

June 30, 2014

BY HAND DELIVERY

Dr. Teklewold Ayalew, PG
Project Manager
Los Angeles Regional Water Quality Control Board
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Re: Response to Shell's Comments – In the Matter of Cleanup and Abatement Order No. R4-2011-0046, Former Kast Property Tank Farm (SCP No. 1230, Site ID No. 2040330, File No. 11-043)

Dear Dr. Ayalew:

On January 21, 2014, this firm submitted a letter (“Developer’s Comment Letter”) commenting on the Proposed Revised Draft Order (“Draft CAO”) dated October 31, 2013, on behalf of Dole Food Company, Inc. (“Dole”) and its wholly-owned subsidiaries Barclay Hollander Corporation (“Barclay”) and Oceanic Properties, Inc. (“Oceanic”). On June 3, 2014, the Regional Board issued a Notice of Opportunity for Additional Comment (“Notice”). Pursuant to the invitations extended in that Notice, Shell Oil Company (“Shell”) made a submission on June 16, 2014 (“Shell Submission”). Shell has submitted the only response to Developer’s Comment Letter, and the Shell Submission only responds to a few, very narrow points raised in Developer’s Comment Letter and its attachments, specifically regarding certain narrow issues in Waterstone’s January 2014 report. The remaining technical and legal points made in Developer’s Comment Letter and the associated attachments, which is nearly all of them, should therefore be viewed by the Regional Board as uncontested by Shell and everyone else.

This letter, with the attachments listed below, is submitted on behalf of Dole, Barclay, and Oceanic at the invitation of the Regional Board in its Notice of June 3, 2014, to Reply to Shell’s Submission by June 30, 2014. It is respectfully requested that this letter and all attachments and everything cited therein be included in the public record in this matter and be given the full consideration of the Regional Board and its staff:

- Declaration of Jeffrey V. Dagdigian, Ph.D. dated June 30, 2014, with an expert report from Waterstone Environmental, Inc. and Dr. Dagdigian attached thereto;

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- Declaration of Charles R. Faust, Ph.D., PG dated June 30, 2014, with an expert report from Dr. Faust attached thereto;
- Declaration of George Bach dated June 26, 2014;
- Declaration of Robert W. Loewen Esq., with exhibits attached thereto.

Shell Is The Sole Discharger Of Petroleum Hydrocarbons At The Former Kast Property; Shell Has Struck Out After Failing In All Three Of Its Attempts To Implicate Barclay As A Discharger To Share Responsibility For Contamination At The Site

In 2010, Shell accused Dole and Barclay of importing petroleum hydrocarbons onto the former Kast Property when they supposedly brought contaminated fill onto the Site to replace the space that had been occupied by the dismantled reservoirs. Yet, this theory was refuted by every eye witness who has testified in the related litigation, each of whom reported that the reservoirs were refilled and the property brought to its current grade from the soil in the berms surrounding the reservoirs at the Site, and not from off-site sources. Shell has now apparently given up that theory.

The second theory asserted by Shell against Barclay and Dole was supposedly communicated to staff informally. Shell alleged that when Barclay moved the berm soil into the holes left by the former reservoirs, that soil was already contaminated by Shell's former operations, and Barclay's grading activities "moved the contaminated soil around" in a manner that turned Barclay into a "discharger." The Developer's Comment Letter demonstrates that the Regional Board has no legal authority to issue a cleanup and abatement order on the basis of such activity (Developer's Comment Letter at 51-54), and Shell concedes the point by not responding to it at all in their June 16 submission. Barclay also pointed out in its Comment Letter that there is no proof that the berm soil was contaminated when it was compacted and graded to fill the former reservoirs because all four witnesses who were present during that operation testified that they saw no oil in the fill soil. (Developer's Comment Letter at 20-21.) In Shell's Submission of June 16, 2014, it offers no evidence to contradict this sworn testimony.

Having effectively abandoned its first and second theories for holding Barclay responsible as co-discharger of the petroleum hydrocarbons at the Site, Shell advances a third theory—or group of new theories—through its expert, Thomas Johnson, who tries to demonstrate that "demolition and site grading activities by the developer's contractors" resulted in movement of contaminants around the site. (Johnson Letter at 1-3.) As explained in the accompanying sworn Declaration and attached Report prepared by

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Jeffrey Dagdigian, Ph.D., however, Mr. Johnson is just making up facts that are contradicted by the deposition testimony of persons who were actually present at the Site at the time the grading was done. (Waterstone Tech. Resp. to Shell's Comment Letter, June 30, 2014, pp. 22-27.)

