



State Water Resources Control Board



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Arnold Schwarzenegger
Governor

EXHIBIT 2

UST Case Closure Summary

(Shaded areas represent changes from Draft Case Closure Summary
in the May 3, 2010 Notification of Opportunity for Public Comment)

This underground storage tank (UST) Case Closure Summary has been prepared in support of a recommendation by the Petroleum Underground Storage Tank Cleanup Fund (Fund) to the State Water Resources Control Board (State Water Board) for closure of the UST case at 400 Healdsburg Avenue in Healdsburg (Site). All record owners of fee title for this site as well as adjacent property owners and other interested parties, as appropriate, have been notified of the recommendation for closure and were given an opportunity to provide comments.

Agency Information

Date:

Agency Name: North Coast Regional Water Quality Control Board (North Coast Water Board)	Address: 5550 Skylane Boulevard, Suite A Santa Rosa, CA 95403
Responsible staff person: Beth Lamb	Title: Engineering Geologist

Case Information

RWQCB Case No.: 1TSO473	Global ID: T0609700336
Site Name: Don's Rhino	Site Address: 400 Healdsburg Avenue Healdsburg, CA 95448
Responsible Party: Juanita Giovannoni	Address: PO Box 207 Healdsburg, CA 95448
USTCF Claim No.: 524	USTCF Expenditures to Date: \$ 543,936
	Number of Years Open: 18 years

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active?	Date
1	Unknown	Gasoline	Removed	2/13/96
2	Unknown	Gasoline	Removed	2/13/96
3	Unknown	Gasoline	Removed	2/13/96
4	Unknown	Waste Oil	Removed	2/13/96

Release Information

- Source of Release: UST system.
- Date of Release: 9/18/1991
- Affected Media: Soil and groundwater.

Site Information

- GW Basin: The site is located in the North Coast Basin, Russian River Hydrologic Area, Santa Rosa Hydrologic Subarea.
- Beneficial Uses: Municipal and Domestic (MUN), Agricultural (AGR), Industrial Service (IND), and Industrial Process (PRO).

- Land Use Designation: The site is zoned commercial downtown (CD) (City Zoning Map 2009)
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells within ½ mile of the site. No domestic supply wells within 1,000 feet.
- Minimum Groundwater Depth: The minimum depth that groundwater is reported at is 5.25 feet below ground surface (bgs) at monitoring well MW-5.
- Maximum Groundwater Depth: The maximum depth that groundwater is reported at is 9.43 feet bgs at monitoring well MW-7.
- Flow Direction: Based on groundwater elevations from the February 9, 2010 sample event, groundwater at this site is flowing in a west-southwest direction at a gradient of 0.0078 feet per foot.
- Soil Types: The Site is underlain by silty sand to a depth of six to eight feet bgs. Beneath this layer is silty gravel with sand. Beneath the silty gravel is sandy clay.

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet below ground surface or bgs)	Most Recent Depth to Groundwater or DTW (2/9/10)
MW-1	07/1995	NA	Destroyed – no date
MW-2	07/1995	NA	Destroyed 5/10/02
MW-3	07/1995	NA	5.82
MW-4	07/1995	NA	Destroyed 11/16/97
MW-5	7/15/99	5 – 20	5.67
MW-6	7/15/99	5 – 20	Destroyed 4/18/08
MW-7	7/15/99	5 – 20	6.02

Petroleum Hydrocarbon Constituent Concentration

Petroleum Hydrocarbon	Soil (mg/kg [milligram per kilogram or parts per million, ppm])		Water (ug/L [micrograms per liter] or ppb [parts per billion])		Water Quality Objectives	
	Maximum	Latest (6/2008)	Maximum	Latest (2/9/10)	Regional Board Basin Plan (ug/L)	CA Maximum Contaminant Levels (ug/L)
TPH-g	3,000	2,400	4100	120	NA	5*
Benzene	ND<0.001	ND<1.0	9.7 ¹	ND<0.5	1	1
Toluene	ND<0.001	ND<1.0	1.6	ND<0.5	NA	150
Ethylbenzene	ND<0.001	ND<1.0	1.4	ND<0.5	680	300
Total Xylenes	ND<0.001	ND<2.0	2.7	ND<0.5	1,750	1,750
MTBE	ND<1.0	ND<1.0	270	1.2	NA	13 (primary) 5 (secondary)
TBA	ND<5	ND<12	ND<5	ND<5	NA	12
1,2-DCA	NA	NA	NA	NA	0.0005	0.5

NA: Not Analyzed, Not Applicable or Data Not Available

ND: Not Detected at the Concentration Shown

* - Taste and Odor Threshold



Site Description

The site is located on the northeast corner of Healdsburg Avenue and West North Street in Healdsburg. The site was a retail gasoline service station and auto repair facility for approximately 60 years.

