State Water Resources Control Board

Division of Financial Assistance
1001 I Street, Sacramento, California 95814• (916) 341-5700
Mailing Address: P.O. Box 944212 • Sacramento, California 94244-2120
FAX (916) 341-5707 • http://www.waterboards.ca.gov

Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

EXHIBIT 1

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 401 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

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. 1TSO472	Global ID: T0609700335
Site Name: Redwood Oil #107	Site Address: 401 Healdsburg Avenue Healdsburg, CA 95448
Responsible Party: Peter Van Alyea	50 Professional Center Drive Rohnert Park, CA 94928
USTCF Claim No.: 2757	USTCF Expenditures To Date: $711,111
	Number Of Years Open: 18

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/ Removed/Active?	Date
1	10,000	Fuel	Removed	2/1999
2	4,000	Fuel	Removed	2/1999
3	4,000	Fuel	Removed	2/1999
4	8,000	Fuel	Removed	2/1999
5	550	Waste Oil	Removed	1993
6	500	Unknown	Removed	6/2002

Release Information

- Source of Release: UST system.
- Date of Release: The reported date of the release is September 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 GeoTracker, there are no public supply wells within ½ mile of the Site. In 2007, The North Coast Regional Board and State Water Resources Board Staff identified or tentatively identified 10 domestic wells in the area. Eight of these wells have been confirmed to be abandoned and the other two are more than 1,000 feet from the Site.
- Minimum Groundwater Depth: 2.02 feet below ground surface (bgs) at monitoring well MW-5 on March 21, 2003.
- Maximum Groundwater Depth: 13.75 feet bgs at monitoring well MW-3 on February 21, 2001.
- Flow Direction: Historically flow direction has ranged from southerly to northwesterly.
- 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(bgs)	Most Recent Depth To Water (DTW) (2/09/2010)
MW-1	20 Feb 1992	5 – 20	Abandoned 10 May 2002
MW-2	13 Oct 1999	5 – 20	5.07
MW-3	13 Oct 1999	5 – 20	7.34
MW-4	14 Oct 1999	5 – 20	6.29
MW-5	14 Oct 1999	5 – 20	5.80
MW-6	1 Feb 2001	7 – 22	7.77

Petroleum Hydrocarbon Constituent Concentrations

Petroleum Hydrocarbon	Soil (mg/kg)*		Water (ug/L)**		Water Quality Objectives	
	Maximum	Latest	Maximum	Latest (2/09/2010)	Regional Board Basin Plan (ug/L)	CA Maximum Contaminant Levels (ug/L)
TPH-g	83,000	NA	19,000	140	NA	5***
TPH-d	27,000	NA	2,600	<50	NA	NA
Benzene	27	NA	630	<0.5	1	1
Toluene	370	NA	300	<0.5	NA	150
Ethylbenzene	340	NA	84	<0.5	680	300
Total Xylenes	420	NA	310	<0.5	1,750	1,750
MTBE	6.7	NA	7,800	14	NA	13 (primary) 5 (secondary)
TAME	NA	NA	NA	2.6	NA	NA
TBA	NA	NA	17	<5	NA	12

* - mg/kg = Milligrams per kilogram or parts per billion (ppb)

****** - ug/L = Micrograms per liter or parts per billion (ppb)

*** - Taste and Odor Threshold

Site Description: The gasoline service station has been replaced with a multi-story office building. The property is on the northwest corner of Healdsburg Avenue and West North Street in Healdsburg.

Site History: From July 1957 to November 1981, the Site was operated as a gasoline service station by Shell Oil Company. Redwood Oil Company (ROC) purchased the property in November 1981. From 1981 through 1985, the Site was operated by independent dealers. In 1985, ROC began operation of the Site as ROC Station #107.

In 1999, four USTs, piping, and impacted soil were removed from the Site. In 2001, a more extensive excavation of impacted soil was completed. Based on analytical results from groundwater sampling in the third quarter 2005 and subsequent sampling results, a closure request dated January 31, 2006, was submitted to the North Coast Water Board. That request was rejected in a letter from the North Coast Water Board, dated March 3, 2006, which requested the vertical extent be further assessed and a sensitive receptor survey be conducted. The attached figure presents a Site Map, well locations, groundwater elevation contours and flow direction.