A. There Is No Evidence To Support Thomas Johnson's Speculation That Petroleum Hydrocarbons Were Churned Up Into The Fill Soil During The Concrete Ripping Process; In Fact, All Evidence Is To The Contrary

Mr. Johnson speculates that "it is reasonable to conclude that soil backfill brought to the surface during the trenching process contained petroleum hydrocarbons." (Johnson Letter at 2.) What Mr. Johnson says is "reasonable to conclude," however, is directly refuted by the sworn testimony of every eye witness who has testified under cross examination on the subject. For example, Al Vollmer, who operated the equipment used to rip the concrete floors of the reservoirs, testified as follows:

Q. When you were ripping the concrete flooring in Reservoir No. 6, were you ever able to get a look at the dirt underneath the floor?

A. Yeah. Because when we would rip, you know, it wasn't like it was cutting a pie. It would rip and it would jumble up and break apart. And you'd look down underneath there, and certainly where the ripper went through, there was always a little furrow so you could see the subsurface really quite well.

Q. Did you ever see any oil under there?

A. No, never did.

Q. Did you ever see any evidence that there had been oil sludge on top of the floor at the time that you did any ripping?

A. No. Never did.

(Tab 5, A. Vollmer Dep. at 61:18-62:7.)

Barclay's job supervisor at the property, George Bach, who was also an engineer, similarly testified during his deposition in 2013 that he "never" saw oil in the soil that was brought to the surface during the ripping of the concrete reservoir bottoms. (Tab 2, Bach Dep. at 188:15-189:1.) During the ripping process, he said, it was possible to "see the dirt underneath" as "the dirt came up with the concrete," and "[t]here would be a certain amount of turnover from the ripper tooth." (*Id.* at 188:14-24.) But when questioned about what he saw when the earth turned over in response to the ripping, Mr. Bach was unequivocal: "Q. And did you see oil in it? A. No, I never did." (*Id.* at

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188:25-189:1; *see also* Tab 4, Anderson Dep. at 42:4-12 [“Q. Did you ever have any knowledge or belief that there was oil contamination located beneath the tank bottoms? . . . A. No, I didn’t – I wouldn’t – no way of believing there was any contamination there.”]; Tab 3, L. Vollmer Dep. at 97:18-98:3 [grading contractor saw no “oil of any kind while” working at the Site except the oil-based residuals cleaned from reservoir 7 and taken off site].)

To back up his speculation that “it was reasonable to conclude” that the ripping process must have churned up oil, Mr. Johnson purports to cite “evidence” in the form of the frequently relied upon March 11, 1966 drainage study prepared by Pacific Soils, and he also cites the 2011 Statement submitted by Shell and signed by Mr. Bach. But the March 11, 1966 drainage study only reports “oil stains” observed in six borings; it does not place hydrocarbons at a location where Mr. Johnson’s ripping theory can prevail over the eyewitness testimony of Al Vollmer, who testified that it did not occur. Nor is anything added by Mr. Johnson’s citation to the 2011 Statement, which itself was based on the March 11, 1966 drainage study. Mr. Bach only discusses what he saw during ripping operations in his deposition, not in the 2011 Statement, and that deposition testimony, as just seen, denies that oil surfaced during the ripping operations. Moreover, Mr. Bach makes clear in his deposition that he had only one source of information about contamination beneath the surface, and that was the March 11, 1966 Pacific Soils report. (Tab 2, Bach Dep. at 188:8-14.) It is not reasonable to read that report and conclude that it means that ripping the concrete will always churn up oil—especially in light of eye witness testimony to the contrary. Mr. Bach’s 2014 declaration, signed under penalty of perjury unlike his 2011 Statement, confirms that Mr. Johnson has stretched the meaning of the 2011 Statement too far and turned it into something it is not.

Given the unanimity and consistency of this testimony, it is surprising that Shell relies exclusively on Mr. Johnson, who has no personal knowledge about any of the reservoirs that Shell managed and controlled for so many years. While Shell advises that it has no witnesses still living who were involved with operation of the former Kast Property, the same certainly cannot be true of reservoirs 1 and 2, located on their refinery property and which were decommissioned between 1989 and 1997. Regional Board records from Shell’s decommissioning of those nearly identically constructed and operated reservoirs corroborate the testimony of the witnesses who have testified that they saw no oil beneath the concrete floor of any reservoir.