Site History/Assessments:

The site was purchased by the claimant in 1979. The site operated as a gasoline service station from the 1930s until 1996 when the USTs were removed. In 1984, petroleum hydrocarbons were detected in soil and groundwater downgradient from this site. In 1991, the lessee/operator of the site was ordered to conduct a site assessment. The lessee/operator of the site referred the site assessment order to the property owners, Mr. and Mrs. Giovannoni. The site assessment was conducted in 1994 and petroleum hydrocarbons were detected in soil and groundwater. In 1996, the USTs were removed. In 1997, excavation of impacted soil was conducted to the extent possible without use of shoring. In 2008, an additional excavation removed additional impacted soil. Since 1994, there have been six site assessments conducted. A site map showing the location of former USTs and monitoring wells is provided at end of this case closure summary.

Remediation Summary

- **Free Product:** No free product was documented throughout the life of this project.
- **Soil Excavation:** In 1997, the northern half of the site was excavated to remove petroleum hydrocarbon impacted soil. An estimated 900 cubic yards of impacted soil was removed and disposed offsite. In 2008, there was a limited area excavation to a depth of approximately 11 feet conducted to remove additional impacted soil. This excavation resulted in an estimated 700 cubic yards of impacted soil being removed and disposed offsite. Excavations were performed to the physical extent possible without shoring. Further excavations would jeopardize the support of the adjacent public sidewalk and roadway.
- **In-Situ Soil Remediation:** No in-situ soil remediation has been conducted.
- **Groundwater Remediation:** In 2003, a batch extraction of 1300 gallons of impacted groundwater from monitoring wells MW06 and MW07 was conducted. This batch extraction was a one day operation.

