell Facility on December 27, 2007, and the Gatos Ponds removal action in April 2008.[1] (See Dkt. 442, PTO at 10 & 33-34). The bench trial also addressed the State's claims for violations of California Water Code § 13350 and California Fish & Game Code §§ 12016, 13013, and 5650 involving some of the same oil spills, as well as additional spills that did not reach waters of the United States. (See id. at 11-13 & 34).

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[1] The bench trial also addressed plaintiffs' request for injunctive relief under § 301 of the CWA, 33 U.S.C. § 1311. (See Dkt. 442, Final Pretrial Conference Order ("PTO") at 10). However, plaintiffs subsequently informed the court that they were "no longer seeking injunctive relief" because the new owners of the facilities at issue "appear to be making good faith efforts to bring the Facilities into compliance." (See Dkt. 537, Plaintiffs' Supplemental Brief [] at 3).

Having reviewed and considered all the evidence presented during the bench trial, and the contentions and arguments of counsel, the court hereby makes the following findings of fact and conclusions of law in accordance with Rule 52(a) of the Federal Rules of Civil Procedure.[2]

Any finding of fact that more correctly constitutes a conclusion of law, and any conclusion of law that more correctly constitutes a finding of fact, should be treated as such.

FINDINGS OF FACT

I. HVI'S OIL PRODUCTION FACILITIES AND OPERATIONS IN SANTA BARBARA COUNTY.

1. HVI previously owned and/or operated[3] the following 11 oil and gas production facilities that engaged in drilling, producing, gathering, or storing oil or oil products (collectively, the "11 Facilities") in Santa Barbara County:

- Battles Facility, located at 1348 Battles Road, Santa Maria, from November 1999 to October 2020;
- Bell Facility, located at 6780 Palmer Road, Santa Maria, from November 1999 to October 2020;
- Casmalia Facility, located at 5080 Black Road, Santa Maria, from November 1999 to October 2020;
- Escolle Facility, located at 7275 Graciosa Road, Santa Maria, from November 1999 to October 2020;
- Lakeview Facility, located at 2617 East Clark Avenue, Santa Maria, from August

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[2] The court adopts the findings and conclusions set forth in the Court's Order of September 30, 2016, (Dkt. 205, "MSJ Order I"), 213 F.Supp.3d 1249 (C.D. Cal. 2016), and the Court's Order of May 20, 2018, (Dkt. 307, "MSJ Order II"), 314 F.Supp.3d 1049 (C.D. Cal. 2018), to the extent they are consistent with the findings and conclusions set forth in this Order. The court also adopts and incorporates, to the extent relevant, the parties' stipulated facts set forth in the PTO. (See Dkt. 442, PTO at 2-10).

[3] HVI filed for Chapter 11 bankruptcy on July 25, 2019, (see In re: HVI Cat Canyon, Inc., 09:19-bk-11573 MB (Bankr. C.D. Cal.)), which was converted to a Chapter 7 bankruptcy on December 17, 2020. (See id., Dkt. 1531, Bankruptcy Court's Order of December 17, 2020). Unless otherwise noted, HVI sold the facilities at issue in October 2020 during its bankruptcy proceeding. (See Dkt. 532, Notice re: Sale of Property ("Sale Notice")).

2002 to October 2020;

- Lloyd Facility, located at 5200 Dominion Road, Santa Maria, from August 2002 to October 2020;
- Los Flores Facility, located at 6151 Dominion Road, Santa Maria, from August 2002 to October 2020;
- Security Facility, located at 5200 Dominion Road, Santa Maria, from August 2002 to December 31, 2008;
- U-Cal Facility, located at 6527 Dominion Road, Santa Maria, from August 2002 to December 31, 2008;
- Williams B Facility, located on Cat Canyon Road, Santa Maria, from June 2000 to February 25, 2010; and
- Zaca/Davis Facility, located at 5017 Zaca Station Road, Los Olivos, from August 2002 to October 2020.

(See Dkt. 62, Answer at ¶ 16); Dkt. 442, PTO at ¶¶ 5.b.-g., 5.l.-jj., 5.mm.-nn.); (Dkt. 532, Sale Notice).

2. HVI also operated an oil and gas production facility in Santa Barbara County known as Bradley 3-Island on or before January 10, 2008. (See Dkt. 62, Answer at ¶ 17); (Dkt. 442, PTO at ¶ 5.k.).

II. CHARACTERISTICS OF SPECIFIC WATER BODIES (PALMER ROAD CREEK, SISQUOC CREEK, CAT CANYON CREEK, AND SPRING CANYON TRIBUTARY).

3. With respect to the two remaining spills at HVI's Bell Facility on December 27, 2008, and May 1, 2009, and the substantial threat of a spill at the Bell Facility's Gato Ponds in April 2008, Dr. Lyndon Lee ("Dr. Lee"), an expert in river and wetland science, testified, based on data reviewed and his direct observations, that both the Sisquoc Creek and the Spring Canyon Tributary have clear and prominent channel beds, banks, ordinary high water marks, and regularly connect through the Cat Canyon Creek and Sisquoc River riverine systems to the Santa Maria Estuary, which flows into the shore waters of the Pacific Ocean. (See Dkt. 344-1, Declaration of Lyndon Lee ("Lee Decl.") at ¶¶ 13-26); (Dkt. 469, October 24, 2018, Reporter's Transcript ("RT")

at 18-34) (Lee testimony).

4. Dr. Lee also testified that the contribution of Palmer Road Creek, Spring Canyon Tributary, and Cat Canyon Creek to the chemical, physical, and biological integrity of the Santa Maria Estuary is significant. (See Dkt. 344-1, Lee Decl. at ¶¶ 13-14, 16-19, 20-21, 23-24); (Dkt. 469, October 24, 2018, RT at 18-34) (Lee testimony).

5. HVI's expert, Dr. Michael Josselyn ("Dr. Josselyn"), does not dispute that the Spring Canyon Tributary has ordinary high water marks and provides flow to a TNW. (See, generally, Dkt. 469, October 24, 2018, RT at 66-67) (Josselyn testimony). Dr. Josselyn also does not dispute that the Palmer Road Creek, which receives water flow from the Sisquoc Creek, provides flow to a TNW. (See, generally, id. at 67); (see id. at 22-24) (Dr. Lee testimony); (Dkt. 344-5, Lee Decl. at 7) (figure depicting Cat Canyon Creek Stream Order and Reach Lengths).

6. Based on Dr. Lee's testimony and related exhibits, the court finds that both the Sisquoc Creek and the Spring Canyon Tributary have a significant nexus to a TNW.

III. THE SPILLS AT HVI'S BELL AND ZACA/DAVIS FACILITIES RESULTED IN THE DISCHARGE OF APPROXIMATELY 26,584 BARRELS OF OIL, INCLUDING PRODUCED WATER.

7. With respect to the 12 spills at issue in the United States' complaint, the court previously concluded that HVI was liable under the CWA for the spills at the Bell Facility on June 8, 2005, July 13, 2005, August 11, 2005, July 16, 2007, December 7, 2007, January 29, 2008, October 14, 2010, and December 21, 2010, and the spills at the Davis Facility on December 7, 2005, and January 5, 2008. (See Dkt. 307, MSJ II at 38). Having found that the Spring Canyon Tributary has a significant nexus to a TNW, the court also concludes that HVI is liable under the CWA for the remaining two spills at HVI's Bell Facility on December 27, 2008, and May 1, 2009. See infra at § VIII.C.

8. Based on witness testimony, the opinions of the United States' expert witnesses, stipulations, HVI's self-reported information, and contemporaneous documentary evidence such as production data and waste disposal manifests, the 12 oil spills from HVI facilities resulted in the total discharge of approximately 26,584 barrels of crude oil and produced water. Produced water,

also referred to by the parties as "wastewater," is defined as "water (brine) brought up from the hydrocarbon-bearing strata during the extraction of oil and gas, and can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process." 40 C.F.R. § 435.41(bb).

9. For the four largest spills – the Zaca/Davis spills on December 7, 2005, and January 5, 2008; the Bell pipeline spill on July 16, 2007; and the Bell pond spill on December 7, 2007 – the United States relied on the expert testimony of C.E. Hackstedt ("Hackstedt"), a registered Professional Engineer ("P.E."), to estimate the total volume of oil discharged. (See Dkt. 345-6, Declaration of C.E. Hackstedt ("Hackstedt Decl.")); (Dkt. 467, October 23, 2018, A.M. Session, RT at 7-8) (Hackstedt testimony). Hackstedt's opinions are consistent with the estimates of the volume of oil recovered during cleanup developed by the United States' second expert, Dr. Terrence Johnson, Ph.D. ("Dr. Johnson"), and estimates provided by DFW and HVI. (See Dkt. 345-7, Declaration of Terrence Johnson, Ph.D. ("Johnson Decl.")); (Dkt. 467, October 23, 2018, A.M. Session, RT at 47-48) (Dr. Johnson testimony). As discussed below, these lines of evidence converge on a narrow range of estimates, which are reliable, particularly in contrast to the much less reliable estimates provided by HVI's expert witness, Peter Mesard, P.E. ("Mesard").

A. Hackstedt Used Production Data and Correction Factors to Estimate Discharge Volumes for the Four Largest Spills.

10. Hackstedt is a petroleum engineer with more than 40 years of experience with oil and gas production and operations.[4] (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 2-4).

11. To develop his conclusions, Hackstedt visited several HVI facilities, reviewed HVI's oil production records, information regarding oil production equipment and infrastructure at HVI's facilities, incident reports related to oil spills at HVI's facilities, and performed calculations based on the information he reviewed. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 5-7); (Dkt. 345-6, Exh. A,

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[4] HVI's Motion In Limine No. 3 (Dkt. 380, "MIL No. 3") seeking to exclude Hackstedt's testimony is denied. The court finds that Hackstedt possesses relevant qualifications and experience, and that his opinion is the product of reliable data and methodology. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 2-7) (setting forth Hackstedt's qualifications and method); (Dkt. 345-6, Exh. A, Hackstedt Expert Report at 61-67) (same).

Expert Report of C.E. Hackstedt ("Hackstedt Expert Report") at 1).

12. Hackstedt testified that it is common in the oil industry to utilize well tests to determine the expected production of oil and water, to measure the volume of fluid in tanks and fluid injected, to track fluids during the entire production process, to review and analyze the production data, and to use the production data together with correction factors to assess any problems in the production process and account for the amount of fluids that were produced. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 2-6).

13. Hackstedt was able to extrapolate the volumes of crude oil that had been produced by HVI's wells but were missing from its inventory or sales data. While he acknowledged that he could not account for or track certain volumes of crude oil throughout the production process, he concluded that the missing volumes had been lost during the spill incidents reported by HVI. In those instances where HVI's production and injection data did not allow him to reasonably identify volumes of oil and/or water that were missing from the production process, he was able to confirm that quantifications of oil recovered during spill cleanup operations were consistent with the available data. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 5-7).

14. Hackstedt's estimates are largely consistent with the estimates provided by plaintiffs' other expert, Dr. Johnson. (See Dkt. 345-7, Johnson Decl. at ¶¶ 13-24); (Dkt. 467, October 23, 2018, A.M. Session, RT at 47-48) (Johnson testimony).

B. December 7, 2005, Zaca/Davis Tank Spill.

15. At the time of the December 7, 2005, Zaca/Davis Tank Spill, the secondary containment facilities at the Davis Tank Battery were in a state of disrepair, which allowed crude oil and waste water to escape into the environment. (See Dkt. 414, Declaration of Joshua Curtis ("Curtis Decl.") at ¶ 12); (TREX CA5003); (TREX CA 5004); (TREX CA5005).

16. A reasonable estimate of the volume of crude oil discharged during this spill can be calculated from HVI's production records by identifying missing volumes of crude oil. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 15-24); (Dkt. 345-6, Exh. A, Hackstedt Expert Report at 4-22); (Dkt. 400-6, Deposition of Alex Dimitrijevic ("Dimitrijevic Depo."), Vol. II at 62-65); (TREX US0836 at HVI021874-75). Based on HVI's expectation that it would produce 4,305 barrels of oil in the first

6.75 days of December, and the fact that only 1,434 barrels made it into HVI's inventory during that period, the volume of missing oil according to HVI's production records was 2,871 barrels. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 15-18); (TREX US0836 at HVI021874).

17. Recognizing that HVI's expected oil production does not always match its inventory/sales total, Hackstedt provided a more conservative estimate of the missing oil volume by applying the oil correction factors determined by HVI for the Zaca/Davis Facility's Davis and Chamberlin Tank Batteries, which results in a volume of 1,925 barrels of missing crude oil. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 19-22); (Dkt. 345-6, Exh. A, Hackstedt Expert Report at Tables 5-6).

18. The court finds that HVI discharged 2,135 barrels of crude oil from Waste Water Tank No. 2 (the average between 1,925 and 2,344 barrels of missing crude oil as calculated by Hackstedt) during the December 7, 2005, Zaca/Davis Tank Spill.

C. July 16, 2007, Bell Pipeline Spill.

19. On July 16, 2007, HVI reported a spill from a buried portion of an eight-inch diameter pipeline at the Bell Facility. The pipeline leaked and spilled crude oil and produced water into the surrounding environment. (See Dkt. 434-3, Corrected Trial Declaration of Nathaniel Jaime Dostal ("Dostal Corrected Trial Decl.") at ¶¶ 8-12); (Dkt. 345-14, Declaration of Melissa Boggs at ¶ 32); (Dkt. 345-10, Declaration of Robert Wise ("Wise Decl.") at ¶ 31). The Bell Family Line transported oil production fluids containing approximately 1.8% crude oil and 98.2% of produced water. (See Dkt. 442, PTO at ¶ 5.tt.).

20. A reasonable estimate of the volume of crude oil and produced water discharged by HVI during this spill can be calculated by relying on the volume of crude oil recovered during the cleanup and the ratio of crude oil to produced water that flowed through the pipeline that was the source of the discharge. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 28-29); (Dkt. 345-6, Exh. A, Hackstedt Expert Report at 34-35).

21. Using the waste profile data for the contaminated solids that were generated by HVI's contractor and the liquid crude oil volumes that DFW quantified and HVI subsequently adopted, DFW calculated that 294 barrels of crude oil were recovered from the creek following the July 16,

2007, Bell Family Line Spill. (See Dkt. 434-4, Corrected Declaration of Jorge Gross ("Gross Corrected Trial Decl.") at ¶¶ 18-21); (Dkt. 467, October 23, 2018, A.M. Session, RT at 22-23 & 27) (Hackstedt testimony); (TREX US1372 at EPA9_0268879 & EPA9_0268896; TREX US1391).

22. Hackstedt reasonably calculated that the volume of produced water discharged during this spill was roughly proportionate to the ratio of crude oil and produced water in the production fluids (1.8% oil to 98.2% produced water). (See Dkt. 442, PTO at ¶ 5.tt). Based on the 294 barrels of crude oil recovered, he calculated that 16,333 barrels of produced water was discharged during the July 16, 2007, Bell Family Line Spill. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 33-36); (Dkt. 345-6, Exh. A, Hackstedt Expert Report at 34-35); (TREX US1286 at HVI015731-733); (TREX US1317 at HVI015728-29).

23. Accordingly, the court finds that HVI discharged 16,627 barrels of oil (294 barrels of crude oil and 16,333 barrels of produced water) during the spill from its Bell Facility on July 16, 2007.

D. December 7, 2007 Bell Ponds Spill.

24. On December 7, 2007, HVI reported a spill from the waste water injection pond known as the Blochman Ponds, located at the Bell Facility. (See Dkt. 442, PTO at ¶¶ 5.h, 5.uu.).

25. A reasonable estimate of the volume of oil and waste water discharged by HVI during this spill can be determined by relying on HVI's admissions and production records, and the volume of oil recovered during the cleanup. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 48-53); (Dkt. 345-6, Exh. A, Hackstedt Expert Report at 36-47); (TREX US0996) (Stipulation); (TREX US1182 at HVI000538) (HVI 308 Response); (TREX US0883).

26. Based on missing crude oil from the Bell Facility tanks, production and injection rates reported by HVI, and facility infrastructure and design, Hackstedt reasonably concluded that HVI discharged approximately 4,000 barrels of crude oil and produced water as a result of this spill. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 37-53).

27. According to HVI's stipulations and admissions, 2,118.54 barrels of crude oil was recovered from Palmer Road Creek. (See Dkt. 434-4, Gross Corrected Trial Decl. at ¶ 26); (TREX US1182 at HVI000538) (HVI 308 Response); (TREX US0996) (Stipulation).

28. Based on the forgoing, HVI discharged 4,118 barrels of oil (2,118 barrels of crude oil and 2,000 barrels of produced water) during the spill from the Bell Facility on December 7, 2007.

E. January 5, 2008, Zaca/Davis Tank Battery Spill.

29. On January 5, 2008, HVI reported a spill from the Zaca/Davis Facility's Davis Tank Battery. (See TREX US0194) (Spill Report). The January 5, 2008, Davis Spill involved the same injection tank, Waste Water Tank No. 2, that was the source of the December 7, 2005, Davis Spill. (See Dkt. 345-6, Hackstedt Decl. at ¶ 54). Following the failure of one of the waste water injection pumps, Waste Water Tank No. 2 overfilled and ruptured, spilling crude oil and waste water into the environment. (See TREX US 0295 at HVI 000781); (434-3, Dostal Corrected Trial Decl. at ¶¶ 28-35); (TREX US 0195); (TREXUS0550 at EPA9_0269237); (Dkt. 345-10, Wise Decl. at ¶¶ 34, 41-44).

