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STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER: WQ 98 -03 UST

In the Matter of the Petition of
KENNETH AND JEAN FORTENBERY
For Review of Denial of
Petroleum Underground Storage Tank Site Closure
at
159 Riverside Drive, Watsonville, California

BY THE BOARD:

Kenneth and Jean Fortenbery (petitioners) seek review of the refusal of the Regional Water Quality Control Board, Central Coast Region (RWQCB), to close petitioners' case involving an unauthorized release from a petroleum underground storage tank (UST) located at 159 Riverside Drive, Watsonville, California. For reasons hereafter stated, this order determines that petitioners' case should be closed, and no further action related to the release should be required.

I. STATUTORY, REGULATORY, AND FACTUAL BACKGROUND

Several statutory and regulatory provisions provide the State Water Resources Control Board (SWRCB), RWQCBs, and local agencies with broad authority to require responsible parties to clean up a release from a petroleum UST. (E.g., Health & Saf. Code, § 25299.37; Wat. Code, § 13304, subd. (a).) The SWRCB has promulgated regulations specifying corrective action requirements for petroleum UST cases. (Cal. Code Regs., tit. 23, §§ 2720-2728.) The regulations define corrective action as "any activity necessary to investigate and analyze the effects of an unauthorized release; propose a cost-effective plan to adequately

protect human health, safety and the environment and to restore or protect current and potential beneficial uses of water, and implement and evaluate the effectiveness of the activity(ies)." (Cal. Code Regs., tit. 23, § 2720.) Corrective action consists of one or more of the following phases: (1) preliminary site investigation, (2) soil and water investigation, (3) corrective action plan implementation, and (4) verification monitoring. (Cal. Code Regs, tit. 23, § 2722, subd. (a).)

The preliminary site assessment phase includes initial site investigation, initial abatement actions, initial site characterization and any interim remedial action. (Cal. Code Regs., tit. 23, § 2723, subd. (a).) Corrective action is complete at the conclusion of the preliminary site assessment phase, unless conditions warrant a soil and water investigation.

A soil and water investigation is required if any of the following conditions exists:

> "(1) There is evidence that surface water or ground water has been or may be affected by the unauthorized release;
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> "(2) Free product is found at the site where the unauthorized release occurred or in the surrounding area;
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> "(3) There is evidence that contaminated soils are or may be in contact with surface water or ground water; or
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> "(4) The regulatory agency requests an investigation, based on the actual or potential effects of contaminated soil or ground water on nearby surface water or ground water resources or based on the increased risk of fire or explosion." (Cal. Code Regs., tit. 23, §.2724.)

The purpose of a soil and water investigation is "to assess the nature and vertical and lateral extent of the unauthorized release and to determine a cost-effective method of cleanup." (Cal. Code of Regs., tit. 23, § 2725, subd. (a).)

Health and Safety Code section 25299.39.2, subdivision (b) provides that a UST owner or operator who believes that the corrective action plan for the owner's or operator's site

has been satisfactorily implemented, but where closure has not been granted, may petition the manager of the UST Cleanup Fund for review of the owner's or operator's case.[1]

The following is a summary of the facts relevant to this case. Petitioners' site, located at 159 Riverside Drive in Watsonville, California, currently houses a small neighborhood grocery store. Historically, between 1957 and 1976, the site contained two USTs for the retail sale of gasoline. Gasoline sales ceased in 1976, but the store remained in business.

Soil underlying the site consists of clay and sandy clay to approximately 18 feet below ground surface (bgs), clayey gravely sand to a depth of 21 feet bgs (based on total recorded depth of soil borings conducted in 1995), and sandy clay to clay to 35 feet bgs (based on recorded depth of soil boring in 1997). Published geologic studies indicate that the site is underlain by older flood plain deposits, composed of thick, unconsolidated, relatively fine grained sand, silt, and clay. No domestic water wells are known to exist within half a mile of the site.

