DRAFT FINAL RISK MANAGEMENT PLAN
PETALUMA QUARRY PROPERTY
PETALUMA, CALIFORNIA

August 2, 2005

A report prepared for:

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Kleinfelder Job No.: 48912

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TABLE OF CONTENTS

PLATES

TABLES

APPENDICIES

Important Information About Your

Geoenvironmental Report

Geoenvironmental studies are commissioned to gain information about environmental conditions on and beneath the surface of a site. The more comprehensive the study, the more reliable the assessment is likely to be. But remember: Any such assessment is to a greater or lesser extent based on professional opinions about conditions that cannot be seen or tested. Accordingly, no matter how many data are developed, risks created by unanticipated conditions will always remain. *Have realistic expectations.* Work with your geoenvironmental consultant to manage known and unknown risks. Part of that process should already have been accomplished, through the risk allocation provisions you and your geoenvironmental professional discussed and included in your contract's general terms and conditions. This document is intended to explain some of the concepts that may be included in your agreement, and to pass along information and suggestions to help you manage your risk.

Beware of Change; Keep Your Geoenvironmental Professional Advised

The design of a geoenvironmental study considers a variety of factors that are subject to change. Changes can undermine the applicability of a report's findings, conclusions, and recommendations. *Advise your geoenvironmental professional about any changes you become aware of.* Geoenvironmental professionals cannot accept responsibility or liability for problems that occur because a report fails to consider conditions that did not exist when the study was designed. Ask your geoenvironmental professional about the types of changes you should be particularly alert to. Some of the most common include:

- modification of the proposed development or ownership group,
- sale or other property transfer,
- replacement of or additions to the financing entity,
- amendment of existing regulations or introduction of new ones, or
- changes in the use or condition of adjacent property.

Should you become aware of any change, *do not rely on a geoenvironmental report.* Advise your geoenvironmental professional immediately; follow the professional's advice.

Recognize the Impact of Time

A geoenvironmental professional's findings, recommendations, and conclusions cannot remain valid indefinitely. The more time that passes, the more likely it is that important latent changes will occur. *Do not rely on a geoenvironmental report if too much time has elapsed since it was completed.* Ask your environmental professional to define "too much time." In the case of Phase I Environmental Site Assessments (ESAs), for example, more than 180 days after submission is generally considered "too much."

Prepare To Deal with Unanticipated Conditions

The findings, recommendations, and conclusions of a Phase I ESA report typically are based on a review of historical information, interviews, a site "walkover," and other forms of noninvasive research. When site subsurface conditions are not sampled in any way, the risk of unanticipated conditions is higher than it would otherwise be.

While borings, installation of monitoring wells, and similar invasive test methods can help reduce the risk of unanticipated conditions, *do not overvalue the effectiveness of testing.* Testing provides information about actual conditions only at the precise locations where samples are taken, and only when they are taken. Your geoenvironmental professional has applied that specific information to develop a general opinion about environmental conditions. *Actual conditions in areas not sampled may differ (sometimes sharply) from those predicted in a report.* For example, a site may contain an unregistered underground storage tank that shows no surface trace of its existence. *Even conditions in areas that were tested can change,* sometimes suddenly, due to any number of events, not the least of which include occurrences at

adjacent sites. Recognize, too, that *even some conditions in tested areas may go undiscovered,* because the tests or analytical methods used were designed to detect only those conditions assumed to exist.

Manage your risks by retaining your geoenvironmental professional to work with you as the project proceeds. Establish a contingency fund or other means to enable your geoenvironmental professional to respond rapidly, in order to limit the impact of unforeseen conditions. And to help prevent any misunderstanding, identify those empowered to authorize changes and the administrative procedures that should be followed.

Do Not Permit Any Other Party To Rely on the Report

Geoenvironmental professionals design their studies and prepare their reports to meet the specific needs of the clients who retain them, in light of the risk management methods that the client and geoenvironmental professional agree to, and the statutory, regulatory, or other requirements that apply. The study designed for a developer may differ sharply from one designed for a lender, insurer, public agency...or even another developer. *Unless the report specifically states otherwise, it was developed for you and only you.* Do not unilaterally permit any other party to rely on it. The report and the study underlying it may not be adequate for another party's needs, and you could be held liable for shortcomings your geoenvironmental professional was powerless to prevent or anticipate. Inform your geoenvironmental professional when you know or expect that someone else—a third-party—will want to use or rely on the report. *Do not permit third-party use or reliance until you first confer with the geoenvironmental professional who prepared the report.* Additional testing, analysis, or study may be required and, in any event, appropriate terms and conditions should be agreed to so both you and your geoenvironmental professional are protected from third-party risks. *Any party who relies on a geoenvironmental report without the express written permission of the professional who prepared it and the client for whom it was prepared may be solely liable for any problems that arise.*

Avoid Misinterpretation of the Report

Design professionals and other parties may want to rely on the report in developing plans and specifications. They need to be advised, in writing, that their needs may not have been considered when the study's scope was developed, and, even if their needs were considered, they might misinterpret geoenvironmental findings, conclusions, and recommendations. *Commission your geoenvironmental professional to explain pertinent elements of the report to others who are permitted to rely on it, and to review any plans, specifications or other instruments of professional service that incorporate any of the report's findings, conclusions, or recommendations.* Your geoenvironmental professional has the best understanding of the issues involved, including the fundamental assumptions that underpinned the study's scope.

Give Contractors Access to the Report

Reduce the risk of delays, claims, and disputes by giving contractors access to the full report, *providing that it is accompanied by a letter of transmittal that can protect you* by making it unquestionably clear that: 1) the study was not conducted and the report was not prepared for purposes of bid development, and 2) the findings, conclusions, and recommendations included in the report are based on a variety of opinions, inferences, and assumptions and are subject to interpretation. Use the letter to also advise contractors to consult with your geoenvironmental professional to obtain clarifications, interpretations, and guidance (a fee may be required for this service), and that—in any event—they should conduct additional studies to obtain the specific type and extent of information each prefers for preparing a bid or cost estimate. Providing access to the full report, with the appropriate caveats, helps prevent formation of adversarial attitudes and claims of concealed or differing conditions. If a contractor elects to ignore the warnings and advice in the letter of transmittal, it would do so at its own risk. Your geoenvironmental professional should be able to help you prepare an effective letter.

Do Not Separate Documentation from the Report

Geoenvironmental reports often include supplemental documentation, such as maps and copies of regulatory files, permits, registrations, citations, and correspondence with regulatory agencies. If subsurface explorations were performed, the report may contain final boring logs and copies of laboratory data. If remediation activities occurred on site, the report may include: copies of daily field reports; waste manifests; and information about the disturbance of subsurface materials, the type and thickness of any fill placed on site, and fill placement practices, among other types of documentation. *Do not separate supplemental documentation from the report. Do not, and do not permit any other party to redraw or modify any of the supplemental documentation for incorporation into other professionals' instruments of service.*

Understand the Role of Standards

Unless they are incorporated into statutes or regulations, standard practices and standard guides developed by the American Society for Testing and Materials (ASTM) and other recognized standards-developing organizations (SDOs) are little more than aspirational methods agreed to by a consensus of a committee. The committees that develop standards may not comprise those best-qualified to establish methods and, no matter what, no standard method can possibly consider the infinite client- and project-specific variables that fly in the face of the theoretical "standard conditions" to which standard practices and standard guides apply. In fact, these variables can be so pronounced that geoenvironmental professionals who comply with every directive of an ASTM or other standard procedure could run afoul of local custom and practice, thus violating the standard of care.

Accordingly, when geoenvironmental professionals indicate in their reports that they have performed a service "in general compliance" with one standard or another, it means they have applied professional judgement in creating and implementing a scope of service designed for the specific client and project involved, and which follows some of the general precepts laid out in the referenced standard. To the extent that a report indicates "general compliance" with a standard, you may wish to speak with your geoenvironmental professional to learn more about what was and was not done. *Do not assume a given standard was followed to the letter.* Research indicates that that seldom is the case.

Realize that Recommendations May Not Be Final

The technical recommendations included in a geoenvironmental report are based on assumptions about actual conditions, and so are preliminary or tentative. Final recommendations can be prepared only by observing actual conditions as they are exposed. For that reason, you should retain the geoenvironmental professional of record to observe construction and/or remediation activities on site, to permit rapid response to unanticipated conditions. *The geoenvironmental professional who prepared the report cannot assume responsibility or liability for the report's recommendations if that professional is not retained to observe relevant site operations.*

Understand That Geotechnical Issues Have Not Been Addressed

Unless geotechnical engineering was specifically included in the scope of professional service, a report is not likely to relate any findings, conclusions, or recommendations about the suitability of subsurface materials for construction purposes, especially when site remediation has been accomplished through the removal, replacement, encapsulation, or chemical treatment of on-site soils. The equipment, techniques, and testing used by geotechnical engineers differ markedly from those used by geoenvironmental professionals; their education, training, and experience are also significantly different. If you plan to build on the subject site, but have not yet had a geotechnical engineering study conducted, your geoenvironmental professional should be able to provide guidance about the next steps you should take. The same firm may provide the services you need.

Read Responsibility Provisions Closely

Geoenvironmental studies cannot be exact; they are based on professional judgement and opinion. Nonetheless, some clients, contractors, and others assume geoenvironmental reports are or certainly should be unerringly precise. Such assumptions have created unrealistic expectations that have led to wholly unwarranted claims and disputes. To help prevent such problems, geoenvironmental professionals have developed a number of report provisions and contract terms that explain who is responsible for what, and how risks are to be allocated. Some people mistake these for "exculpatory clauses," that is, provisions whose purpose is to transfer one party's rightful responsibilities and liabilities to someone else. Read the responsibility provisions included in a report and in the contract you and your geoenvironmental professional agreed to. *Responsibility provisions are not "boilerplate."* They are important.

Rely on Your Geoenvironmental Professional for Additional Assistance

Membership in ASFE exposes geoenvironmental professionals to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a geoenvironmental project. Confer with your ASFE-member geoenvironmental professional for more information.

