



California Regional Water Quality Control Board Los Angeles Region



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Linda S. Adams
Acting Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

May 26, 2011

Mr. Ernest A. Diaz
Senior Environmental Engineer
Skyworks Solutions, Inc.
2427 W. Hillcrest Dr.
Newbury Park, California 91320

**SUBJECT: REVISION OF FACT SHEET
GENERAL WASTE DISCHARGE REQUIREMENTS
(ORDER NO. R4-2007-0019 SERIES NO. 119, MRP NO. CI-8498)**

**SITE/CASE: SKYWORKS SOLUTIONS, INC.
2427 WEST HILLCREST DRIVE, NEWBURY PARK, CALIFORNIA
(SCP NO. 423, SITE ID NO. 2040053)**

Dear Mr. Diaz:

On February 15, 2011, the Los Angeles Regional Water Quality Control Board (Regional Board) enrolled Skyworks Solutions, Inc. in General Waste Discharge Requirements (WDR) R4-2007-0019 "*Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites (File No. 01-116)*".

The WDR Order No. R4-2007-0019 covers the extraction of polluted groundwater with aboveground treatment and the return of treated groundwater to the same aquifer zone. The WDR package included Monitoring and Reporting Program CI No. 8498 (Revised) and a Fact Sheet describing the site and the groundwater treatment and recharge system.

The Regional Board received your letter dated April 29, 2011, indicating that the Fact Sheet lacked information regarding three additional backup recharge wells (R-5, R-6 and R-7) and the replacement of one recharge well (R-3 for R-3A). The Fact Sheet has been revised to accurately describe the recharge system, as you have requested.

California Environmental Protection Agency

Mr. Ernest A. Diaz
Skyworks Solutions, Inc.

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May 26, 2011

If you have any questions regarding this matter, please contact the undersigned at (213) 576-6737 (acastaneda@waterboards.ca.gov), or Dr. Rebecca Chou, Chief of Groundwater Permitting and Land Disposal, at (213) 620-6156 (rzhou@waterboards.ca.gov).

Sincerely,



Angelica Castaneda, D.Env.
Water Resources Control Engineer
Site Cleanup Unit III

Enclosures

1. Fact Sheet (Revised May 26, 2011)

cc: Mr. Kurt Souza, Cal. DHS, Region 5 - So Cal. Branch, Drinking Water Field Operation
Ms. Barbara Council, County of Ventura, Watershed Protection District
Mr. Doug Beach, Ventura County Environmental Health Division, Ventura County
Ms. Joanne Kelly, Resource Division Manager, City of Thousand Oaks
Mr. Troy D. Schulze, Skyworks Solutions, Inc.
Mr. Craig A. Moyer, Manatt, Phelps & Phillips, LLP
Mr. Kurt J. Blust, Haley & Aldrich, Inc.

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 West 4th Street, Suite 200, Los Angeles, California 90013

FACT SHEET (REVISED)
WASTE DISCHARGE REQUIREMENTS
FOR

GROUNDWATER REMEDIATION AT PETROLEUM HYDROCARBON FUEL AND/OR
VOLATILE ORGANIC COMPOUND IMPACTED SITES

SKYWORKS SOLUTIONS, INC

2427 WEST HILLCREST DRIVE, NEWBURY PARK, CALIFORNIA
(SCP NO. 423, SITE ID. NO. 2040053)
ORDER NO. R4-2007-0019, SERIES 119, CI-8498 (Revised)

FACILITY ADDRESS

Skyworks Solutions, Inc.
2421 and 2427 W. Hillcrest Drive
Newbury Park, California 91320

FACILITY MAILING ADDRESS

Mr. Troy Schulze and/or Mr. Ernest Diaz
2427 W. Hillcrest Drive
Newbury Park, California 91320

SITE DESCRIPTION AND BACKGROUND

The Skyworks Solutions, Inc. site (site) is located on the northwest corner of the intersection of Hillcrest Drive and Mitchell Road in Newbury Park, California in Ventura County, at latitude N 34.18056°, longitude W 118.92556°. The Assessor's Parcel Number is 667-0-060-415 (Figure 1).

The site consists of two separate structures, Buildings 886 and 887 (Figure 2). Building 886 was built in 1961 and occupants included Westinghouse (1961-1969), Teller Industries (1969-1972), XTEL (1972-1975), Rockwell (1976-1999), Conexant Systems (1999-2002) and Skyworks Solutions (2002-present). Building 887 was constructed in 1985 by Rockwell with a basement. Due to the shallow groundwater table, a dewatering system (French drain) was installed to prevent basement flooding. Chlorinated volatile organic compounds (cVOCs) were detected in groundwater samples collected from the French drain system in October 1986.

