

## State Water Resources Control Board

### UST CASE CLOSURE REVIEW SUMMARY REPORT

#### Agency Information

|   |   |
|---|---|
| Agency Name: North Coast, Regional Water Quality Control Board (Regional Water Board) | Address: 5550 Skylane Boulevard, Suite A Santa Rosa, CA 95403 |
| Agency Caseworker: Dave Parson  | Case No.: 1TDN061   |

#### Case Information

|   |   |
|---|---|
| USTCF Claim No.: 11600                            | Global ID: T0601500050                                |
| Site Name: Don's Gas (currently Renner Petroleum) | Site Address: 15880 Hwy. 101, South Klamath, CA 95548 |
| Responsible Party: Don Devol                      | Address: 15880 Hwy. 101, South Klamath, CA 95548      |
| USTCF Expenditures to Date: \$47,632              | Number of Years Case Open: 18                         |

URL: [http://geotracker.waterboards.ca.gov/profile\\_report.asp?global\\_id=T0601500050](http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0601500050)

#### Summary

The Low-Threat Underground Storage Tank (UST) Case Closure Policy (Policy) contains general and media-specific criteria, and cases that meet those criteria are appropriate for closure pursuant to the Policy. This case meets all of the required criteria of the Policy. A summary evaluation of compliance with the Policy is shown in **Attachment 1: Compliance with State Water Board Policies and State Law**. The Conceptual Site Model upon which the evaluation of the case has been made is described in **Attachment 2: Summary of Basic Case Information (Conceptual Site Model)**. Highlights of the case follow:

This case is an active commercial petroleum fueling facility. An unauthorized leak was reported in June 1995 following the removal of two USTs. There has been no active remediation. A total of 15 soil boring and four groundwater monitoring wells have been installed at the site. According to groundwater data, water quality objectives have been achieved or nearly achieved for all constituents except for benzene, Methyl tert-butyl ether (MTBE), and Tert-butyl alcohol (TBA).

The petroleum release is limited to the shallow soil and groundwater. According to data available in GeoTracker, there are no California Department of Public Health regulated supply wells within 250 feet of the defined plume. A seep has been identified approximately 150 feet west (down-gradient) of the site. Laboratory results of the water sample from the seep indicated no petroleum constituents were detected in the seep water.

Drinking water is provided to water users near the Site by the Redwood Park Community Services District. The affected groundwater is not currently being used as a source of drinking water, and it is highly unlikely that the affected groundwater will be used as a source of drinking water in the foreseeable future. Other designated beneficial uses of impacted groundwater are not threatened and it is highly unlikely that they will be, considering these factors in the context of the site setting. Remaining petroleum hydrocarbon constituents are limited, stable and concentrations decreasing. Corrective actions have been implemented and additional corrective actions are not necessary.

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE OFFICER

Any remaining petroleum hydrocarbon constituents do not pose a significant risk to human health, safety or the environment.

**Rationale for Closure under the Policy**

- General Criteria: The case meets all eight Policy general criteria.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 5. This case would meet Class 1 if not for the seep. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well is greater than 250 feet from the defined plume boundary. A seep was identified approximately 150 feet west (downgradient) of the Site in the forest. The seep was sampled multiple times with no petroleum hydrocarbons ever detected.
- Vapor Intrusion to Indoor Air: The case meets the Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial land use, and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

**Objections to Closure and Responses**

The Regional Water Board indicated they had no objections to UST case closure for this site (telephone conversation February 22, 2013).

**Determination**

Based on the review performed in accordance with Health & Safety Code Section 25299.39.2 subdivision (a), the Fund Manager has determined that closure of the case is appropriate.

**Recommendation for Closure**

Based on available information, residual petroleum hydrocarbons at the Site do not pose a significant risk to human health, safety, or the environment, and the case meets the requirements of the Policy. Accordingly, the Fund Manager recommends that the case be closed. The State Water Board is conducting public notification as required by the Policy. Del Norte County has the regulatory responsibility to supervise the abandonment of monitoring wells.

*Lisa Babcock*

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Lisa Babcock, P.G. 3939, C.E.G. 1235

*6/26/13*

\_\_\_\_\_  
Date

Prepared by: Annette L. Poteracke, P.G.

