STATE OF CALIFORNIA

PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
2101 WEBSTER STREET, SUITE 500
OAKLAND, CA 94612

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July 14, 1992

Noted 7/20/92

Ms. Barbara Bradley
Kleinfelder
2121 N. California Blvd., Suite 570
Walnut Creek, CA 94596

Dear Ms. Bradley:

SUBJECT: APPLICATION FOR WASTE DISCHARGE REQUIREMENTS FOR INDUSTRIAL ASPHALT, 52 EL CHARRO ROAD, PLEASANTON, ALAMEDA COUNTY

The discharge of extracted and treated groundwater from a groundwater contamination cleanup operation is regulated by this office pursuant to the California Water Code commencing with Section 13260. One cannot reinfiltrate the treated groundwater or leave contaminated soil in place where it will constitute a threat to the quality of the underlying groundwater without first obtaining a permit for Waste Discharge Requirements (WDRs) from this office. The application for such a permit is called a Report of Waste Discharge (ROWD). If the ROWD is accepted and a permit issued by the Regional Board, the site would be treated similar to a closed landfill, including long-term groundwater monitoring. The responsible party would have to comply with Chapter 15 of the California Code of Regulations to the maximum extent feasible.

For the proposed discharge, both the party responsible for the soil and groundwater pollution/cleanup and the owner of the pond receiving the discharge must sign the ROWD. The application must be accompanied by a cover letter from the responsible party (RP) and the pond owner which states the following:

> "I have reviewed the attached proposal or report and, under the penalty of perjury, certify that the information contained therein is true and correct to the best of my knowledge."

The application must be signed by an officer from both companies, at the level of vice-president or higher, or their legally authorized representatives.

The Report of Waste Discharge must include the following items and information (if this information has previously been submitted as part of a feasibility study or remediation investigation it may be referenced. Please include the page numbers and the name and date of the study/report being referenced):

1. Enclosed is an annual fee schedule. Base on preliminary information, Regional Board staff considers the proposed discharge to be a I-a rated discharge ($10,000 annual fee) for the following reason: Groundwater extracted from this site contains toxic waste and, therefore, is a

Category "a" discharge. Discharge of potentially toxic wastewater to a designated recharge reservoir or spreading grounds could cause a long-term loss of a designated beneficial use of the receiving water so it would be a Category "I" discharge. Checks for processing your application and the first year of operation should be made payable to the State Water Resources Control Board and be submitted with your application package.

2. A description of the general background of this site and the objective of the remediation system.

3. The results of a hydrogeologic assessment, including the following elements:

   a) The geology at the site (sand lenses, fractures, etc.), including a geologic map and geologic cross-sections. The cross-sections should show the lithology and structure and include boring logs, screened, casing, and filter pack intervals, soil sample intervals, ground water levels, free product levels, and soil contamination distribution.

   b) The aquifer properties, including pump test and other supporting data. The depth to groundwater, its seasonal fluctuation, aquifer thickness, the groundwater gradient (both rate of movement and direction), including possible vertical components.

   c) What water bodies are hydrologically connected to the groundwater underlying the site, and what are their existing and potential beneficial uses? What are the potential impacts to the beneficial uses of ground and/or surface waters should contaminants migrate to these waters?

   d) Other site features, including: the local topography and estimated surface infiltration rate; average annual precipitation; Is the site capped to prevent surface water infiltration? Is the site irrigated? Is the site located within a 25-year floodplain? Are there any wells located within a 1/2 mile radius of the site and what are they used for?