General Site Conditions

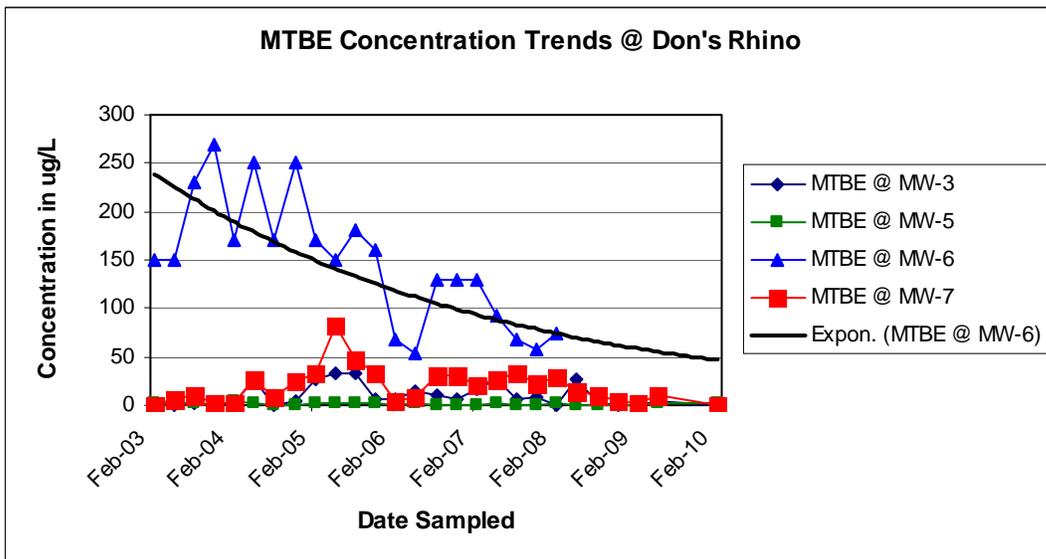
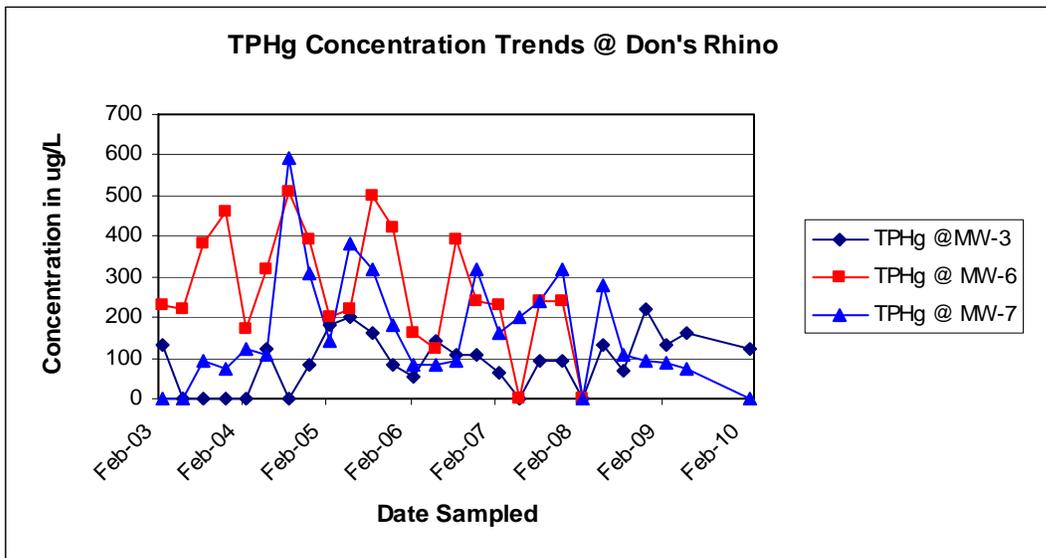
- **Hydrogeology:** Depth to groundwater varies seasonally between 6 feet and 11 feet below ground surface. Groundwater direction has varied from southwest to northwest, at gradients ranging from 0.001 to 0.01 feet per foot (ft/ft). The closest surface water is Foss Creek, located approximately 250 feet west of the site. Foss Creek flows south into Dry Creek which, in turn, flows into the Russian River.¹ A year-long study of Foss Creek hydrology indicated that there was no apparent hydraulic connection between Foss Creek and the underlying aquifer.²

¹ USGS, 1980, Topographic Map of the Healdsburg Quadrangle, 7.5 Minute Series, 1:24,000.

² Regional Water Quality Board, North Coast Region, File Memorandum, December 23, 1999.



- **Geology:** In a northeast to southwest direction, this site is underlain by approximately 17 feet bgs of silty clay (northeast) which transitions to a silty, sandy gravel (southwest). From approximately 17 feet bgs to 55 feet bgs soil beneath the site is gravel. Beneath the gravel is cemented gravel. Below the cemented gravel is blue clay found to a depth of 100 feet bgs (northeast).
- **Groundwater Trends:** There is more than six years of analytical data available on GeoTracker. The following graphs of the two compounds of concern, total petroleum hydrocarbons as gasoline (TPHg) and methyl-tert butyl-ether (MTBE), are shown for monitoring wells MW-3, MW-5, MW-6, and MW-7. The TPHg was not detected in monitoring well MW-5 above laboratory detection levels and therefore is not shown on the graph.
- The graphs show that the detectable concentration of MTBE already has reached water quality objectives and the residual TPHg should reach water quality objectives within 5 to 20 years.



- Estimate of Remaining Mass: Approximately 1,960 pounds of TPH was estimated to be present in the subsurface prior to excavation. Excavation activities removed approximately 1,690 pounds. The remaining mass of petroleum hydrocarbons in the soil is estimated to be 265 pounds.³
- Time to Meet Water Quality Objectives: Estimated to be 5 to 20 years for TPHg. All other water quality objectives have already been attained.

Sensitive Receptor Survey

A Sensitive Receptor Survey (SRS) has not been conducted for this site. However, an SRS has been conducted for an adjacent site located approximately 60 feet west of 400 Healdsburg Avenue.⁴ An initial SRS was conducted in November 1999 and reviewed again in 2007. A door-to-door survey was conducted within a 500-foot radius of the site. No domestic water supply wells were identified within the area of the survey. The City of Healdsburg documented that no municipal water supply wells are located within one-half mile of the site and that the City has no plans for installation of any such wells in the future. Foss Creek is located approximately 200 ft west of the site. No other wetlands or sensitive environmental habitats were located in the vicinity of the site.