In 1981 the two existing USTs were removed from the site. In April of 1995, a subsurface investigation (drilling and sampling of three soil borings) conducted due to a pending property transaction identified low concentrations of petroleum hydrocarbons which were characterized as a highly degraded gasoline. During the subsurface investigation, free liquid sediment laden water was found in a drilled borehole at approximately 20 feet bgs. A grab sample of the water was taken and analyzed. The water sample contained 110 parts per million (ppm) total petroleum hydrocarbons (TPH), <50 parts per billion (ppb) benzene, <50 ppb toluene, 390 ppb ethylbenzene, and 680 ppb xylene. The laboratory report for the water

[1] To the extent that the SWRCB may lack authority to review this petition pursuant to Health and Safety Code section 25299.39.2, subdivision (b) because the petitioner did not submit a corrective action plan for the site, the petition is being reviewed on the SWRCB's own motion pursuant to Water Code section 13320.

sample stated that the sample also contained sediment. Soil samples taken ranged in concentration from nondetect (ND) to 1,200 ppm TPH. None of the soil samples collected contained detectable concentrations of either benzene or toluene. All soil samples exhibiting any detectable concentrations of petroleum were collected within 10 feet of the original UST location.

The results of the April 1995 investigation were submitted to the RWQCB in June of 1995. The RWQCB requested petitioners to conduct an additional soil and water investigation in September of 1995. The petitioner submitted a draft workplan for this investigation in May of 1996. Following addendums to workplan, the RWQCB conditionally concurred with the workplan in June of 1996. In September of 1996, the petitioners requested the RWQCB to close their case on the basis that it posed a low risk to human health, safety, and the environment. When RWQCB staff denied petitioners' request, petitioners filed an appeal with the RWQCB. On April 4, 1997, the RWQCB upheld the staff determination, and reiterated the request for an additional soil and water investigation. In July 1997 petitioners requested review of their case by the UST Cleanup Fund manager pursuant to Health and Safety Code section 25299.39.2, subdivision (b).

In September of 1997 petitioners conducted a second subsurface investigation, which included the drilling and sampling of one soil boring. The boring was advanced to approximately 35 feet bgs, where a confining clay layer was encountered. According to petitioners, both petitioners' environmental consultant, Mr. Hiram Garcia, and the RWQCB staff person, Mr. Harvey Packard, who were onsite at the time, determined that the boring should be terminated at 35 feet bgs so as not to penetrate the confining layer. (According to the RWQCB, the boring was terminated at 35 feet bgs due to equipment limitations.)

The soil boring was located approximately 10 feet from the original UST pit, with concentrations in soil ranging from ND to a maximum of 7.2 ppm TPH. All samples analyzed were ND for benzene and toluene, with ethylbenzene ranging from ND to 26 ppb, and xylene ranging from ND to 93 ppb. Analysis for methyl-tertiary-butyl-ether (MTBE) ranged from ND to 27 ppb. (The presence of MTBE may stem from its use as an octane enhancer beginning in the mid-1970s.) The RWQCB's position remained unchanged after the 1997 investigation.

II. CONTENTIONS AND FINDINGS

Contention: Petitioners contend that their case should be closed because the concentrations of petroleum at their site do not pose a threat to public health and safety or the environment. Petitioners base their contention on the fact that any residual petroleum constituents identified in the subsurface soil have biodegraded significantly, those petroleum constituents which biodegrade most readily (benzene and toluene) have attenuated to nondetectable levels, and passive, natural bioremediation is ongoing. Petitioners additionally contend that the concentration of TPH (110 ppm) identified in the single "grab" water sample collected from the soil boring in 1995 is the result of cross contamination resulting from improper well development and sampling techniques, and does not represent actual site conditions.

Findings: Petitioners' contention has merit. The evidence supports the finding that the concentrations of petroleum at petitioners' site do not pose a threat to human health, safety, and the environment, or to current or probable future beneficial uses of water. More specifically, the evidence indicates that the groundwater beneath petitioners' site has not been impacted at all.

Water was identified in the bottom of the borehole at 20 feet bgs in 1995. However, no water was found in the borehole drilled in 1997 to a completed depth of 35 feet bgs and located less than five feet lateral distance from the borehole drilled in 1995. The borehole drilled in 1997 identified a competent, confining clay layer. It is improbable that groundwater beneath the confining clay layer has been or will be in contact with residual hydrocarbons remaining at the site. The water identified in 1995 was most likely a result of : (1) localized compression and smearing of soils during and after drilling in the vicinity of the borehole that could reasonably be expected to stir up a residue, including sediment-ladened water (with low levels of adsorbed petroleum hydrocarbons); or (2) a temporary, localized, perched, isolated condition, not representative of groundwater

These explanations are further supported by the laboratory analysis report which indicated the presence of sediment in the water sample. It is also unlikely that the groundwater table was at or near 20 feet bgs in April of 1995, then dropped more than 15 feet through the underlying competent confining clay layer by September of 1997. No evidence exists that indicates that such radical groundwater table fluctuations occur in the vicinity of the site.