30. A reasonable estimate of the volume of crude oil and waste water discharged during this spill can be calculated from HVI's production records, the specifications of the equipment that was in use at the Davis Tank Battery at the time of the spill, and the volume of crude oil recovered during the cleanup. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 64-67); (id., Exh. A, Hackstedt Expert Report at 48-58); (TREX US0172 at HVI081542-546); (TREX US0273 at DFG002397); (TREX US0295 at HVI000697 & HVI000785-786); (TREX US0520); (TREX US0533 at HVI081731-732).

31. Based on production data from the Zaca/Davis Facility, the operations specifications for the injection pumps, and the dimensions and capacity of Waste Water Tank No. 2, Hackstedt reasonably concluded that HVI discharged approximately 3,252 barrels of oil (618 barrels of crude oil and 2,634 barrels of produced water) from Waste Water Tank No. 2 during the spill from the Zaca/Davis Tank Battery on January 5, 2008. (See Dkt. 345-6, Hackstedt Decl. at ¶¶ 64-67); (Dkt. 434-2, Corrected Declaration of James Foto at ¶¶ 8-12); (TREX US0273 at DFG002398, DFG002401, DFG002408).

F. Hacksteadt's Opinions are Supported by Dr. Johnson's Estimates of the Cumulative Volume of Oil Discharged.

32. Dr. Johnson has a Ph.D. in environmental sciences and has over 30 years of experience assessing, designing, and implementing soil and groundwater pollution systems. (See

Dkt. 345-7, Johnson Decl. at ¶ 3). Since 2003, Dr. Johnson has worked as an Environmental Scientist for the EPA in the Technology Innovation and Field Services Division/Environmental Response Team in the Office of Land and Emergency Response in Las Vegas, Nevada. (See id. at ¶ 5). He has extensive experience in the evaluation of the mass and concentration of petroleum hydrocarbons contained in different media, such as soil, groundwater, and surface water, including waste streams generated during cleanup and site assessment activities. (See id. at ¶¶ 3-8).

33. To calculate the volume of oil recovered from the solid waste streams that were generated during the cleanup of the four largest spills, Dr. Johnson relied on spill-specific data regarding the mass of the contaminated solids recovered during cleanup operations, the percentage of that mass that was crude oil, and the density of the crude oil. He then calculated the volume of crude oil mixed with solids using spill-specific data, and an equation that is standard in his field for such calculations. (See Dkt. 345-7, Johnson Decl. at ¶¶ 9-12); (Dkt. 467, October 23, 2018, A.M. Session, RT at 52) (Johnson testimony).

34. In total, Dr. Johnson estimated that approximately 5,000 (4,377 to 5,017) barrels of crude oil were recovered from the solid and liquid waste streams that resulted from the four largest spills. (See Dkt. 345-7, Johnson Decl. at ¶¶ 13-24). This estimate does not include the volume of produced water. (See id.).

G. HVI's Estimates Regarding the Number of Barrels of Oil Discharged from the Four Largest Spills are Unreliable.

35. Mesard testified on behalf of HVI regarding the quantities of oil discharged during the four largest spills. He estimated that the four spills, collectively, released 4,517 barrels of oil and produced water. (See TREX HVI0092) (Mesard Report at 23-24).

36. Mesard relied on assumptions, which during cross-examination, were shown to be speculative at best. For example, in estimating the discharge volume for the December 7, 2005, Davis Spill, Mesard admitted that he relied on HVI oil production data from November 2007, nearly two years after the spill, to calculate the volume of oil spilled on December 7, 2005. (See Dkt. 476, October 26, 2018, RT at 11-12) (Mesard testimony). Mesard also admitted using bin sampling data from the December 7, 2008, Davis Spill to calculate the volume of oil recovered in solids for

the December 7, 2005, Davis Spill, again showing his use of inapplicable data to draw dubious conclusions. (See id. at 25). In another example, Mesard incorrectly calculated the volume of produced water spilled during the January 5, 2008, Davis Spill based on the volume of wastewater recorded at two wells, ignoring data from a third well. (See id. at 49-50).

37. The court finds that Mesard's opinions and conclusions are not as reliable as those of plaintiffs' experts. Mesard did not adequately consider nor did he reliably apply scientific principles and methods to the relevant facts and data of the case.

H. Discharge Volumes for the Other Eight Spills.

38. On June 8, 2005, HVI discharged 201 barrels of oil (one barrel of crude oil and 200 barrels of produced water) from a pipeline at the Bell Facility. (See Dkt. 442, PTO at ¶ 5.pp.).

39. On July 13, 2005, HVI discharged 70 barrels of oil (20 barrels of crude oil and 50 barrels of produced water) from a pipeline at the Bell Facility. (See Dkt. 442, PTO at ¶ 5.qq.).

40. On August 11, 2005, HVI discharged 22 barrels of oil (two barrels of crude oil and 20 barrels of produced water) from a pipeline at the Bell Facility. (See Dkt. 442, PTO at ¶ 5.rr.).

41. On January 29, 2008, HVI discharged and recovered 125.9 barrels of oil from a pipe at the Bell Facility. (See TREX US0092) (July 24, 2008 Stipulation Agreement).

42. On December 27, 2008, HVI discharged and recovered four barrels of oil from a pipeline at the Bell Facility. (See Dkt. 442, PTO at ¶ 5.xx.).

43. On May 1, 2009, HVI discharged and recovered nine barrels of crude oil from a pipeline at the Bell Facility. (See Dkt. 442, PTO at ¶ 5.yy.).

44. On October 14, 2010, HVI discharged 15 barrels of oil (10 barrels of crude oil and five barrels of produced water) from a pipeline at the Bell Facility. (See Dkt. 442, PTO at ¶ 5.zz.).

45. On December 21, 2010, HVI discharged five barrels of oil (one barrel of crude oil and four barrels of produced water) from a pipeline at the Bell Facility. (See Dkt. 442, PTO at ¶ 5.aaa.).

IV. THE 12 OIL SPILLS WERE THE RESULT OF HVI'S GROSS NEGLIGENCE.

46. Compliance with SPCC and FRP regulations frequently requires exercising judgment about good oilfield industry practices or good engineering practices. (See Dkt. 345-11, Declaration of Michael Kinworthy ("Kinworthy Decl.") at ¶ 15 & n. 2); (see also Dkt. 345-2, Reich Decl. at ¶¶ 7-9).

47. Nine of the spills resulted from pipeline failures, and three resulted from tank and pond failures. Based on the totality of the circumstances, the spills evinced a pattern of reckless disregard for good oilfield industry practices, and a series of negligent acts or omissions by HVI concerning oil spill prevention, and pipeline and facility inspection and maintenance.

48. This pattern of reckless disregard and extreme departure from the care required under the circumstances is reinforced by HVI's failure to comply with SPCC and FRP regulations for years after compliance deficiencies had been brought to HVI's attention. Had HVI complied with these regulations, it likely would have prevented the oil spills or mitigated their impacts and the volumes discharged.

49. The United States relied on oilfield industry practices expert, Michael L. Kinworthy ("Kinworthy"), who has 38 years of experience in the environmental compliance industry. He has worked with oil production companies, developing oil spill prevention and response programs, and advised companies on compliance with federal, state, and local environmental requirements, including SPCC and FRP regulations. (See Dkt. 345-11, Kinworthy Decl. at ¶¶ 8-13); (id., Exh. A, Kinworthy Expert Report at Appx. A).

50. Kinworthy's opinions are based on his extensive professional experience, visits to HVI facilities, deposition testimony, research and interviews, review and assessment of relevant documents pertaining to the causes and contributing factors to the alleged spills and violations, and comparison of HVI's conduct and spill prevention programs with the requirements in relevant federal and state laws and with good oilfield industry practices. (See Dkt. 345-11, Kinworthy Decl. at ¶ 15). Kinworthy credibly opined that, unlike a prudent operator, HVI ignored or delayed correcting various known issues regarding its compliance with spill prevention, facility maintenance, spill response, pipeline inspection, and environmental regulations. (See id. at ¶ 23).

51. HVI offered no expert witness to rebut Kinworthy's opinions. In addition, HVI's fact witnesses did not credibly rebut Kinworthy's opinions as to the causes and contributing factors of the alleged spills and violations, and the practices that a prudent operator would employ to prevent and respond to spills, and otherwise maintain environmental compliance.

52. HVI's fact witnesses also did not credibly rebut the testimony of the United States and the State's fact witnesses, the documentary evidence relating to the causes and contributing factors of the alleged spills and violations, and as to HVI's failure to adequately and timely correct known issues with spill prevention, spill response, and environmental compliance, or identify such issues in the first place.

53. Given HVI's inadequate compliance efforts during the period of the 12 spills, testimony by HVI's fact witnesses regarding good faith or good intentions to comply with environmental obligations is not credible and does not lessen HVI's culpability.

54. The repeated acts or omissions set forth above that caused or contributed to the spills and violations demonstrate HVI's systemic failure to operate its facilities like a prudent operator of an oil production company would. Even when viewed in isolation, many of the failures amount to an extreme departure from good oilfield industry practices. Viewed in combination, the failures amounted to reckless disregard for HVI's obligations under the law to prevent and mitigate the spills and to implement effective spill prevention measures.

55. If not for HVI's reckless disregard for, and extreme departure from, good oilfield industry practices, the 12 spills could have been prevented or at least substantially reduced in size and impact. Also, HVI's violations of SPCC and FRP regulations likely would not have occurred or recurred across facilities for multiple years, particularly after the EPA provided HVI with clear notice and ample opportunities to correct the issues. Finally, the violations of SPCC and FRP regulations would not have contributed to the spills.

A. Recurring Failures to Correct Known Deficiencies.

56. Prudent operations require correcting deficiencies in spill prevention, spill response, and environmental compliance programs when they become known. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 19-25).

57. The EPA conducted at least 16 inspections at the 11 Facilities at issue between January 2005 and March 2008. (See Dkt. 345-2, Declaration of Peter Reich ("Reich Decl.") at p. 40); (Dkt. 345-1, Declaration of Mark Calhoon ("Calhoon Decl.") at p. 9). The EPA notified HVI when it first identified SPCC violations in 2005, and again during subsequent inspections in 2006, 2007, and 2008. (See Dkt. 345-1, Calhoon Decl. at ¶ 11); (Dkt. 345-2, Reich Decl. at ¶ 14); (TREX US 2500); (TREX US 2494); (TREX US 2512) (Notices of Violation).

58. Peter Reich, an EPA inspector, went back to inspect the Bell and Zaca/Davis Facilities in February 2016. This was his third inspection of the Bell Facility since 2005 and second of the Zaca/Davis Facility since 2008, and represented either his 12th or 13th inspection of the HVI facilities at issue. During this inspection, he found continued non-compliance with flowline maintenance requirements and secondary containment that he previously found in his earlier inspections. (See Dkt. 345-2, Reich Decl. at ¶¶ 71, 78).

59. Despite knowing about these deficiencies (e.g., deficiencies in secondary containment and diversionary structures, the development and implementation of a flowline maintenance program), HVI allowed them to continue. As a result, the deficiencies that caused or contributed to a spill often caused or contributed to a subsequent spill. (See Dkt. 345-11, Kinworthy Decl. at ¶ 24 & n. 30).

60. A prime example of HVI's recurring failures to correct known deficiencies is HVI's failure, since it acquired the facilities, to develop a flowline maintenance program to prevent spills from flowlines. Beginning in April 2005, EPA repeatedly identified flowline maintenance as an issue at HVI's facilities, (Dkt. 345-11, Exh. A, Kinworthy Expert Report at 19-20, 28); (TREX US2500 at EPA9_0195306) (Notice of Non-Compliance), and between June 2005 and December 2010, HVI had at least nine spills from its pipelines. See supra at §§ III.C. & III.H. Another example is HVI's failure to ensure adequate containment structures to capture spills. The EPA first notified HVI of these deficiencies in April 2005, before HVI had three major spills that entered waters of the United States as a result of failed containment. (See TREX US2500 at EPA9_0195304).

61. Despite HVI telling the Government for years that it would develop a flowline

maintenance program, it did not attempt to develop one until 2010. (See Dkt. 345-2, Reich Decl. at ¶¶ 71(a), 78(a)); (Dkt. 345-11, Exh. A, Kinworthy Expert Report at 28-35); (Dkt. 361-2, Narrative Statement of Alex Dimitrijevic ("Dimitrijevic Statement") at ¶¶ 65-66); (Dkt. 479, October 23, 2018, P.M. Session, RT at 55) (Kinworthy testimony).

62. In 2010, HVI's environmental compliance consultant, Harlan Felt ("Felt"), sent an email to Alex Dimitrijevic, HVI's Chief Operating Officer, detailing his evaluation of HVI's spills between 2004 and 2010. Felt's analysis showed that the "largest number of spills" occurred as a result of flowline leaks while tank level alarms were the second highest cause of spills. (TREX US1181) (noting 153 total spills at HVI's facilities of which 40% were caused by flowline leaks, 25% by tank level alarm failures, and 24% caused by general equipment failure). The analysis also scored the Bell Facility as "very poor" and Zaca as "poor" in terms of gross barrels produced per barrel spilled. (Id. at 1113-10).

63. HVI experienced numerous spills in the years leading up to and during the period when the 12 spills in this case occurred (2005-2010). Based on the number of spill reports (minus report updates) to the California Office of Emergency Services ("OES"), HVI experienced 49 spills in 2006, 34 in 2007, 27 in 2008, 17 in 2009, and 16 in 2010. (See TREX US3241). In total, from 2006 through the time of trial, 181 spills have been reported to OES. Id. HVI's history of spills provided clear notice to HVI of systemic and recurring deficiencies in its spill prevention measures. Yet, HVI failed to correct its deficiencies or to prevent them in the first place.

B. Pipeline (Flowline) Maintenance and Inspection.

64. Prudent operation requires a flowline maintenance program that includes, among other things: identifying and mapping the location of all flowlines; routine visual inspection of all aboveground flowlines to identify leak indicators and potential compromises in the physical integrity of flowlines; and routine mechanical integrity testing of all flowlines to test their physical integrity. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 28-30, 34-35); (Dkt. 479, October 23, 2018, P.M. Session, RT at 48-49) (Kinworthy testimony).

65. HVI was aware of the need to develop and implement a flowline maintenance program as early as 2002, when it informed the State that it was "currently working on a pipeline

management plan[.]" (TREX US2760 at HVI011201). HVI did not develop a flowline maintenance program for the facilities at issue until August 2010. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 30-31). The program was incomplete, inadequate, and not fully implemented. (See Dkt. 345-2, Reich Decl. at ¶¶ 71(a), 78(a)); (Dkt. 345-11, Exh. A, Kinworthy Expert Report at 28-35); (Dkt. 361-2, Dimitrijevic Statement at ¶¶ 65-66).

66. In January 2005, the EPA notified HVI that it lacked a flowline maintenance program at its Bell, U-Cal, and Los Flores Facilities. (See TREX US2500 at EPA9_0195306). In 2007, HVI told the EPA that it was still working to develop such a program and, in 2008, HVI's employees acknowledged the need to map pipelines and create a pipeline integrity management plan. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 31); (TREX US2042).

67. HVI's SPCC Plans for the Bell Facility, where nine of the pipeline spills at issue occurred, show that there was no "regular program of flowline maintenance" between 2004 and 2007. (TREX US2943 at HVI024618) (2007 SPCC Plan); (see also TREX US2992 at HVI001139) (2004 SPCC Plan). HVI's employees confirmed the absence of a flowline maintenance plan at the Bell or Zaca/Davis Facilities prior to 2010. (See Dkt. 400-11, Deposition of Francisco "Pancho" Muñoz, Jr., Volume I ("Muñoz Depo., Vol. I") at 205-206); (Dkt. 400-13, Deposition of Scott Proskow ("Proskow Depo.") at 153).

68. HVI did not have maps for its Bell Facility (its largest facility) showing all pipelines at the facility or distinguishing between active and inactive pipelines. (See TREX US2042).

69. While HVI personnel inspected some pipelines at the Bell Facility, the inspections were not conducted in a manner that would reasonably be expected to detect corrosion or other problems that could result in a discharge. (See Dkt. 400-13, Proskow Depo. at 154) (pipeline inspections were "just to check out the lines when you're going by to no end other than just to catch a leak in case one happens"). For example, HVI's pipeline inspections were primarily conducted from vehicles during routine facility travel, making it extremely difficult to identify corrosion. In addition, because many of the pipelines are partially buried or in direct contact with the ground, it is impossible to visually inspect the entire circumference of many of the pipelines. (See Dkt. 345-2, Reich Decl. at ¶¶ 85-86); (Dkt. 345-11, Exh. A, Kinworthy Expert Report at 33-

34); (Dkt. 400-11, Muñoz Depo. Vol. I at 238).

70. From 2003 to 2010, HVI hydrostatically tested sections of pipeline when a new section of pipeline was installed, but it otherwise did not regularly perform mechanical integrity tests on the pipelines at the Bell Facility. (See Dkt. 400-11, Muñoz Depo. Vol. I at 211-212). HVI only began systematically pressure testing active flowlines in 2010 and 2011. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 39, 42-43).