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1.0 INTRODUCTION

Kleinfelder Inc., (Kleinfelder) has prepared this risk management plan (RMP) for the Petaluma Quarry Property, which is located at 1500 and 1600 Petaluma Boulevard South, Petaluma, California and referred to herein as the "Site" (Plate 1). This plan is submitted on behalf of South Petaluma Partners, LLC who plans to redevelop the Site. Redevelopment plans include residential units consisting of single-family homes, duplexes and town homes, live-work lofts, several parking lots, and appurtenant streets.

1.1 SITE SETTING

The Site is composed of two properties on either side of Petaluma Boulevard South. One property, called the quarry property, is approximately forty-three acres and located on the south side of Petaluma Boulevard at 1600 Petaluma Boulevard South. The other property, called the landing property, is approximately 3½ acres and located on the north side of Petaluma Boulevard at 1500 Petaluma Boulevard South (Plate 1). The quarry property topography ranges from gently sloping to steeply sloping while the landing property is relatively flat. The Site is located in a commercial setting.

According to the conceptual grading/development plan prepared by CSW/Stuber-Stroeh, residential development on the quarry property will include infilling of the central pit with up to approximately 100 to 120 feet of fill and cuts up to 70 feet creating relatively flat building areas with intermittent slopes.

The redevelopment schedule has very recently been changed for the landing property. The asphalt batching plant will be relocated from the quarry to the landing property and will operate there for at least one year. As a beneficial result, the asphalt batch plant will be available to recycle some of the petroleum hydrocarbon-impacted soil proposed for remediation or

encountered during construction activities on the quarry property. An RMP will be prepared for the landing property under separate cover when this area is developed in the future.

1.2 PURPOSE OF THIS WORK PLAN

The purpose of this RMP is to identify general requirements and guidelines for the management and disposal of soil and groundwater with chemicals at concentrations above action levels that could potentially be encountered during construction activities on the quarry property. Once the remedial activities have been completed, all known areas of contamination will have been remediated. However, this plan also addresses the unlikely possibility of encountering residual soil contamination on the quarry property during post remediation excavation activities such as during installation of utilities or a swimming pool. A plan to address contamination if encountered during post-development excavation activities, is presented in Section 6.0.

The primary chemicals of concern in soil and groundwater at this Site are petroleum hydrocarbons. This plan contains a summary of the known chemicals detected at the Site, general requirements for working at the Site, a list of key construction personnel and appropriate training for the personnel, recommendations for health and safety requirements, and recommendations on characterizing, handling, storing, and disposing of soil and groundwater with chemical concentrations above action levels.

SITE HISTORY

The Site has been developed for use as a quarry since at least the early 1900s. According to historical records and title reports, San Rafael Rock Quarry purchased the Site from American Rock, Inc. sometime in the early 1990s. While rock mining operations ceased in about 1993, the Site currently supports aggregate storage, classification, and sale; settling pond; and asphalt production activities. Offices, an asphalt plant, settling ponds, various above ground storage tanks (ASTs) associated with Site operations, and concrete recycle piles currently occupy the Site (Plate 1).

Historic Site features include a vehicle and equipment maintenance shop, wash plants, crushing plants, a brick plant, reduction plants, asphalt plants, concrete recycling plants, and settling ponds (Plate 1). The principal locations where operations occurred moved over time as the quarry developed and grew.

1.4 SUMMARY OF PREVIOUS INVESTIGATIONS

Phase I Environmental Site Assessment

Kleinfelder's Phase I Environmental Site Assessment (ESA) *(Phase I Environmental Site Assessment, Dutra Property, Petaluma, California October 3, 2003)* revealed Recognized Environmental Conditions that included past surface releases of petroleum hydrocarbons, surface soil staining beneath and adjacent to petroleum hydrocarbon ASTs, and a leaking diesel fuel AST. Other potential concerns identified by the Phase I ESA included its historic industrial use, which involved the use of wash plants, crushing plants, a brick plant, reduction plants, asphalt plants, concrete recycling plants, and settling ponds.

Phase II ESA and Supplementary Soil Investigation

Based on the results of the *Phase I ESA*, Kleinfelder conducted a Phase II soil and groundwater investigation (*Phase II Environmental Site Assessment, Dutra Properties, 1500 & 1600 Petaluma Blvd. South, Petaluma, California, February 18, 2004*) to assess potential releases from historical operations at the Site. Fourteen soil borings (KB-1 through KB-14) and 33 test pits (TP-1 through TP-23, TP-23A, and TP-24 through TP-32) were completed during this investigation. The locations of the soil borings and test pits from which soil samples were collected are shown on Plate 1. Results of soil and grab groundwater samples collected during this investigation are presented on Tables 1 and 2, respectively. As shown on these tables and on Tables 3 and 4 discussed below, results are compared to San Francisco Regional Water Quality Control Board (SFRWQCB) Environmental Screening Levels (ESLs). The justification for selecting the SFRWQCB ESLs as soil action levels for the Site is discussed in Section 5.1.1.

In March 2004, Kleinfelder conducted a follow-up investigation (*Report of Supplementary Soil Characterization, Dutra Quarry Property, 1600 Petaluma Boulevard South, Petaluma, California, May 21, 2004*) to the Phase II ESA to further define the vertical and horizontal extent of petroleum hydrocarbon contamination in soil at two adjacent areas on the quarry property. Twenty-one test pits (TP-40 through TP-60) were completed during this investigation (Plate 2). Results of soil samples collected during this investigation are presented on Table 3.

The *Phase II ESA* and *Supplementary Soil Characterization* investigations revealed the following:

1. An area where diesel fuel has impacted shallow soil just east of the asphalt plant where a dripping AST was observed. Concentrations of total petroleum hydrocarbons quantified as diesel (TPH-d) exceed 2,500 milligrams per kilogram (mg/kg).
2. Heavy-end hydrocarbons impact shallow soil around the asphalt plant. Concentrations of total petroleum hydrocarbons quantified as motor oil (TPH-mo) exceed 2,100 mg/kg.

The diesel fuel appears to affect soil within an area approximately 80-feet-long by 40-feet-wide (Plate 2). The release appears to be limited to a 5-foot depth where hard, coherent, impermeable bedrock is encountered. The heavy-end hydrocarbons appear to be restricted to the upper 2 feet of the soil profile within an area of approximately 80-feet-wide by 160-feet-long (Plate 2). Kleinfelder has prepared a Remedial Action Plan (RAP) *(Draft Final Remedial Action Plan, Petaluma Quarry Property, 1600 Petaluma Boulevard South, Petaluma, California, dated August 2, 2005)* that discusses proposed soil excavation activities in the hydrocarbon-contaminated areas on the quarry property. As discussed in the RAP, these areas are slated for excavation and remediation.

Results of the *Phase II ESA* investigation also revealed four additional areas on the quarry property that have been impacted to a lesser extent by petroleum hydrocarbons:

- In the vicinity of the former concrete recycling plant (TP-10) at a depth of approximately 5-feet.
- In the vicinity of the gasoline AST (TP-18) at a depth of approximately 1 foot.
- In the vicinity of the waste and hydraulic oil ASTs (TP-19) at a depth of approximately 1 foot.
- In the vicinity of the "release oil" AST (test pit TP-20) to a depth of at least 5 feet.

As discussed in the RAP, these areas have also been slated for excavation and remediation.

On the landing property, the *Phase II ESA* investigation revealed that near surface soil in the vicinity of TP-11, TP-13, and TP-14 have also been impacted to a lesser extent by petroleum hydrocarbons. However, a separate RAP will be prepared for the landing property when it is developed in the future.

The Phase II investigation concluded that metals' concentrations were at low levels consistent with background concentrations. However, one elevated nickel concentration (1,600 mg/kg; ESL for nickel is 150 mg/kg) was detected in the near surface soil sample collected on the quarry property in the vicinity of the crushing plant (Test Pit TP-7; Plate 1). This area will be further tested to evaluate whether limited soil excavation is required near TP-7, or if the previous results are anomalous. Proposed testing in this area is discussed in Kleinfelder's *Draft Final RAP*. A second elevated nickel concentration (200 mg/kg) was detected in the near surface soil sample collected on the landing property in the vicinity of Test Pit TP-11 (Plate 1). As discussed above, petroleum hydrocarbons have also impacted the near surface in the vicinity of Test Pit TP-11 and a separate RAP for the landing property will be prepared in the future to address these issues.

The Phase II investigation also concluded that the low concentrations of TPH in shallow groundwater in the northwestern portion of the quarry property and on the landing property are not related to Site operations (likely due to an off-site source based on flow directions and the distribution of detections) and, regardless of source, are below levels of concern for residential development. No groundwater remediation is recommended or planned for the Site. However, the SFRWQCB is requiring that a deed restriction be developed for the Site that prohibits the installation of domestic wells.

Naturally Occurring Asbestos Assessment

On January 24, 2005, Kleinfelder collected 18 samples at the Site and analyzed them for naturally occurring asbestos (NOA) fibers. The purpose of this investigation was to evaluate whether NOA exists at the Site. Geologic environments targeted for sampling included

Franciscan Complex rocks and adjacent soils including two serpentinite rock outcrops and the soil adjacent to these outcrops. The results of the investigation are presented in a report titled *Naturally Occurring Asbestos Assessment, Dutra Property, Petaluma, California*, and dated March 24, 2005.

The NOA samples were analyzed by California Air Resources Board (CARB) Method 435. Quantification of asbestos concentrations was obtained under polarizing light microscope (PLM) using the standard CARB Method 435 point count protocol. PLM analyses detected chrysotile asbestos in 1 of the 4 rock samples and in 1 of the 14 soil samples. Asbestos levels in the rock and soil sample were 1.95% and 0.98%, respectively.

The asbestos containing rock sample was collected from the serpentinite outcrop located on the southeastern slope of the central pit (see Plate 1 for the location of the central pit). This serpentinite outcrop extends from an elevation of approximately 35 to 75 feet mean sea level (msl). The asbestos containing soil sample was collected directly downslope of this outcrop. Development in this area will result in the burial of this serpentinite outcrop under approximately 25 (at the lowest elevation of the outcrop) to 65 feet (at the highest elevation of the outcrop) of fill. NOA is to be managed as described in the Site-specific Asbestos Dust Mitigation Plan (see discussion is Section 4.4).