**ATTACHMENT 1: COMPLIANCE WITH STATE WATER BOARD POLICIES AND STATE LAW**

The case complies with the State Water Resources Control Board policies and state law. Section 25296.10 of the Health and Safety Code requires that sites be cleaned up to protect human health, safety, and the environment. Based on available information, any residual petroleum constituents at the Site do not pose significant risk to human health, safety, or the environment.

**The case complies with the requirements of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.<sup>1</sup>**

|  |  |
|--|--|
| <p><b>Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations?</b><br/>                 The corrective action provisions contained in Chapter 6.7 of the Health and Safety Code and the implementing regulations govern the entire corrective action process at leaking UST sites. If it is determined, at any stage in the corrective action process, that UST site closure is appropriate, further compliance with corrective action requirements is not necessary. Corrective action at this site has been consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations and, since this case meets applicable case-closure requirements, further corrective action is not necessary, unless the activity is necessary for case closure.</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>   |
| <p><b>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</b></p>  | <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>   |
| <p><b>If so, was the corrective action performed consistent with any order?</b></p>  | <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>   |
| <p><b><u>General Criteria</u></b><br/>                 General criteria that must be satisfied by all candidate sites:</p> <p><b>Is the unauthorized release located within the service area of a public water system?</b></p> <p><b>Does the unauthorized release consist only of petroleum?</b></p> <p><b>Has the unauthorized ("primary") release from the UST system been stopped?</b></p> <p><b>Has free product been removed to the maximum extent practicable?</b></p> <p><b>Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?</b></p>  | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> |

<sup>1</sup> Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.

[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/resolutions/2012/rs2012\\_0016atta.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf)

|  |  |
|--|--|
| <p><b>Has secondary source been removed to the extent practicable?</b></p> <p><b>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</b></p> <p><b>Nuisance as defined by Water Code section 13050 does not exist at the Site?</b></p> <p><b>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</b></p>   | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>          |
| <p><b><u>Media-Specific Criteria</u></b><br/>       Candidate sites must satisfy all three of these media-specific criteria:</p> <p><b>1. Groundwater:</b><br/>       To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites:</p> <p><b>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</b></p> <p><b>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</b></p> <p>If YES, check applicable class: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5</p> <p><b>For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?</b></p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> |
| <p><b>2. Petroleum Vapor Intrusion to Indoor Air:</b><br/>       The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies.</p> <p><b>Is the Site an active commercial petroleum fueling facility?</b><br/>       Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.</p> <p><b>a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4?</b></p> <p>If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p>  | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>  |

|  |  |
|--|--|
| <p><b>b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?</b></p> <p><b>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?</b></p>  | <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>  |
| <p><b>3. Direct Contact and Outdoor Air Exposure:</b><br/>                 The Site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c).</p> <p><b>a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?</b></p> <p><b>b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?</b></p> <p><b>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?</b></p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> |

## ATTACHMENT 2: SUMMARY OF BASIC CASE INFORMATION (Conceptual Site Model)

### Site Location/History

- This Site is located on the northeast side of Highway 101 (Redwood Highway) between Lonesome Road and Mystic Forest RV Park in Klamath, CA. The site is an active commercial petroleum fueling facility.
- The Site is adjacent to a country market to the north and a single family residence to the south. To the west, across Highway 101 is undeveloped forested property.
- A site map showing the location of the former USTs, monitoring wells and groundwater level contours is provided at the end of this closure review summary (SHN Consulting Engineers & Geologist, 2011).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: June 26, 1995.
- Status of Release: USTs replaced.
- Free Product: None reported.