Additionally, the soil near the 1995 water sample contained no evidence of petroleum saturated conditions. A soil sample collected in 1995 four feet directly above the water sample contained highly degraded gasoline with low to nondetectable concentrations of petroleum constituents. All soil samples collected in both 1995 and 1997 above and below the 1995 water sample contained no detectable concentrations of benzene. A soil sample collected in 1997 approximately three feet lateral distance from the samples collected in 1995, and at same depth as the water sample, contained 2.5 ppm TPH, 17 ppb ethylbenzene, 30 ppb xylene, and

was ND for benzene and toluene. Finally, soil samples collected in 1997 at 5 feet and 10 feet below the 1995 water sample contained no detectable concentrations of petroleum constituents.

In support of its refusal to close petitioners' case, the RWQCB stated that (1) the water sample collected in 1995 showed concentrations of TPH near the solubility limit of gasoline, indicating that free product may be present; (2) the extent of groundwater degradation has not been determined; and (3) the detection limit used for benzene on the collected water sample exceeds the water quality objective of 1 ppb by a factor of 50.

Contrary to the RWQCB's assertions, the data support the conclusion that the free liquid "water sample" taken in 1995 was not representative of actual groundwater conditions, and the groundwater beneath petitioners' site has not been impacted. Because the groundwater has not been impacted, the RWQCB's concerns about the extent of groundwater degradation and the detection limit for benzene are moot.

The RWQCB is correct that a dissolved concentration of 110 ppm TPH in groundwater would indicate the presence of free product based upon the solubility of gasoline in water. However, the fact that the borehole drilled in 1997 did not reach groundwater, in combination with the results of the soil samples taken at the site, indicates that groundwater was not present in 1995 at 20 feet bgs. The absence of TPH or significant concentrations of aromatic compounds also contradicts the RWQCB's claim that free product may be present.

The data also support the conclusion that residual petroleum constituents are highly degraded. The RWQCB's assertions are inconsistent with a release or spill of gasoline that probably occurred and ceased 22 years ago. Additionally, in a sample of sediment-laden water taken immediately after drilling from an open soil boring, it is not possible to determine true dissolved concentrations of TPH in water due to adsorbed petroleum hydrocarbons on

sediment. At best such a sample indicates that TPH is present. In such a situation, soil samples provide a more accurate indication of the amount and nature of residual petroleum constituents, and the soil samples taken conclusively indicate a highly aged and weathered release.

III. SUMMARY AND CONCLUSIONS

1. Corrective action should be taken if necessary to protect human health, safety, and the environment, or to restore or protect current or probable future beneficial uses of water.

2. A soil and water investigation should be conducted if (1) there is evidence that surface or groundwater has been or may be affected by an unauthorized release, (2) free product is found at the site where the release occurred or in the surrounding area, (3) there is evidence that contaminated soils are or may be in contact with surface or groundwater, or (4) an increased risk of fire or explosion exists.

3. Residual petroleum constituents have significantly degraded at the petitioners' site, are not in contact with any surface or groundwater, and do not pose a threat to human health, safety, or the environment, or to current or probable future beneficial uses of water.

4. No free product is present at the site.

5. Therefore, an additional soil and water investigation is not necessary.

IV. ORDER

IT IS THEREFORE ORDERED that petitioners' case be closed, and no further action related to the release be required. The UST Cleanup Fund Manager is directed to issue

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petitioners a uniform closure letter pursuant to Health and Safety Code section 25299.37, subdivision (h).

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on May 27, 1998.

AYE:	John Caffrey James M. Stubchaer Mary Jane Forster Marc Del Piero John W. Brown
NO:	None
ABSENT:	None
ABSTAIN:	None

Maureen Marché
Administrative Assistant to the Board