An updated and expanded SRS was completed to identify domestic wells or other sensitive receptors within a 1,000 ft radius of the adjacent site, and to evaluate any impacts or potential impacts to the wells/receptors from the adjacent Site. A records search at the Department of Water Resources and an on-the-ground survey in the area identified no water supply wells or other receptors.

In 2007, the North Coast Water Board and State Water Resources Board Staff identified or tentatively identified several water supply wells in the vicinity. Upon further investigation of well destruction logs, visual inspection and confirmation with the City of Healdsburg, it is reasonable to conclude that these wells no longer exist.

Risk Evaluation

As a result of removal of approximately 1,600 cubic yards of soil from the site, there is little residual petroleum hydrocarbon in soil at the site that would pose a threat to groundwater resources, human health or the environment. The contaminants of concern (TPHg and MTBE) that are above laboratory detection limits in the onsite monitoring wells have been in downward concentration trends. Other analyzed petroleum hydrocarbons have been below laboratory detection limits. The paved site and paved public areas reduce the potential for any remaining petroleum hydrocarbons below these areas to migrate into shallow groundwater. This further minimizes the threat to groundwater resources, human health or the environment. There are no water supply wells are present within 1,000 feet of the Site.

Closure

Will corrective action performed ensure the protection of human health, safety and the environment? Yes

Is corrective action and UST case closure consistent with State Water Board Resolution 92-49? Yes

Is achieving background water quality feasible? No

³ APEX ENVIROTECH, Inc.; *Excavation and Soil Sampling Results Report, Former Don's Rhino*; April 21, 2009

⁴ ECM Group; *Vertical Extent Investigation and Sensitive Receptor Update for Case Closure Support*; May 25, 2007



To remove all traces of residual petroleum constituents at the site would require significant effort and cost. If complete removal of detectable traces of petroleum constituents becomes the standard for UST corrective actions, however, the statewide technical and economic implications will be enormous. For example, disposal of soils from comparable areas of excavation throughout the state would greatly impact already limited landfill space. In light of the precedent that would be set by requiring additional excavation at this site and the fact that beneficial uses are not threatened, attaining background water quality at this site is not feasible.

If achieving background water quality is not feasible,

Is the alternative cleanup level consistent with the maximum benefit to the people of the State?

Yes.

It is impossible to determine the precise level of water quality that will be attained given the limited residual petroleum hydrocarbons that remain at the site, but in light of all the factors discussed above, and the fact that the residual petroleum constituents will not unreasonably affect present and anticipated beneficial uses of groundwater, a level of water quality will be attained that is consistent with the maximum benefit to the people of the state.

Will the alternative cleanup level unreasonably affect present and anticipated beneficial uses of water? No.

Impacted groundwater is not used as a source of drinking water or any other beneficial use currently and it is highly unlikely that the impacted groundwater will be used as a source of drinking water or any other beneficial use in the foreseeable future.

Will the alternative level of water quality exceed water quality prescribed in applicable Basin Plan? No

The final step in determining whether cleanup to a level of water quality less stringent than background is appropriate for this site requires a determination that the alternative level of water quality will not result in water quality less than that prescribed in the relevant basin plan. Pursuant to State Water Resources Control Board Resolution 92-49, a site may be closed if the basin plan requirements will be met within a reasonable time frame.

Have factors contained in Title 23 of the California Code of Regulations, Section 2550.4 been considered? Yes

In approving an alternative level of water quality less stringent than background, the SWRCB considers the factors contained in California Code of Regulations, title 23, section 2550.4, subdivision (d). As discussed earlier, the adverse effect on shallow groundwater will be minimal and localized, and there will be no adverse effect on the groundwater contained in deeper aquifers, given the physical and chemical characteristics of petroleum constituents, the hydrogeological characteristics of the site and surrounding land, and the quantity of the groundwater and direction of the groundwater flow. In addition, the potential for adverse effects on beneficial uses of groundwater is low, in light of the proximity of the groundwater supply wells, the current and potential future uses of groundwater in the area, the existing quality of groundwater, the potential for health risks caused by human exposure, the potential damage to wildlife, crops, vegetation, and physical structures, and the persistence and permanence of potential effects.