4. The results of a contaminant assessment, including the following:

   a) Is there free product or a sheen floating on the groundwater? Has there ever been any free product detected at the site? What are the existing concentrations of waste constituents dissolved in the groundwater at the site?

   b) Site maps to scale showing the full extent of the groundwater contamination zone. Supporting laboratory data on groundwater samples must be included.

   c) Site maps to scale showing the full vertical and horizontal extent of the soil contamination zones(s). If the full 3-dimensional extent cannot be determined, the responsible party must explain why. Please include laboratory analytical data sheets, signed boring logs, etc.

   d) The results of chemical analysis of the untreated groundwater (influent) and the projected maximum concentrations in the effluent,

for the following constituents:

i. EPA priority pollutant elements (see Enclosure A).

ii. Those listed in Table #2 for the applicable type of hydrocarbon in the groundwater. For example, if the groundwater is polluted by leaded gasoline, the minimum verification analyses for groundwater would include testing for total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, total xylenes, total lead, and ethylene dibromide.

iii. Volatile organics using EPA Method 624 or 8240 (Purge and Trap GC/MS). All priority pollutants shall be quantified.

iv. Base/Neutral, acid, and pesticide compounds using EPA Method 625 (Extraction GC/MS).

v. EPA Method 8270.

Analyses shall be performed according to the appropriate EPA methods by a certified laboratory.

5. A description of the proposed extraction-treatment-discharge/reinfiltration system, including the following:

a) Site map to scale showing the location of the existing/proposed monitoring wells, extraction wells, treatment system, and reinfiltration gallery(s)/pond(s) (include the latitude and longitude of the reinfiltration gallery/pond). Where applicable, the configuration of the system must be designed with the aim of capturing all of the waste constituents in a "closed loop" system, minimizing the potential for waste constituents to spread.

b) Dimensions and construction details of the reinfiltration gallery/pond. If the depth of the gallery/pond exceeds the largest surface dimension, then the system falls under United States Environmental Protection Agency regulations and the responsible party is required to comply with the Underground Injection Control Program (40 CFR Part 144).

c) The maximum flow rate and the average flow rate of the proposed discharge in gallons per day and the basis for these estimates.

d) A detailed description of the proposed treatment system, including a requirement-by-requirement analysis, based on accepted engineering practice, of how the process and physical design of the treatment facility will ensure compliance with discharge limits which will be imposed by this Board (non-detect for PCBs, TPH-d, BTEX, etc.), a description of each of the unit operations employed in the treatment of the groundwater, schematic of the treatment system, design criteria, and specific calculations (including carbon breakthough time).

e) An Operation and Maintenance (O & M) Manual which include the following: operator staffing and training requirements, the inspection and maintenance schedule, a description of the safeguards to assure that, should there be reduction, loss, or failure of electric power,

the terms and conditions of the WDR permit shall be complied with, and a description of the preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. These plans shall identify the possible sources of accidental loss, untreated or partially treated waste bypass, and polluted drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes shall be considered.

f) A discussion of the potential, temporal, administrative, and physical constraints of operation of the treatment and reinfiltration system.

g) Will anything be added to the groundwater prior to discharge (eg., nitrate, bacteria, peroxide, anti-scaling compounds, etc.)? What will be their concentrations in the proposed discharge? What are their transformation and breakdown products and how would they affect the groundwater with respect to its potential use as a drinking water source and for any other potential beneficial uses? Will any potential reactions occur in which precipitates may form and potentially impede groundwater flow?

6. A proposed groundwater monitoring strategy designed to detect whether any of the waste constituents in the affected groundwater contamination zone are migrating or being pushed away. (Groundwater sampling and analyses will be required on a quarterly basis at a minimum, and more frequently during critical stages of system operation.) The groundwater monitoring proposal should include the following items as a minimum:

   a) site map to scale showing the locations of existing and/or proposed monitoring wells, and their construction details; in addition to downgradient wells, monitoring wells located up- and cross-gradient of the zone of contamination and in the vicinity of the discharge pond/gallery, and appropriately placed in relation to any possible mounding effects are required;

   b) the constituents for which the groundwater would be analysed (eg., BTXE, PCBs, TPH-d, etc.). Analytical methods and detection levels should be included. How would this data be interpreted? That is, if the groundwater in a given monitoring well showed a decrease in contaminant concentration, for example, would this mean the plume is being cleaned up or would it mean the plume is simply dispersing?

   c) A corrective action plan describing the actions that would be taken in the event that monitoring data suggested exceedence of any effluent limits imposed by this Board or that the contaminants were spreading. How quickly after detection could the corrective action program be implemented?