Under the supervision of the Regional Board, Shell’s work plan for reservoirs 1 and 2 called for removal of the concrete floor so that steel reinforcing material could be removed before the broken concrete was crushed and returned to the reservoir floor bottom and buried beneath compacted fill taken from the surrounding berm. (Tab 17,

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Shell Work Plan, Reservoir Removal Project, Nov. 3, 1994, p. 1.) Unlike at reservoirs 5, 6, and 7, where the concrete floors were ripped but mostly left in place, complete removal of the concrete floors in reservoirs 1 and 2 created an opportunity for Shell personnel and consultants to observe the soil as a whole and completely exposed for viewing. After removal of the concrete, the work plan for reservoirs 1 and 2 required Shell to remove all free-phase petroleum hydrocarbons and any saturated soils that were observed. But when Shell's consultants walked on the exposed soil to carry out this directive, they did not report seeing oil on the ground. Instead, they reported: "The soil under the floor concrete liners did not show any free-phase petroleum hydrocarbons nor any oil saturated soils; therefore, no soils were removed to be disposed of off-site." (Tab 18, Shell Progress Report #2, Reservoir Removal Project, Jan. 17, 1995.) In other words, the soil was not covered with oil (as Mr. Johnson now asserts must have been the case at the Kast site); it was clean of free-phase petroleum just as the Barclay witnesses had observed at the Kast site when they had their more restricted glimpse of the soil beneath reservoirs 5, 6, and 7. And reservoirs 1 and 2 had been in use, and undoubtedly leaking, for an additional 30 years longer than reservoirs 5, 6, and 7.

For reservoirs 1 and 2, while the concrete was still removed from the bare dirt, Shell was also required to use hand augurs to take soils tests two feet in depth beneath the former reservoir bottoms—five in glass jars and five in brass sleeves. In at least one reservoir, the surface soils tested in this manner were clean: "No BTEX or TPH concentrations were detected in the five samples collected in the glass jars nor in the five duplicate samples collected in the brass sleeves." (Tab 19, Brown and Caldwell Letter to Regional Board, May 2, 1995, p. 2.) It is thus entirely credible (indeed it is expected) when Barclay witnesses testify that they saw no oil when ripping activity turned over soil from beneath the concrete tank bottoms, and therefore there is no basis for Mr. Johnson to defy their testimony based only on his conjecture that "it is reasonable to conclude" that the truth is the opposite of what every eye witness saw and has testified to under oath.

B. Thomas Johnson Misinterprets Deposition Testimony When He Theorizes That Sidewall Berms "Were Likely Impacted By Petroleum Hydrocarbons"

In the Developer's Comment Letter, it was emphasized that all four eye witnesses who were physically present during the grading at the Site testified that soil taken from the berms was clean, and that they saw no oil in the fill soil. (Developer's Comment Letter at 20-21; 2014 Bach Decl., ¶ 10.) They were in a unique position to observe this because the berm soil was spread in shallow lifts, and high concentrations of oil would have been revealed to the naked eye in that setting. Mr. Johnson does not discuss this

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testimony or even respond to it. Instead, he argues that “[s]oils in the[] sidewall berms were likely impacted by petroleum hydrocarbons” not because the soils themselves had been contaminated by prior operations, but because “[t]he surfaces of the earthen berms were covered with a preexisting layer of oil *or* asphalt.” (Johnson Letter at 2 [emphasis added].)

But this mischaracterizes the deposition testimony that Mr. Johnson purports to rely upon for his statement. No witness testified that the berms were covered with oil. While witnesses testified that exposed surfaces were covered with a “protective coating” of a “very thin layer” of asphalt “to keep the dust from blowing off,” they were careful to distinguish “asphalt” from “oil.” (*See, e.g.*, Tab 2, Bach Dep. at 59:3-25; 2014 Bach Decl., ¶ 9; Tab 3, L. Vollmer Dep. at 115:18-116:21.) These same witnesses also testified that this very thin layer of asphalt “broke up” and was “pulverized” on contact. (*Id.*) Because no one testified that oil was placed on top of the berms, there is no support for Mr. Johnson’s contention that this “protective coating” was a source of contamination.

C. Thomas Johnson’s Theory About Alleged Contamination During The Clean-out of Reservoir 7 Is Also Contradicted By The Deposition Testimony of the Witnesses Who Were Present At The Time

Mr. Johnson advances as yet another theory that “some of the sand contaminated with oil” that was used to move the residual material at the bottom of reservoir 7 into vacuum trucks “was mixed with the fill materials in the reservoir.” (Johnson Letter at 2.) Lee Vollmer testified to the contrary at his deposition, however:

Q. Okay. And after the liquids were removed [from reservoir 7], what happened to the . . . dirt from the earthen dam?

A. [A]ny of the dirt that had been contaminated with the gunk was hauled off-site and the rest of it that was clean was used in the fill.

Q. So on the backside there was still some clean dirt I take it?

A. Oh, yes.

Q. “Yes”?

A. Well, let me – where are you going?

Q. No. I’m just asking how it worked. I’m just asking you how it happened. You said if there was – so everything with gunk in it went off-site?

A. Yes.

Q. And if there was still – and any clean dirt was still used for fill?

A. Yes.

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Q. And was there any liquid from the reservoir that was disposed of on-site?