A Deed Restriction that will be prepared separately after remediation activities have been completed on the quarry property will prohibit excavation into the NOA-bearing serpentinite body.

Central Pit/Pond Water Sample

At the request of the SFRWQCB, a water sample was collected from the central pit (see Plate 1 for the location of the central pit) to evaluate whether hazardous materials may have been disposed there during past operations at the quarry. The sample was analyzed for TPH-d, TPH-mo, total petroleum hydrocarbons as gasoline (TPH-g), and volatile organic compounds (VOCs). None of these constituents were detected above the laboratory reporting limits.

Supplemental Soil Investigation

A supplemental soil investigation (*Supplemental Soil Investigation Results, Petaluma Quarry Property, 1600 Petaluma Boulevard South, Petaluma, California, May 11, 2005*) was conducted at the Site in April 2005 to acquire additional analytical data requested by the SFRWQCB including:

- Polynuclear aromatic hydrocarbons (PAHs or PNAs) data.
- Polychlorinated biphenyls (PCBs) data.
- Arsenic data.
- Hexavalent chromium data, in particular, at those locations where elevated total chromium concentrations (that is, above the Environmental Screening Levels [ESLs]) were detected in previous investigations.

On April 27, 2005, Kleinfelder collected near surface soil samples at sample locations DG-1 through DG-11, which are shown on Plate 1. Areas targeted for sampling include former locations of the maintenance shop, settling ponds, asphalt plant, concrete recycling plant, concrete crushing plant, brick plant, and the current locations of the concrete piles and release oil above-ground storage tank.

Soil samples were collected just below the surface (i.e., at 2 to 8 inches below ground surface [bgs]) and at a depth of 1 to 1.5 feet bgs at each location. Each sample was analyzed for the following constituents:

- PAHs by United States Environmental Protection Agency (USEPA) Method 8310.
- PCBs by USEPA Method 8082A.
- Arsenic by USEPA Method 6020A.

In addition, the samples from locations DG-2 and DG-4 were analyzed for hexavalent chromium (by USEPA Method 218.6) because elevated total chromium concentrations were detected in these areas during previous investigations at the Site.

The results of the chemical analyses performed on the samples are summarized on Table 4. As indicated on the table, arsenic was the only constituent detected above the indicated reporting limits. The concentration of arsenic ranged from 1.2 (1 to 1.5 feet bgs sample from location

DG-3) to 10 (1 to 1.5 feet bgs sample from location DG-7) mg/kg. The average concentration of arsenic was 3.2 mg/kg, which is well below the ESL of 5.5 mg/kg. In addition, studies of background levels for metals indicated that arsenic can range from 5.29 to 23.7 mg/kg in a Bay Area marsh study (*Lee et al., 1992*), 1 to 50 mg/kg for various soils (*Lindsay, 1972*), and 2.87 to 10.9 in a 1988 USEPA study. Considering that only one out of 22 soil samples exceeded the ESL, the overall arsenic concentrations in soil at the Site are unlikely to exceed action levels.

2.0 PERSONNEL AND TRAINING

2.1 PERSONNEL

During construction activities, all contractors and subcontractors must identify three key personnel who understand the environmental hazards associated with potential contamination. These personnel are responsible for implementing and overseeing the protective measures of their health and safety plans (HASP) and identifying the appropriate levels of training for personnel. The roles of each of these personnel are described below.

2.1.1 Certified Industrial Hygienist

A Certified Industrial Hygienist (CIH) must prepare, sign, and oversee the implementation of the contractor's Site-specific HASP.

2.1.2 Project Manager

The Project Manager is responsible for directing and controlling all Site activities and is solely responsible for enforcing onsite compliance with the provisions of the Site HASP. The Project Manager is responsible for training Site personnel to identify hazardous materials that may be encountered in the field and what steps should be taken to characterize and mitigate the hazards. The Project Manager is also responsible for obtaining proper permitting for disposal of the waste, and documentation and maintenance of records related to hazardous materials.

2.1.3 Site Safety Officer

A Site Safety Officer (SSO) shall be designated to coordinate all aspects of the Site health and safety activities. The SSO should be a CIH, Certified Safety Professional, or a person with the appropriate training. The SSO may have other duties in addition to safety. The SSO duties include, but are not limited to:

- Monitoring the breathing zone of Site personnel during work activities in contaminated areas.

- Determining the level of respiratory protection required for the work activity in contaminated areas.
- Conducting site safety meetings that all on-site personnel shall be required to attend.
- Maintaining, inspecting, and controlling an adequate inventory of safety equipment at the Site.
- Monitoring any Site decontamination.

2.2 TRAINING

All contractors and subcontractors must be responsible for ensuring that Site personnel who are exposed to hazardous substances, health hazards, or safety hazards, their supervisors, and management responsible for the Site work should receive appropriate training in accordance with local, state, and federal regulations. This may include 24- or 40-hour HAZWOPER training as specified in 29 U.S. Code of Federal Regulations (CFR) 1910.120(e) in the federal Occupational Safety and Health Administration (OSHA) requirements. The contractors and subcontractors are responsible for the identification and implementation of the appropriate training of their employees.

Before working at the Site, all workers should attend an appropriate safety training session informing them of the hazards and possible contaminates that may be encountered. The safety training session should inform the workers on methods for identification of potentially hazardous materials that may be encountered during construction, and procedures for segregation and management of contaminated materials. The workers should also be informed of the proper personnel protective equipment (PPE) that should be worn if contamination is encountered.

3.0 POTENTIAL SOIL AND GROUNDWATER CONTAMINANTS

Site personnel may potentially be exposed to contaminated and/or hazardous material during construction activities on the quarry property. The following sections summarize the chemicals that may be encountered based on the results of the previous investigations.

3.1 SOIL

Organic and inorganic chemicals detected in soil during previous investigations on the quarry property include the following:

Chemical	Concentration in Milligrams per Kilogram	Location of Maximum Concentration
TPH-d	8,700	Test Pit TP-16
TPH-mo	5,900	Test Pit TP-16
TPH-g	2,200	Test Pit TP-16
Benzene	0.017	Test Pit TP-16
Toluene	2.0	Test Pit TP-16
Ethylbenzene	4.4	Test Pit TP-16
Total Xylenes	18	Test Pit TP-16
Naphthalene	8.2	Test Pit TP-16
1,2,4-Trimethylbenzene	13	Test Pit TP-16
Sec-Butylbenzene	1.8	Test Pit TP-16
Isopropyl Benzene	1.2	Test Pit TP-16
N-Propyl Benzene	2.6	Test Pit TP-16
1,3,5-Trimethylbenzene	3.2	Test Pit TP-16
N-Butylbenzene	0.11	Test Pit TP-17
Chromium	140	Test Pit TP-10 and Boring K-8
Lead	21	Test Pit TP-19
Nickel	1,600	Test Pit TP-7
Zinc	110	Test Pit TP-7
Arsenic	10	Location DG-7

3.2 GROUNDWATER

The only groundwater sample collected on the quarry property during previous investigations was a grab sample from Boring K-9, which was drilled in the northwest corner of this area (Plate 1). Constituents detected in this sample included the following:

- TPH-d at a concentration of 330 micrograms per liter (µg/l).
- TPH-mo at a concentration of 540 µg/l.
- Trichloroethene (TCE) at a concentration of 0.59 µg/l.

A water sample was collected from the central pit/pond in February 2005 and analyzed for TPH-d, TPH-mo, TPH as asphalt, TPH-g, and VOCs. No constituents were detected above the laboratory reporting limits.

4.0 HEALTH AND SAFETY REQUIREMENTS

4.1 SITE HEALTH AND SAFETY PLAN

The Contractor/Subcontractor shall provide and maintain an effective hazardous and contaminated substance HASP that will be used when contaminated media is handled. The plan should conform to any and all applicable regulations in 29 CFR 1910.120, including the use of appropriately trained Site workers, monitoring and identification of contaminated media, Site health and safety officer's authorities and responsibilities, and health and safety briefings for applicable Site personnel.

All contractors, subcontractors, vendors, suppliers, etc. shall be responsible for their own individual company HASP and shall perform their work in a safe and healthful manner in accordance with the requirements of their contract and all applicable health, safety, and environmental federal, state, and local regulations. In order to achieve a safe working environment, the Owner and Construction Manager shall require the cooperation of the contractors/subcontractors.

It shall be the responsibility of the contractor/subcontractor to initiate and maintain such programs as may be necessary to comply with OSHA regulations as found in the CFR, Volume 29. Contractors/subcontractors have the primary responsibility to provide a safe and healthful work environment for their employees.

4.2 PERSONAL PROTECTIVE EQUIPMENT

It is expected that all Site personnel will be required to wear appropriate personal protective equipment in the field. At a minimum, this may include an approved hardhat, reflective safety vest, and steel-toed boots. The contractor's CIH will be responsible for the identification of the appropriate level of protective equipment. Typical levels of protective equipment are outlined below.

Personnel working in areas with potential hazardous materials may wear Modified Level D PPE, which includes:

- The minimum PPE stated above.
- Nitrile or latex gloves (surgical type, if there is a chance that a worker will come in physical contact with contaminants).
- TYVEK® coveralls for extra skin protection (if there is any chance a worker will come in physical contact with contaminants).

If airborne levels of contaminants exceed the action level established by the contractor's Site HASP, the PPE may be upgraded to Level C, which includes:

- Modified Level D, as described above.
- Half-face air purifying respirator with an organic vapor/P100 particulate filters.

4.3 PERSONNEL MONITORING

The contractor's CIH will determine the appropriate personnel monitoring equipment. Examples of monitoring equipment are listed below:

- Total petroleum hydrocarbons and VOCs can be monitored with a photoionization detector (PID).
- Dust emissions can be monitored using a MiniRAM.

4.4 DUST CONTROL

Because of the potential for encountering NOA from serpentinite rock bodies during cut and fill operations, a Site-specific Asbestos Dust Mitigation Plan has been developed and approved by the Bay Area Air Quality Management District (BAAQMD) and Sonoma County Permit & Resource Management District (PRMD). The Plan has strict guidelines to control the emissions of dust during construction activities. The primary method of controlling dust will be through the application of water.