71. Seven of the 12 spills resulted from corrosion of flowlines or valves. (See Dkt. 345-11, Kinworthy Decl. at ¶¶ 6, 7, 23(a)); (id., Exh. A, Kinworthy Expert Report at 13-14, 26); (Dkt. 479, October 23, 2018, P.M. Session, RT at 53-54) (Kinworthy testimony). HVI did not implement chemical corrosion inhibitors until 2009. (See Dkt. 345-11, Kinworthy Decl. at 23(a) & n. 6 and 7).

72. If not for HVI's reckless disregard for the need to develop and implement effective flowline maintenance programs, the spills at the Bell Facility on June 8, 2004, July 13, 2005, August 11, 2005, July 16, 2007, January 29, 2008, and May 1, 2009 – each of which was caused by corrosion – would not have occurred. (See Dkt. 345-11, Kinworthy Decl. at 23(a)).

C. Equipment Failure and/or Improper Use of Equipment.

73. Prudent operation requires using equipment (including tanks and flowlines) properly as well as preventative maintenance and prompt repair of equipment, which is critical to minimizing the possibility of equipment failures and, in turn, minimizing the possibility of oil spills. (See Dkt. 345-11, Kinworthy Decl. at ¶¶ 20, 23(f)).

74. At the time of the December 7, 2005, Zaca/Davis Tank Spill, only one of the two waste water storage tanks at the Zaca/Davis Tank Battery was in service. Had the second tank been in operation, it would have provided additional storage capacity, and fluids from Waste Water Tank No. 2 would have flowed into the second tank rather than overflowing Waste Water Tank No. 2. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 11).

75. As shown in the December 7, 2007, Bell Spill, HVI failed to properly protect its equipment from the elements, increasing the likelihood of equipment failure. The December 7, 2007, Bell Spill resulted when one of the internal combustion engines for the injection pumps at

the Bell Facility's Blochman Ponds failed, causing an overflow that escaped secondary containment. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 17). The failure resulted from rainwater coming into contact with the pump motor's spark plugs. (See TREX US0969 at EPA9_0268701).

76. As in the December 7, 2005, Zaca/Davis Spill, HVI was again operating the Davis tank battery with only one wastewater tank, due to the other being out of service, at the time of the January 5, 2008, Zaca/Davis Spill. (See TREX US0195 at EPA9_0269233). In addition, the failed pump motor that was the primary cause of the January 5, 2008, Zaca/Davis Spill was designed for "indoor use only," but HVI was using it outdoors, uncovered and exposed to the elements. As a result, rain short-circuited the motor, which in turn caused a pump to stop working and resulted in the overfilling and rupture of a tank. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 10-11).

77. If not for HVI's reckless disregard for preventative maintenance and the prompt repair of equipment, HVI could have adequately inspected for equipment deterioration, and repaired or replaced equipment in old or poor condition, thus preventing many of the spills. (See Dkt. 345-11, Kinworthy Decl. at ¶ 21(a)); (id., Exh. A, Kinworthy Expert Report at 10-11, 13-15). If not for HVI's reckless disregard for the proper use and maintenance of equipment, the December 7, 2005, Zaca/Davis Spill, the December 7, 2007, Bell Spill, and the January 5, 2008, Davis Spill would not have occurred.

D. Inadequate Monitoring of Spills.

78. Prudent operation requires adequately monitoring for actual and potential spills, so that the oil company can stop the spill or, if detected early enough, prevent the spill. (See Dkt. 345-11, Kinworthy Decl. at ¶ 23(b)); (id., Exh. A, Kinworthy Expert Report at 6, 16-17).

79. HVI failed to repair alarms that monitored high fluid levels or, as an alternative, it failed to maintain 24-hour coverage for its facilities. (See Dkt. 345-11, Kinworthy Decl. at ¶ 23(b)). If not for HVI's reckless disregard for spill monitoring, HVI could have promptly repaired or replaced alarms, periodically tested alarms, not allowed employees to become complacent about broken or repeated alarms, and ensured that facilities were staffed 24 hours a day when the alarms were

inoperable. (Id.).

80. For example, in the weeks leading up to the December 7, 2005, Zaca/Davis Tank Spill, HVI knew that the high-level alarm in the tank was broken but did not repair the alarm or provide 24-hour staff coverage at the facility. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 6-7). As a result, the spill was only discovered by a Santa Barbara County employee on the morning of December 7, 2005. (See TREX US0870 at HVI0010763).

81. As another example, in the weeks leading up to the July 16, 2007, Bell Family Line Spill, HVI knew that the high-level alarm for the Bell Facility's Blochman Ponds was not functioning properly. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 16-17). In the 15 days leading up to the spill, the alarm for high fluid levels in the Ponds was triggered more than 100 times. (See id.). HVI was complacent regarding the alarms, even though it knew that "[t]he injection pond system [had] been problematic for years in regard to levels and containment." (TREX US0024 at HVI 045709).

82. Despite knowing that the Blochman Ponds were often close to overflowing and that the alarms were not functioning reliably, HVI did not maintain 24 hour staff coverage at the Bell Facility. (See Dkt. 400-12, Muñoz Depo., Vol. II at 432). The day before the spill on December 6, 2007, the last employee monitoring of the Ponds' fluid levels occurred around 6:30 pm. (See TREX US0969 at EPA9_0268701). When the Blochman Ponds overflowed at some point between 6:30 pm on December 6, 2007, and 7:30 am on December 7, 2007, two separate alarms failed to trigger. (See TREX US1021 at HVI000412).

E. Secondary Containment and Diversionary Structures.

83. "Secondary containment" or diversionary structures prevent a spill from a primary container, such as a tank, from leaving an area and impacting the environment. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 7). Prudent operation requires a company to inspect and maintain secondary containment to ensure that it has capacity with sufficient freeboard to contain precipitation so that spills cannot escape beyond secondary containment. (See id.); (TREX US0873 at EPA9_0008522). HVI repeatedly failed to detect and repair holes and other structural deficiencies in secondary containment at its facilities. (See Dkt. 345-11, Exh. A, Kinworthy Expert

Report at 7-8, 17).

84. If not for HVI's reckless disregard for inspection and maintenance of secondary containment, HVI could have adequately inspected secondary containment for any structural compromise or weakness, promptly repaired wildlife burrows and other compromises in secondary containment, installed necessary valves on pipes, and ensured there was sufficient freeboard to hold the largest single container. (See Dkt. 345-11, Kinworthy Decl. at 23(c)). If not for HVI's reckless disregard for inspection and maintenance of secondary containment, the December 7, 2005, Zaca/Davis Spill, the December 7, 2007 Bell Spill, and the January 5, 2008, Zaca/Davis Spill could have been effectively contained within secondary containment, and would not have reached a TNW. (Id.).

85. For example, in the January 5, 2008, Zaca/Davis Tank Spill, crude oil and oily waste water escaped secondary containment at the Davis Tank Battery through a drainage pipe and holes in the berms. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 8). Portions of the berm also collapsed because of the spill, indicating that the berm was inadequate to contain spills. (See Dkt. 345-2, Reich Decl. at ¶ 38). HVI was aware of the drainage pipe issue since at least October 22, 2006, when a spill had similarly escaped through the same pipe, (see TREX US2648 at EPA9_0203785, 787), but did not take any reasonable steps to prevent a recurrence.[5] (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 8).

F. SPCC Plans.

86. SPCC Plans are designed to ensure that a company has proper measures in place to prevent or minimize oil spills and, in the event of a spill, to properly respond to minimize the impact of the spill to waters of the United States. Prudent operation requires maintaining, reviewing, and updating SPCC Plans to meet the requirements of the SPCC regulations, and implementing those

[5] Although a private investigator retained by HVI suggested that the January 5, 2008, Zaca/Davis Tank Spill may have been caused by vandalism or sabotage, (see Dkt. 479, October 23, 2018, P.M. Session, RT at 76-77) (Adam Reichick testimony), the Santa Barbara County Sheriff's Department investigation "found insufficient evidence to believe that this was an intentional act conducted by anybody." (Id. at 80); (see also Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 35) (opining that sabotage did not cause the oil spill).

SPCC Plans to prevent or minimize oil spills. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 11). Prudent operation also requires prompt correction of any deficiencies in SPCC Plans, and review of other SPCC Plans for similar deficiencies. (See Dkt. 479, October 23, 2018, P.M. Session, RT at 55-56) (Kinworthy testimony).

87. HVI knew that the SPCC Plans for certain facilities did not comply with SPCC regulations. As early as January 2005, the EPA informed HVI about such deficiencies after each inspection pursuant to its standard practice of having its inspectors discuss such deficiencies with HVI representatives at the close of each inspection, as well as in writing. (See Dkt. 345-2, Reich Decl. at ¶¶ 13(a), 14); (TREX US2500 at EPA9_0195305-306). HVI failed to promptly correct the SPCC Plans' deficiencies.

88. If not for HVI's failure to comply with SPCC regulations, HVI could have developed and implemented SPCC Plans that adequately addressed spill prevention and containment measures that could have effectively prevented the spills, or prevented the spills from escaping secondary containment. In other words, the December 7, 2005, Zaca/Davis Tank Spill, the July 16, 2007, Bell Family Line Spill, the December 7, 2007, Bell Blochman Ponds Spill, the January 5, 2008, Zaca/Davis Tank Spill, and the January 29, 2008, Bell Upper Pond Spill could have been effectively contained within secondary containment or, at a minimum, could have resulted in smaller discharge volumes.

G. Spill Prevention Training and Procedures.

89. Prudent operation requires training employees on proper spill prevention procedures and ensuring that employees adhere to such procedures. (See Dkt. 345-11, Kinworthy Decl. at ¶ 23(e)); (id., Exh. A, Kinworthy Expert Report at 35).

90. HVI's field operators were not adequately trained on and/or did not adhere to, procedures critical to effective spill prevention. HVI's field inspectors failed to identify multiple problems with secondary containment areas, inadequate drainage control measures, oil accumulation, and other problems that a prudent operator should have identified and corrected. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 20-24).

91. If not for HVI's reckless disregard for employee training on proper spill prevention, HVI

could have identified problems that could cause or worsen spills or impair secondary containment, and the Zaca/Davis Tank Spill on January 5, 2008, might have been prevented or mitigated, (see Dkt. 345-11, Exh. A, Kinworthy Expert Report at 5, 11-12), and the oil spills at the Zaca/Davis Facility on December 7, 2005, and the Bell Facility on July 16, 2007, December 7, 2007, and December 27, 2008, also could have been prevented. (See Dkt. 345-2, Reich Decl. at ¶ 88).

V. FAILURE TO COMPLY WITH OIL POLLUTION PREVENTION REGULATIONS.

92. HVI failed to comply with SPCC and FRP regulations on numerous occasions, often for extended periods of time, and in spite of ample opportunity to correct the failures or prevent them from recurring. HVI's failures – particularly its failure to develop or implement adequate flowline maintenance programs and to implement adequate secondary containment – contributed to the occurrence of the oil spills (including nine from pipelines and three from failed secondary containment), the volumes discharged, and exacerbated their impact.

93. The SPCC regulations applied to each of HVI's 11 Facilities at issue. Under 40 C.F.R. § 112.1(b), each of the 11 Facilities: are or were non-transportation-related onshore facilities engaged in drilling, producing, gathering, or storing oil or oil products; could, due to their location, reasonably be expected to discharge oil in quantities that may be harmful to navigable waters of the United States or adjoining shorelines; and have or had oil in an aboveground container that is or was not permanently closed. See 40 C.F.R. § 112.1(b); 40 C.F.R. § 112.2; (Dkt. 345-1, Calhoon Decl. at ¶ 21(d)); (Dkt. 345-2, Reich Decl. at ¶ 65); (TREX US2968 at HVI027752); (TREX US2992 at HVI001127); (TREX US2829 at HVI001247); (TREX US2966 at HVI001383); (TREX US2832 at HVI001838); (TREX US2979 at HVI001568); (TREX US2851 at HVI001931).

94. The Bell and Zaca/Davis Facilities also were subject to the FRP regulations. See infra at § V.H.

95. As described further below, the court finds that HVI committed a total of 60 violations under the SPCC and FRP regulations at the 11 Facilities, for a total of 86,842 days of violation as of August 20, 2018, which is conservatively used as the end date of the violations for the purpose of calculating civil penalties.

96. At the Bell and Zaca/Davis Facilities, where the 12 spills occurred, HVI, as of August

20, 2018, committed 19 violations under the SPCC and FRP regulations for a total of 24,107 days of violation.

97. The relevant Oil Pollution Prevention regulations at 40 C.F.R. Part 112 have been revised over time, including in 2002.[6] Although in many instances the regulatory citations changed, the 2002 revisions did not change HVI's obligations under the prior version of the regulatory requirements pertinent to HVI's liability in this case, such as the requirement to develop and implement a flowline maintenance program. Because HVI began acquiring the 11 Facilities in 1999, this section cites to the 1998 Code of Federal Regulations as representative of the prior version. Under either version, HVI violated the regulations as follows.

A. Failure to Develop or Implement Flowline Maintenance Programs (40 C.F.R. §§ 112.7, 112.9).

98. HVI failed to develop and/or implement flowline maintenance programs, which are also known as pipeline maintenance programs, in violation of 40 C.F.R. § 112.9(d)(4)(2010), 40 C.F.R. § 112.9(d)(3)(2003) and 40 C.F.R. § 112.7(e)(5)(iv)(C) (1998).

99. Although HVI acquired several of the facilities as far back as 1999, it still had not completed mapping the flowlines as of 2006, (see TREX US0748 at HVI002009), and the mapping was still uncompleted in 2008. (See TREX US2042 at HVI042897).

100. HVI did not conduct regular and periodic testing to assess flowline integrity; nor did it visually inspect all of its pipelines, and the inspections it did conduct were inadequate because a large portion of the pipelines were either partially buried or touched the ground, making visual inspection of some of the pipelines virtually impossible. (See Dkt. 400-11, Muñoz Depo., Vol. I at 192-195). HVI also failed to take adequate measures to protect its pipelines from corrosion, and stopped using corrosion inhibitors after it acquired the facilities. (See Dkt 345-11, Kinworthy Decl. at ¶ 23(a)); (TREX US1190); (TREX US2500 at EPA9_0195306).

101. Additionally, the "Pipeline Integrity Management Plan" in 2010 was incomplete and inadequate. For instance, only active pipelines are mapped, the location of buried pipelines are

[6] The applicable edition of a regulation is denoted where appropriate.

only estimated, and the Pan does not include all the lines that are not permanently closed. (See Dkt. 345-2, Reich Decl. at ¶¶ 71(a), 78(a)); (Dkt. 345-11, Exh. A, Kinworthy Expert Report at 28-35); (Dkt. 361-2, Dimitrijevic Statement at ¶¶ 65-66).

102. Testimony that HVI had a flowline maintenance program, (see Dkt. 361-2, Dimitrijevic Statement at ¶ 62); (Dkt. 361-5, Felt Statement at ¶ 12), is not credible. Field operators did not corroborate the existence of such a program. (See, generally, Dkt. 400-11, Muñoz Depo., Vol. I at 204-205, 208); (Dkt. 400-13, Proskow Depo. at 153). HVI itself acknowledged having no pipeline management plan or regular inspection and maintenance schedule. (See TREX US2496 at HVI002015). Multiple SPCC Plans for various facilities responded "No" to the question, "Does a regular program of flowline maintenance exist for each oil flowline to reduce the likelihood of discharge?" (See, e.g., TREX US2968 at HVI027759) (2005 SPCC Plan for Battles Facility); (TREX US2860 at EPA9_0032802) (2008 SPCC Plan for Zaca Facility).

103. Facility-specific inspections further confirm the lack of a flowline maintenance program. For example, a 2005 inspection at the Bell Facility found no flowline maintenance program and a 2008 SPCC Plan for the Zaca/Davis Facility answered "No" to the question of whether there was "a regular program of flowline maintenance[.]" (See TREX US2860 at EPA9_0032802); (TREX US2954 at EPA9_0008535); (see also TREX US2946 at EPA9_008617); (TREX US2948 at EPA9_0008541); (US2950 at EPA9_0008549); (TREX US2956 at EPA9_0008638); (TREX US3076 at EPA9_0036167).

104. The court finds that the violations began on the dates HVI began owning and/or operating each facility and continued until at least August 20, 2018, or the date of the facility's sale,[7] for a total of 62,360 days of violation.

105. For civil penalty calculations, the court grants the United States' request that it calculate a single companywide penalty per day starting from the earliest date that the EPA documented a violation (the January 12, 2005, Los Flores inspection) through the date of HVI's

[7] As noted, see supra at § I., HVI no longer owned the U-Cal Facility as of December 31, 2008, and the Williams B Facility as of February 25, 2010.

written Pipeline Integrity Management Plan (August 1, 2010), for a total of 2,027 days of violations.