A. No.

(Tab 3, L. Vollmer Dep. at 167:13-168:8.) Mr. Bach gave similar testimony in his deposition:

Q. I see. And what happened to the sand and clayey material after you were done cleaning out the liquids?

A. That was the final cleanup and that all went to the dump.

Q. So that went the way of the saturated soils?

A. Yes, with the final cleanup it all went.

(Tab 2, Bach Dep. at 119:15-22.)

Mr. Johnson misinterprets the testimony of Mr. Vollmer quoted above, which states unequivocally that only “clean dirt was used for fill” and that no liquids from the reservoir were disposed of on site. And he disregards the above-quoted deposition testimony of Mr. Bach in favor of a snippet of information for which Mr. Bach does not have firsthand knowledge.¹ (2014 Bach Decl., ¶ 7.) In addition to Mr. Johnson’s lack of evidence to support his speculation about contamination supposedly occurring during the removal of residual materials from reservoir 7, it is troubling that Shell has not provided any information about how it cleaned out reservoirs 5 and 6, which it certainly must have done prior to the arrival of Barclay personnel, who reported that those reservoirs were completely clean upon arrival.

¹ Mr. Johnson cites the 2011 Statement prepared by Mr. Bach in collaboration with Plaintiffs’ counsel in the tort litigation brought by owners of Carousel homes. It is telling that even though Mr. Bach was not prevented by those attorneys from speculating, he was steadfast in his recollection that “[t]he most contaminated sand was exported,” which confirms that all significant contamination was taken off site and leaves open the likelihood that none remained. Moreover, when it came to finishing up the job—something that Mr. Bach did not witness himself—he said only that “sand” used during the final phase on the bottom was “blended,” but did not say that the blended “sand” had petroleum hydrocarbons in it or was otherwise contaminated. So the “snippet” relied upon by Mr. Johnson would not support his conjecture even if Mr. Bach had seen the act himself.

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The Technical Opinions of Shell's Expert, Thomas Johnson, Offer No Reason To Doubt Waterstone's Upward Migration Theory As a Pathway For Contamination Of The Soils Used To Fill The Former Reservoirs

In its Technical Response to the RWQCB Draft Cleanup and Abatement Order dated January 21, 2014, Waterstone advances the theory that petroleum hydrocarbons found in the shallow fill areas above the former reservoir bottoms at Carousel traveled to their current location by upward migration from contaminants that were beneath the concrete tank bottoms at the time Barclay dismantled the reservoirs and graded the berm soil to fill the former reservoirs. Mr. Johnson contends that this theory should be rejected for two reasons. First, according to Mr. Johnson, Waterstone's theory "is not scientifically valid." (Johnson Letter at 4.) Second, Mr. Johnson rejects the analogy to reservoirs 1 and 2, in which upward migration of seeps was observed in similar reservoirs at Shell's former Wilmington refinery. (*Id.* at 3-4.) For a detailed response to these points, the Regional Board should review the submissions of Jeffrey Dagdigian, Ph.D. and Charles Faust, Ph.D. attached hereto, and accompanied by declarations executed under penalty of perjury. Following are some of the highlights in those reports.

A. Thomas Johnson Is Addressing A Straw Man In A Laboratory, Not The Upward Migration Theory That Waterstone Applies Under Actual Conditions That Exist At Carousel

When Waterstone first presented its upward migration theory to the Regional Board's staff, there was some skepticism expressed about whether petroleum hydrocarbons could migrate upward in the manner hypothesized by Dr. Dagdigian. So Dr. Dagdigian focused on theories of how upward migration occurs that had been accepted by the Regional Boards and other agencies, such as capillary rise. Mr. Johnson's letter has put that question to rest, confirming that capillary rise is real with conviction that should satisfy the most skeptical among the members of the Regional Board's staff.² So if ever there was any question whether oil moves upward in the soil, that discussion is finished because everyone agrees that it does. But Mr. Johnson disagrees with Waterstone about the height and amount that contamination can migrate upward in the limited circumstances that he hypothesizes. The shortcoming in his

² Mr. Johnson readily admits that capillary rise is a real, scientific phenomenon and not some half-baked theory. (Johnson Letter at 4-5 ["The rise of water or other fluids in soil pores results from the molecular attraction (adhesion) between the soil and the fluid, and the surface tension of the fluid (cohesion). This phenomenon can be represented simply by considering pores equivalent to capillary tubes. The molecular attraction between the solid and the fluid depends on the properties of the fluid and the soil, representing bundles of capillary tubes." (citations omitted)].)

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analysis is that he is aiming at a straw man; Mr. Johnson ignores or does not understand how Waterstone's theory works, and therefore his critique misses the mark.

According to Mr. Johnson, "Waterstone's alleged hypothesis of upward migration of petroleum hydrocarbons from deeper soils by *capillary rise* as the *only cause* of petroleum hydrocarbons in shallow soils at the Site is not scientifically valid." (Johnson Letter at 4 [emphasis added].) Mr. Johnson then argues that because the soil at the Site consists of "predominantly sand soils," the literature shows that capillary rise is not capable of causing enough upward migration to account for the height and volume needed to explain the contamination that is present. (*Id.* at 5-7.)