### Tank Information

| Tank No. | Size in Gallons | Contents        | Closed in Place/<br>Removed/Active | Date       |
|----------|-----------------|-----------------|------------------------------------|------------|
| 1        | 7,500           | Gasoline        | Removed                            | March 1995 |
| 2        | 7,500           | Gasoline        | Removed                            | March 1995 |
| 3        | 10,000          | Gasoline        | Active                             |            |
| 4        | 10,000          | Gasoline        | Active                             |            |
| 5        | 11,000 split    | Gasoline/Diesel | Active                             |            |

### Receptors

- GW Basin: Lower Klamath River Valley
- Beneficial Uses: Municipal and Domestic Supply, Industrial and Agricultural Supply (Basin Plan).
- Land Use Designation: Aerial photograph available on GeoTracker suggests mixed residential and commercial, and recreational land use in the vicinity of the Site.
- Public Water System: Redwood Park Community Services District provides water to the distribution systems in the area of the site. Water is distributed to residence through the Woodland Villa Store and the Mystic Forrest RV Park management.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells regulated by the California Department of Public Health within 250 feet of the defined plume boundary. No sensitive receptor survey has been conducted to identify if any other water supply wells are located within 250 feet of the site.
- Distance to Nearest Surface Water: Regional Water Board staff identified a natural seep approximately 150 feet west (downgradient) of the site. Regional Water Board staff sampled the seep water (after a depression was made to allow for enough water to accumulate to sample). The analytical results identified no petroleum hydrocarbon constituents above the detection limits.

### Geology/Hydrogeology

- Stratigraphy: The shallow soil is a sandy silty fill material underlain by native clayey silt.
- Maximum Sample Depth: 9 feet below ground surface (bgs).
- Minimum Groundwater Depth: 0.00 feet bgs at monitoring well MW-1.

- Maximum Groundwater Depth: 5.95 feet bgs at monitoring well MW-1.
- Current Average Depth to Groundwater: Approximately 2.4 feet bgs.
- Saturated Zones(s) Studied: Approximately 0.7 to 13 feet bgs.
- Appropriate Screen Interval: Yes.
- Groundwater Flow Direction: West with an average gradient of 0.04 feet/foot.

**Monitoring Well Information**

| Well Designation | Date Installed | Screen Interval (feet bgs) | Depth to Water (feet bgs) (3/17/2011) |
|------------------|----------------|----------------------------|---------------------------------------|
| MW-1             | January 2004   | 3 - 13                     | 5.05                                  |
| MW-2             | January 2004   | 3 - 13                     | 2.72                                  |
| MW-3             | January 2004   | 3 - 13                     | 4.66                                  |
| MW-4             | January 2004   | 3 - 13                     | 3.83                                  |

**Remediation Summary**

- Free Product: None reported in GeoTracker.
- Soil Excavation: None reported.
- In-Situ Soil Remediation: None reported.
- Groundwater Remediation: None reported

**Most Recent Concentrations of Petroleum Constituents in Soil**

| Constituent  | Maximum 0-5 feet bgs [mg/kg and (date)] | Maximum 5-10 feet bgs [mg/kg and (date)] |
|--------------|---|--|
| Benzene      | 0.48 (B-2@1.5' bgs, 12/02/97)           | <0.0050 (B-12@9' bgs, 11/15/01)          |
| Ethylbenzene | 1.1 (B-2@1.5' bgs, 12/02/97)            | <0.0050 (B-12@9' bgs, 11/15/01)          |
| Naphthalene  | NA                                      | NA                                       |
| PAHs         | NA                                      | NA                                       |

NA: Not Analyzed, Not Applicable or Data Not Available

mg/kg: Milligrams per kilogram, parts per million

<: Not detected at or above stated reporting limit

PAHs: Polycyclic aromatic hydrocarbon

bsg: Below ground surface

**Most Recent Concentrations of Petroleum Constituents in Groundwater**

| Sample      | Sample Date | TPHg (µg/L) | TPHd (µg/L) | Benzene (µg/L) | Toluene (µg/L) | Ethyl-Benzene (µg/L) | Xylenes (µg/L) | MTBE (µg/L)    | TBA (µg/L)         |
|-------------|-------------|-------------|-------------|----------------|----------------|----------------------|----------------|----------------|--------------------|
| MW-1        | 3/17/11     | 1,500       | 120         | 1.5            | 0.67           | 1.1                  | 0.83           | 1,200          | 1,200              |
| MW-2        | 3/17/11     | <50         | <50         | <0.5           | <0.5           | 0.86                 | <1.0           | 6.2            | <10                |
| MW-3        | 3/17/11     | <50         | <50         | <0.5           | <0.5           | 0.50                 | <1.0           | 4.9            | <10                |
| MW-4        | 3/17/11     | <50         | <50         | <0.5           | <0.5           | <0.5                 | <1.0           | 1.3            | <10                |
| <b>WQOs</b> | -           | ---         | ---         | 1              | 150            | 300                  | 1,750          | 5 <sup>b</sup> | 1,200 <sup>c</sup> |