B. Failure to Provide and Maintain Adequate Containment and Drainage Controls (40 C.F.R. §§ 112.7, 112.9).

106. In violation of 40 C.F.R. § 112.7(c), 112.7(h)(1), and 112.9(c)(2) (2003) and 40 C.F.R. § 112.7(c), 112.7(e)(4), and 112.7(e)(5) (1998), HVI failed to provide and maintain adequate secondary containment and drainage controls at the following facilities:

a. Bell Facility: On January 13, 2005, and February 9, 2016, the facility lacked adequate secondary containment and drainage controls. (See TREX US2954 at EPA9_0008535, 8537); (TREX US2858 at 8-9, 11, A-1, and E-1). On December 19, 2007, and January 29, 2008, the facility lacked adequate secondary containment. (See TREX US1175 at EPA9_0008566, 8573); (TREX US1175 at EPA9_0008566, 8578).

b. Zaca/Davis Facility: On December 9, 2005, October 22, 2006, and January 5, 2008, the facility lacked adequate secondary containment. (See TREX US0873 at EPA9_0008519-22); (TREX US0560 at EPA9_0008676, 8682, 8684); (Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 54); (TREX US0550 at DFG026226-27). The lack of adequate secondary containment was not corrected until after the January 5, 2008, Zaca/Davis Tank Spill. (See Dkt. 400-13, Proskow Depo. at 159).

c. Williams B Facility: Before March 19, 2008, the facility had no drainage controls or secondary containment. (See TREX US3076 at EPA9_0036163, 36166, 36170-72). On March 21, 2008, the facility lacked adequate secondary containment. (See id. at EPA9_0036163, 36174-75).

d. Battles Facility: On January 12, 2005, December 6, 2006, and February 12, 2008, the facility lacked adequate secondary containment and drainage controls. (See TREX US2950 at EPA9_0008551, 8558); (TREX US2952 at EPA9_0008526, 8527 and at EPA9_0008527, 8530); (TREX US2953 at EPA9_0008477-79). The heater-treater deficiency was resolved by February 12, 2008. (See Dkt. 345-2, Reich Decl. at ¶ 44). However, as of December 2014, the facility still lacked

adequate drainage controls. (See Dkt. 345-11, Exh. A, Kinworthy Expert Report at 38).

e. The following facilities also lacked adequate secondary containment on the following dates: Casmalia Facility on February 12, 2008, (see TREX US2957 at EPA9_0008600, 8604-05); Lakeview Facility on March 27, 2007, (see TREX US2822 at EPA9_0008484-85); Lloyd Facility on March 27, 2007, (see TREX US2822 at EPA9_0008482-85); Los Flores Facility on March 27, 2007, (see TREX US2822 at EPA9_0008481, 8483, 8485); Security Facility on February 12, 2008, (see TREX 2946 at EPA9_0008611, 8616, 8620-27); and U-Cal Facility on February 12, 2008, (see TREX US2956 at EPA9_0008636, 8640, 8650-51).

107. With respect to inadequate drainage control at the Battles facility, the court finds that the violation began on the date of the EPA's inspection, January 12, 2005, and continued at least through at least December 1, 2013.[8] (See Dkt 345-11, Exh. A, Kinworthy Expert Report at 38). As for secondary containment at the Williams B Facility before March 19, 2008, the court finds the violation occurred on February 19, 2008, or one month before the EPA inspection determined that earthen berms around equipment had been freshly constructed and had not previously been in place. (See Dkt. 345-2, Reich Decl. at ¶ 66(b) & (f)). As for inadequate secondary containment at the Zaca/Davis facility, the court finds the violation began on October 22, 2006, the date a spill escaped secondary containment through an unchecked pipe, and lasted through the Zaca/Davis Tank Spill that escaped secondary containment through the same pipe on January 5, 2008. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 54).

108. The remaining violations occurred on the dates that EPA inspectors observed or learned of the inadequate containment or drainage control. The court's findings regarding the duration of the violations is conservative as the violations likely began before the EPA discovered them and likely persisted, at least in some instances, beyond the end date identified by the court.

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[8] During a December 2014, site visit, Kinworthy observed that the "truck loading/unloading rack" at the Battles facility "still lacked containment." (See Dkt 345-11, Exh. A, Kinworthy Expert Report at 38).

109. For civil penalty calculations, the court grants the United States' request that the 5,424 violation days be reduced to one violation day per violation at each facility, for a total of 18 days of violations.

C. Failure to Prepare SPCC Plans (40 C.F.R. §§ 112.3 and 112.7).

110. HVI failed to prepare SPCC Plans for the Lakeview Facility for 94 days, from March 27, 2007, to June 29, 2007, (see Dkt. 345-1, Calhoon Decl. at ¶¶ 19-21(a)), and the Williams B Facility for 707 days, from March 21, 2008 to February 26, 2010, (see Dkt. 345-2, Reich Decl. at ¶¶ 64-66(a), 68), In violation of 40 C.F.R. §§ 112.3 and 112.7. The court conservatively finds that the violations began on the respective inspection dates for these facilities, even though the record lacks evidence of SPCC Plans existing before the inspections.

111. For civil penalty calculations, the court grants the United States' request that the 804 violation days be reduced to one violation day per facility, for a total of two days of violations.

D. Failure to Review, Amend, and Recertify SPCC Plan (40 C.F.R. § 112.5).

112. As of December 9, 2005, HVI had not reviewed, amended, and recertified the SPCC Plan for the Zaca/Davis Facility since the prior operator's 1988 SPCC Plan, despite having added an additional tank to the Davis Tank Battery. (See TREX US0873 at EPA9_0008522). The court finds that the violation of 40 C.F.R. § 112.5 began on December 9, 2005, and continued until HVI recertified the SPCC Plan on December 20, 2005. (See TREX US2839 at HVI016673).

113. For civil penalty calculations, the court grants the United States' request that it count one day of violation.

E. Failure to Develop Adequate SPCC Plans (40 C.F.R. § 112.7).

114. HVI failed to develop adequate SPCC Plans by failing to: include adequate detail regarding discharge prevention and drainage controls, in violation of 40 C.F.R. § 112.7(a)(3) (2003) and 40 C.F.R. § 112.7(c) (1998); include adequate written inspection procedures and inspection records, in violation of 40 C.F.R. § 112.7(e) (2003) and 40 C.F.R. § 112.7(e)(8) (1998); and address onshore oil drilling and workover facility requirements set forth in the SPCC regulations, in violation of 40 C.F.R. § 112.10 (2003) and 40 C.F.R. § 112.7(e)(6) (1998).

115. The SPCC Plans at the following facilities failed to address onshore oil drilling and

workover facility requirements: the Battles Facility on January 12, 2005, and again on February 12, 2008, (see Dkt. 345-2, Reich Decl. at ¶¶ 13(a) and 42(b)); the Bell Facility on January 13, 2005, and again on January 29, 2008, (see id. at ¶¶ 23(a), 31(a), and 31(b)); the Casmalia Facility on February 12, 2008, (see id. at ¶ 48(a)); the Escole Facility on February 12, 2008, (see id. at ¶ 48(a)); the Security Facility on February 12, 2008, (see id. at ¶ 53(a)-(b) and (e)); the U-Cal Facility on February 12, 2008, (see id. at ¶ 59(b)); and the Zaca/Davis Facility on January 5, 2008. (See id. at ¶ 37(a)).

116. The SPCC Plan at the Bell Facility on January 13, 2005, and again on January 29, 2008, also failed to include adequate detail regarding discharge prevention and drainage controls. (See Dkt. 345-2, Reich Decl. at ¶¶ 23(a), 31(a), and 31(b)).

117. The SPCC Plan at the Security Facility on February 12, 2008, also failed to include adequate detail regarding discharge prevention and drainage controls; and adequate written inspection procedures and inspection records. (See Dkt. 345-2, Reich Decl. at ¶ 53(a)-(b) and (e)).

118. The court finds that the violations began on the respective dates of inspection or the earliest inspection for each of the Facilities. The violations either continued until HVI ceased owning and operating the facility, or until HVI remedied the deficiencies in the facility's SPCC Plans. (See Dkt. 442, PTO at ¶ 5.www.) (Battles); (id. at ¶ 5.vvv.) (Bell); (id. at ¶ 5.uuu.) (Casmalia, Escolle, and Zaca/Davis); (id. at ¶5.ttt.) (Security).

119. For civil penalty calculations, the court grants the United States' request that the 9,492 violation days be reduced to one violation day per facility, for a total of seven days of violations.

F. Failure to Inspect for and Remove Accumulations of Discharged Oil (40 C.F.R. §§ 112.7, 112.9).

120. In violation of 40 C.F.R. § 112.9(b)(1) and (2) (2003) and 40 C.F.R. § 112.7(e)(5)(ii) (1998), HVI failed to inspect for, and remove accumulations of, discharged oil at the following facilities: Battles Facility on January 12, 2005, December 6, 2006, and February 12, 2008, (see TREX US2950 at EPA9_0008551, 8558); (TREX US2952 at EPA9_0008526-27); (TREX US2953 at EPA9_0008479, 8477); Bell Facility on January 13, 2005, December 19, 2007, and January 29,

2008, (see TREX US1175 at EPA9_0008566, 8571); (TREX US2954 at EPA9_0008535, 8537); Casmalia Facility on February 12, 2008, (see TREX US2957 at EPA9_0008560, 8602-03); Los Flores Facility on March 27, 2007, (see TREX US2822 at EPA9008485); Security Facility on February 12, 2008, (see TREX US2946 at EPA9_008614-16); U-Cal Facility on October 25, 2005, February 12, 2008, and March 21, 2008, (see TREX US2956 at EPA9_0008640, 8643-44, 8649-50); (TREX US2990 at EPA0008513, 8504, 8506); Williams B Facility on March 21, 2008, (see TREX US3076 at EPA9_0036166); and Zaca/Davis Facility on December 9, 2005, and January 5, 2008. (See TREX US0560 at EPA9_0008677, 8685-88); (TREX US0873 at EPA9_0008522). The court conservatively estimates that each violation lasted one day.

121. For civil penalty calculations, the court finds that there were a total of 15 days of violations.

G. Failure to Use Compatible Containers for Oil Storage (40 C.F.R. §§ 112.7, 112.9).

122. In violation of 40 C.F.R. § 112.9(c)(1) (2003) and 40 C.F.R. § 112.7(e)(5)(iii)(A) (1998), HVI used containers for oil storage whose material and construction were incompatible with the material stored and the storage conditions at the following facilities: Battles Facility on January 12, 2005, December 6, 2006, and February 12, 2008, (see TREX US2952 at EPA9_0008527, 8526); (TREX US2953 at EPA9_0008479, 8477); (TREX US2950 at EPA9_0008547, 8549-51, 8554); Lakeview Facility on March 27, 2007, (see TREX US 2822 at EPA9_0008485); Lloyd Facility on March 27, 2007, (see TREX US 2822 at EPA9_0008485); and Williams B Facility on March 21, 2008. (See TREX US 3076 at EPA9_0036166).

123. For civil penalty calculations, the court grants the United States' request that it reduce the 1,248 violation days to one day of violation per violation at each facility, occurring on the dates of the EPA's inspections, for a total of four days of violations.

H. Failure to Prepare and Submit FRP (40 C.F.R. § 112.20).

124. HVI failed to prepare and submit Facility Response Plans to the EPA for the Bell and Zaca/Davis Facilities, in violation of 40 C.F.R. § 112.20.

125. As set forth below, the court grants the United States' request that it reduce the number of violation days to one day of violation per facility, occurring on the first date that HVI

failed to submit the required FRP, for a total of two days of violations.

1. **Bell Facility Violations.**

126. As of January 13, 2005, at the latest, HVI was required to prepare and submit to the EPA a FRP for the Bell Facility within six months, i.e., no later than July 13, 2005). See 40 C.F.R. § 112.20(a)(2)(iv). HVI never submitted a FRP to the EPA for the Bell Facility. (See Dkt. 345-2, Reich Decl. at ¶ 73).

127. As of January 13, 2005, the Bell Facility had a total oil storage capacity greater than or equal to one million gallons. (See Dkt. 345-2, Reich Decl. at ¶¶ 22, 30). However, the Bell Facility's SPCC Plans did not accurately describe the facility's total oil storage capacity because the Plans inaccurately characterized Pit No. 2 as secondary containment for uphill tanks even though it was routinely used to store oil. (See id. at ¶ 31(e), 71(d)). Accordingly, the court finds that Pit No. 2's capacity – 609,000 gallons – is properly counted towards the facility's total oil storage capacity. (See id. at ¶¶ 71(d), 73); (TREX US2992 at HVI001130). In considering Pit No. 2 and all the aboveground tanks that were not permanently closed, the Bell Facility's total oil storage capacity was greater than one million gallons. (See Dkt. 345-2, Reich Decl. at ¶ 73).

128. As of January 13, 2005, the Bell Facility was located in an area identified as critical habitat for threatened and endangered species, including the California tiger salamander and red-legged frog. (See Dkt. 435-1, Declaration of Dr. Mace Barron ("Barron Decl.") at ¶ 7). Thus, a discharge from the Bell Facility could cause injury to fish and wildlife and sensitive environments.

129. The court therefore finds that the violations at the Bell Facility began on July 14, 2005, and were ongoing through at least the date of trial.

2. **Zaca/Davis Violations.**

130. As of December 9, 2005, HVI was required to prepare and submit to the EPA a FRP for the Zaca/Davis Facility within six months, i.e., no later than June 9, 2006. See 40 C.F.R. § 112.20(a)(2)(iv). HVI never submitted a FRP to the EPA for the Zaca/Davis Facility. (See Dkt. 345-2, Reich Decl. at ¶ 36).

131. As of December 9, 2005, the Zaca/Davis Facility had a total oil storage capacity of greater than or equal to one million gallons. (See Dkt. 345-1, Calhoon Decl. at ¶ 9). In addition,

the secondary containment for the Facility's Davis Tank Battery was not large enough to contain the capacity of the largest tank. (See TREX US0873 at EPA9_0008519)

132. According to HVI's SPCC Plan, the Zaca/Davis Facility's total oil storage capacity was, as of November 6, 2013, less than one million gallons and therefore it was no longer subject to the FRP requirements. (See Dkt. 345-2, Reich Decl. at ¶ 81). Absent specific and credible evidence to the contrary, the court finds that the Zaca/Davis Facility was no longer subject to the FRP requirements as of November 6, 2013. The court finds that the violations at the Zaca/Davis Facility began on June 10, 2006, and ended on November 6, 2013.

VI. ADDITIONAL OIL SPILLS AT HVI FACILITIES.[9]

A. Bell Facility.

133. On July 2, 2009, HVI's Bell Facility released crude oil and produced water which flowed into Palmer Road Creek. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 61); (TREX US2629).

B. Bradley 3-Island Facility.

1. **January 10-24, 2008, Spill**.

134. On or before January 10, 2008, HVI operated an oil and gas production facility known as Bradley 3-Island. (See Dkt. 442, PTO at ¶ 5.k.). HVI's Bradley 3-Island Facility is located in the proximity of Bradley Lake, which qualifies as a "water[] of the state" because it is located "within the boundaries" of California. Cal. Water Code § 13050(e) (The term "waters of the state" is defined in as "any surface water or groundwater, including saline waters, within the boundaries of the state."); (see Dkt. 434-3, Corrected Dostal Trial Decl. at ¶ 54) (Bradley 3-Island Facility located near Bradley Lake).

135. On January 10, 2008, a compressor at the Bradley 3-Island Facility leaked oil, however, HVI personnel stated they were too busy to clean it up. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 50); (TREX US3079). At some point in the two weeks after the oil leak, HVI personnel opened a release valve at the Bradley 3-Island Facility containment area despite

[9] The following findings are relevant to the State's claims. (See Dkt. 442, PTO at 11-13).

the presence of a visible oil sheen, causing an oil spill into an adjacent creek bed thereby posing a threat of discharge into California's waters. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶¶ 50, 58)

136. HVI waited until January 24, 2008, to report the oil spill. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶¶ 50, 58).

2. **January 27, 2008, Spill**.

137. "In 1978, Congress banned the production and sale of PCBs and the use of PCBs other than in a totally enclosed manner, with some limited exceptions." Nelson v. Tennessee Gas Pipeline Co., 243 F.3d 244, 247 (6th Cir. 2001).

138. On January 27, 2008, a power pole maintained by HVI at its Bradley 3-Island Facility fell into a creek bed, and three broken transformers spilled polychlorinated biphenyls ("PCBs") into a creek that flows into Bradley Lake. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶¶ 54-55); (TREX US3082).

139. Subsequent testing of the creek bed showed PCB contamination at 21 parts per million. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 55).

140. HVI admitted that it "never thought about the PCBs," and its lead environmental officer reported the spill as "mineral oil" instead of harmful PCBs. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶¶ 55, 58); (TREX US3082).

C. Security Facility.

141. On January 27, 2008, there was a release of oil from a waste water tank at HVI's Security Facility. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 53); (TREX US 3082). The release caused an oily sheen to flow into a tributary of the Santa Maria River. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 53); (TREX US 3082).

D. U-Cal Facility.

142. On January 24, 2008, the "Omni Vessels" and "Omni Pit" at HVI's U-Cal Facility released oil into a pond that drains into a tributary to Bradley Canyon Creek, which flows into the Santa Maria River. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶¶ 51-52); (TREX US3080); (TREX US3081).

143. HVI failed to properly drain and clean the Omni Vessels prior to the release and did not report the oil release. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 58).

VII. CLEAN WATER ACT PENALTY FACTORS.

144. "In determining the amount of a civil penalty under [§ 311 of the CWA] . . . the court . . . shall consider the seriousness of the violation or violations, the economic benefit to the violator, if any resulting from the violation, the degree of culpability involved, any other penalty for the same incident, any history of prior violations, the nature, extent, and degree of success of any efforts of the violator to minimize or mitigate the effects of the discharge, the economic impact of the penalty on the violator, and any other matters as justice may require." 33 U.S.C. § 1321(b)(8).