7. A discussion of the quality of the proposed receiving waters. Is the proposed receiving waters a recharge zone, a drinking water source, etc.

8. A discussion of plans for the prevention of run-on, interception and diversion of runoff, and prevention of infiltration and runoff from contaminated soils stored on-site, if the discharge is associated with a groundwater remediation project and soils containing petroleum products or

other pollutants will be maintained on-site.

9. Water balance calculations for the wettest season in ten years and the operational procedures to be followed to prevent overflow or discharge to surface waters from the receiving pond. Surface runoff and other contributing sources that enter the receiving pond must be included in the computations. Please note that the Regional Board will require a minimum of three feet of freeboard to prevent the threat of overflow.

10. The results of a leachability study to determine the leachability of petroleum hydrocarbons and PCBs from soil to groundwater and the amount of retardation of these chemicals in the soil.

11. If the RP propose to leave contaminated soil in place on site, the RP must demonstrate that it is infeasible to remediate/remove the contaminated soil. This demonstration should include the following items as a minimum:

    a) A full description of the relevant technical/economic factors that preclude the RP from restoring the soil to its previously uncontaminated state by treatment and/or excavation.

    b) A description of the actions that the RP has taken, or proposes to take, in order to comply with Subsection (d) of Section 2511 of Chapter 15 of Title 23 of the California Code of Regulations, which provides that remedial actions intended to contain the waste constituents at the place of release shall implement the applicable provisions of Chapter 15 to the extent feasible. To determine which provisions of Chapter 15 are applicable, it will first be necessary for the RP to determine the classification of the waste existing at the site in accordance with Article 2 of Chapter 15.

    c) An evaluation should be made of the potential human and environmental health hazards posed by the residual soil contamination at the site. This risk assessment should include the following items:

        i. Contaminant toxicity as a function of toxicity.

        ii. The physical and chemical character of the contaminant(s), ie., physical state, stability, breakdown products, half-life, density, solubility, mobility, reactivity, biodegrability, etc.

        iii. Present and future usage of the site and surrounding areas.

        iv. Integrity of the contamination containment system, if any.

        v. Possible routes of contaminant exposure.

12. Any additional information necessary to show that the potential and existing beneficial uses of the receiving water (surface and/or groundwater) will not be adversely impacted by the proposed discharge.

If the proposal is to include discharge by spray irrigation, the proposed application rate in gallons per square foot per day must be specified. How many days per week would spray irrigation occur? (There can be no runoff to any surface water body or storm drain, and no discharge during precipitation

events.)

Since the application will contain engineering or geological information, interpretations, or opinions, as specified by the Business and Professions Code, it must be signed and stamped by an appropriately registered professional.

After we have received the application, and contingent upon staff resources and caseload, it will be processed in accordance with its priority relative to other cases after processing, one of the following outcomes may result:

A. Additional information and/or work will be required to complete the application for further processing;

B. The permit application will be rejected and an alternative plan will need to be proposed;

C. A permit will be issued by the Regional Board;

D. Waste Discharge Requirements will be waived pursuant to Section 2511 of Chapter 15, and groundwater monitoring will be required.

You are requested to submit the original application package and <u>two</u> copies.

If you have any questions, please contact me at (510) 464-0554.

Sincerely,

John M. Jang

JOHN M. JANG
Water Resources Control Engineer

Enclosures: ROWD Application Form
Enclosure A (EPA Priority Pollutant Elements)
Table #2 (Recommended Minimum Verification Analysis for Underground Tank Leaks)
Annual Fee Schedule

cc w/ enclosures: Ravi Arulanantham, Alameda County Health Agency

ENCLOSURE A

EPA PRIORITY POLLUTANT ELEMENTS AND CYANIDE

Antimony, total
Arsenic, total
Beryllium, total
Cadmium, total
Chromium, total
Copper, total
Lead, total
Mercury, total
Nickel, total
Selenium, total
Silver, total
Thallium, total
Zinc, total
Cyanide, total

The maximum method detection limit shall be 5.0 ug/l (ppb) for total arsenic, total cadmium, total chromium, total copper, total lead, total selenium (by gaseous hydride), total nickel, total mercury, and total silver.