Remediation Summary

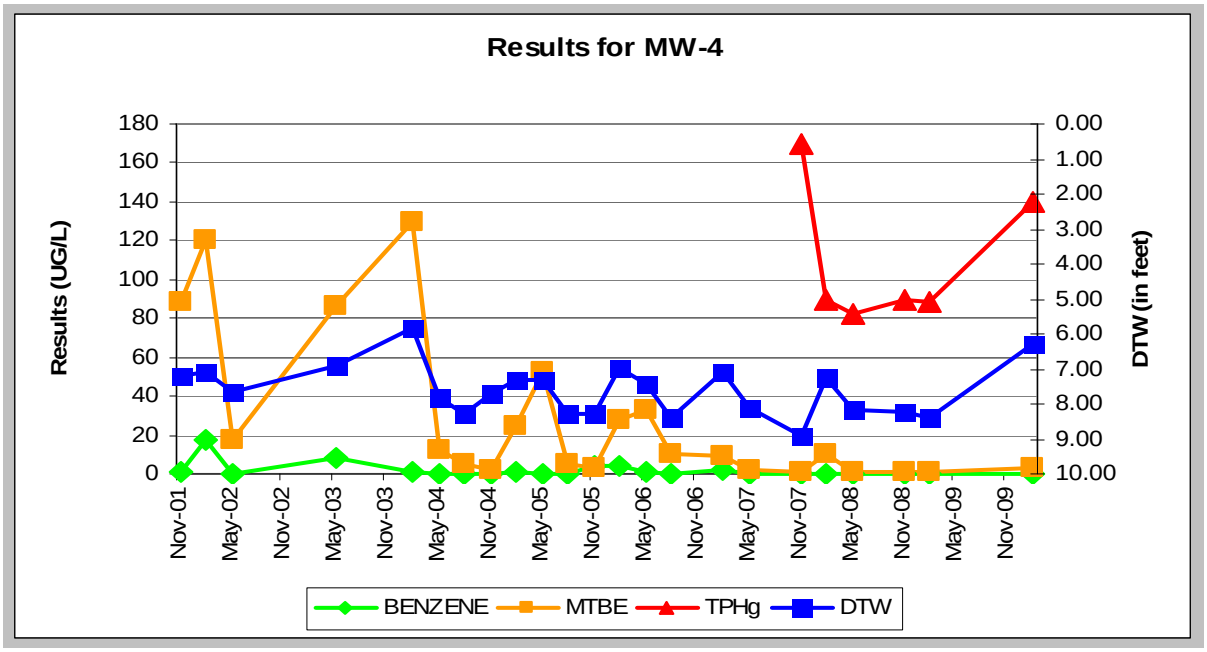
- **Free Product:** No free product was documented throughout the life of this project.
- **Soil Excavation:** There have been three excavations of impacted soil resulting in approximately 3,300 cubic yards of contaminated soil transported and properly disposed off-site.
- **In-Situ Soil Remediation**: No in-situ soil remediation has occurred at the Site. Soil excavation, transportation and disposal were the chosen as the method of soil treatment.
- **Groundwater Remediation**: During the active soil excavation activities, approximately 150,000 gallons of impacted groundwater was pumped and disposed.

General Site Conditions

- Hydrogeology: Historically, groundwater flow direction at the site has ranged from southerly to northwesterly, at gradients ranging between 0.001 and 0.01 ft/ft. Depth to groundwater at the site varies seasonally between approximately 6 ft and 11 ft bgs. The closest surface water is Foss Creek, located approximately 200 feet west of the site. Foss Creek flows south into Dry Creek which, in turn, flows into the Russian River.
- Geology: Soil underlying the site to a depth of approximately 55 ft bgs is composed largely of moderate to high permeability formations of silty sands, with some clay and silt formations offsite to the southwest to a depth of 20 feet bgs.

  Groundwater Trends: Declining contaminant concentrations for wells, MW-4, MW-5 & MW-6 indicate that residual petroleum hydrocarbon concentrations have already or will reach water quality objectives in the next 5 to 20 years. Wells MW-4 and MW-5 are downgradient and MW-6 has historically been downgradient or cross-gradient monitoring points for the Site.