A. Seriousness of the Violations.

145. The United States relied on the expert testimony of Mace Barron, Ph.D. ("Dr. Barron"), and Yousif K. Kharaka, Ph.D. ("Dr. Kharaka"), the testimony of DFW responder, Michael Connell ("Connell"), and the DFW's investigation reports, to establish the environmental harm caused by HVI's spills at the Bell and Zaca/Davis Facilities. HVI did not attempt to rebut the testimony provided by Drs. Barron and Kharaka.

146. Dr. Barron is an experienced ecological researcher and toxicologist, and in preparing his opinion, he reviewed relevant scientific literature, the incident, investigation and biological reports relating to the oil spills, and he made several site visits. (See 435-1, Corrected Trial Declaration of Dr. Mace Barron ("Barron Corrected Trial Decl.") at ¶¶ 1-4). Dr. Barron offered a qualitative assessment of the environmental injury caused by HVI's spills of a kind routinely prepared and considered by experts in the field of ecological risk assessment. (See Dkt. 478, October 22, 2018, P.M. RT at 77) (Barron testimony).

147. Dr. Kharaka is a hydrogeochemist with more than 50 years of scientific expertise in the interactions of water, petroleum, and rocks in subsurface and contaminated field sites. (See Dkt. 345-13, Trial Declaration of Yousif K. Kharaka ("Kharaka Decl.") at ¶¶ 2-3). In preparing his testimony, Dr. Kharaka conducted two site visits, and reviewed relevant scientific literature and reports on HVI's oil spills. (See id. at ¶ 4).

148. Connell has served as a Senior Environmental Scientist with the DFW since 2007 and

has extensive experience in conducting responses to oil spills. (See Dkt. 434-6, Connell Corrected Trial Decl. at ¶¶ 1-4). He was a responder for the State for the spills at the Bell Facility on July 16, 2007, December 7, 2007, January 29, 2008, and December 27, 2008, and the Zaca/Davis Facility on January 5, 2008. (Id.).

149. The spills at HVI's Bell and Zaca/Davis Facilities were made up of a mixture of crude oil and large quantities of produced water. (See Dkt. 345-13, Kharaka Decl. at ¶ 5).

150. Crude oil is toxic to humans, plants, animals, and ecosystems. It can cause physical injuries to both plants and animals including smothering, destruction of the insulating capacity of animals' fur or feathers, and impairment of animals' ability to fly or swim. Crude oil can also render soil unfit for plant life by reducing its ability to hold oxygen, and by acting as a barrier preventing water from being absorbed. (See Dkt. 345-13, Kharaka Decl. at ¶ 5); (id., Exh. A, Kharaka Expert Report at 7); (Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 6); (id., Exh. 1, Expert Report of Dr. Mace Barron ("Barron Expert Report") at § 6.3).

151. Crude oil can also cause biochemical injury to plants and animals because it contains chemicals that are poisonous, cancerous, mutagenic, and that harm the immune, brain, and nervous systems, the liver, and other organs. These chemicals include volatile organic compounds ("VOCs") (such as benzene) and polycyclic aromatic hydrocarbons ("PAHs") (such as benzo(a)pyrene). (See Dkt. 345-13, Kharaka Decl. at ¶ 5); (id., Exh. A, Kharaka Expert Report at 7); (Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 6); (id., Exh. 1, Barron Expert Report at § 6.3).

152. As noted earlier, produced water is defined as "water (brine) brought up from the hydrocarbon-bearing strata during the extraction of oil and gas, and can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process." 40 C.F.R. § 435.41(bb). In other words, produced water is crude and other constituents mixed with waste. It contains constituents that can cause serious injury to animals, plants, and the environment, including high salinities harmful chemicals. (See Dkt. 434-6, Connell Corrected Trial Decl. at ¶ 13); (Dkt. 345-13, Kharaka Decl. at ¶¶ 4-5); (id., Exh. A, Kharaka Expert Report at 8-9, 11).

153. Recent samples of produced water from the Bell and Zaca/Davis Facilities show

salinity levels 10 to 20 times higher than the threshold values for most plants. (See Dkt. 345-13, Kharaka Decl. at ¶¶ 4-5); (id., Exh. A, Kharaka Expert Report at 8). In addition, the samples contained concentrations of boron, barium, and benzene. (See Dkt. 345-13, Kharaka Decl. at ¶ 5); (id., Exh. A, Kharaka Expert Report at 8-9, 11).

154. Elevated salinity levels in water can be harmful to aquatic organisms. For example, even when it has been diluted by 99%, produced water can kill sensitive aquatic invertebrates. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 6); (id., Exh. 1, Barron Expert Report at § 6.3). Samples of HVI's produced water and spill water exceeded the U.S. National Water Quality Criteria of 860 mg/L for chloride for acute toxicity to aquatic life. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 6); (id., Exh. 1, Barron Expert Report at § 6.4).

155. The Zaca/Davis Facility is located within the Central California foothills and coastal mountains ecoregion, which provides habitat for a diverse range of wildlife, including lizards, California quail, song birds, red-tailed hawks, owls, deer, black bears, mountain lions, wild pigs, road runners, and coyotes. Likely habitat uses include nesting, sheltering, breeding, and foraging. Also, the habitat is used intermittently by aquatic-dependent organisms during times when the creeks and tributaries are flowing. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 5); (id., Exh. 1, Barron Expert Report at § 6.2).

156. The Bell and Zaca/Davis Facilities are within the potential range of aquatic and terrestrial habitat for the California tiger salamander (an endangered species) and the red-legged frog (a threatened species), though it is unclear if they were directly harmed by HVI's spills. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶¶ 5, 7); (id., Exh. 1, Barron Expert Report at § 6.2).

157. Both Palmer Road Creek and the Zaca Tributary provide habitat, food, shelter, and migration corridors for an array of reptiles, birds and mammals. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 5); (id., Exh. 1, Barron Expert Report at § 6.4).

158. HVI's spills of oil and produced water contaminated riparian habitats and multiple miles of stream channels in and around Palmer Road Creek and the Zaca Tributary. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 5); (id., Exh. 1, Barron Expert Report at § 6.4 & Appx. D1).

159. Responders observed a "near complete loss of biota" in the path of several of HVI's

spills. (See Dkt. 435-1, Exh. 1, Barron Expert Report at § 6.4); (TREX US0971 at DFG005060); (TREX US1339 at DFG000973-74); (TREX US3139 at DFG005599). Responders also saw dead and oiled animals including insects, reptiles, birds, and mammals. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 7); (TREX US0195 at EPA9_0269236); (TREX US0771 at DFG005978); (TREX US3093 at DFG000396). Dead animals found after the January 5, 2008, Zaca/Davis Tank Spill included one Barn Owl, one Red-Tailed Hawk, a "passerine" bird that could not be specifically identified, a Black Racer Snake, and three Western Fence Lizards. (See Dkt. 434-4, Gross Corrected Trial Decl. at ¶ 34); (TREX US0195 at EPA9_0269236).

160. On multiple occasions, responders noted that throughout the spill pathway, oil coated vegetation and woody debris, filled animal burrows and crevices, and covered the surface of rocks in and around the creek bed, while oil and produced water penetrated the streambed and banks of the stream. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 6); (TREX US0971 at DFG005060); (TREX US1339 at DFG000973-74); (TREX US3139 at DFG005599).

161. The cleanup efforts necessitated by HVI's spills caused further environmental injury, as heavily oiled vegetation, sediment, and soil had to be removed to effectively extract crude oil from the creek beds. The movement of response equipment caused injury to plant life – including important riparian species such as the coast live oak – and erosion of stream banks. (See Dkt. 435-1, Exh. 1, Barron Expert Report at § 6.4 & Appx. D1); (TREX US0771 at DFG005978); (TREX US0971 at DFG005059); (TREX US1339 at DFG000975); (TREX US3093 at DFG000396); (TREX US3139 at DFG005599).

162. Some quantity of residual oil, and a much larger amount of produced water, was inevitably left in affected habitats following cleanup efforts, where it likely continued to expose wildlife to toxic constituents, and degrade the environmental habitat by elevating the salinity of soils, sediment, surface and subsurface water above normal levels. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 8); (id., Exh. 1, Barron Expert Report at § 6.4).

163. The DFW's estimated habitat recovery times following several of HVI's spills ranged from one to three years, indicating that environmental harms persisted long after remediation efforts were completed. (See Dkt. 434-6, Connell Corrected Trial Decl. at ¶¶ 52, 58, 63); (Dkt.

435-1, Barron Corrected Trial Decl. at ¶ 8); (TREX US1273 at DFG003948); (TREX US1339 at DFG000977).

164. Produced water from HVI's spills may also have caused lasting groundwater contamination. There are porous and permeable alluvium and terrace deposits along both Cat Canyon Creek and Zaca Tributary that would have allowed produced water to enter into the sandy-gravelly upper layers of soil in the unsaturated zone, and from there spread both laterally and down the creeks. Some produced water could have passed through the unsaturated zone, reaching and contaminating groundwater. (See Dkt. 345-13, Kharaka Decl. at ¶ 6); (id., Exh. A, Kharaka Expert Report at 10). Dr. Kharaka estimated that approximately half of the spilled produced water ultimately reached groundwater in this fashion. (See Dkt. 478, October 22, 2018, P.M. RT at 98) (Kharaka testimony).

165. Based on this evidence, the court finds that HVI's release of crude oil and produced water from its Bell and Zaca/Davis Facilities caused extensive environmental harm. (See Dkt. 435-1, Barron Corrected Trial Decl. at ¶ 9); (Dkt. 435-1, Exh. 1, Barron Expert Report at § 7); (Dkt. 478, October 22, 2018, P.M. RT at 71-75) (Dr. Barron testimony).

B. Economic Benefit Resulting from the Violations.

166. The United States relied on the expert testimony of Kinworthy and Dr. Joan K. Meyer ("Dr. Meyer"), an economist and financial analyst, regarding HVI's economic benefit resulting from its violations of the CWA. HVI offered no expert testimony to rebut their opinions.

167. Dr. Meyer credibly concludes, using the inputs provided by Kinworthy, that HVI saved at least $6,317,199 by delaying or avoiding expenditures to prevent oil spills and/or to meet obligations under environmental regulations. (See Dkt. 423-1, Meyer Decl. at ¶ 7). Her assessment is based on a discounted cash flow model that compares cash flows HVI would have spent had it fully complied with the law in a timely fashion (a "full compliance" scenario) with cash flows from an "actual" scenario in which HVI delayed or avoided some compliance costs. The difference between the actual scenario and the full compliance scenario represents the economic benefit realized by HVI. This methodology is widely accepted in the financial field, and was appropriately applied in this case by Dr. Meyer. (See id. at ¶¶ 11, 18). Dr. Meyer's assessment

considered both costs that were avoided and costs that were delayed. (See id. at ¶¶ 8–10).

168. In arriving at her conclusions, Dr. Meyer relied on a conservative and reasonable 40.75% combined federal and state marginal tax rate, and a seven-year schedule for depreciable assets, to consider the state and federal tax implications of money that should have been spent on compliance. (See Dkt. 423-1, Meyer Decl. at ¶ 16); (id., Exh. A, Meyer Expert Report at 6-7).

169. Dr. Meyer also used the annual weighted average costs of capital for HVI, based on published industry-level data for the crude petroleum and natural gas industry, to calculate HVI's economic benefit in net present value terms. (See Dkt. 423-1, Meyer Decl. at ¶¶ 16-17); (id., Exh. A, Meyer Expert Report at 7-10).

170. Dr. Meyer's assessment of economic benefit is based on 87 different items, ranging from identification and integrity testing of flowlines, to installation and repair of secondary spill containment, to tank-level alarm testing and inspections, and drafting of SPCC plans. HVI either delayed or avoided entirely addressing all of these item, which are necessary to comply with regulatory requirements and prevent oil spills at its facilities. Kinworthy offered credible estimates as to the dates of non-compliance and approximate costs delayed or avoided for each of these items. (See Dkt. 345-11, Kinworthy Decl. at ¶¶ 32-41); (id., Exh. A, Kinworthy Expert Report at 37-50 & Appx. D). Kinworthy's cost estimates were expressed in 2002 dollars, which were adjusted for inflation by Dr. Meyer using the Chemical Engineering Plant Cost Index. (See Dkt. 423-1, Meyer Decl., Exh. A, Meyer Expert Report at 5-6).

171. Applying the discounted cash flow methodology and reasonable assumptions described above, Dr. Meyer reasonably opined and this court concludes that HVI's economic benefit as a result of the violations in this case was at least $6,317,199.

C. Culpability.

172. The findings set forth above regarding HVI's gross negligence, including its long history of violations, most of which HVI did not address, demonstrate HVI's culpability for the 12 spills and several regulatory violations in this case. See supra at § IV.

D. Other Penalties for the Same Incidents.

173. In this action, the State seeks its own penalties under California law for the following

spills for which the United States also seeks penalties under federal law: Bell Facility spills on July 16, 2007, December 7, 2007, January 29, 2008, December 27, 2008, May 1, 2009, October 14, 2010, and the Zaca/Davis Facility spill on January 5, 2008.[10] (See Dkt. 442, PTO at ¶ 7.a.).

174. HVI has not paid any relevant penalties for the violations at issue here.[11]

E. History of Prior Violations.

175. The 12 oil spills and numerous SPCC violations addressed above show an ongoing pattern of CWA violations by HVI at its oil production facilities from at least 2005 through 2010.

F. Efforts to Minimize or Mitigate Discharges.

176. HVI's efforts to minimize or mitigate discharges resulting from its oil spills were in many cases flawed and insufficient. (See Dkt. 414, Curtis Decl. at ¶ 31). HVI responded to a number of spills inappropriately, hampering cleanup efforts or causing additional environmental harm. For example:

a. In response to the December 7, 2005, Bell Facility spill, HVI repeatedly mishandled contaminated soils and, as a result, spread oil to uncontaminated areas and areas that had already been cleaned. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶¶ 71, 73-74); (TREX US0775 at HVI000281).

b. Following the July 16, 2007, Bell Facility spill, HVI's initial attempts to clamp the corroded pipeline failed and, as a result, the oil leak continued for three days after the spill was discovered. (See TREX US1394 at DFG001068). HVI's inadequate response and cleanup methods, including significant under staffing, complicated the cleanup and caused delay that made the oil harder to remove from the creek. (See Dkt. 434-4, Gross Corrected

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[10] The State is not seeking penalties for the spills at the Bell Facility on June 8, 2005, July 13, 2005, August 11, 2005, and December 21, 2010, or at the Zaca/Davis Facility on December 7, 2005. (See Dkt. 442, PTO at ¶ 7.a.).

[11] The United States represents that HVI was assessed a civil penalty of $5,000 by the California Department of Conservation's Division of Oil, Gas & Geothermal Resources in connection with the December 27, 2008, Bell Spill, (see, e.g., Dkt. 482-1, United States' [] [Updated] Post-Trial Findings of Fact at ¶ 275), although it appears to rely on an exhibit that was not admitted into evidence. (See id.) (citing TREX US0662). In any event, the existence of this prior civil penalty would not alter the court's findings here.

Trial Decl. at ¶¶ 14-15); (Dkt. 434-6, Connell Corrected Trial Decl. at ¶¶ 24-25).

c. For the December 7, 2007, Bell Facility spill, HVI's cleanup effort was again understaffed. HVI failed to remove all spilled oil as directed by the State, resulting in recontamination of Palmer Road Creek during a heavy rain. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶ 26).

d. Following the January 5, 2008, Zaca/Davis Facility spill, HVI failed to construct an adequate temporary berm to contain the spilled oil, and it failed to improve the berm despite instruction from responders to do so. As a result, rain pushed the oil more than a mile further downstream from the temporary berm. (See Dkt. 434-6, Connell Corrected Trial Decl. at ¶¶ 45, 48-49).

177. HVI also repeatedly failed to provide proper safety equipment and necessary training to its staff charged with responding to oil spills. For example, during the response to the December 7, 2015, Bell Facility spill, HVI failed to comply with worker safety regulations that apply to oil spill cleanups under the National Contingency Plan, including not providing necessary protective clothing. (TREX US0870 at HVI010764-68). In addition, HVI repeatedly misrepresented to regulators that all workers conducting the cleanup had undergone the required training, and when called upon to substantiate its claims, it could not do so. (See Dkt. 434-3, Dostal Corrected Trial Decl. at ¶¶ 68, 70); (Dkt. 345-10, Wise Decl. at ¶¶ 16, 21). HVI also failed to comply with safety requirements, including protective air monitoring and creation of a written health and safety program. (See Dkt. 434-4, Gross Corrected Trial Decl. at ¶¶ 12-13). When HVI's non-compliance continued, the EPA ordered HVI to stop work, and advised HVI that if it did not hire a competent contractor to complete the cleanup, the EPA would take over the response. (See Dkt. 345-10, Wise Decl. at ¶ 32).

178. HVI also failed to promptly report spills to federal and state officials, delaying cleanup efforts. For example, HVI waited more than two hours after learning of the December 7, 2005, Zaca/Davis Facility spill to report the spill to OES and the federal National Response Center. (See TREX US0723 at HVI00996 at ¶¶ 10, 10.b). Also, HVI waited two and a half hours after learning of the July 16, 2007, Bell Facility spill to notify OES. (See TREX US1394 at DFG001069).