But Waterstone's theory is not that "capillary rise" is the "only cause" of petroleum contamination in the shallow soils, as Mr. Johnson claims. As Waterstone explained in its January 2014 Technical Response, capillary rise is only one force that *plays a role* in upward migration. (Waterstone Tech. Resp. to RWQCB Draft CAO, Jan. 21, 2014, pp. 13-14, 22-23, 142-143.) Other forces, such as buoyancy, play a role as well. (*Id.*) So Mr. Johnson's entire analysis is aimed at knocking down a straw man.

As described in detail in its June 30, 2014 report, submitted with this letter, Waterstone's theory is that buoyancy too plays a role, and perhaps other forces as well. (Waterstone Tech. Resp. to Shell's Comment Letter, June 30, 2014, pp. 3-5, 19-20, 22; *see also* Report of Charles R. Faust, June 30, 2014, pp. 2-3.) Moreover, the soil at the Site is not a homogenous bucket of sand as Mr. Johnson assumes in his analysis; it is a heterogeneous mixture of layers of clay, silt, and some sand at various degrees of density. (Waterstone Tech. Resp. to Shell's Comment Letter, June 30, 2014, pp. 5-7; Report of Charles R. Faust, June 30, 2014, pp. 3-5.) This is especially true in the fill soil. (*Id.*)

As described by Dr. Charles Faust, a highly qualified hydrogeologist with extensive experience in the movement of hydrocarbons in the vadose zone:

The capillary rise discussed by Mr. Johnson reflects the effects of capillary forces acting in an ideal (laboratory) setting. The capillary rise measurements are made in the absence of viscous forces, in the vertical direction only, and in homogeneous soils. At the Site, the soil is heterogeneous and viscous forces (caused by water moving through soil) are dynamic (rainfall events and dry seasons and residential irrigation). In such a setting, upward and lateral migration of LNAPL will occur when the shallow soils become saturated with water. The resulting migration is not limited to the distances of laboratory capillary rise measurements and is controlled by capillary, gravitational, and dynamic forces.

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(Report of Charles R. Faust, PhD, PG, p. 4.)

Dr. Faust further explains that Mr. Johnson's criticism of Waterstone's theory based upon distance limitations is overcome as soon as one introduces other real world dynamics. Thus, in response to Mr. Johnson's contention that "it is completely unrealistic to suggest" that petroleum hydrocarbons could migrate through trenches ripped fifteen feet apart as the Pacific Soils reports forecast, Dr. Faust noted, "Lateral migration over distances of much more than 15 feet can occur under the influence of dynamic viscous forces acting after and during periods of high recharge. In fact, significant lateral migration has occurred on the west side of Reservoir 5 and is evident more than 50 feet from the reservoir floor (see Figure 6.2 of Appendix B, Weimer Letter Report)." (Report of Charles R. Faust, PhD, PG, p. 5.)

A bucket of sand is the equivalent of a test tube in a laboratory, but the fate and transport of oil behaves differently in real-world conditions than it does in a laboratory. So Mr. Johnson's critique of Waterstone's theory of upward movement is fundamentally flawed because (1) it does not respond to the theory as described by Waterstone, and (2) its criticism is limited to the perspective of a laboratory, not the real world, where the facts and circumstances are far different than those assumed by the lab-bound Mr. Johnson.

B. Thomas Johnson Misunderstands What Occurred At Reservoirs 1 and 2

As support for its upward migration theory, Waterstone undertook a careful analysis of reservoirs 1 and 2, where upward migration of petroleum hydrocarbons occurred in nearly identical reservoirs following dismantling and grading that was similar in many respects to what occurred at reservoirs 5, 6, and 7. (Waterstone Tech. Resp. to RWQCB Draft CAO, Jan. 21, 2014, pp. 101-116.) Surprisingly, Mr. Johnson purports to refute this analysis by arguing as a fact that there was no upward migration at reservoirs 1 and 2. According to Mr. Johnson, "seepage observed around the caps of reservoirs Nos. 1 and 2 was from at-surface petroleum impacted soils" in the berms and "not from capillary migration." (Johnson Letter at 4.) Mr. Johnson's theory is contradicted by Shell's own reports to the Regional Board, which characterize the observed seepage as "localized bleeding of hydrocarbons *to the surface*." In fact, the reason that low permeability caps were placed on reservoirs 1 and 2 in the first place was "to *inhibit the upward migration of free petroleum hydrocarbons*." The cap had to be extended because the cap had failed to do its job, and hydrocarbons continued to seep "to the surface" beyond the perimeter of the cap.