Groundwater from the French drain system has been treated using granular activated carbon (GAC) since at least January 1987. The Regional Board became involved with the site since 1988, when a National Pollutant Discharge Elimination System (NPDES) permit was issued to regulate the discharge of the treated groundwater into the storm drain. The NPDES permit was in effect from 1988 to 2002. In 1992, a recharge well field was installed on the east side of the Skyworks facility to create a hydraulic barrier to prevent migration of impacted groundwater into the treatment system. From 1992 to 2002, municipal water was used for recharge purposes at the site (Figure 1 and Figure 2).

In June 2003, a coverage under *General Waste Discharge Requirements (WDR) for Groundwater Remediation at Petroleum Hydrocarbon Fuel and/or Volatile Organic Compound Impacted Sites R4-2002-0030 (Series No. 016)* was issued by this Regional Board to discharge treated groundwater from

the French drain system by injecting into the recharge wells instead of municipal water. The influent and effluent of the GAC unit, and monitoring wells S-7, S-10, S-12 and S-13 have been sampled under the monitoring and reporting program CI-8498 (Figure 1).

GEOLOGY AND HYDROGEOLOGY

The facility is located near the center of the Conejo Valley. The Conejo Valley is a small basin filled with alluvial sediments over a thick sequence of volcanic rocks. The alluvial sediments are comprised primarily of finer grained clays and silts with interbedded layers/lenses of sand and gravel. The volcanic rocks have been designated the Conejo Volcanics of Tertiary age and are reportedly in excess of several thousand feet thick.

Based on the boring logs from monitoring wells, the site is underlain by approximately 175 to 200 feet of unconsolidated alluvial sediments. These alluvial sediments have been divided, in descending order by depth, into the following hydrogeologic units: 1) Unsaturated Zone, from land surface to the water table ranging from a depth of 11 to 30 feet (depending on the season); 2) Shallow Groundwater Zone, from the water table surface to a depth of 45 to 50 feet; 3) Aquitard Layers/Intermediate Zone, from 50 to 80 feet below ground surface (bgs); and 4) Lower Groundwater Zone, from 80 to approximately 175 feet bgs. The French drain system, installed in the basement of Building 887 collects groundwater from the shallow groundwater in the vicinity of the site.

Prior to the installation of the French drain system in 1985, groundwater flow direction was from west to east. Currently, the groundwater that surrounds Building 887 flows toward the French drain system, which captures shallow contaminated groundwater. Treated aboveground, groundwater is injected in the recharge wells located on the east boundary of the site (wells: R1, R2, R3A, and R4). In addition, three wells (R-5, R-6, and R-7), also located on the east boundary of the site, can be used as a backup or supplemental recharge wells for extra recharge capacity in the event of fouling or well failure of the primary wells (R1, R-2, R3A, and R4). A groundwater ridge formed by the recharge wells prevents groundwater from an adjacent site, east of Mitchell Road, to migrate into the French drain system and provides a closed groundwater loop (Figure 2).

ENVIRONMENTAL ASSESSMENT

The analytical results from the soil and groundwater investigations conducted at the Site confirmed that the soil and groundwater has been impacted with cVOCs, such as trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethylene (DCE), tetrachloroethylene (PCE), 1,1-dichloroethane (1,1-DCA), Freon 113, trichlorofluoromethane, vinyl chloride, and carbon tetrachloride due to industrial operations conducted at the Site. Highest detected soil gas concentrations in micrograms per liter ($\mu\text{g/L}$) were 3,876, 1,174, 762 and 14 for TCE, DCE, TCA and PCE, respectively. Highest detected soil matrix concentrations in micrograms per kilogram ($\mu\text{g/Kg}$) were 700, 140, 69, and less than 5 for TCE, DCE, TCA and PCE, respectively. The source of contamination on the Site is believed to be the two solvent containing concrete underground storage tanks (USTs) located in the corridor between buildings 887 and 886. According to the records, the tanks were abandoned in place in 1984 under the direction of the Ventura County Environmental Health Department.

Since 1987, a total of seventeen groundwater monitoring wells have been installed to assess the extent of groundwater contamination. These wells are screened in the fine grained alluvium sediment.

Fourteen of those wells are considered shallow and reach a maximum depth of 40 feet below ground surface (bgs). The deep wells reach a maximum depth of 121 feet bgs. Groundwater depth beneath the site has ranged from 8 to 30 feet bgs. TCE and DCE have been detected in groundwater at a maximum concentration of 8,700 and 840 µg/L, respectively. These concentrations have decreased over time and in the most recent groundwater monitoring event in November 2010 the maximum concentrations of TCE and DCE detected were 540 and 47 µg/L, respectively. The highest concentrations of cVOCs in groundwater are located between buildings 887 and 886 in proximity to the former USTs.