5.0 MANAGEMENT OF CONTAMINATED SOIL AND GROUNDWATER

The following sections present procedures to be used to identify and manage soil and groundwater contamination that, however unlikely, could potentially be encountered during construction activities on the quarry property.

5.1 SOIL

Earth moving construction activities will include cut and fill operations, grading, surface and subsurface drainage work, and construction of retaining walls. To create relatively flat building areas with intermittent slopes on the quarry property, cut and fill operations call for infilling of the central pit/pond with up to approximately 100 to 120 feet of fill, and cuts up to 70 feet in some other areas.

5.1.1 Soil Action Levels

The objective of remedial actions that may be necessary during construction activities are to remove soils with chemical concentrations above action levels that would cause concerns to human health or the environment, and, in doing so, remediate the area of concern. The SFRWQCB has developed ESLs for common chemical contaminants to evaluate risk at sites where releases have occurred.

Residential land use ESLs presented on the SFRWQCB lookup Table B (see Appendix B) have been selected for use at the Site. The values on this lookup table are designed for shallow soils within 3 meters of ground surface at residential sites where groundwater is not considered a current or potential drinking water resource. Use of this table is considered appropriate because:

- Future plans for the Site include construction of single-family residential homes.
- It is Kleinfelder's opinion that only shallow soil has been impacted from Site operations.
- Groundwater in the vicinity of the northern portion of the Site adjacent to the Petaluma River is brackish and, therefore, not a current or potential drinking water resource. Sustained groundwater pumping would likely cause brackish water intrusion from the

Petaluma River and would likely have total dissolved solids' levels in excess of the State drinking water standard of 3,000 milligrams per liter (mg/l).

- Groundwater in the southern portion of the Site is underlain by relatively impermeable bedrock so there is no real infiltration of groundwater occurring. Groundwater encountered in borings drilled in the southern portion of the Site appears to occur as localized perched groundwater on bedrock. Therefore, for the larger southern portion of the Site, groundwater is likely not a sustainable resource.

Based on this ESL lookup table, soil from the impacted areas that contains constituents in excess of the indicated removal criteria requires remediation.

REMOVAL CRITERIA

Constituent	Target Concentrations
TPH – mo	500 mg/kg
TPH – d	100 mg/kg
TPH – g	100 mg/kg
Benzene	0.18 mg/kg
Toluene	9.3 mg/kg
Ethylbenzene	32 mg/kg
Total Xylenes	11 mg/kg

5.1.2 Identification of Soil Contamination

Petroleum and VOCs

Physical properties of petroleum-contaminated soils include black, dark gray, gray-green, or bluish discoloration of the soil and an odor. Field instruments, such as a PID, can be used for screening for the presence of VOCs that may be part of petroleum products. Potential hazards can result from dermal contact, inhalation of vapors, and ingestion.

Metals

Metals are not readily apparent through visual observation unless they are in a physically distinctive material such as fill that may have a different texture and color from the native soil.

Although metals are not readily apparent in the field, previous investigations indicated that, other than the potential for elevated nickel in the vicinity of the crushing plant (Test Pit TP-7; Plate 1), elevated metals' concentrations are not likely to be encountered elsewhere on the quarry property.

5.1.3 Characterization of Contaminated Soils

Samples will be collected at the location of the suspected soil contamination and also along the potential lateral limits of the area to assess its extent. A minimum of five samples will be collected, one from each side and one from the center of the suspected contamination. Depending upon the size of the affected area, additional samples may need to be collected. The samples will be collected by driving a clean stainless steel or brass tube into the soil. The sample tube will be removed, sealed on both ends with Teflon-lined plastic caps, appropriately labeled, stored in a cooler with ice, and transported under chain-of-custody procedures to a state-certified analytical laboratory. Samples will be analyzed for the following:

- TPH-d and TPH-mo using modified USEPA Test Method 8015 with a silica gel strip.
- TPH-g using USEPA Test Method 8015.
- VOCs using USEPA Method 8260B.
- PAHs by USEPA Method 8310.
- Leaking Underground Fuel Tank (LUFT) Metals using USEPA Test Method 6010.
- Arsenic by USEPA Method 6020A.

The soil sample results will be compared to the soil action levels discussed in Section 5.1.1. If the analytical results are below the soil action levels, no further action will be required and work can resume in the area. If the levels exceed the soil action levels, the procedures described in Section 5.1.4 will be implemented.

5.1.4 Soil Excavation Procedures

Excavation of contaminated soil will continue until PID readings and visual observations suggest that the contamination has been removed. Soil confirmation samples will be collected at a rate of one every 20 linear feet of excavation along each sidewall and on a 20-foot grid across the

floor of the excavation. Samples will be collected and handled as described above in Section 5.1.3. The confirmation soil samples will be analyzed for any constituents that exceeded the ESLs in the initial set of samples to confirm that soil concentrations are below the ESLs. If the ESLs are still exceeded, additional soil will be excavated and the excavation surfaces retested.

5.1.5 Contaminated Soil Handling and Disposal Procedures

Upon excavation the contaminated soil will be moved to a stockpile area. The stockpile location should provide a separation (i.e., an impermeable liner) from the native soils so that contamination will not migrate to the "clean" native soil. The soil should be bermed to prevent water runoff from the contaminated soil to "clean" native soil. If rain is possible, the stockpile should be covered to prevent rainfall infiltration and possible rainwater runoff.

Excavated petroleum-affected soils will either be moved to the landing property and reused in the production of asphalt or disposed at a permitted landfill. If the soil is landfilled, it must be characterized before it is moved from the Site. Individual disposal facilities have unique requirements for analysis for disposal characterization. Therefore, the contractor will contact the disposal facility prior to transportation to verify the requirements for the individual receiving facility. Because the chemicals of concern at the Site have been identified through several previous investigations, it may be possible to characterize the soil only for the identified contaminants of concern and/or use historical analytical data. However, a more comprehensive analysis may be requested by the accepting facility to verify that other contaminants are not present. Also, if contaminants are identified that have not been previously characterized (such as chlorinated solvents), additional sampling and analysis will be required. The general analytical requirements are outlined below.

At a minimum, soil excavated from the quarry property must be analyzed for:

- TPH-d and TPH-mo using modified USEPA Test Method 8015 with a silica gel strip.
- TPH-g using USEPA Test Method 8015.
- VOCs using USEPA Method 8260B.
- PAHs by USEPA Method 8310.
- LUFT Metals using USEPA Test Method 6010.
- Arsenic by USEPA Method 6020A.

After receiving stockpile analytical results, the disposition of the soil will be evaluated to identify what classification the soil falls into (i.e., Federal or State hazardous, or non-hazardous). Once the classification has been determined, an appropriate landfill will be identified and the results will be forwarded to the facility for confirmation of the soil's acceptance for disposal.

Upon selecting the landfill, the soil will be loaded into and transported by trucks that are fully licensed and permitted to carry that respective waste classification (i.e., hazardous or non-hazardous). Trucking of the soil shall be conducted in compliance with California Department of Transportation (DOT) regulations and in accordance with other applicable federal and local regulations.

5.2 GROUNDWATER

During construction activities, dewatering activities may be necessary in the northwestern portion of the quarry property. Water generated during dewatering activities will need to be contained in a holding tank and characterized prior to its disposal because grab groundwater samples collected during previous investigation in this area has contained elevated concentrations of petroleum hydrocarbons (see discussed in Section 3.2).

No contamination was detected in the water sample collected from the central pit/pond so special management practices are not needed when handling this water.

5.2.1 Identification of Groundwater Contamination

Based on the results of previous investigations, petroleum hydrocarbons are the chemicals in groundwater in the northwestern portion of the quarry property. Groundwater with petroleum hydrocarbons may have an odor and contain free product floating on the surface.

5.2.2 Groundwater Disposal Procedures

Groundwater generated during dewatering activities may be discharged into the sanitary sewer for treatment at the City of Petaluma Water Pollution Control Facility if it meets the sewer use regulations and a "Special Discharge Permit" is obtained from the City of Petaluma Industrial Waste Department (IWD). At a minimum, the dewatered groundwater must be analyzed for:

- Biological Oxygen Demand (BOD).
- Total Suspended Solids (TSS).
- Phenol using USEPA Test Method 8270.
- pH using USEPA Test Method 150.1.
- Oil & Grease using USEPA Test Method 1664.
- Total Purgeable Hydrocarbons using modified USEPA Test Method 8015.
- Total Extractable Hydrocarbons using modified USEPA Test Method 8015 with a silica gel strip.
- CAM 17 Metals.
- Cyanide using USEPA Test Method 335.3.

A copy of the "Special Discharge Permit" and the sewer use regulations are included in Appendix B. The contractor must verify analytical requirements with the City of Petaluma IWD prior to sampling and collect the samples according to the methods specified by this department. If the analytical results indicate that the groundwater does not meet the sewer use regulations, then the groundwater will need to be disposed off-site at an appropriate disposal facility.

5.3 DECONTAMINATION

5.3.1 Personnel Decontamination

Good personal hygiene should be used when working with contamination at the Site. Before leaving the Site, any large amounts of soil should be removed from clothing or PPE. Disposable PPE should be removed and placed in a container such as a 55-gallon drum. Containers consisting of used PPE should be disposed at a proper waste facility. Face, arms, and hands should be thoroughly washed. Clothing worn on the job-site should be washed separately from other articles of clothing.

5.3.2 Equipment Decontamination

Equipment involved with contamination at the Site needs to be decontaminated. Decontamination will involve removing any visible contaminates by wiping down small articles with a damp cloth (dispose cloths with PPE). Large equipment may be decontaminated by removing visible contaminants without generating excess dust particulates. Equipment decontamination must be completed while employees are utilizing at least Modified Level D PPE.