The maximum method detection limit shall be 10.0 ug/l for total cyanide, total zinc, total antimony, total beryllium, and total thallium.

TABLE #2
REVISED 10 AUGUST 1990

RECOMMENDED MINIMUM VERIFICATION ANALYSES FOR UNDERGROUND TANK LEAKS

HYDROCARBON LEAK	SOIL ANALYSIS	WATER ANALYSIS
Unknown Fuel	TPH G GCFID(5030) TPH D GCFID(3550) BTX&E 8020 or 8240 TPH AND BTX&E 8260	TPH G GCFID(5030) TPH D GCFID(3510) BTX&E 602, 624 or 8260
Leaded Gas	TPH G GCFID(5030) BTX&E 8020 or 8240 TPH AND BTX&E 8260 TOTAL LEAD AA ---Optional--- TEL DHS-LUFT EDB DHS-AB1803	TPH G GCFID(5030) BTX&E 602, 624 or 8260 TOTAL LEAD AA TEL DHS-LUFT EDB DHS-AB1803
Unleaded Gas	TPH G GCFID(5030) BTX&E 8020 or 8240 TPH AND BTX&E 8260	TPH G GCFID(5030) BTX&E 602, 624 or 8260
Diesel	TPH D GCFID(3550) BTX&E 8020 or 8240 TPH AND BTX&E 8260	TPH D GCFID(3510) BTX&E 602, 624 or 8260
Jet Fuel	TPH D GCFID(3550) BTX&E 8020 or 8240 TPH AND BTX&E 8260	TPH D GCFID(3510) BTX&E 602, 624 or 8260
Kerosene	TPH D GCFID(3550) BTX&E 8020 or 8240 TPH AND BTX&E 8260	TPH D GCFID(3510) BTX&E 602, 624 or 8260
Fuel/Heating Oil	TPH D GCFID(3550) BTX&E 8020 or 8240 TPH AND BTX&E 8260	TPH D GCFID(3510) BTX&E 602, 624 or 8260
Chlorinated Solvents	CL HC 8010 or 8240 BTX&E 8020 or 8240 CL HC AND BTX&E 8260	CL HC 601 or 624 BTX&E 602 or 624 CL HC AND BTX&E 8260
Non Chlorinated Solvents	TPH D GCFID(3550) BTX&E 8020 or 8240 TPH AND BTX&E 8260	TPH D GCFID(3510) BTX&E 602 or 624 TPH AND BTX&E 8260
Waste and Used Oil or Unknown (All analyses must be completed and submitted)	TPH G GCFID(5030) TPH D GCFID(3550) TPH AND BTX&E 8260 O & G 5520 D&F BTX&E 8020 or 8240 CL HC 8010 or 8240 ICAP or AA TO DETECT METALS: Cd, Cr, Pb, Zn, Ni METHOD 8270 FOR SOIL OR WATER TO DETECT: PCB* PCP* PNA CREOSOTE	TPH G GCFID(5030) TPH D GCFID(3510) O & G 5520 C&F BTX&E 602, 624 or 8260 CL HC 601 or 624 PCB* PCP* PNA CREOSOTE

*If found, analyze for dibenzofurans (PCBs) or dioxins (PCP)

EXPLANATION FOR TABLE #2: MINIMUM VERIFICATION ANALYSIS

1. OTHER METHODOLOGIES are continually being developed, and as methods are accepted by EPA or DHS, they also can be used.

2. For DRINKING WATER SOURCES, EPA recommends that the 500 series for volatile organics be used in preference to the 600 series because the detection limits are lower and the QA/QC is better.

3. APPROPRIATE STANDARDS for the material stored in the tank are to be used for all analyses on Table #2. For instance, seasonally, there may be five different jet fuel mixtures to be considered.