  The following graphs show water levels and concentration levels of TPH-g, benzene and MTBE for particular wells.


Results for MW-4
Results (UG/L)
DTW (in feet)
180
160
140
120
100
80
60
40
20
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
Nov-01
May-02
Nov-02
May-03
Nov-03
May-04
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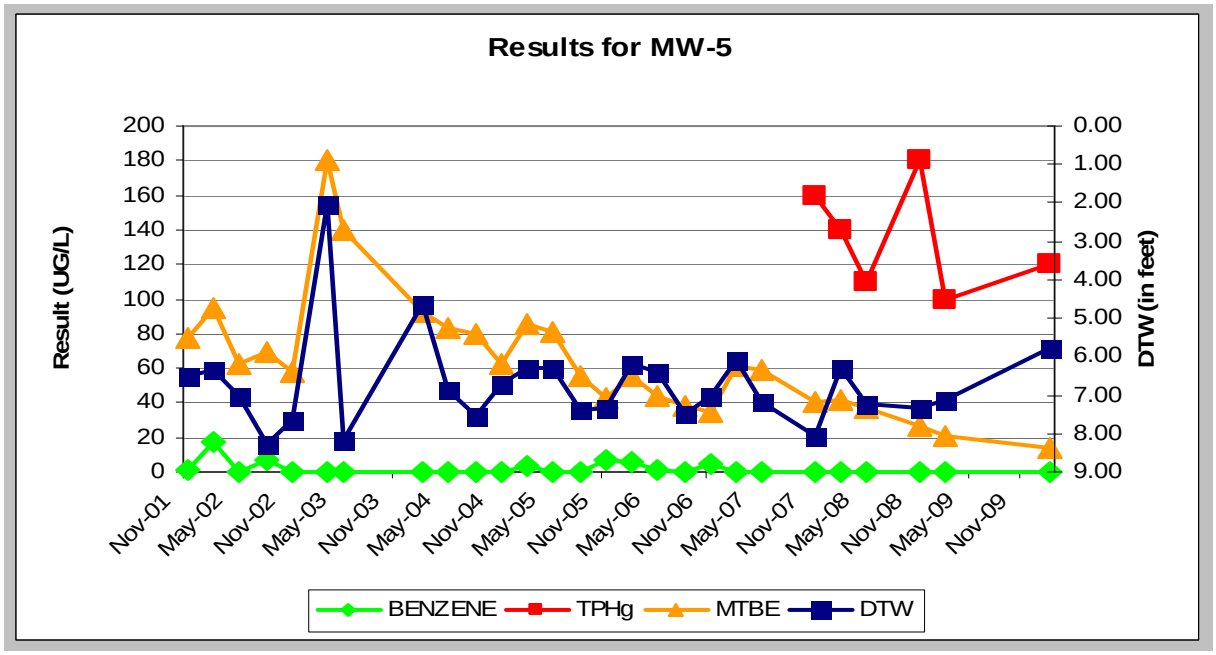
BENZENE
MTBE
TPHg
DTW