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Shell operated reservoirs 1 and 2 from the mid-1920s until 1991. Thereafter, Shell was intimately involved with dismantling the reservoirs in compliance with Regional Board mandates through at least 1997. So Shell controlled reservoirs 1 and 2 for about 67 years. Yet Shell has offered no percipient witness to advise the Regional Board about what really happened at reservoirs 1 and 2; nor has Shell offered one scrap of documentary evidence on this subject. Instead, Shell's "expert," Mr. Johnson, is offered to make statements about events and circumstances that he knows nothing about.

In a 1997 report submitted to the Regional Board on behalf of Shell, Shell's consultants, Brown and Caldwell, made clear that upward migration of petroleum hydrocarbons had occurred following dismantling of reservoirs 1 and 2 in a manner very similar to what had been done with reservoirs 5, 6, and 7. As part of the decommissioning, a clay cap had been placed on top of the compacted fill. The purpose of this "low permeability cap" was "to inhibit the upward migration of free petroleum hydrocarbons." (Tab 16, Brown and Caldwell, Low Permeability Cap Extension, Addendum 1 of the Backfill and Final Project Completion Report, Reservoirs 1 and 2, Executive Summary, August 1997.) But "[i]n early 1996, surface soils in the exposed relic berms, located beyond the coverage area of the caps, exhibited localized hydrocarbon seepage." (*Id.*) Shell reported exactly the opposite of what Mr. Johnson says now: "In 1996, soils at grade in the exposed relic berms exhibited localized bleeding of hydrocarbons *to the surface*." (*Id.* at Chapter 1, p. 1-1 [emphasis added].) Shell continued: "[a]dditional site assessment work was performed to determine the nature and extent of the hydrocarbon seeps." (*Id.*) A report dated May 17, 1996 was prepared with findings of that assessment, but it is no longer found in the Regional Board's files, and Shell has not produced it in the related litigation.

The "low permeability cap" was made of clay. It was installed after berm soils were compacted on top of the broken concrete that came from the liner of the reservoir. Those soils were contaminated, but mixing had brought concentrations within acceptable limits, and a clean layer of fill soil was placed on top of the berm-soil fill before the cap was installed.

After the cap was installed, Shell's own documents show that it twice inspected around the cap, on a quarterly basis, and over that six month period, Shell found no evidence of oil seeping from the berms. (Waterstone Tech. Resp. to Shell's Comment Letter, June 30, 2014, pp. 14-15.) However, within a year after the cap was installed, "bleeding of hydrocarbons to the surface" was reported. (*Id.* at 15-17.) So it is not true, as reported by Mr. Johnson, that the seeps reported at reservoirs 1 and 2 "reflected petroleum . . . already present in surface soils in the berms."

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In addition, to cure the seepage problem, portions of the low permeability cap had to be removed from both reservoirs and replaced before the caps were extended. (Waterstone Tech. Resp. to Shell's Comment Letter, June 30, 2014, pp. 15-17.) This means that the fill soils beneath the caps were contaminated, and the seeps were not limited geographically to an area outside of the cap. Given that the fill soils had to be clean before the caps were put in place—especially the top foot of soil—this can only mean that petroleum hydrocarbons had migrated up to the cap, moved sideways to the soil at the edges of the cap, and then moved up to the surface. (*Id.* at 15-18.) Mr. Johnson has thus asserted facts that are easily contradicted by the records readily available to him through Shell. Moreover, it is surprising that Shell would advance this misleading testimony by an expert with no personal knowledge about the dismantling and grading at reservoirs 1 and 2 when Shell presumably has access to percipient witnesses, and perhaps documents, that would have been a far better source of information for the Regional Board.

When Properly Analyzed, The Data Submitted By Shell's Project Manager, Douglas J. Weimer, Strongly Supports Waterstone's Theory Of Upward Migration

One of the reasons supporting Waterstone's conclusion that contaminants in the fill soil placed in the space left by the former reservoirs migrated upward from contaminants previously located beneath the tank bottoms is the data showing a so-called "bottom up" pattern. (Waterstone Tech. Resp. to RWQCB Draft CAO, Jan. 21, 2014, pp. 9, 12-13, 19, 123-128.) The data tends to prove the upward movement theory when the higher concentrations are seen at the bottom and the lower concentrations are seen at the top. The "top-down" pattern is the reverse: the highest concentrations are nearer the surface while the concentrations become smaller as one goes deeper. In its January 2014 Technical Response, Waterstone showed that in a high percentage of the data, a bottom-up pattern is revealed in the fill soil above the former reservoir bottoms. It also demonstrated a top-down pattern in specified areas such as the former sump area east of reservoir 5 and the pump house area, which is consistent with Waterstone's hypothesis that those areas were contaminated from the surface by Shell's operations. (*Id.* at 15, 22, 32-33, 123-128.)