Finally, a level of water quality less stringent than background is unlikely to have any impact on surface water quality, in light of the volume and physical and chemical characteristics of petroleum constituents; the hydrogeological characteristics of the site and surrounding land; the quantity and quality of groundwater and direction of groundwater flow, the patterns of precipitation in the region, and the proximity of residual petroleum to surface waters..

Has the requisite level of water quality been met? No

Though the requisite level of water quality has not been met water quality objectives, the approximate time period in which the requisite level of water quality will be met is 5 to 20 years. This is a reasonable period in which to meet the requisite level of water quality because the impacted groundwater is not currently being used as a source of drinking water and it is highly unlikely that impacted groundwater will be used as a source of drinking water in the future. Residential and commercial water users are currently connected to the municipal drinking water supply. Other designated beneficial uses of the impacted groundwater are not threatened and it is highly unlikely that they will be. Considering these factors in the context of the site setting, site conditions do not represent a substantial threat to human health and safety and the environment and case closure is appropriate.

Objections to Closure and Response

The North Coast Water Board objects to UST case closure for this case because analytical results from groundwater grab samples collected in 2007 in the street adjacent to this site had shown total petroleum hydrocarbon as gasoline (TPHg) concentrations at depths between 20 to 57 feet below ground surface (bgs) and stated that the subject site could be the source. The North Coast Water Board also noted that public notification and abandonment of all monitoring wells associated with this site needed to be completed prior to closure.

The Fund Manager disagrees that additional work is necessary at this site. In April 2007, during an investigation was performed for the adjacent Redwood Oil site, grab groundwater samples were collected from three locations using cone penetration testing (CPT) & hydropunch systems. Laboratory analysis of groundwater samples collected from CPT-2, located immediately south of the Redwood Oil site and CPT-3, located immediately west of the subject site, identified concentrations of TPHg ranging from 52 to 1,000 ug/L. However, the laboratory report stated that for several of the groundwater samples, the analysis did not match a gasoline pattern and that the values were largely due to the presence of chlorinated compounds.

There is no apparent explanation of how petroleum hydrocarbons could be driven down to 57 feet bgs. Groundwater has never been deeper than 14 feet bgs during the investigations at either site. Both sites and adjacent public areas (sidewalks and streets) are paved so there is little surface water infiltration that could drive petroleum hydrocarbon compounds deeper. There is no documentation of pumping wells in the vicinity of the site that could draw the petroleum hydrocarbon compounds down.

The Fund Manager does not believe that the petroleum hydrocarbon concentrations detected in the April 2007, grab samples represent a significant risk to human health and safety and the environment. As a result of approximately 1,600 cubic yards of soil removed from the site, there is little residual petroleum hydrocarbon in soil at the site that would pose a threat to groundwater resources. Any residual petroleum hydrocarbons present in the groundwater at depth will continue to attenuate. In addition, there are no domestic or public water supply wells within 1,000 feet of the site.

The Fund has conducted public notification and the Sonoma County Department of Health Services has the regulatory responsibility to supervise the abandonment of monitoring wells.



Summary and Conclusion

The site operated as a gasoline service station from the 1930s until 1996 when the USTs were removed. This Site is currently used by an auto repair facility. To date, \$543,936 in corrective action costs have been reimbursed by the Fund. Since that time there have been six site assessments, two major soil excavations, and one groundwater extraction event. Approximately 1,600 cubic yards of impacted soil has been excavated. The first excavation in 1997 resulted in approximately 900 cubic yards of impacted soil being excavated and disposed offsite. In 2008, approximately 700 cubic yards of additional impacted soil was removed and disposed offsite. The water quality objectives for the remaining petroleum constituents are estimated to be met in five to 20 years. The nearest sensitive receptors are two domestic water wells more than 1,000 feet from the site. Finally, the impacted groundwater is not currently being used as a source of drinking water or other beneficial uses. It is highly unlikely that the impacted groundwater will be used as a source of drinking water or other beneficial use in the foreseeable future. Based on available information, the residual petroleum hydrocarbons at the site do not pose significant risks to human health and safety and the environment and the Fund Manager recommends that the case be closed.



John Russell PG No. 8396

May 28, 2010
Date