Results for MW-5
Result (UG/L)
DTW (in feet)
200
180
160
140
120
100
80
60
40
20
0
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
Nov-01
May-02
Nov-02
May-03
Nov-03
May-04
Nov-04
May-05
Nov-05
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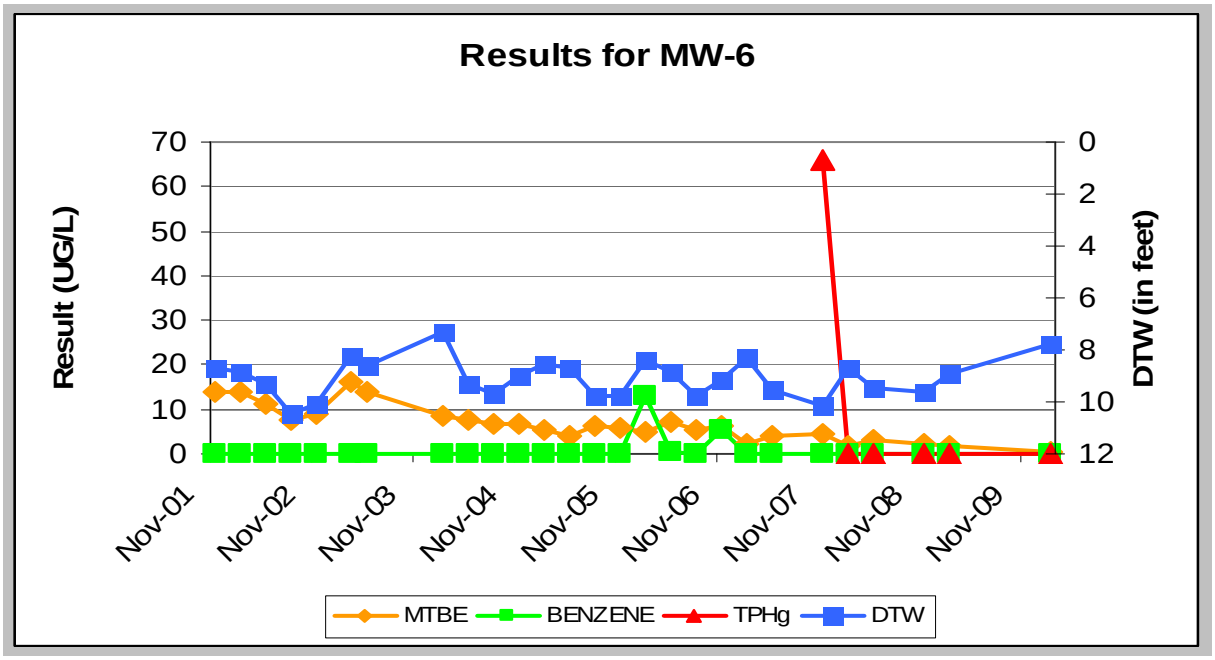
BENZENE
TPHg
MTBE
DTW



- Estimate of Remaining Mass: The petroleum hydrocarbons mass remaining in the soil (beneath the building and sidewalks) and dissolved in groundwater does not create or threaten to create risk to human health and safety, or to future beneficial use(s) of the impacted groundwater.
- Time to Meet Water Quality Objectives (WQO): The time to meet WQO is estimated (for the remaining dissolved concentration of petroleum hydrocarbons) to be 5 to 20 years.

Sensitive Receptor Survey:
An initial Sensitive Receptor Survey (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 site, and to evaluate any impacts or potential impacts to the wells/receptors from the release 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
With approximately 3,300 cubic yards of soil removed from the site, there is little residual petroleum hydrocarbons left 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 show 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

Has corrective action performed ensured 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
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 future.

Will the alternative level of water quality exceed water quality prescribed in applicable Basin Plans? 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.

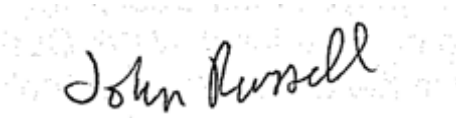
Finally, a level of water quality less stringent than background is unlikely to have any impact on surface water quality, in light of the volume and physical and chemical characteristics of petroleum constituents; the hydrogeological characteristics of the site and surrounding land; the quantity and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

Objection to Closure and Response
The North Coast Regional Board has not provided specific objections to case closure.

Summary and Conclusion

This Site is currently a newly constructed commercial building where a service station operated from approximately 1957 until 1999. The release was discovered in 1991 and six gasoline USTs have been removed. To date, $711,111 in corrective action costs has been reimbursed by the Fund. Approximately 3,300 cubic yards of soil have been excavated during three periods of over-excavation. Approximately 150,000 gallons of groundwater have been removed and disposed during these over-excavation activities. Groundwater has been monitored from 1992 through present. The January 2006 "Request for Site Closure," was rejected by the North Coast Regional Board. Additional required work has been completed. Natural attenuation continues to degrade the remaining residual hydrocarbons. 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. The Fund Manager recommends that the case be closed.