6.0 POST DEVELOPMENT EXCAVATION ACTIVITIES

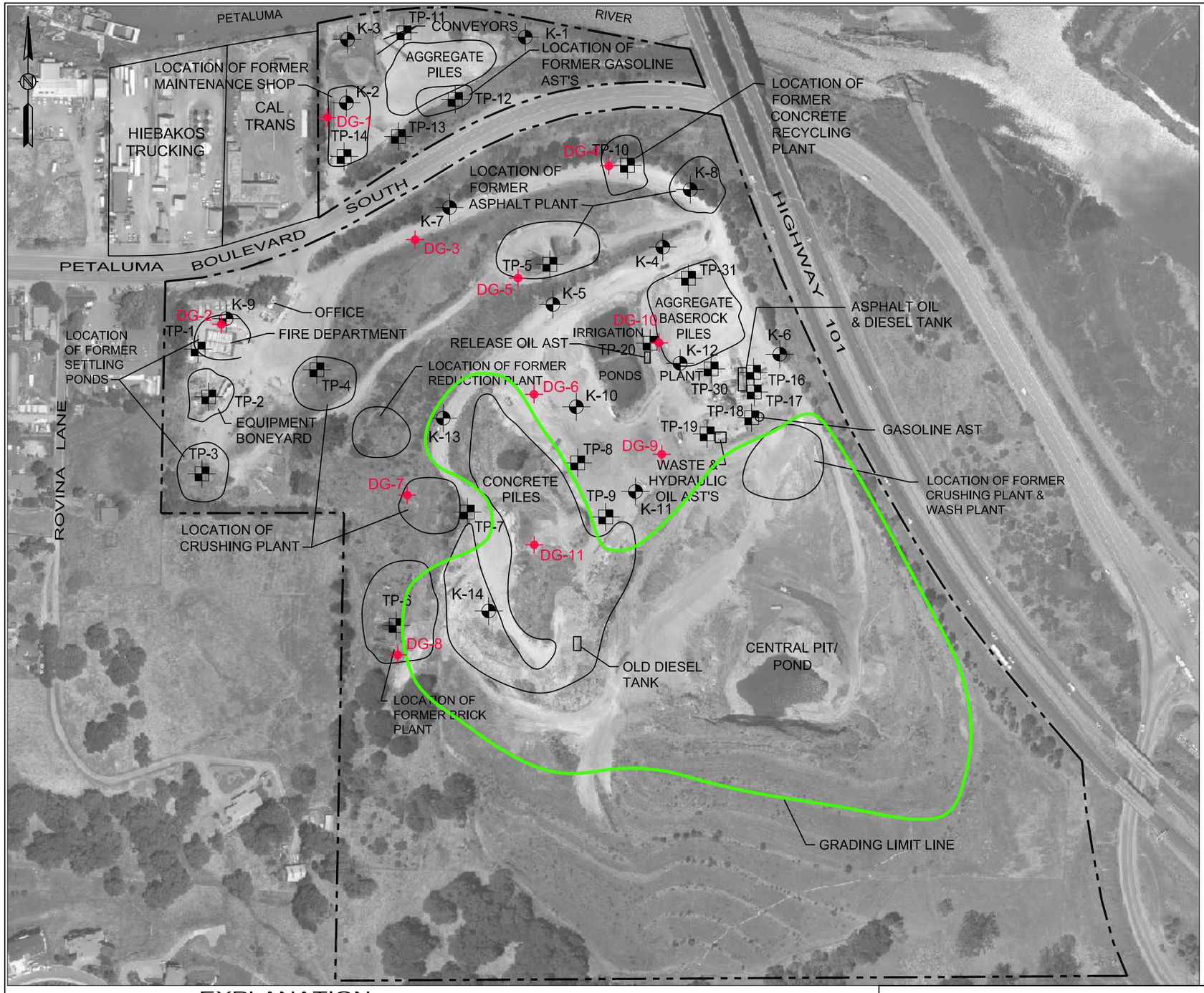
As discussed in the RAP, the goal of the proposed remedial activities on the quarry property is to remove contaminated soil with concentrations above the soil action levels presented in the RAP and discussed in Section 5.1.1 of this report. As such, soil with chemical concentrations above action levels is not expected to be encountered during future activities at the Site. However, this section was prepared to address the possibility of encountering residual soil contamination on the quarry property during post remediation excavation activities, however unlikely that may be.

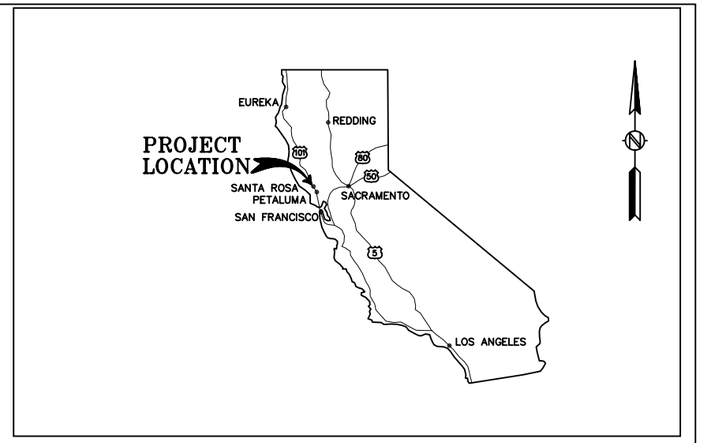
If soil contamination is encountered during post-remediation excavation activities, then appropriate actions need to take place to confirm that the detection of potential contamination is real, to protect workers and passers-by in the immediate area of the excavation, remediate the excavated soil, and report the activities to the SFRWQCB. Section 5.0 of this RMP and the companion RAP provide procedures to follow regarding analysis techniques for soil, excavation standards and remediation and disposal requirements. Depending on future guidance that may supercede these procedures, they provide a basis to initiate action in the unlikely event of contaminant discovery.

7.0 LIMITATIONS

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land or facility use, on- and off-site conditions, regulations or other factors may change over time and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any authorized party; and client agrees to defend, indemnify, and hold harmless Kleinfelder from any claim or liability associated with such unauthorized use or non-compliance.

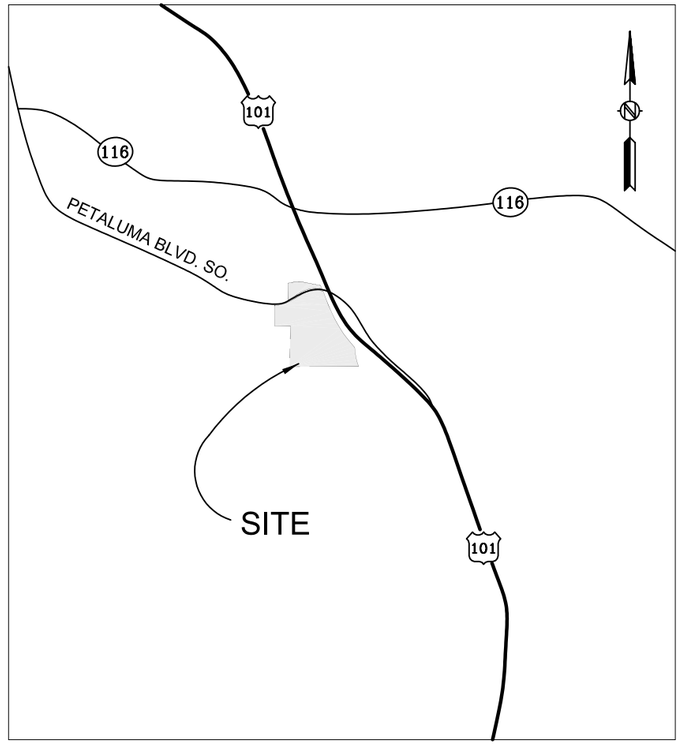
PLATES





SITE LOCATION MAP

NO SCALE



SITE VICINITY MAP

SCALE: 1" = 4000'

EXPLANATION

- Approximate Site Boundary
- Data Gap Sampling Location
- Test Pit/Trench Location
- Soil/Groundwater Boring Location

250 125 0 250
scale feet

KLEINFELDER

PROJECT NO. 48912-5 DATE APR 2005

SITE PLAN AND SAMPLING LOCATIONS

Dutra Quarry Property
1500 & 1600 Petaluma Blvd.
Petaluma, California

PLATE 1

60 30 0 60

scale feet

KLEINFELDER

PROJECT NO. 48912-4 DATE OCT 2004

PROPOSED EXCAVATION AREAS
Dutra Property
1600 S. Petaluma Blvd.
Petaluma, California