G. Economic Impact of the Penalty on HVI.

179. HVI elected to abandon its argument that the civil penalties plaintiffs seek should be reduced as a result of any economic impact such penalties would have on HVI, and on that basis the parties mutually agreed to withdraw, and not to offer into evidence all related testimony and documentary evidence. (See Dkt. 443, Court's Order of October 22, 2018, at 4). Accordingly, there is no evidence that could support reduction of penalties based on their potential economic impact on HVI.

H. Other Mattes as Justice May Require.

180. There are no relevant facts other than those discussed above that would support reduction of the penalties HVI faces for the 12 spills.

CONCLUSIONS OF LAW

VIII. LIABILITY UNDER THE CWA FOR THE 12 SPILLS AT THE BELL AND ZACA/DAVIS FACILITIES.

A. Statutory Definitions and HVI's Liability Under § 311(b) of the CWA.

181. Section 311(b) of the CWA, 33 U.S.C. §1321(b), prohibits the discharge of oil into or upon the navigable waters of the United States or adjoining shorelines in such quantities as may be harmful. 33 U.S.C. §1321(b)(3).

182. Section 311(b)(7)(A) of the CWA, 33 U.S.C. § 1321(b)(7)(A), provides that any person who is the owner, operator, or person in charge of an onshore facility from which oil is discharged in violation of § 311(b)(3) of the CWA shall be subject to a civil penalty.

183. The definition of "person" in § 311(a)(7) of the CWA includes a "corporation," 33 U.S.C. § 1321(a)(7). HVI is a "person" as defined by § 311(a)(7).

184. HVI owned and operated the Zaca/Davis oil production facility at the time of the two Spills from that facility, and it owned and operated the Bell oil production facility at the time of the 10 spills from that facility.

185. The CWA defines "onshore facility" to mean a facility "of any kind located . . . on . . . land within the United States. 33 U.S.C. § 1321(a)(10). The Bell and Zaca/Davis Facilities are each an "onshore facility" within the meaning of 33 U.S.C. § 1321(a)(10).

186. Under § 311(a)(2) of the CWA, a discharge "includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping[.]" 33 U.S.C. § 1321(a)(2). Each of the 12 spills constitutes a "discharge" within the meaning of 33 U.S.C. § 1321(a)(2).

187. HVI's liability under § 311(b)(3) subjects it to civil penalties under § 311(b)(7).

188. Pursuant to 33 U.S.C. §1321(b)(7) and 40 C.F.R. 19.4, civil penalties are assessed per barrel of oil discharged. A "barrel" equals 42 gallons at 60 degrees Fahrenheit. 33 U.S.C. §1321(a)(13).

B. "Oil" and the Volume of Oil Discharged.

189. "Oil" in § 311(a)(1) is defined to mean "oil of any kind or in any form, including, but not limited to . . . sludge . . . and oil mixed with wastes other than dredged spoil[.]" 33 U.S.C. § 1321(a)(1).

190. The phrase, "wastes other than dredged spoil," signifies the intent of Congress to regulate the discharge of oil mixed with any kind of waste except the one excluded type of waste, i.e., "dredged spoil." By using the open-ended phrase "oil of any kind or in any form," and the language "including, but not limited to," Congress intended for the term "oil" in § 311 to be interpreted broadly. This broad,`inclusive definition is consistent with § 311's purpose "to achieve the result of clean water as well as to deter conduct causing spills." United States v. Coastal States Crude Gathering Co., 643 F.2d 1125, 1128 (5th Cir. 1981) (citation omitted).

191. Courts and the EPA have treated produced water as waste associated with the production of oil. For example, in its effluent limit guidelines for the coastal subcategory of the oil and gas extraction point source category, the EPA regulates produced water as a pollutant waste stream subject to a zero discharge requirement. See 61 Fed. Reg. 66,086 (Dec. 16, 1996); 40 C.F.R. § 435.41(bb) (definition of produced water); Texas Oil & Gas Ass'n v. U.S. EPA, 161 F.3d 923, 929, 940 (5th Cir. 1998) (upholding EPA's zero discharge limit for produced water, a pollutant waste stream). The Ninth Circuit has determined that produced water is an "industrial waste" and therefore a regulated pollutant under § 502(6) of the CWA. See N. Plains Res. Council v. Fid. Exploration & Dev. Co., 325 F.3d 1155, 1160-61 (9th Cir. 2003).

192. Based on § 311's definition of "oil," which includes "oil mixed with wastes," and the

administrative and judicial treatment of produced water as a "waste," HVI's produced water constitutes waste. (See Dkt. 345-6, Hackstedt Decl. at ¶ 68-69); (id., Exh. A, Hackstedt Expert Report at 58-60). Thus, all of the material discharged during each of the 12 spills – the crude oil and produced water – constitute "oil" within the meaning of § 311 of the CWA.

C. HVI is Liable for Civil Penalties for the Spills at the Bell and Zaca/Davis Facilities.

193. As noted, the court previously granted the United State's motion for partial summary judgment with respect to HVI's liability for 10 of the 12 oil spills. (See Dkt. 307, MSJ Order II at 38). The court denied the motion with respect to HVI's CWA and OPA liability for the December 27, 2008, and May 1, 2009, Bell Facility spills into Spring Canyon Tributary and the April 2008 Gato Ponds removal action, finding triable factual issues as to whether Sisquoc Creek and Spring Canyon Tributary possess a significant nexus to a TNW. (See id. at 37-38).

194. Based on Dr. Lee's testimony, and other evidence presented at trial, the court finds that both the Sisquoc Creek and the Spring Canyon Tributary have a significant nexus to traditional navigable waters, and that HVI discharged oil in quantities that may be harmful from the Bell Facility on December 27, 2008, and May 1, 2009. Therefore, HVI is liable under the CWA and OPA for the discharges into the Spring Canyon Tributary, and the substantial threat of a discharge from the Gato Ponds into Sisquoc Creek that led to the Gato Ponds removal action in April 2008.

195. As set forth above, the court finds that the United States' estimate of the volume of oil discharged in the 12 spills is reliable and that a total of 26,584 barrels of oil were discharged from facilities that were owned or operated by HVI. See supra at § III.

D. HVI is Liable for Gross Negligence.

196. Violations of § 311(b)(3) of the CWA that are the result of "gross negligence" or "willful misconduct"[12] are subject to a civil penalty of up to $4,300 per barrel of oil.[13] 33 U.S.C. §

[12] Because the court concludes that HVI is liable for gross negligence, it need not decide whether HVI's acts and/or omissions also constituted willful misconduct.

[13] The statutory penalty amounts are adjusted for inflation pursuant to the Federal Civil Penalties Inflation Adjustment Act, 28 U.S.C. § 2461, as amended, 31 U.S.C. § 3701. See 40 C.F.R. § 19.4.

1321(b)(7)(D); 40 C.F.R. § 19.4.

197. The interpretation of the term "gross negligence" in the CWA is governed by federal law. See In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, on April 20, 2010, 21 F.Supp.3d 657, 734-35 (E.D. La. 2014) ("In re Deepwater I"); id. at 737 (holding that "the United States provides the correct definitions of 'gross negligence' and 'willful misconduct' for purposes of the CWA"). Gross negligence is an objective standard and "differs from ordinary negligence only in degree, not in kind." Id. (restating United States' definition of gross negligence as "gross negligence is an extreme departure from the care required under the circumstances or a failure to exercise even slight care").

198. "[A] series of negligent acts may also constitute gross negligence [] under the CWA." In re Deepwater I, 21 F.Supp.3d at 742. In other words, "instances of negligence, taken together," can "evince an extreme deviation from the standard of care and a conscious disregard of known risks." Id. at 743; see, e.g., United States v. Citgo Petroleum Corp., 2015 WL 9692957, *7-8 (W.D. La. 2015) (finding Citgo liable for gross negligence because it was on notice that its containment systems were inadequate but failed to address the issue over many years).

199. HVI's violations of § 311(b)(3) were the result of gross negligence. HVI acted "recklessly," which satisfies the definition of "gross negligence" under the CWA. In addition, HVI committed a series of negligent acts or omissions that resulted in the discharge of oil, which also amount to gross negligence under the CWA.

200. HVI's spills and regulatory violations evinced both a pattern of reckless disregard, and a series of negligent acts or omissions that amount to gross negligence under the CWA. In addition to the 181 spills (excluding updates) from 2006 to the date of trial (and recorded in the OES database), each of the 12 spills and regulatory violations at issue provided notice to HVI of its deficiencies in spill prevention, spill response, and environmental compliance programs; such notice should have spurred the company to prevent a recurrence. (See TREX US3241, TREX US1181, HVI0013).

201. Prudent operation requires correcting deficiencies in spill prevention, spill response, and environmental compliance programs. Here, the record indicates that HVI allowed such

deficiencies to continue unabated. If not for HVI's reckless disregard of its obligations to prevent oil spills, factors and failures that caused or contributed to the spills could have been corrected when they first came to HVI's attention.

202. Prudent operation also requires identifying and mapping the location of all flowlines, routine visual inspection of aboveground flowlines, routine mechanical integrity testing, and prompt and preventative maintenance of equipment. Here, many of the spills resulted from corrosion of equipment. If not for HVI's reckless disregard for maintenance of the equipment used to move its oil, HVI could have adequately inspected for equipment deterioration and proactively repaired or replaced equipment in old or poor condition. It is likely that the spills at the Bell Facility on June 8, 2005, July 13, 2005, August 11, 2005, July 16, 2007, and October 14, 2010 – each caused by corrosion – would not have occurred.

203. Prudent operation also requires adequately monitoring for actual and potential spills. HVI failed to repair alarms that monitored high fluid levels or, as an alternative, maintain 24-hour coverage of its facilities when the alarms were not working properly. If not for HVI's reckless disregard for preventative spill monitoring, the December 7, 2005, Zaca/Davis Tank Spill and the December 7, 2007, Bell Blochman Ponds Spill would not have occurred, and the January 5, 2008, Zaca/Davis Spill and the December 7, 2007, Bell Blochman Ponds Spill would likely have been discovered earlier, allowing HVI to respond to the spills sooner.

204. Prudent operation also requires that a company inspect and maintain secondary containment and that secondary containment have sufficient capacity. The evidence establishes that HVI failed to notice and repair holes and other structural deficiencies in secondary containment; knew that secondary containment at certain facilities was not being adequately inspected or maintained or did not have sufficient capacity; and knew that certain facilities lacked the necessary secondary containment or diversionary structures. If not for HVI's disregard for maintenance of appropriate secondary containment, the spills at the Zaca/Davis Facility on December 7, 2005, and January 5, 2008, and at the Bell Facility on December 7, 2007, could have been effectively contained and would not have reached a TNW. See supra at § IV.E.

205. Overall, the overlapping and recurring factors and failures that caused or contributed

to the spills and violations demonstrate HVI's systemic failure to operate its facilities like a prudent oil production facility operator. Many of HVI's failures, viewed in isolation, represented an extreme departure below good oilfield industry practices and, in many instances, multiple failures compounded one another.

206. In short, HVI's violations were the result of gross negligence. HVI is therefore subject to a civil penalty of up to $4,300 per barrel of oil discharged. 33 U.S.C. § 1321(b)(7)(D), 40 C.F.R. § 19.4. Given that the court has concluded that 26,584 barrels of oil were discharged, HVI is subject to a statutory maximum penalty of up to $114,311,200 on the United States' claim under the CWA, 33 U.S.C. § 1321(b)(3).

IX. LIABILITY FOR VIOLATIONS OF THE FEDERAL OIL POLLUTION PREVENTION REGULATIONS.

A. Federal Oil Pollution Prevention Regulations.

207. Section 311(j)(1) of the CWA, 33 U.S.C. § 1321(j)(1), authorizes the President to issue regulations establishing procedures, methods, equipment, and other requirements to prevent and contain discharges of oil and hazardous substances from onshore facilities. Pursuant to § 311(j)(1), the EPA, acting through its delegated authority under Executive Order No. 11,735, 38 Fed. Reg. 21,243 (Aug. 7, 1973), and § 2(b)(1) of Executive Order No. 12,777, 56 Fed. Reg. 54,757 (Oct. 22, 1991), has issued Oil Pollution Prevention regulations governing owners and operators of non-transportation-related onshore and offshore facilities. These regulations are found at 40 C.F.R. Part 112 and include requirements regarding SPCC Plans starting at 40 C.F.R. § 112.3 and requirements regarding FRPs starting at 40 C.F.R. § 112.20.

208. The Oil Pollution Prevention regulations apply to "any owner or operator of a[n] . . . onshore . . . facility engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, using, or consuming oil and oil products, which, due to its location, could reasonably be expected to discharge oil in quantities that may be harmful . . . into or upon the navigable waters of the United States or adjoining shorelines . . . that has oil in: (1) [a]ny aboveground container; . . . or (3) [a]ny container that is used for standby storage, for seasonal storage, or for temporary storage, or not otherwise 'permanently closed' as defined in [40 C.F.R.]

§ 112.2." 40 C.F.R. § 112.1(b). The determination as to whether a facility could reasonably be expected to discharge oil in quantities that may be harmful "must be based solely upon consideration of the geographical and location aspects of the facility . . . and must exclude consideration of manmade features such as dikes, equipment or other structures, which may serve to restrain, hinder, contain, or otherwise prevent a discharge[.]" 40 C.F.R. § 112.1(d)(1)(i).

209. Title 40 C.F.R. § 112.2 defines "onshore facility" as "any facility of any kind located in, on, or under any land within the United States, other than submerged lands."

210. HVI's 11 Facilities were subject to the Oil Pollution Prevention regulations:

a. Each of the 11 Facilities was located on land within the United States, other than submerged lands.

b. Each of the 11 Facilities was a non-transportation-related "onshore facility" within the meaning of 40 C.F.R. § 112.2.

c. Each of the 11 Facilities was engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing; using, or consuming oil and oil products.

d. Each of the 11 Facilities had oil in one or more aboveground containers or containers that were not "permanently closed" as defined in 40 C.F.R. § 112.2.

e. Each of the 11 Facilities could reasonably be expected to discharge oil in quantities that may be harmful into or upon the navigable waters of the United States or adjoining shorelines. See Pepperell Assocs. v. United States, 246 F.3d 15, 25 (1st Cir. 2001) (where "[t]here is sufficient evidence that a reasonably alert owner would be aware of the possibility of an overflow[,] . . . it is reasonable under those circumstances to view the objective of preventing oil spills as best served by requiring such foresight on the part of the owners and operators of oil storage facilities").

1. **SPCC Plans**.

211. Title 40, C.F.R. § 112.3 requires an owner or operator of a regulated facility to prepare and implement a written SPCC Plan. "The purpose of an SPCC Plan is to form a comprehensive Federal/State spill prevention program that minimizes the potential for discharges." 40 C.F.R. § 112.1(e). The SPCC regulations "impose a duty to have an SPCC plan whether there is an oil

spill or not. The point of the SPCC is to be prophylactic - to prevent oil discharges to navigable waters." Pepperell Assocs., 246 F.3d at 24.

212. The EPA promulgated a final rule ("Revised Rule") amending the Oil Pollution Prevention regulations in 2002. 67 Fed. Reg. 47,042 (July 17, 2002). The effective date of the Revised Rule was August 16, 2002. It is unnecessary to decide when HVI was required to comply with the Revised Rule because, although the regulatory citations changed in many instances, the Revised Rule did not change HVI's obligations under the prior version of the regulatory requirements pertinent to HVI's liability in this case, such as the requirement to develop and implement a flowline maintenance program. Accordingly, where they differ, the legal citations in this section distinguish between the Revised Rule (reflected in the 2003 Code of Federal Regulations) and the prior version of the regulations. Because HVI began acquiring the 11 Facilities in 1999, this section cites to the 1998 Code of Federal Regulations as representative of the prior version. Under either version, HVI is liable.

213. At each of the 11 Facilities, HVI failed to develop and implement a flowline maintenance program, in violation of 40 C.F.R. § 112.9(d)(4) (2010), 40 C.F.R. § 112.9(d)(3) (2002), and 40 C.F.R. § 112.7(e)(5)(iv)(c) (1999).

214. At certain of the 11 Facilities, HVI also:

a. Failed to provide and maintain adequate containment and drainage controls, in violation of 40 C.F.R. § 112.7(c), 112.7(h)(1), and 112.9(c)(2) (2003) and 40 C.F.R. § 112.7(c), 112.7(e)(4), and 112.7(e)(5) (1998) (Battles, Bell, Casmalia, Zaca/Davis, Lakeview, Lloyd, Los Flores, Security, U-Cal, and Williams B Facilities);

b. Failed to prepare an SPCC Plan, as required by 40 C.F.R. § 112.3 and 112.7 (Lakeview and Williams B Facilities);

c. Failed to review, amend as necessary, and recertify its SPCC Plan, in violation of 40 C.F.R. § 112.5 (Zaca/Davis Facility);

d. Failed to develop adequate SPCC Plans by failing to: include adequate detail regarding discharge prevention and drainage controls, in violation of 40 C.F.R. § 112.7(a)(3) (2003) and 40 C.F.R. § 112.7(c) (1998) (Bell, Lloyd, and Security Facilities);

maintain within the SPCC Plan adequate written inspection procedures and records of inspections, in violation of 40 C.F.R. § 112.7(e) (2003) and 112.7(e)(8) (1998) (Bell, Security, and U-Cal Facilities); and address the requirements for onshore oil drilling and workover facilities set forth in the regulations, in violation of 40 C.F.R. § 112.10 (2003) and/or 40 C.F.R. § 112.7(e)(6) (1998) (Battles, Bell, Casmalia, Chamberlin, Zaca/Davis, Escolle, Lloyd, Los Flores, Security, and U-Cal Facilities).

e. Failed to inspect, for and remove accumulations of, discharged oil, in violation of 40 C.F.R. § 112.9(b)(1) and (2) (2003) and 40 C.F.R. § 112.7(e)(5)(ii) (1998) (Battles, Bell, Casmalia, Zaca/Davis, Los Flores, Security, U-Cal, and Williams B Facilities); and

f. Used containers for the storage of oil whose material and construction were incompatible with the material stored and the conditions of storage, in violation of 40 C.F.R. § 112.9(c)(1) (1998) and 40 C.F.R. § 112.7(e)(5)(iii)(A) (1974) (Battles, Lakeview, Lloyd, and Williams B Facilities).