Shell attempts to refute this point through a letter dated June 16, 2014 from Shell's project manager, Douglas J. Weimer, to Dr. Teklewold Ayalew, PG of the Regional Board staff to which is attached two Appendices. In Appendix A, Mr. Weimer attaches a large volume of data. The data in Appendix A, which Mr. Weimer reports have been analyzed for TPHg, TPHd, and TPHmo, supposedly reveal "[m]any examples" "where one or more of the TPH carbon ranges exhibited concentrations 5x or higher in shallow samples than in deeper samples from the same boring." (Weimer Letter at 1.) In

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Appendix B, Mr. Weimer attaches Figures 6-2 and 6-3 from the Revised Site-Specific Clean-up Goal Report prepared by Shell for the Regional Board, which Mr. Weimer says is attached to show that TPHd and TPHmo impacted soils at the Site are present not just within the former reservoir footprints, but outside the footprints and at varying depths. (Weimer Letter at 1.)

A. The Data In Appendix A To Mr. Weimer's Letter Support Waterstone's Upward Migration Theory

From the examples of top-down patterns purportedly shown by the data in Appendix A, Mr. Weimer seemingly hopes the Regional Board will conclude that he has disproven Waterstone's upward movement theory. But all he has done is demonstrate his own confusion about how the bottom-up pattern was used by Waterstone to support its theory in its January 2014 Technical Response.

As described in more detail in the attached Waterstone Technical Response to Shell Submission, Waterstone's theory is proved when the prevailing contamination pattern is confirmed to be bottom up within the areas above the former reservoir bottoms. (Waterstone Tech. Resp. to Shell's Comment Letter, June 30, 2014, pp. 29-33.) But the data provided by Mr. Weimer in Appendix A makes no distinction in location between the areas above the former reservoir bottoms and other areas outside of the reservoirs where one would expect top-down contamination; roughly two-thirds of the locations from which samples were taken for Appendix A are outside of the reservoir locations. Under Waterstone's theory, those areas would show no pattern without further analysis, and with analysis focused on the locations identified in the January 2014 Technical Response, the data outside the area of the former reservoirs reveals a pattern of top-down contamination in the specified areas.

Another difficulty with Mr. Weimer's data is that it unnecessarily reports data for TPHmo and TPHg, which is contrary to the protocol employed by Waterstone. In its January 2014 Technical Response, Waterstone explains its reasons for using TPHd to track petroleum hydrocarbons and why it rejects gas, which volatilizes too rapidly. (Waterstone Tech. Resp. to RWQCB Draft CAO, Jan. 21, 2014, pp. 15, 161.) Without explaining why, Mr. Weimer, chooses three fractions, diesel, gas, and motor oil, which add nothing except confusion and the appearance of volume to his attachment. It is common in the data found in Appendix A for two or three data points to come from a single location. To simplify, but without sacrificing the ability to draw appropriate conclusions, Waterstone has deleted TPHg and eliminated multiple contaminants from a given location. It has also eliminated contaminants found in the top six inches and in planters above the ground because homeowners so often are involved with their content.

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Finally, Waterstone analyzed the remaining data as a whole so that the lithography of the soil in which the data was acquired could be considered. Mr. Weimer does not present himself as an expert, so he would not necessarily know that hydrocarbons at the Subject Property would never move straight upward. The heterogeneous lithography and other real-world circumstances such as the irregular manner in which the reservoir floors were ripped will result in movement in multiple directions as hydrocarbons follow the path of least resistance. This required a three-dimensional analysis to identify which data points relate to each other so that actual patterns of petroleum hydrocarbons are identified, and Dr. Dagdigian performed that analysis.

After Waterstone had performed these steps, Waterstone found that 75% of the data within the footprints of the former reservoirs either demonstrate the bottom-up contamination profile, and thus support the Waterstone theory, or show no specific pattern. (Waterstone Tech. Resp. to Shell's Comment Letter, June 30, 2014, pp. 29-33.) This is a strong trend, especially when one considers that a top-down pattern is seen in sampling locations in the former sump and pump house areas. (Waterstone Tech. Resp. to RWQCB Draft CAO, Jan. 21, 2014, pp. 9-11, 91-92, 97-98, 123-124.) Moreover, there must be a reason why Shell chose to provide the data found in Appendix A through Mr. Weimer, an employee who does not claim or demonstrate any expertise in using the data, instead of through its technical expert, Mr. Johnson. Whatever the reason may be, Shell has offered no expert analysis of the data to refute the expert analysis of Dr. Dagdigian. Absent such evidence, Dr. Dagdigian's conclusion that the data reveals a bottom-up pattern supportive of his upward migration theory is uncontested. Accordingly, there is no scientific basis on which the Regional Board may reject Waterstone's upward movement hypothesis.