PLATE
2

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS
PHASE II ENVIRONMENTAL SITE ASSESSMENT
PETALUMA QUARRY

Concentrations in mg/kg

Sample Location	Sample Depth(ft)	Petroleum Hydrocarbons							Metals					VOCs										
		TPH-mo	TPH-d	TPH-g	B	T	E	X	Cd	Cr	Pb	Ni	Zn	Acetone	MEK	Napthalene	T	1,2,4-Tri-methylbenzene	X	sec-Butyl benzene	E	Isopropyl benzene	n-Propyl benzene	1,3,5-Tri methylbenzene	n-Butyl benzene
K-1-1	1.5	**6.8**	**2.7**	ND	ND	ND	ND	ND	ND	**77**	21	**79**	**84**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-1-3	5.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K-1-5	10.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-1-7	15.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-1-9	20.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-1-11	25.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-1-13	30.5	ND	**2.2**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-2-1	1.5	**56**	**12**	ND	ND	ND	ND	ND	ND	**52**	**7.2**	**73**	**42**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-2-3	5.5	ND	**2.0**	**1.3**	ND	ND	ND	ND	NA	NA	NA	NA	NA	**0.22**	**0.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K-2-5	10.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-2-7	15.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-6-1	1.5	**69**	**12**	ND	ND	ND	ND	ND	ND	**73**	**9.1**	**57**	**48**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-6-3	5.5	**29**	**16**	**1.3**	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K-6-5	10.5	**170**	**180**	**33**	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-6-6	15	**30**	**26**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-6-7	20.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-7-1	2.5	ND	ND	ND	ND	ND	ND	ND	ND	**120**	**12**	**63**	**54**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-7-3	5.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K-7-5	10.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-7-6	15.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-7-7	21	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-7-9	30	ND	**6.0**	**1.9**	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-7-11	34	**16**	**18**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-8-1	2	**8.3**	**3.9**	ND	ND	ND	ND	ND	ND	**140**	**13**	**78**	**80**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-8-3	5.5	**24**	**3.0**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K-8-5	10.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-8-6	15.5	ND	**1.3**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-8-8	20.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-8-9	25	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-8-10	29	**12**	**2.5**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-9-1	1.5	ND	ND	ND	ND	ND	ND	ND	ND	**100**	**9.6**	**64**	**52**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-9-3	10.5	**17**	**5.2**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
K-9-5	15.5	**24**	**14**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-9-7	20.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-9-9	25.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
K-9-11	30.5	ND	ND	ND	ND	**0.015**	ND	**0.017**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1-1	10	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP1-2	5	**17**	**1.4**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP1-3	1	**46**	**6.0**	ND	ND	ND	ND	ND	ND	**69**	**9.5**	**56**	**53**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2-1	8.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP2-2	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP2-3	1	ND	ND	ND	ND	ND	ND	ND	ND	**110**	**12**	**79**	**59**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP3-1	10	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP3-2	5	**16**	**1.1**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP3-3	1	ND	ND	ND	ND	ND	ND	ND	ND	**63**	**ND**	**52**	**41**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP4-1	4	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP4-2	1	ND	ND	ND	ND	ND	ND	ND	ND	**33**	**11**	**110**	**80**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP5A		**63**	**78**	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP5-1	9	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP5-2	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP5-3	1	ND	ND	ND	ND	ND	ND	ND	ND	**87**	**11**	**95**	**46**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP6-1	10	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP6-2	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP6-3	1	**10**	**1.3**	ND	ND	ND	ND	ND	ND	**74**	**6.9**	**43**	**54**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP7-1	6	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP7-2	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 1
SOIL ANALYTICAL RESULTS
PHASE II ENVIRONMENTAL SITE ASSESSMENT
PETALUMA QUARRY

Concentrations in mg/kg

Sample Location	Sample Depth(ft)	Petroleum Hydrocarbons							Metals					VOCs										
		TPH-mo	TPH-d	TPH-g	B	T	E	X	Cd	Cr	Pb	Ni	Zn	Acetone	MEK	Napthalene	T	1,2,4-Tri-methylbenzene	X	sec-Butyl benzene	E	Isopropyl benzene	n-Propyl benzene	1,3,5-Tri methylbenzene	n-Butyl benzene
TP7-3	1	ND	ND	ND	ND	ND	ND	ND	ND	75	5.5	1600	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP8-1	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP8-2	1	220	31	ND	ND	ND	ND	ND	ND	48	12	61	91	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP9-1	10	410	240	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP9-2	5	78	9.7	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP9-3	1	79	13	ND	ND	ND	ND	ND	ND	64	10	64	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP10-1	5	2200	1400	3.3	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP10-2	1	ND	1.3	ND	0.0052	0.086	0.015	0.1	ND	140	12	66	58	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP11-1	11	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP11-2	5	ND	1.2	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	0.091	0.027	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP11-3	1	2800	6200	ND	ND	ND	ND	ND	ND	190	11	200	51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP12-1	8.5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP12-2	5	ND	ND	2.3	ND	ND	ND	0.011	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP12-3	1	21	2.1	2.0	ND	ND	ND	ND	ND	24	14	39	47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP13-1	10	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP13-2	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP13-3	1	850	120	1.7	ND	ND	ND	ND	ND	31	14	38	45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP14-1	10	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP14-2	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	0.11	0.031	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP14-3	1	950	91	ND	ND	ND	ND	ND	ND	34	9.5	41	44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP16-1	6	54	83	2.5	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP16-2	5	2100	8700	2200	ND	2.0	4.4	18	NA	NA	NA	NA	NA	ND	ND	8.2	1.3	13	10	1.8	2.6	1.2	2.6	3.2	ND
TP16-3	1	3400	2300	79	0.017	0.018	0.53	0.61	ND	45	6.6	67	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP17-1	5	32	24	5.3	ND	0.0089	ND	0.024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP17-2	1	2200	4900	420	ND	0.8	0.54	2.5	ND	31	ND	33	29	ND	ND	0.85	0.32	1.1	0.68	0.05	0.14	0.062	0.14	0.26	0.11
TP18-1	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP18-2	1	5900	4000	110	ND	0.42	0.28	1.5	ND	38	ND	53	38	ND	ND	0.54	0.088	0.17	0.2	ND	0.045	ND	0.023	0.048	0.03
TP19-1	9	ND	1.8	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP19-2	5	ND	2.8	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP19-3	1	1300	1300	9.2	ND	ND	ND	ND	ND	100	21	94	65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP20-1	5	1000	87	12	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP20-2	1	2300	5900	15	ND	ND	ND	ND	ND	58	7.3	62	54	ND	ND	0.048	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP30-1	1	22	4.8	ND	ND	ND	ND	ND	ND	58	6.4	76	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP30-5	5	ND	1.2	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP31-1	1	13	2.1	ND	ND	0.011	ND	0.013	ND	8.8	8.9	15	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TP31-5	5	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ESL - R	*	500	100	100	0.18	9.3	32	11	1.7	58	150	150	600	0.5	13	0.46	9.3	*	11	*	32	*	*	*	*
ESL - I	*	1000	500	400	0.38	9.3	32	11	7.4	58	750	150	600	0.5	13	1.5	9.3	*	11	*	32	*	*	*	*

NOTES:

The outlined cells represent a result with a concentration greater than the comparison criteria.

TPH-mo - Total Petroleum Hydrocarbons as Motor Oil
TPH-d - Total Petroleum Hydrocarbons as Diesel
TPH-g - Total Petroleum Hydrocarbons as Gasoline
mg/kg - Milligrams per kilogram
VOCs - Volatile organic compounds
ESL - Environmental Screening Level for shallow soils that are less than or equal to 3 meters below ground surface where groundwater is not a current or potential drinking water source.
ESL R - Residential threshold
ESL I - Industrial or commercial threshold

* - Not Available
ND - Not Detected
NA - Not Analyzed

Cd - Cadmium
Cr - Chromium
Pb - Lead
Ni - Nickel
Zn - Zinc

B - Benzene
T - Toluene
E - Ethylbenzene
X - Xylene

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
PHASE II ENVIRONMENTAL SITE ASSESSMENT
PETALUMA QUARRY

Sample Location	Concentrations in ug/L								
	Petroleum Hydrocarbons							VOCs	
	TPH-mo	TPH-d	TPH-g	B	T	E	X	Toluene	Trichloroethene
K-1	**470**	**60**	ND	ND	**0.88**	ND	ND	**0.83**	ND
K-2	**480**	**130**	ND	ND	ND	ND	ND	ND	**0.64**
K-9	**540**	**330**	ND	ND	ND	ND	ND	ND	**0.59**
ESL	**640**	**640**	**500**	**46**	**130**	**290**	**100**	**130**	**360**

NOTES:

TPH-mo - Total Petroleum Hydrocarbons as Motor Oil

TPH-d - Total Petroleum Hydrocarbons as Diesel

TPH-g - Total Petroleum Hydrocarbons as Gasoline

ug/L - Micrograms per liter

ND - Not Detected

VOCs - Volatile organic compounds

B - Benzene

T - Toluene

E - Ethylbenzene

X - Xylene

TABLE 3
SOIL ANALYTICAL RESULTS
SUPPLEMENTARY SOIL CHARACTERIZATION
PETALUMA QUARRY

		Concentrations in mg/kg						
		Petroleum Hydrocarbons						
Sample Location	Sample Depth(ft)	TPH-mo	TPH-d	TPH-g	B	T	E	X
TP40-1	1	**2100**	**4800**	**51**	ND	ND	ND	ND
TP40-2	3	**70**	**150**	**3.7**	ND	ND	ND	**0.014**
TP41-1	1	NA	NA	NA	NA	NA	NA	NA
TP41-2	3	NA	NA	NA	NA	NA	NA	NA
TP41-3	5	ND	ND	NA	NA	NA	NA	NA
TP42-1	1	NA	NA	NA	NA	NA	NA	NA
TP42-2	3	ND	ND	NA	NA	NA	NA	NA
TP43-1	1	**17**	**4.5**	NA	NA	NA	NA	NA
TP43-2	3	ND	ND	NA	NA	NA	NA	NA
TP44-1	1	**8.1**	**2.2**	NA	NA	NA	NA	NA
TP45-1	1	NA	NA	NA	NA	NA	NA	NA
TP45-2	3	NA	NA	NA	NA	NA	NA	NA
TP46-1	1.5	ND	ND	NA	NA	NA	NA	NA
TP47-1	1	NA	NA	NA	NA	NA	NA	NA
TP47-2	3	NA	NA	NA	NA	NA	NA	NA
TP48-1	1	**250**	**390**	NA	NA	NA	NA	NA
TP48-2	2.5	ND	**1.3**	NA	NA	NA	NA	NA
TP49-1	0.5	NA	NA	NA	NA	NA	NA	NA
TP49-2	2.5	NA	NA	NA	NA	NA	NA	NA
TP50-1	1	NA	NA	NA	NA	NA	NA	NA
TP50-2	3	ND	**1.0**	NA	NA	NA	NA	NA
TP50-3	4.5	**1300**	**2500**	NA	NA	NA	NA	NA
TP51-1	1	**20**	**3.4**	ND	ND	ND	ND	ND
TP51-2	3	**12**	**3**	ND	ND	ND	ND	ND
TP52-1	1	NA	NA	NA	NA	NA	NA	NA
TP52-2	2	NA	NA	NA	NA	NA	NA	NA
TP52-3	3	NA	NA	NA	NA	NA	NA	NA
TP52-4	5	NA	NA	NA	NA	NA	NA	NA
TP53-1	1	**56**	**3**	NA	NA	NA	NA	NA
TP53-2	3	NA	NA	NA	NA	NA	NA	NA
TP53-3	5	NA	NA	NA	NA	NA	NA	NA
TP54-1	1	**5.4**	**1.2**	NA	NA	NA	NA	NA
TP54-2	3	ND	ND	NA	NA	NA	NA	NA
TP54-3	5	ND	ND	NA	NA	NA	NA	NA
TP55-1	0.5	NA	NA	NA	NA	NA	NA	NA
TP55-2	1.5	NA	NA	NA	NA	NA	NA	NA
TP56-1	0.5	NA	NA	NA	NA	NA	NA	NA
TP56-2	2	NA	NA	NA	NA	NA	NA	NA
TP56-3	3	NA	NA	NA	NA	NA	NA	NA
TP57-1	1.5	ND	**2.1**	NA	NA	NA	NA	NA
TP57-2	3	ND	ND	NA	NA	NA	NA	NA
TP58-1	1	NA	NA	NA	NA	NA	NA	NA
TP58-2	2	NA	NA	NA	NA	NA	NA	NA
TP59-1	2	NA	NA	NA	NA	NA	NA	NA
TP59-2	3	NA	NA	NA	NA	NA	NA	NA
TP60-1	1	NA	NA	NA	NA	NA	NA	NA
TP60-2	3	NA	NA	NA	NA	NA	NA	NA
TP60-3	5	NA	NA	NA	NA	NA	NA	NA
ESL - R	*	**500**	**100**	**100**	**0.18**	**9.3**	**32**	**11**
ESL - I	*	**1000**	**500**	**400**	**0.38**	**9.3**	**32**	**11**

NOTES:

The outlined cells represent a result with a concentration greater than the comparison criteria.