4. TO AVOID FALSE POSITIVE detection of benzene, benzene-free solvents are to be used.

5. TOTAL PETROLEUM HYDROCARBONS (TPH) as gasoline (G) and diesel (D) ranges (volatile and extractible, respectively) are to be analyzed and characterized by GCFID with a fused capillary column and prepared by EPA method 5030 (purge and trap) for volatile hydrocarbons, or extracted by sonication using 3550 methodology for extractible hydrocarbons. Fused capillary columns are preferred to packed columns; a packed column may be used as a "first cut" with "dirty" samples or once the hydrocarbons have been characterized and proper QA/QC is followed.

6. TETRAETHYLLEAD (TEL) analysis may be required if total lead is detected unless the determination is made that the total lead concentration is geogenic (naturally occurring).

7. CHLORINATED HYDROCARBONS (CL HC) and BENZENE, TOLUENE, XYLENE AND ETHYLBENZENE (BTX&E) are analyzed in soil by EPA methods 8010 and 8020, respectively, (or 8240) and for water 601 and 602, respectively, (or 624).

8. OIL AND GREASE (O & G) may be used when heavy, straight chain hydrocarbons may be present. Infrared analysis by method 418.1 may also be acceptable for O & G if proper standards are used. "Standard Methods" 17th Edition, 1989, has changed the 503 series to 5520.

9. PRACTICAL QUANTITATION REPORTING LIMITS are influenced by matrix problems and laboratory QA/QC procedures. Following are the Practical Quantitation Reporting Limits:

	SOIL PPM	WATER PPB
TPH G	1.0	50.0
TPH D	1.0	50.0
BTX&E	0.005	0.5
O & G	50.0	5,000.0

Based upon a Regional Board survey of Department of Health Services Certified Laboratories, the Practical Quantitation Reporting Limits are attainable by a majority of laboratories with the exception of diesel fuel in soils. The Diesel Practical Quantitation Reporting Limits, shown by the survey, are:

Routine	Modified Protocol
≤ 10 ppm (42%)	≤ 10 ppm (10%)
≤ 5 ppm (19%)	≤ 5 ppm (21%)
≤ 1 ppm (35%)	≤ 1 ppm (60%)

When the Practical Quantitation Reporting Limits are not achievable, an explanation of the problem is to be submitted on the laboratory data sheets

10. LABORATORY DATA SHEETS are to be signed and submitted which include the laboratory's assessment of the condition of the samples on receipt including temperature, suitable container type, air bubbles present/absent in VOA bottles, proper preservation, etc. The sheets are to include the dates sampled, submitted, prepared for analysis, and analyzed.

11. IF PEAKS ARE FOUND, when running samples, that do not conform to the standard, laboratories are to report the peaks, including any unknown complex mixtures that elute at times varying from the standards. Recognizing that these mixtures may be contrary to the standard, they may not be readily identified; however, they are to be reported. At the discretion of the LIA or Regional Board the following information is to be contained in the laboratory report:

    The relative retention time for the unknown peak(s) relative to the reference peak in the standard,
    copies of the chromatogram(s),
    the type of column used,
    initial temperature,
    temperature program in °C/minute, and
    the final temperature.

12. REPORTING LIMITS FOR TPH are: gasoline standard ≤ 20 carbons, diesel and jet fuel (kerosene) standard ≤ 50 carbons. It is not necessary to continue the chromatography beyond the limit, standard, or EPA/DHS method protocol (whichever time is greater).

EPILOGUE

ADDITIVES: Major oil companies are being encouraged or required by the federal government to reformulate gasoline as cleaner burning fuels to reduce air emissions. MTBE (Methyl-tertiary-butyl ether), ETHANOL (ethyl alcohol), and other chemicals may be added to reformulated gasolines to increase the oxygen content in

the fuel and thereby decrease undesirable emissions (about four percent with MTBE). MTBE and ethanol are, for practical purposes, soluble in water. The removal from the water column will be difficult. Other compounds are being added by the oil companies for various purposes. The refinements for detection and analysis for all of these additives are still being worked out. If you have questions about the methodology, please call your Regional Board representative.