John Russell PG No. 8396 — May 28, 2010 Date

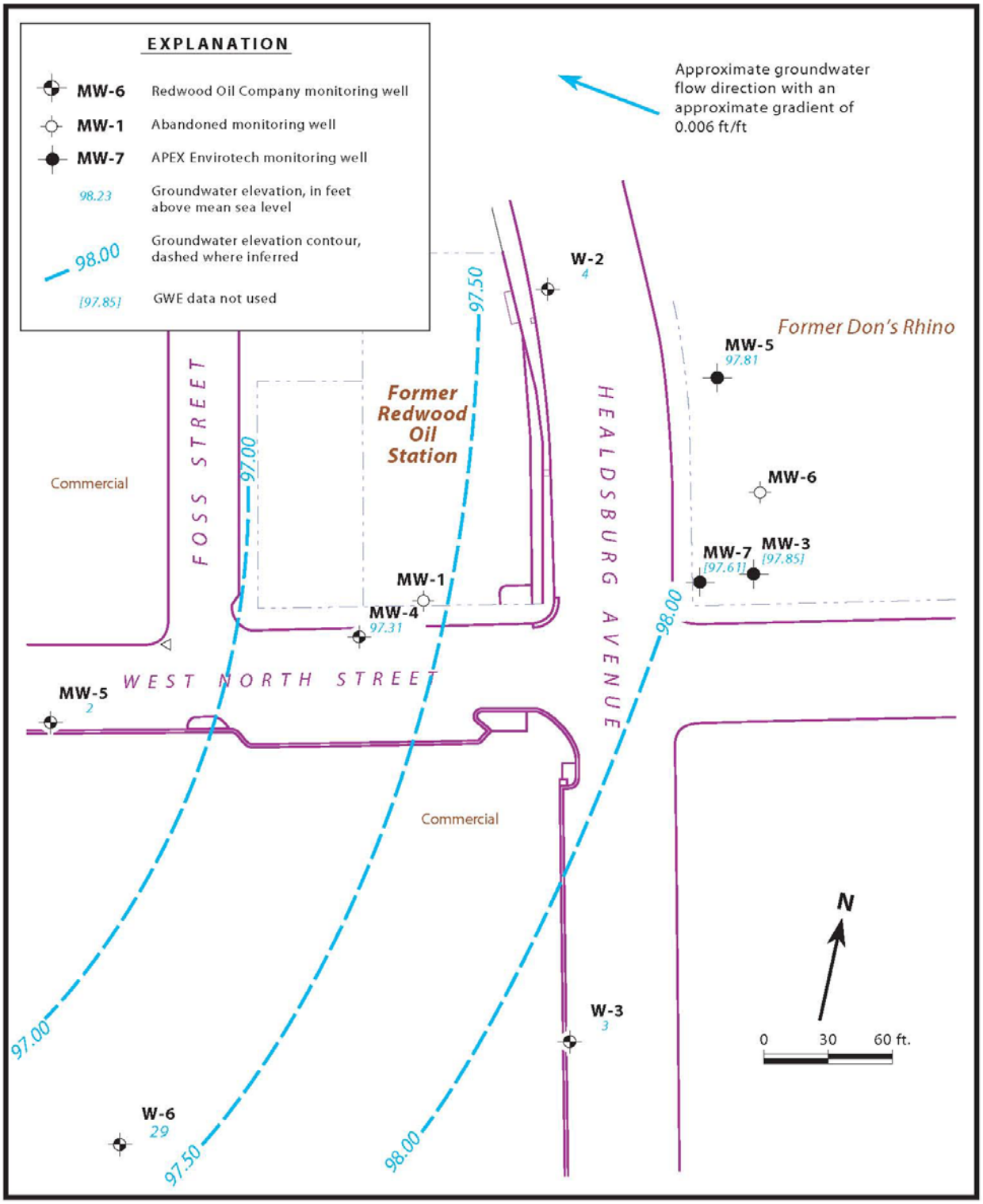


Figure 2. Monitoring Well Location and Groundwater Elevation Contour Map - February 9, 2010 - Former Redwood Oil Service Station #107, 401 Healdsburg Avenue, Healdsburg, California

98-523-14 [GW 2-10] 3/11/10