TPH-mo - Total Petroleum Hydrocarbons as Motor Oil
TPH-d - Total Petroleum Hydrocarbons as Diesel
TPH-g - Total Petroleum Hydrocarbons as Gasoline
mg/kg - Milligrams per kilogram
ESL - Environmental Screening Level for shallow soils that are less than or equal to 3 meters below ground surface where groundwater is not a current or potential drinking water source.
ESL R - Residential threshold
ESL I - Industrial or commercial threshold

* - Not Applicable
ND - Not Detected
NA - Not Analyzed

TABLE 4
SOIL ANALYTICAL RESULTS
SUPPLEMENTAL SOIL INVESTIGATION
PETALUMA QUARRY

Sample Location	Sample ID	Sample Date	Sample Depth (inches bgs)	Analytical Results (mg/kg)			
				PCBs	Total PAHs	Arsenic	Hexavalent Chromium
DG-1	DG-1-2"	04/27/05	2 to 8	ND (<0.025)	ND (<0.005)	**1.3**	-
	DG-1-1'	04/27/05	12 to 18	ND (<0.025)	ND (<0.010)	**1.9**	-
DG-2	DG-2-2"	04/27/05	2 to 8	ND (<0.50)	ND (<0.50)	**4.2**	ND (<0.8)
	DG-2-1'	04/27/05	12 to 18	ND (<0.025)	ND (<0.050)	**3.0**	ND (<0.8)
DG-3	DG-3-2"	04/27/05	2 to 8	ND (<0.025)	ND (<0.050)	**3.0**	-
	DG-3-1'	04/27/05	12 to 18	ND (<0.025)	ND (<0.005)	**1.2**	-
DG-4	DG-4-2"	04/27/05	2 to 8	ND (<0.025)	ND (<0.050)	**2.3**	ND (<0.8)
	DG-4-1'	04/27/05	12 to 18	ND (<0.025)	ND (<0.050)	**3.6**	ND (<0.8)
DG-5	DG-5-2"	04/27/05	2 to 8	ND (<0.025)	ND (<0.005)	**1.9**	-
	DG-5-1'	04/27/05	12 to 18	ND (<0.025)	ND (<0.005)	**1.4**	-
DG-6	DG-6-2"	04/27/05	2 to 8	ND (<0.25)	ND (<0.50)	**4.7**	-
	DG-6-1'	04/27/05	12 to 18	ND (<0.12)	ND (<0.50)	**5.5**	-
DG-7	DG-7-2"	04/27/05	2 to 8	ND (<0.025)	ND (<0.010)	**2.3**	-
	DG-7-1'	04/27/05	12 to 18	ND (<0.12)	ND (<0.050)	**10**	-
DG-8	DG-8-2"	04/27/05	2 to 8	ND (<0.025)	ND (<0.050)	**2.2**	-
	DG-8-1'	04/27/05	12 to 18	ND (<0.025)	ND (<0.005)	**1.8**	-
DG-9	DG-9-2"	04/27/05	2 to 8	ND (<0.50)	ND (<0.50)	**3.6**	-
	DG-9-1'	04/27/05	12 to 18	ND (<0.25)	ND (<0.50)	**3.9**	-
DG-10	DG-10-2"	04/27/05	2 to 8	ND (<0.025)	ND (<0.005)	**5.2**	-
	DG-10-1'	04/27/05	12 to 18	ND (<0.025)	ND (<0.005)	**3.3**	-
DG-11	DG-11-2"	04/27/05	2 to 8	ND (<0.50)	ND (<0.50)	**1.8**	-
	DG-11-1'	04/27/05	12 to 18	ND (<0.12)	ND (<0.50)	**1.4**	-
ESL-R	N/A	N/A	N/A	0.22	*	5.5	1.8

NOTES:

* Comparison criteria are only available for individual constituents.

The outlined cells represent a result with a concentration greater than the comparison criteria.

< = Symbol indicates not detected at or above laboratory reporting limit as noted.

- = Not Analyzed.

PAHs = Polynuclear aromatic hydrocarbons.

PCBs = Polychlorinated biphenyls.

bgs = Below ground surface.

mg/kg = Milligrams per kilogram.

N/A = Not applicable.

ND = Not detected.

Comparison Criteria

ESL-R - San Francisco Regional Water Quality Control Board Environmental Screening Level (ESL) for shallow soil less than or equal to three meters below ground surface in a residential land use setting where groundwater is not a current or potential drinking water source.

APPENDIX A

TABLE B: SHALLOW SOIL (≤3M BGS) - WATER IS NOT A CURRENT OR POTENTIAL SOURCE OF DRINKING WATER

Notes:

- Always compare final soil data for commercial/industrial sites to residential ESLs and evaluate need for formal land-use restrictions (see Section 2.10).
- Assumption that groundwater is not a current or potential source of drinking water should be approved by overseeing regulatory agency prior to use of this table (see Section 2.4).

TABLE B. ENVIRONMENTAL SCREENING LEVELS (ESLs)
Shallow Soils (≤3m bgs)
Groundwater IS NOT a Current or Potential Source of Drinking Water

	[1]Shallow Soil		
CHEMICAL PARAMETER	[2]Residential Land Use (mg/kg)	Commercial/ Industrial Land Use Only (mg/kg)	[3]Groundwater (ug/L)
ACENAPHTHENE	1.9E+01	1.9E+01	2.3E+01
ACENAPHTHYLENE	1.3E+01	1.3E+01	3.0E+01
ACETONE	5.0E-01	5.0E-01	1.5E+03
ALDRIN	3.2E-02	1.3E-01	1.3E-01
ANTHRACENE	2.8E+00	2.8E+00	7.3E-01
ANTIMONY	6.1E+00	4.0E+01	3.0E+01
ARSENIC	5.5E+00	5.5E+00	3.6E+01
BARIUM	7.5E+02	1.5E+03	1.0E+03
BENZENE	1.8E-01	3.8E-01	4.6E+01
BENZO(a)ANTHRACENE	3.8E-01	1.3E+00	2.7E-02
BENZO(b)FLUORANTHENE	3.8E-01	1.3E+00	2.9E-02
BENZO(k)FLUORANTHENE	3.8E-01	1.3E+00	4.0E-01
BENZO(g,h,i)PERYLENE	2.7E+01	2.7E+01	1.0E-01
BENZO(a)PYRENE	3.8E-02	1.3E-01	1.4E-02
BERYLLIUM	4.0E+00	8.0E+00	2.7E+00
BIPHENYL, 1,1-	6.5E+00	6.5E+00	5.0E+00
BIS(2-CHLOROETHYL)ETHER	3.7E-03	1.2E-02	6.1E+01
BIS(2-CHLOROISOPROPYL)ETHER	6.6E-01	6.6E-01	6.1E+01
BIS(2-ETHYLHEXYL)PHTHALATE	1.6E+02	5.3E+02	3.2E+01
BORON	1.6E+00	2.0E+00	1.6E+00
BROMODICHLOROMETHANE	1.4E-02	3.9E-02	1.7E+02
BROMOFORM	6.1E+01	6.9E+01	3.2E+03
BROMOMETHANE	2.2E-01	5.1E-01	1.6E+02
CADMIUM	1.7E+00	7.4E+00	1.1E+00
CARBON TETRACHLORIDE	1.2E-02	3.4E-02	9.3E+00
CHLORDANE	4.4E-01	1.7E+00	4.0E-03
CHLOROANILINE, p-	5.3E-02	5.3E-02	5.0E+00
CHLOROBENZENE	1.5E+00	1.5E+00	2.5E+01
CHLOROETHANE	6.3E-01	8.5E-01	1.2E+01
CHLOROFORM	8.8E-01	1.9E+00	3.3E+02
CHLOROMETHANE	7.0E-02	2.0E-01	4.1E+01
CHLOROPHENOL, 2-	1.2E-01	1.2E-01	1.8E+00
CHROMIUM (Total)	5.8E+01	5.8E+01	1.8E+02
CHROMIUM III	7.5E+02	7.5E+02	1.8E+02
CHROMIUM VI	1.8E+00	1.8E+00	1.1E+01
CHRYSENE	3.8E+00	1.3E+01	3.5E-01
COBALT	1.0E+01	1.0E+01	3.0E+00
COPPER	2.3E+02	2.3E+02	3.1E+00
CYANIDE (Free)	3.6E-03	3.6E-03	1.0E+00
DIBENZO(a,h)ANTHTRACENE	1.1E-01	3.8E-01	2.5E-01
DIBROMOCHLOROMETHANE	1.9E-02	5.4E-02	1.7E+02
1,2-DIBROMO-3-CHLOROPROPANE	4.5E-03	4.5E-03	2.0E-01
DIBROMOETHANE, 1,2-	7.3E-03	2.0E-02	1.5E+02
DICHLOROBENZENE, 1,2-	1.6E+00	1.6E+00	1.4E+01