2. **Facility Response Plans**.

215. Pursuant to 40 C.F.R. § 112.20(a), the "owner or operator of any non-transportation-related onshore facility that, because of its location, could reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines" must prepare and submit a FRP to the EPA that meets the requirements set forth in that section.

216. HVI failed to prepare and submit an FRP for the Bell Facility, in violation of 40 C.F.R. § 112.20.

217. HVI was required but failed to prepare and submit an FRP for the Zaca/Davis Facility, in violation of 40 C.F.R. § 112.20, until February 10, 2016.

218. The phrase "could reasonably be expected to cause substantial harm to the environment" in 40 C.F.R. § 112.1(b) is defined to include a facility which has a "total oil storage capacity [] greater than or equal to 1 million gallons," id. at § 112.20(f)(1)(ii), and for which one of the following is true: the facility "does not have secondary containment for each aboveground storage area sufficiently large to contain the capacity of the largest aboveground oil storage tank

within each storage area plus sufficient freeboard to allow for precipitation[;]" or the facility "is located at a distance . . . such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments." 40 C.F.R. § 112.20(f)(1)(ii)(A)-(B). Because the Bell Facility has a total oil storage capacity of at least one million gallons and is located at a distance such that a discharge from the facility could cause injury to fish, wildlife and sensitive environments, the Bell Facility could reasonably be expected to cause substantial harm to the environment.

219. In addition, because the Zaca/Davis Facility had a total storage capacity of at least one million gallons, and did not have secondary containment for the largest aboveground oil storage tank that was large enough to contain the capacity of the tank plus sufficient freeboard to allow for precipitation, the Zaca/Davis Facility could reasonably be expected to cause substantial harm to the environment.

B. HVI is Liable for Civil Penalties for Violating the SPCC and Facility Response Plan Regulations.

220. Pursuant to § 311(b)(7)(C) of the CWA, 33 U.S.C. § 1321(b)(7)(C), and the EPA's 2004 and 2008 Civil Monetary Penalty Inflation Adjustment Rules, 69 Fed. Reg. 7121 (Feb. 13, 2004) and 73 Fed. Reg. 75,340 (Dec. 11, 2008), each violation of the Oil Pollution Prevention regulations occurring between March 15, 2004, and January 12, 2009, is subject to a civil penalty of up to $32,500 per day of violation; each violation occurring after January 12, 2009, is subject to a civil penalty of up to $37,500 per day of violation; and each violation occurring after November 3, 2015, is subject to a civil penalty of up to $55,808 per day of violation. See 40 C.F.R. § 19.4.

221. For violations of the SPCC and FRP regulations, the maximum available penalty is the number of days of violation multiplied by the inflation-adjusted per-day penalty amount in effect at the time of the violations. See 40 C.F.R. Part 112. As set forth above, see supra at § V., the total number of days of violation for the SPCC claims is 79,351, while the total number of days of violations for the FRP claims is 7,491, for a total of 86,842 days of SPCC and FRP violations combined.

222. Due to the sheer number of continuous regulatory violations at HVI's facilities and the enormous maximum potential penalty that would be generated as a result, the United States has

used its enforcement discretion to instead count many of these separate violations as only one day of violations rather than continuous violations. Similarly, for the failure to develop or implement flowline maintenance programs – perhaps the most serious SPCC violations – the United States has elected to instead count such violations as a single companywide (but continuing) violation. Applying this discretion results in a much lower 2,076 total days of violation and an adjusted maximum penalty of $70,318,308.

223. Adding the total for the United States' CWA claim for the 12 spills, see supra at § III., sets the total adjusted maximum penalty for this case at $184,629,508.

X. ASSESSING PENALTIES FOR VIOLATIONS OF CLEAN WATER ACT § 311.

A. Applicable Law.

224. The purpose of the CWA is to eliminate the discharge of all pollutants to waters of the United States, and thereby protect the nation's waters and people. United States v. Aluminum Co. of America, 824 F.Supp. 640, 645 (E.D. Tex. 1993); 33 U.S.C. § 1251(a). The purpose of penalties under § 311 of the CWA is threefold: to punish violators; deter violators and potential violators; and shift the costs of pollution to the relevant "polluting enterprise[.]" See Tull v. United States, 481 U.S. 412, 422, 107 S.Ct. 1831, 1838 (1987) (purpose is to punish and deter); Coastal States Crude Gathering Co., 643 F.2d at 1128 (purpose includes cost-shifting); United States v. Marathon Pipe Line Co., 589 F.2d 1305, 1309 (7th Cir. 1978) (same).

225. Section 311(b)(8) of the CWA lists eight factors the court must consider in assessing a penalty: (1) "the seriousness of the violation or violations," (2) "the economic benefit to the violator, if any, resulting from the violation," (3) "the degree of culpability involved," (4) "any other penalty for the same incident," (5) "any history of prior violations," (6) "the nature, extent, and degree of success of any efforts of the violator to minimize or mitigate the effects of the discharge," (7) "the economic impact of the penalty on the violator," and (8) "any other matters as justice may require." 33 U.S.C. § 1321(b)(8).

226. The court's assessment of a civil penalty under the CWA is discretionary. See Tull, 481 U.S. at 427, 107 S.Ct. at 1840; United States v. Citgo Petroleum Corp., 723 F.3d 547, 551 (5th Cir. 2013); United States v. Marine Shale Processors, 81 F.3d 1329, 1338 (5th Cir. 1996).

227. "[C]alculation of discretionary penalties is not an exact science[.]" Marine Shale Processors, 81 F.3d at 1338. There is no mathematical formula for penalty assessment under the CWA, even for factors that lend themselves to quantitative estimates, like ability to pay and economic benefit. United States v. Gulf Park Water Co., 14 F.Supp.2d 854, 868-69 (S.D. Miss. 1998). In Gulf Park Water, the court explained that "while the experts offered calculations on the ability to pay as well as the economic benefit, to these findings there must be applied a degree of reason and common sense without the benefit of precise mathematical equations." Id..

228. There are two methods for determining a penalty under the CWA: the "top-down" and "bottom-up" methods. Citgo, 723 F.3d at 552. Under the top-down method, the maximum penalty is set and then the penalty is reduced as appropriate considering the other statutory penalty factors. See In re Oil Spill by the Oil Rig "Deepwater Horizon" in the Gulf of Mexico, on April 20, 2010, 148 F.Supp.3d 563, 579 (E.D. La. 2015) ("In re Deepwater Horizon II"); see also Marine Shale, 81 F.3d at 1337; Citgo, 723 F.3d at 552 (describing the "top-down" and "bottom-up" methods); United States v. B & W Inv. Props., 38 F.3d 362, 368 (7th Cir. 1994) ("In considering fines under the [Clean Air] Act, courts generally presume that the maximum penalty should be imposed."); Atl. States Legal Found., Inc. v. Tyson Foods, Inc., 897 F.2d 1128, 1142 (11th Cir. 1990) ("[T]he district court should first determine the maximum fine for which [defendant] may be held liable. If it chooses not to impose the maximum, it must reduce the fine in accordance with the [CWA penalty] factors[.]").

229. Under the bottom-up method, the "economic benefit" is established first, and then the other penalty factors are used to adjust the figure upwards or downwards. See In re Deepwater Horizon II, 148 F.Supp.3d at 579.

230. Although the Ninth Circuit has not decided which is the appropriate method in which circumstances, courts within the Ninth Circuit generally have adopted the top-down approach because it aligns with congressional intent and the plain language of the CWA, and produces results that are more reliable. See, e.g., Ctr. for Biological Diversity v. Marina Point Dev. Assocs., 434 F.Supp.2d 789, 799 (C.D. Cal. 2006) (finding "that the top-down approach offers a more reliable and less speculative method of calculating the penalty"); California Sportfishing Protection

Alliance v. River City Waste Recyclers, LLC, 205 F.Supp.3d 1128, 1155 (E.D. Cal. 2016) ("Once the court has calculated maximum civil penalties, the court may proceed to adjust downward from this maximum based on statutory factors."); Cmty. Ass'n for Restoration of the Envlt. ("CARE") v. Henry Bosma Dairy, 2001 WL 1704240, *8 (E.D. Wash. 2001) ("The Court begins with a 'top down' analysis which means that the Court begins with the maximum amount of the penalty and then applies the § 1319(d) factors to determine the appropriate reductions, if any, from the maximum."); Hawaii's Thousand Friends v. City & Cty. of Honolulu, 821 F.Supp.1368, 1394-95 (D. Haw. 1993) (Congressional intent manifested itself in a "clear statutory scheme" that requires a straightforward "two-step process" whereby courts first calculate the maximum penalty, and then look to see if any of the § 309(d) factors warrant a departure from the statutory maximum.).

231. Under the circumstances, the court is persuaded that the top-down method is appropriate in this case. Therefore, the court will calculate the maximum penalty, and then determine whether any of the penalty factors warrant a reduction.

B. Analysis of § 311(B)(8)'s Penalty Factors.

1. **Seriousness**.

232. In assessing "the seriousness of the violation or violations[,]" 33 U.S.C. § 1321(b)(8), courts consider the size of the discharge, its duration, the size of the response effort, the amount of compensation paid to victims, and the actual harm or potential risk to the environment or the public. See In re Deepwater Horizon II, 148 F.Supp.3d at 569 (collecting cases).

233. As set forth above, see supra at § III., the 12 oil spills into a TNW resulted in the discharge of approximately 26,584 barrels of oil (comprised of crude oil and produced water). Crude oil is toxic to humans, plants, animals, and ecosystems. Produced water likewise contains constituents that can cause serious injury to animals, plants, and the environment. (See Dkt. 345-13, Kharaka Decl. at ¶ 5); (id., Exh. A, Kharaka Expert Report at 7-9).

234. At trial, the United States presented evidence showing that the 12 spills – collectively and separately – caused extensive environmental harm. The spills impacted miles of stream and stream channels, coated vegetation and woody debris, filled animal burrows and crevices, and covered the surface of rocks in and around creek beds. Diverse wildlife, including mammals,

birds, reptiles and insects were killed. In addition, certain spills resulted in a near complete loss of living organisms in the affected areas. The produced water included a mixture of toxic chemicals, and salinity up to 100 times higher than the fresh water that normally flows in the area. Dr. Baron, a toxicologist, testified to "extensive" and "prolonged" environmental harm from the releases of oil and produced water. Dr. Kharaka testified to other harmful impacts. See supra at § VII.A.

235. The cleanup efforts necessitated by HVI's spills also caused significant environmental harm since heavily oiled vegetation, sediment, and soil had to be removed to effectively extract crude oil from the creek beds. In total, the cleanup efforts for the 12 spills took months, involved dozens of response workers, and cost the United States more than $2.5 million in addition to the costs incurred by defendant. Other indicators of "seriousness" include the gross deviations from industry standards described above, and the significance of the CWA's prohibition on discharges of oil, and the attendant regulations such as the SPCC and FRP rules designed to help prevent such spills.

236. The CWA also prohibits discharges of oil in "quantities as may be harmful[.]" 33 U.S.C. § 1321(b)(3); see 33 U.S.C. § 1321(b)(1) ("[I]t is the policy of the United States that there should be no discharges of oil or hazardous substances into or upon the navigable waters of the United States [or] adjoining shorelines[.]"). Section 311(b)(4) of the CWA directs the President to determine by regulation those quantities of oil that may be harmful, and the resulting regulations provide that such quantities are demonstrated by, among other things, the presence of a "film" or "sheen" of oil on the water. 40 C.F.R. § 110.3(b). Evidence of potential harm alone can justify a significant penalty. See Marine Shale Processors, 81 F.3d at 1336 (CWA § 309 violations were "serious" even though there was little, if any, evidence of actual harm); see, e.g., United States v. Dico, Inc., 4 F.Supp.3d 1047, 1064 n. 38 (S.D. Iowa 2014) ("[I]n the context of assessing civil penalties under the Clean Air Act [] and the Clean Water Act [], several courts have concluded that statutory violations that could potentially result in environmental harm were serious even absent proof of such harm."), rev'd in part on other grounds, 808 F.3d 342 (8th Cir. 2015).

237. Here, Drs. Barron and Kharaka provided testimony as to the array of physical and

biochemical injury crude oil and produced water can cause to human, animal, and plant life. Even if actual harm had not been demonstrated, the potential environmental harms attributable to HVI's spills are sufficient to categorize these spills as "serious." See supra at § VII.A.

238. In short, the court finds that no reduction in penalty is warranted based on the seriousness of the violations.

2. **Economic Benefit**.

239. While the CWA "does not define the term 'economic benefit' . . . [i]t is apparent . . . that the goal of the economic benefit analysis is to prevent a violator from profiting from its wrongdoing." United States v. Mun. Auth. of Union Twp., 150 F.3d 259, 263 (3d Cir. 1998); see In re Deepwater Horizon II, 148 F.Supp.3d at 570 ("The purpose of this factor is to ensure that the violator does not wrongfully profit from its misconduct [and] [t]he goal is to remove or neutralize the economic incentive to violate the law."). Even if there is little or no economic benefit, that "does not mean that no penalty may be imposed, nor does it necessarily warrant a reduced penalty." In re Deepwater Horizon II, 148 F.Supp.3d at 580.

240. In assessing "the economic benefit to the violator, if any, resulting from the violation," 33 U.S.C. § 1321(b)(8), courts are required to make a "reasonable approximation" of economic benefit in determining the penalty. See Citgo, 723 F.3d at 552. "It is in the nature of [economic benefit] that its qualification will be imprecise." Gulf Park Water, 14 F.Supp.2d at 864. The "court must endeavor to reach a rational estimate of [the violator's] economic benefit, resolving uncertainties in favor of the higher estimate." Id. (internal quotation marks omitted) (emphasis omitted).

241. When the violation is serious, significant civil penalties are appropriate regardless of economic benefit. See, e.g., United States v. Egan Marine Corp., 2011 WL 8144393, *6-7 (N.D. Ill. 2011) (imposition of $100,000 out of maximum $112,000 penalty, or approximately 89%, imposed despite no contention "that [the defendant] stood to gain significantly from this explosion or even from any of the lax safety practices alleged by the Government").

242. The evidence shows that HVI saved at least $6,317,199 by delaying or avoiding expenditures to: prevent oil spills and/or to meet obligations under environmental regulations;

inspect and repair equipment and containment structures at its facilities; and delay or avoid preparation and implementation of adequate SPCC Plans. See supra at § VII.B.

243. This number was reached in a two-step process. First, evidence was adduced to show what HVI should have done, but did not do to prevent the spills. The primary evidence was Kinworthy's testimony – the same expert who enumerated HVI's various failures to comply with good oilfield practices (thus showing gross negligence) – which described scores of specific steps that HVI should have taken and when, and estimated the costs of performing such steps. HVI failed to provide any evidence of alternative compliance measures it might have pursued, and Kinworthy's estimates may reasonably be adopted as the least costly method of compliance. See, e.g., Idaho Conservation League v. Atlanta Gold Corp., 879 F.Supp.2d 1148, 1168 (D. Idaho 2012) (adopting plaintiff's compliance measures and cost estimates where defendant failed to prove credible alternatives).

244. Second, Dr. Meyer, a financial analyst, took the avoided or delayed costs, and ran a "discounted cash flow" model that compared what HVI would have spent had it fully complied (i.e., a "full compliance" scenario) with cash flows from an "actual" scenario. In other words, Dr. Meyer determined how much HVI benefitted over time by foregoing expenditures that would have been required to prevent spills and otherwise comply with the law. See, e.g., United States v. Allegheny Ludlum, 366 F.3d 164, 178 (3d Cir. 2004) ("Putting aside the ultimate way in which the result of the economic benefit calculation might be employed, such a calculation is intended, at its base, to identify the benefit realized by a violator from delayed expenditures to comply with the CWA. The economic benefit calculation starts with the costs spent or that should have been spent, to achieve compliance.").

3. **Culpability**.

245. The third penalty factor is "the degree of culpability involved[.]" 33 U.S.C. § 1321(b)(8). Culpability encompasses a range of behavior that is blameworthy or merits condemnation.

246. HVI's culpability weighs strongly in favor of a penalty at or near the statutory maximum. As noted earlier, HVI's gross negligence demonstrates its culpability for the 12 spills

at issue in this case. The evidence at trial showed that for years HVI failed to learn from its spills, and rectify conditions that caused the spills, and mismanaged spill prevention and response measures. Those facts show a high measure of culpability, calling for a substantial penalty.