The emergent chemical, 1,4-dioxane, was initially detected in 2003 in the French drain system at a concentration of 3.8 µg/L. Currently, levels of this chemical have increased to a maximum detected level of 53 µg/L in June of 2007. The granular activated carbon treatment system, used to treat groundwater before re-injection, does not remove 1,4-dioxane. On October 22, 2007 the Regional Board required the evaluation of an appropriate technology for the treatment of 1,4-dioxane (In 2007, the State of California Notification Level for 1,4-dioxane was 3 µg/L. As of December 14, 2010, this Notification Level changed to 1 µg/L).

Skyworks Solutions, Inc. has submitted a request to update its current WDR R4-2002-0030 to include requirements under General WDR R4-2007-0019. The request includes the addition of an ozone/peroxidation system to be used in series and before the existing granular activated carbon treatment.

VOLUME AND DESCRIPTION OF DISCHARGE (INJECTION)

Extracted volumes and chemical characterization of shallow groundwater pumped from the French drain dewatering system at Building 887 have been monitored since April 1987. The annual discharge has ranged from about 1.3 million gallons in 1990 to about 5.3 million gallons in 2005. The French drain has produced groundwater at an average of about 8,300 gallons per day since monitoring of the system began.

Treated groundwater (effluent) from the French drain system has been recharged via a recharge wellfield located along the eastern perimeter of the facility under the *General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel and/or Volatile Organic Compound Impacted Sites R4-2002-0030* since 2004. A total of 21.2 million gallons of treated groundwater have been injected since 2004. The yearly average recharge volume from the French drain system is 3.5 million gallons per year. So far, the total volume of treated groundwater produced by the French drain system has been used for recharge of the wellfield.

Shallow groundwater accumulated in the French drain will be treated above ground with an ozone/peroxidation unit followed by GAC. This treatment targets the destruction/removal of cVOCs and 1,4-dioxane. The system has been optimized to reduce the formation of bromate, a by-product of the ozone/peroxidation.

Chloride up to 642 mg/L and total dissolved solids (TDS) up to 1,640 mg/L have been documented, by the discharger, to occur naturally at levels exceeding the basin plan water quality objectives for the Conejo Valley Groundwater Basin (800 mg/L for TDS and 150 mg/L for chloride). These constituents are not affected by the aboveground treatment system. However, the WDR Order R4-2007-0019

allows these exceedances, as stated on the findings on page 3, as long as the groundwater is returned to the same formation from which is withdrawn.

JUSTIFICATION FOR GENERAL WASTE DISCHARGE REQUIREMENTS

The discharge was regulated under the *General Waste Discharge Requirements Order for Groundwater Remediation At Petroleum Hydrocarbon Fuel, Volatile Organic Compound And/Or Hexavalent Chromium Impacted Sites* (Order R4-2002-0030) and has been in compliance. The only proposed change to the above ground treatment system is the addition of an ozone/peroxidation unit prior to the GAC unit that will enhance the destruction of cVOCs and the emergent chemical 1,4-dioxane.

Treated shallow groundwater will be recharged into the shallow aquifer via a recharge well-field. The extraction of polluted groundwater with above ground treatment and the return of treated groundwater to the same aquifer zone is covered under the Regional Board Order No. R4-2007-0019, "Revised General Waste Discharge Requirements For Groundwater Remediation At Petroleum Hydrocarbon Fuel, Volatile Organic Compound And/Or Hexavalent Chromium Impacted Sites", adopted by this Regional Board on March 1, 2007, including:

- **Discharger must have an approved Remedial Action Plan** – A letter approving the Groundwater Remedial Action Plan was issued on February 11, 2003 by the Regional Board staff.
- **CEQA requirements** – The Regional Board has prepared an Initial Study and Mitigated Negative Declaration for the issuance of these general waste discharge requirements in accordance with the provisions of the California Environmental Quality Act (CEQA).
- **Discharge has a rating of 3-A** – Any potential adverse water quality impacts that may result will be localized, of short-term duration, and will not impact any existing or prospective uses of groundwater. Groundwater quality will be monitored to verify no long-term adverse impact to water quality.
- **Monitoring and reporting** – On June 16, 2003, the Regional Board issued Monitoring and Reporting Program CI No. 8498. A Revised Monitoring and Reporting Program CI No. 8498 will be issued on February 15, 2011 for the Discharger.
- **Application/Annual Fee** – A Form 200 Application was received by our office on June 7, 2010. Since the discharger has been paying an annual fee for the current WDR, there is no need to pay an additional application fee.

Staff recommends that the enrollment of the subject above ground groundwater treatment with re-injection remediation project under General WDR No. R4-2007-0019 is appropriate.