NA: Not Analyzed, Not Applicable or Data Not Available

µg/L: Micrograms per liter, parts per billion

<: Not detected at or above stated reporting limit

TPHg: Total petroleum hydrocarbons as gasoline

TPHd: Total petroleum hydrocarbons as diesel

MTBE: Methyl tert-butyl ether

TBA: Tert-butyl alcohol

WQOs: Regional Water Quality Control Board (Regional Water Board), Basin Plan

<sup>a</sup>: Regional Water Board, Basin Plan does not have a numeric water quality objective for TPHg and TPHd

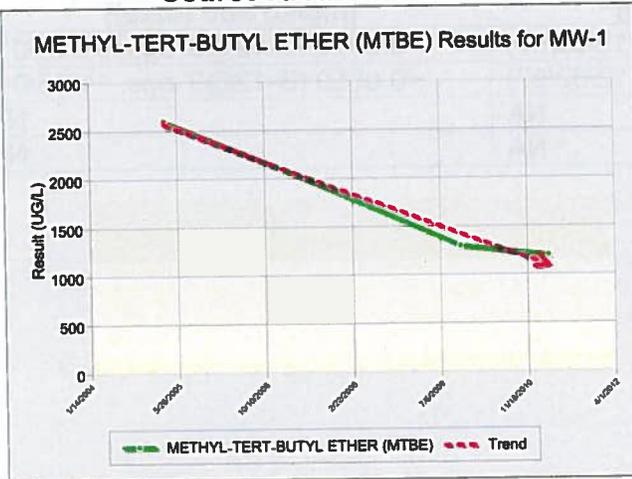
<sup>b</sup>: Secondary maximum contaminant level (MCL)

<sup>c</sup>: California Department of Public Health, Response Level

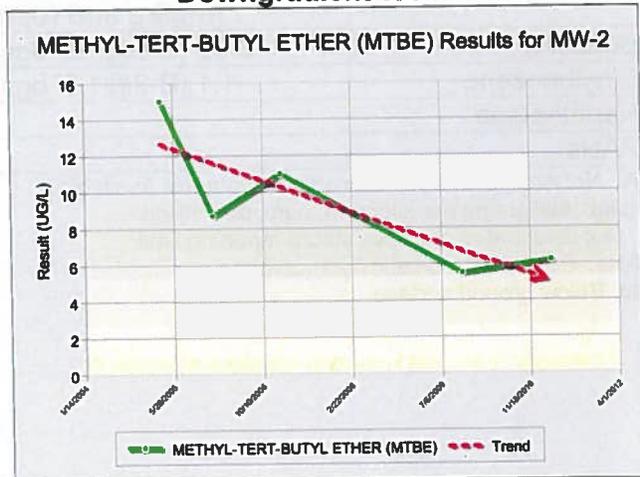
**Groundwater Trends**

- There are 7 years of irregular groundwater monitoring data for this case. Trends of MTBE in the source area monitoring well (MW-1) and downgradient well MW-2 are shown below:

**Source Area Well**



**Downgradient Well**



**Evaluation of Current Risk**

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes, see table above.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet long.
- Plume Stable or Decreasing: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.

- **Groundwater Specific Criteria:** The case meets Policy Criterion 1 by Class 5. This case would meet Class 1 if not for the seep. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well is greater than 250 feet from the defined plume boundary. A seep was identified approximately 150 feet west (downgradient) of the Site in the forest. The seep was sampled multiple times with no petroleum hydrocarbons ever detected.
- **Vapor Intrusion to Indoor Air:** The case meets the Policy Exclusion for Active Station. Soil vapor evaluation is not required because the Site is an active commercial petroleum fueling facility.
- **Direct Contact and Outdoor Air Exposure:** The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial land use, and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