B. Appendix B Also Provides Tools That Confirm Waterstone's Upward Migration Theory

Mr. Weimer attaches as Appendix B to his letter sampling maps of the Kast Property in an apparent effort to contradict Waterstone's upward migration theory, stating that "impacted soils are present not just within the former reservoir footprints, but outside the footprints and at varying depths." (Weimer Letter at 1.) Mr. Weimer does not articulate the meaning or purpose of these two figures. But like the data in Appendix A, when properly analyzed, the data in Appendix B support Waterstone's theory.

Indeed, when Waterstone took the simple step of separating the Appendix B data into two categories—tests taken in the reservoir footprints and tests taken outside the reservoir footprints—it instantly had the tools for a simple analysis. Waterstone simply

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counted the number of high-concentration TPHd data points at specified depths, and they revealed a consistent bottom-up pattern. (Waterstone Tech. Resp. to Shell's Comment Letter, June 30, 2014, pp. 33-36.) The data from samples taken outside of the reservoirs showed no pattern because the data was not analyzed in the manner performed in the January 2014 Technical Response. (*Id.*) Once again, however, analysis of that data by an expert readily proves Waterstone's theory of upward migration, and Shell has offered no expert analysis to contradict it.

Shell's Response Concedes Nearly Every Point Made In Developer's Comment Letter

Despite having nearly five full months in which to prepare a response to Developer's Comment Letter, Shell's Submission is notable for the paucity of its content. Shell does not provide any evidence to contradict the facts set forth on pages 9 through 43 of the Comment Letter. Most of those facts are not disputed, and insofar as the Shell Submission is intended to contest any facts at all, it falls short because it is not submitted in the form of evidence. Unlike the evidence submitted by Dole, Barclay, and Oceanic, which is offered as sworn testimony, none of the Shell Submissions are signed under penalty of perjury or otherwise meet the criteria for declarations under California law.

Shell also fails to respond substantively to (and therefore concedes) any of the dispositive legal points in Developer's Comment Letter. Shell has not denied, for example, that it would be unprecedented to hold Barclay, a non-polluting former owner, responsible as a "discharger" under existing State Board precedent. (*See* Developer's Comment Letter at 45-50.) While Shell argues in a conclusory manner that Barclay is a "discharger," it cites no precedent where a cleanup and abatement order has been upheld on similar facts.

Similarly, Shell has not denied that Barclay cannot be liable as a discharger simply for "spreading the waste." (*Id.* at 51-54.) Further, Shell has not disputed Barclay's right to protection under the safe-harbor provisions of section 13304(j). (*Id.* at 54-73.) Shell has not offered any evidence to contradict the expert testimony of Marcia Williams that the governing law at the time the disassembly of the reservoirs and grading of the former Kast Property took place, the Dickey Act, was not violated. (*Id.* at 59-63.) In fact, an expert for Plaintiffs in the tort litigation brought by Carousel homeowners concurs with Ms. Williams that Barclay was not a "discharger" under the Dickey Act. (Tab 1, Cheremisnoff Dep. at 363:17-21 ["Q. Did you determine that Barclay was a discharger under the Dickey Act? A. I determined that Shell was a discharger and that – I wouldn't view Barclay as a discharger. I don't think that's a reasonable interpretation."].) And Shell does not mention or discuss any of the alternatives to the

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plain meaning of Section 13304(j) with which the State Board has flirted from time to time.

Finally, Shell has not disagreed with Barclay's point that the Porter-Cologne Act does not confer jurisdiction on the Regional Board to issue a clean-up and abatement order finding Barclay to be a responsible party because Barclay did not discharge any contaminants onto the property. (Developer's Comment Letter at 73-82.)

* * *

Shell's Submission is defined by its limitations. Its bulky submission of data has the superficial appearance of a serious challenge to Waterstone's upward migration hypothesis until a fatal missing link is revealed: Shell offers no expert analysis of the data to address the showing in Waterstone's January 2014 Technical Response that the bottom-up pattern of hydrocarbons found in the fill soils above the former reservoir bottoms proves its upward migration hypothesis. Similarly, Shell offers an expert who makes false assertions about what occurred at reservoirs 1 and 2 but presents no percipient witnesses or documentary evidence to establish what really happened at these clearly relevant sites. And that same expert, who boldly asserts that Waterstone's upward migration hypothesis "is not scientifically valid," turns out to be addressing a different question than the one everyone else is asking; what he really means is that a version of Waterstone's theory that he unilaterally limited is not valid, but he is silent about the real version. In the end, Shell's Submission only challenges a few of the points made in Developer's Comment Letter, leaving uncontested all the rest, and the challenges it does make are completely ineffective. Shell is still the only discharger of contaminants at the Property, and the Draft Order naming Barclay as a responsible party should not be entered.

Sincerely,



Robert W. Loewen

RWL/gr

Enclosure(s)