247. The evidence of prior violations and incidents is highly relevant to the degree of culpability involved. While the "degree of culpability[,]" see 33 U.S.C. § 1321(b)(8), encompasses gross negligence, it is a general term that also encompasses any blameworthy behavior. The Fifth Circuit has indicated that culpability includes strict liability and increases through higher degrees of culpability. See Citgo, 723 F.3d at 553. At a minimum, the 12 spills, more than 86,000 days of SPCC and FRP violations, and 181 spills from 2006 to 2018 show an ongoing pattern of CWA violations and incidents at HVI's oil production facilities from at least 2005 to the time of trial. HVI's failure to correct these deficiencies, even as its oil spill count continued to climb, comprises blameworthy behavior that warrants a substantial penalty.

4. **Other Penalties for the Same Incidents**.

248. The fourth penalty factor is "any other penalty for the same incident[.]" 33 U.S.C. § 1321(b)(8). Contrary to HVI's contention that plaintiffs are barred from seeking civil penalties for the same incident, the penalty factors under 33 U.S.C. § 1321(b)(8) permit consideration of "any other penalty for the same incident." See 33 U.S.C. § 1321(o)(2) ("Nothing in this section shall be construed as preempting any State or political subdivision thereof from imposing any requirement or liability with respect to the discharge of oil or hazardous substance into any waters within such State, or with respect to any removal activities related to such discharge."); see also TRW Inc. v. Andrews, 534 U.S. 19, 31, 122 S.Ct. 441, 449 (2001) ("It is a cardinal principle of statutory construction that a statute ought, upon the whole, to be so construed that, if it can be prevented, no clause, sentence, or word shall be superfluous, void, or insignificant.") (internal quotation marks omitted).

249. Title 33 U.S.C. § 1321(b)(11) states that "[c]ivil penalties shall not be assessed under both this section and § 1319 of this title for the same discharge." The provision does not mention the California Water Code, and the Regional Board did not file a claim for penalties under 33 U.S.C. § 1319.

250. As for HVI's reliance on 33 U.S.C. § 2706(d)(3), which bars double recovery "for natural resource damages[,]" (see Dkt. 485, Defendant's Post-Trial Memorandum of Points and Authorities Re: Bench Trial ("HVI Post-Trial Memo.") at 19 n. 8), the United States does not seek such damages. (See Dkt. 442, Court's Order of October 22, 2018, at 10). In short, HVI has not shown that plaintiffs seek impermissible double recovery.[14]

5. **History of Prior Violations**.

251. Section 311(b)(8) of the CWA provides that "in determining the amount of a civil penalty under paragraphs (6) and (7), [the court shall consider] any history of prior violations[.]" 33 U.S.C. § 1321(b)(8). There is no language limiting this inquiry to violations under a specific statute, or limiting the inquiry to the same time frame or facility. Evidence of prior violations and incidents also may be considered under two other factors in § 311(b)(8): (1) culpability; and (2) any other matters that justice may require.

252. Here, the 12 oil spills and more than 86,000 days of SPCC and FRP violations show an ongoing pattern and history of prior CWA violations by HVI at its oil production facilities from the start of HVI's ownership and operation of the facilities.

6. **Mitigation Efforts**.

253. The sixth penalty factor is the "nature, extent, and degree of success of any efforts of the violator to minimize or mitigate the effects of the discharge[.]" 33 U.S.C. § 1321(b)(8).

254. As the responsible party, HVI was obligated to respond to the oil spills, and to follow orders from the On-Scene Coordinator in responding to the spills. See 33 U.S.C. § 1321(b)(7)(B); 33 U.S.C. § 1321(c); Exec. Order No. 11735, 38 Fed. Reg. 21243 (Aug. 3, 1973), as amended by

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[14] HVI also asserts the affirmative defense of laches, (see Dkt. 442, PTO at 29), but it waived this defense by failing to present any related evidence or argument. (See, generally, Dkt. 485, HVI Post-Trial Memo.); (Dkt. 486, Defendant's Post-Trial Proposed Findings of Fact ("HVI Proposed Facts")); (Dkt. 487, Defendant's Post-Trial Proposed Conclusions of Law). However, even if the court did not find waiver, "[i]t is well settled that the United States is not bound by state statutes of limitation or subject to the defense of laches in enforcing its rights." United States v. Summerlin, 310 U.S. 414, 416, 60 S.Ct. 1019, 1020 (1940); see United States v. Thornburg, 82 F.3d 886, 893 (9th Cir. 1996) ("The Supreme Court has instructed that, as a sovereign, the United States is subject to a limitations period only when Congress has expressly created one.").

Exec. Order No. 12418, 48 Fed. Reg. 20891 (May 5, 1983); Exec. Order No. 12777 Sec. 3, 56 Fed. Reg. 54757 (Oct. 18, 1991); 40 C.F.R. § 300.135(a). If a responsible party fails, without sufficient cause, to carry out removal actions or follow an order from the On-Scene Coordinator, the responsible party may be liable for civil penalties up to $37,500 per day of violation or up to three times the amount expended by the Oil Spill Liability Trust Fund as a consequence of the failure to follow the order. See 33 U.S.C. § 1321(b)(7)(B); 40 C.F.R. § 19.4.

255. Under the OPA, responsible parties are liable for all oil spill removal costs, see 33 U.S.C. § 2702(a)-(b), and are also obligated to follow the orders of a On-Scene Coordinator overseeing cleanup. See 33 U.S.C. § 1321(c)(3). This is an obligation to affirmatively act in responding to an oil spill. See id. at § 1321(c)(5) ("Nothing in this subsection affects . . . [t]he obligation of an owner or operator to respond immediately to a discharge, or the threat of discharge, of oil[.]").

256. It is not necessary to reduce based on high response costs incurred by a defendant. See, e.g., Pepperell Assocs., 246 F.3d at 29-30 (affirming as reasonable administrative determination that penalty should not be reduced for cooperation during spill or for partial reimbursement of response costs). Here, HVI: failed to immediately report spills as required by the CWA, see 33 U.S.C. § 1321(b)(5); had inadequate equipment and safety measures; had insufficient numbers of trained personnel for oil spill cleanups; and it used produced water as part of the cleanup. None of this conduct merits a CWA penalty reduction. Further, to the extent HVI seeks a penalty reduction for carrying out the response, it is largely seeking a credit for performing acts it was legally obligated to perform. In short, there is no reason to reduce the penalty based on HVI's response efforts.

7. **Economic Impact**.

257. The parties agreed to not offer any evidence concerning this factor. (See Dkt. 443, Court's Order of October 22, 2018, at 4). Accordingly, there is no evidence suggesting that penalties should be reduced based on their potential economic impact on HVI.

8. **Other Matters as Justice May Require**.

258. There is no evidence uniquely relevant to this factor, and therefore there are no "other

matters" that warrant a reduction of HVI's penalty.

C. A Civil Penalty of $55 Million for Clean Water Act Violations is Appropriate.

259. The key factors in favor of a high penalty are: (1) the seriousness of the violations i.e., the environmental harm caused by HVI's spills; (2) the economic benefit HVI received from violating the CWA; (3) HVI's high degree of culpability; and (4) HVI's poor efforts to mitigate the spills.

260. After consideration of all of the statutory factors, the court concludes that it is appropriate to impose a $55 million penalty – $40 million for HVI's discharge violations and $15 million for HVI's regulatory violations. This sum negates the economic benefit realized by HVI, reflects the severity of the spills and HVI's high culpability, and is sufficient to deter future violations.

261. The court has calculated the $55 million penalty after weighing all of the statutory factors and taking into account the adjusted statutory maximum penalty of $184 million. Specifically, the CWA claims for discharge of 26,584 barrels of crude oil and produced water multiplied by $1,505 per barrel (which is at the low end of the per barrel civil penalty available for grossly negligent oil discharge violations) equals $40 million, and the OPA regulatory claims for 2,076 days of violations multiplied by $7,225 per day (roughly 22% of the adjusted maximum civil penalty available for most of the regulatory violations), equals $15 million.

XI. REMOVAL COSTS UNDER THE OIL POLLUTION ACT.

262. As noted above, the court granted in part and denied in part the United States' Motion for Partial Summary Judgment, holding HVI liable under § 1002(a) of OPA, 33 U.S.C. § 2702(a), for the government's removal costs in connection with four oil spills or threatened spills. The court ordered HVI to pay the United States $2,243,686.78 in removal costs. (Dkt. 307, MSJ Order II at 38). The court denied the Motion with respect to HVI's April 2008 Gato Ponds removal action, and the December 27, 2008, Bell Facility spill, finding triable issues as to whether Sisquoc Creek and/or the Spring Canyon Tributary possess a nexus to a TNW. (See id. at 37-38).

263. Subject to certain statutory defenses, liability for removal costs under § 1002(a) of the OPA is strict. See Clausen v. M/V New Carissa, 339 F.3d 1049, 1052 (9th Cir. 2003). "The only

defenses to strict liability under CERCLA and OPA are that removal costs were caused solely by (1) an act of God, (2) an act of war, or (3) a third party not in a contractual relationship with the responsible party." Apex Oil Co., Inc. v. United States, 208 F.Supp.2d 642, 652 (E.D. La. 2002) (citing 33 U.S.C. § 2703(a) & 42 U.S.C. § 9607(b)) (emphasis omitted). HVI did not substantively raise any of the three defenses.[15]

264. Having found that both Sisquoc Creek and the Spring Canyon Tributary have a significant nexus to a TNW, the court concludes that the United States is entitled to removal costs for the $50,538.92 incurred in relation to the April 2008 Gato Ponds removal action, and for the $192,656.07 incurred in connection with the December 27, 2008, Bell Facility spill. Therefore, the court finds that defendant is liable for the United States' removal costs in the amount of $243,194.99, plus interest, in addition to the $2,243,686.78, plus interest in removal costs already determined, for a total of $2,486,881.77 in removal costs incurred, plus interest.

XII. PENALTIES UNDER STATE LAW.

265. The State asserts claims against HVI pursuant to California Water Code § 13350 and California Fish & Game Code §§ 5650, 12016, and 13013.[16] (See Dkt. 56, FAC at ¶¶ 207-22); Dkt. 442, PTO at 11-13).

A. California Water Code § 13350.

266. California Water Code § 13350 provides that "[a] person who . . . causes or permits any oil or any residuary product of petroleum to be deposited in or on any of the waters of the state . . . shall be liable civilly[.]" Id. at § 13350(a).

267. With respect to the spills at the Bell Facility on July 16, 2007, December 7, 2007, and January 29, 2008, and at the Zaca/Davis Facility on January 5, 2007, the State has shown that HVI violated California Water Code § 13350 by causing oil to be deposited in or on California's

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[15] Despite asserting statutory defenses to strict liability under the OPA in the PTO, (see Dkt. 442, PTO at 28), HVI did not present evidence that any of the discharge events for which the United States seeks removal costs were "caused solely" by an act of God and/or by a third-party's acts or omissions.

[16] The State dismissed its California Water Code § 13385 claims at the Pre-Trial Conference. (See Dkt. 460, Pre-Trial Conference Transcript at 32).

waters.

268. HVI contends that California Water Code § 13350(c)(5), which precludes liability "if the discharge is caused solely by . . . [a]ny other circumstance or event that causes the discharge despite the exercise of every reasonable precaution to prevent or mitigate the discharge[,]" (Dkt. 486, HVI Proposed Facts at ¶ 565), applies in this instance. Having found that HVI acted with gross negligence with respect to these spills, see supra at § IV., HVI cannot prevail on this defense.[17] Moreover, HVI has not shown that it "exercise[d] every reasonable precaution to prevent or mitigate the discharge[,]" Cal. Water Code § 13350(c)(5), in connection with any of these four spills.

269. Under California Water Code § 13350(d)(2), the court may impose civil liability on a per gallon basis, up to $20 for each gallon of waste discharged. The court awards the maximum per gallon penalty for each gallon of crude oil released and a reduced penalty of $5 for each gallon of produced water released. Given that the court has concluded that 132,547 barrels of oil and 880,614 barrels of produced water were discharged during the spills at the Bell Facility on July 16, 2007, December 7, 2007, January 29, 2008, and at the Zaca/Davis Facility on January 5, 2008, HVI is subject to $7,054,446 in penalties pursuant to California Water Code § 13350.

B. California Fish and Game Code § 5650.

270. California Fish and Game Code § 5650 is a strict liability statute that prohibits the "unlawful [] deposit" of "[a]ny petroleum, acid, coal or oil tar, lampblack, aniline, asphalt, bitumen, or residuary product of petroleum, or carbonaceous material or substance" into the waters of the state. A deposit is "unlawful" where it is not otherwise authorized under the California Water Code. See Cal. Fish & Game Code § 5650(b); People v. Chevron Chem. Co., 143 Cal.App.3d 50, 56 (1983). Those who violate the statute are "subject to a civil penalty of not more than twenty-five thousand dollars ($25,000) for each violation." Cal. Fish & Game Code § 5650.1(a).

271. The State has shown that HVI violated California Fish and Game Code § 5650 by

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[17] HVI's federal regulatory violations also constitute negligence per se under California Evidence Code § 669(a)(1), which provides that "[t]he failure of a person to exercise due care is presumed if . . . [h]e violated a statute, ordinance, or regulation of a public entity[.]"

unlawfully depositing oil at the following facilities on the following dates: the Bell Facility on July 16, 2007, December 7, 2007, January 29, 2008, December 27, 2008, May 1, 2009, July 2, 2009, and October 14, 2010; the Zaca/Davis Facility on January 5, 2008; the Bradley 3-Island Facility on January 10-24, 2008 (for 15 days of violations), and January 27, 2008; the U-Cal Facility on January 24, 2008; and the Security Facility on January 27, 2008.

272. California Fish and Game Code § 5650.1(c)[18] sets forth factors that largely mirror those that the court considered in determining the penalty amount under § 311 of the CWA: seriousness (i.e., "extent of harm"), economic benefit, culpability (i.e., "gravity of the behavior"), prior violation history, mitigation efforts (i.e., "voluntary cleanup efforts"), economic impact, and interest of justice.[19] Relying on the court's prior findings and analysis, see supra at § VII., the court awards the State the maximum penalty of $25,000 per day for each spill, for a total of $650,000 for 26 days of violations. See Cal. Fish & Game Code § 5650.1(a).

C. California Fish & Game Code § 12016.

273. California Fish and Game Code § 12016(a) provides that "any person who discharges or deposits any substance or material deleterious to fish, plant, bird, or animal life or their habitat into, or which threatens to enter, the waters of this state is liable civilly to the department for all actual damages to fish, plant, bird, or animal life or their habitat and, in addition, for the reasonable costs incurred in cleaning up the deleterious substance or material or abating its effects, or both."

274. Oil and produced water each constitute "substance[s] or material[s] deleterious to fish,

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[18] California Fish & Game Code § 5650.1(c) provides: "In determining the amount of a civil penalty imposed pursuant to this section, the court shall take into consideration all relevant circumstances, including, but not limited to, the nature, circumstance, extent, and gravity of the violation. In making this determination, the court shall consider the degree of toxicity and volume of the discharge, the extent of harm caused by the violation, whether the effects of the violation may be reversed or mitigated, and with respect to the defendant, the ability to pay, the effect of any civil penalty on the ability to continue in business, any voluntary cleanup efforts undertaken, any prior history of violations, the gravity of the behavior, the economic benefit, if any, resulting from the violation, and any other matters the court determines justice may require."

[19] The only federal penalty factor that does not appear in California Fish & Game Code § 5650.1(c) is the one concerning "any other penalty for the same incident[.]" See 33 U.S.C. § 1321(b)(8).

plant, bird, or animal life or their habitat[.]" Cal. Fish & Game Code § 12016(a). Here, HVI's "crude and produced water have chemical components that are toxic (harmful) to humans, plants, and other biota as well as to ecosystems." (Dkt. 345-13, Exh. A, Kharaka Expert Report at 7). Therefore, the court awards the State's unopposed request, (see Dkt. 486, HVI Proposed Facts at ¶ 578), for $75,365 pursuant to California Fish and Game Code § 12016.

D. California Fish & Game Code § 13013.

275. California Fish and Game Code § 13013 authorizes the State, as a designee of the DFW Director, to recover from "the spiller" or "responsible party" those response costs "incurred by [DFW] arising from the administration and enforcement of applicable pollution laws." Id. at § 13013(c).

276. The court awards the State's unopposed request, (see Dkt. 486, HVI Proposed Facts at ¶ 578), for $123,163.60 in reimbursement for response costs pursuant to California Fish and Game Code § 13013.

CONCLUSION

Based on the foregoing, IT IS ORDERED THAT:

1. HVI is liable to the United States in the amount of $40 million dollars pursuant to § 311 of the Clean Water Act, 33 U.S.C. § 1321; $15 million pursuant to 40 C.F.R. §§ 112.3 to 112.9 and 40 C.F.R. § 112.20; and $2,486,881.77 pursuant to § 1002(a) of the Oil Pollution Act, 33 U.S.C. § 2701(a), for total federal liability of $57,486,881.77 plus the applicable legal rate of interest.

2. HVI is liable to the State of California in the amount of $7,054,446 pursuant to California Water Code § 13350; $650,000 pursuant to California Fish and Game Code §§ 5650, 5650.1; $75,365 pursuant to California Fish and Game Code § 12016; and $123,163.60 pursuant to California Fish and Game Code § 13013, for total state liability of $7,902,974.60 plus the applicable legal rate of interest.

3. Plaintiffs shall lodge a proposed judgment no later than **March 2, 2023**.

Dated this 25th day of February, 2023.

/s/
Fernando M. Olguin
United States District Judge