TABLE B. ENVIRONMENTAL SCREENING LEVELS (ESLs)
Shallow Soils (≤3m bgs)
Groundwater IS NOT a Current or Potential Source of Drinking Water

	[1]Shallow Soil		
CHEMICAL PARAMETER	[2]Residential Land Use (mg/kg)	Commercial/ Industrial Land Use Only (mg/kg)	[3]Groundwater (ug/L)
DICHLOROBENZENE, 1,3-	7.4E+00	7.4E+00	6.5E+01
DICHLOROBENZENE, 1,4-	4.6E-02	1.3E-01	1.5E+01
DICHLOROBENZIDINE, 3,3-	4.0E-01	1.4E+00	2.5E+02
DICHLORODIPHENYLDICHLOROETHANE (DDD)	2.3E+00	9.0E+00	1.0E-03
DICHLORODIPHENYLDICHLOROETHYLENE (DDE)	1.6E+00	4.0E+00	1.0E-03
DICHLORODIPHENYLTRICHLOROETHANE (DDT)	1.6E+00	4.0E+00	1.0E-03
DICHLOROETHANE, 1,1-	3.2E-01	8.9E-01	4.7E+01
DICHLOROETHANE, 1,2-	2.5E-02	7.0E-02	2.0E+02
DICHLOROETHYLENE, 1,1-	4.3E+00	4.3E+00	2.5E+01
DICHLOROETHYLENE, Cis 1,2-	1.6E+00	3.6E+00	5.9E+02
DICHLOROETHYLENE, Trans 1,2-	3.1E+00	7.3E+00	5.9E+02
DICHLOROPHENOL, 2,4-	3.0E+00	3.0E+00	3.0E+00
DICHLOROPROPANE, 1,2-	5.1E-02	1.4E-01	1.0E+02
DICHLOROPROPENE, 1,3-	3.3E-02	9.3E-02	5.3E+01
DIELDRIN	2.3E-03	2.3E-03	1.9E-03
DIETHYLPHTHALATE	3.5E-02	3.5E-02	1.5E+00
DIMETHYLPHTHALATE	3.5E-02	3.5E-02	1.5E+00
DIMETHYLPHENOL, 2,4-	7.4E-01	7.4E-01	1.1E+02
DINITROPHENOL, 2,4-	2.1E-01	2.1E-01	7.5E+01
DINITROTOLUENE, 2,4-	8.6E-01	8.6E-01	1.2E+02
1,4 DIOXANE	1.8E+01	3.0E+01	5.0E+04
DIOXIN (2,3,7,8-TCDD)	4.6E-06	1.9E-05	5.0E-06
ENDOSULFAN	4.6E-03	4.6E-03	8.7E-03
ENDRIN	6.5E-04	6.5E-04	2.3E-03
ETHANOL	4.5E+01	4.5E+01	5.0E+04
ETHYLBENZENE	3.2E+01	3.2E+01	2.9E+02
FLUORANTHENE	4.0E+01	4.0E+01	8.0E+00
FLUORENE	8.9E+00	8.9E+00	3.9E+00
HEPTACHLOR	1.4E-02	1.4E-02	3.8E-03
HEPTACHLOR EPOXIDE	1.5E-02	1.5E-02	3.8E-03
HEXACHLOROBENZENE	2.7E-01	9.6E-01	3.7E+00
HEXACHLOROBUTADIENE	3.7E+00	2.2E+01	4.7E+00
HEXACHLOROCYCLOHEXANE (gamma) LINDANE	4.9E-02	4.9E-02	8.0E-02
HEXACHLOROETHANE	1.2E+01	4.1E+01	1.2E+01
INDENO(1,2,3-cd)PYRENE	3.8E-01	1.3E+00	2.9E-02
LEAD	1.5E+02	7.5E+02	2.5E+00
MERCURY	3.7E+00	1.0E+01	1.2E-02
METHOXYCHLOR	1.9E+01	1.9E+01	1.9E-02
METHYLENE CHLORIDE	5.2E-01	1.5E+00	2.2E+03
METHYL ETHYL KETONE	1.3E+01	1.3E+01	1.4E+04
METHYL ISOBUTYL KETONE	3.9E+00	3.9E+00	1.7E+02
METHYL MERCURY	1.2E+00	1.0E+01	3.0E-03
METHYLNAPHTHALENE (total 1- & 2-)	2.5E-01	2.5E-01	2.1E+00
METHYL TERT BUTYL ETHER	2.0E+00	5.6E+00	1.8E+03

TABLE B. ENVIRONMENTAL SCREENING LEVELS (ESLs)
Shallow Soils (≤3m bgs)
Groundwater IS NOT a Current or Potential Source of Drinking Water

	[1]Shallow Soil		
CHEMICAL PARAMETER	[2]Residential Land Use (mg/kg)	Commercial/ Industrial Land Use Only (mg/kg)	[3]Groundwater (ug/L)
MOLYBDENUM	4.0E+01	4.0E+01	2.4E+02
NAPHTHALENE	4.6E-01	1.5E+00	2.4E+01
NICKEL	1.5E+02	1.5E+02	8.2E+00
PENTACHLOROPHENOL	4.4E+00	5.0E+00	7.9E+00
PERCHLORATE	1.2E+00	1.2E+00	6.0E+02
PHENANTHRENE	1.1E+01	1.1E+01	4.6E+00
PHENOL	1.9E+01	1.9E+01	1.3E+03
POLYCHLORINATED BIPHENYLS (PCBs)	2.2E-01	7.4E-01	1.4E-02
PYRENE	8.5E+01	8.5E+01	2.0E+00
SELENIUM	1.0E+01	1.0E+01	5.0E+00
SILVER	2.0E+01	4.0E+01	1.9E-01
STYRENE	1.5E+01	1.5E+01	1.0E+02
tert-BUTYL ALCOHOL	5.7E+01	1.1E+02	1.8E+04
TETRACHLOROETHANE, 1,1,1,2-	3.0E+00	6.9E+00	9.3E+02
TETRACHLOROETHANE, 1,1,2,2-	9.1E-03	2.5E-02	1.9E+02
TETRACHLOROETHYLENE	8.7E-02	2.4E-01	1.2E+02
THALLIUM	1.0E+00	1.3E+01	2.0E+01
TOLUENE	9.3E+00	9.3E+00	1.3E+02
TOXAPHENE	4.2E-04	4.2E-04	2.0E-04
TPH (gasolines)	1.0E+02	4.0E+02	5.0E+02
TPH (middle distillates)	1.0E+02	5.0E+02	6.4E+02
TPH (residual fuels)	5.0E+02	1.0E+03	6.4E+02
TRICHLOROBENZENE, 1,2,4-	3.8E-01	1.0E+00	2.5E+01
TRICHLOROETHANE, 1,1,1-	7.8E+00	7.8E+00	6.2E+01
TRICHLOROETHANE, 1,1,2-	3.2E-02	8.9E-02	3.5E+02
TRICHLOROETHYLENE	2.6E-01	7.3E-01	3.6E+02
TRICHLOROPHENOL, 2,4,5-	1.8E-01	1.8E-01	1.1E+01
TRICHLOROPHENOL, 2,4,6-	6.9E+00	1.0E+01	4.9E+02
VANADIUM	1.1E+02	2.0E+02	1.9E+01

TABLE B. ENVIRONMENTAL SCREENING LEVELS (ESLs)
Shallow Soils (≤3m bgs)
Groundwater IS NOT a Current or Potential Source of Drinking Water

CHEMICAL PARAMETER	[1]Shallow Soil		[3]Groundwater (ug/L)
	[2]Residential Land Use (mg/kg)	Commercial/ Industrial Land Use Only (mg/kg)	
VINYL CHLORIDE	6.7E-03	1.9E-02	3.8E+00
XYLENES	1.1E+01	1.1E+01	1.0E+02
ZINC	6.0E+02	6.0E+02	8.1E+01
Electrical Conductivity (mS/cm, USEPA Method 120.1 MOD)	2.0	4.0	not applicable
Sodium Adsorption Ratio	5.0	12	not applicable

Red: Updated with respect to ESLs presented in July 2003 document.

Notes:

1. Shallow soils defined as soils less than or equal to 3 meters (approximately 10 feet) below ground surface.
2. Category "Residential Land Use" generally considered adequate for other sensitive uses (e.g., day-care centers, hospitals, etc.)
3. Assumes potential discharge of groundwater into marine or estuary surface water system.

Source of soil ESLs: Refer to Appendix 1, Tables A-1 and A-2.

Source of groundwater ESLs: Refer to Appendix 1, Table F-1b.

Soil data should be reported on dry-weight basis (see Appendix 1, Section 6.2).

Soil ESLs intended to address direct-exposure, groundwater protection, ecologic (urban areas) and nuisance concerns under noted land-use scenarios. **Soil gas data should be collected for additional evaluation of potential indoor-air impacts at at sites with significant areas of VOC-impacted soil. See Section 2.6 and Table E.**

Groundwater ESLs intended to address surface water, indoor-air and nuisance concerns. **Use in conjunction with soil gas screening levels to more closely evaluate potential impacts to indoor-air if groundwater screening levels for this concern approached or exceeded (refer to Section 2.6 and Appendix 1, Table F-1a).**

Aquatic habitat goals for bioaccumulation concerns not considered in selection of groundwater goals (refer to Section 2.7).

Refer to appendices for summary of ESL components.

Soil and water ESLs for ethanol based on gross contamination concerns (see Appendix 1, Chapter 5 and related tables).

TPH -Total Petroleum Hydrocarbons. TPH ESLs must be used in conjunction with ESLs for related chemicals (e.g., BTEX, PAHs, oxidizers, etc.). See Volume 1, Section 2.2 and Appendix 1, Chapter 5.

APPENDIX B

City of Petaluma 11 English Street
Post Office Box 61 - Petaluma, California 94953

PETALUMA WATER POLLUTION CONTROL FACILITY
SPECIAL DISCHARGE PERMIT

This permit is issued by the City of Petaluma Industrial Waste Department (IWD) and gives special approval to the responsible party indicated below to discharge the below listed waste(s) to the City's facilities on a one-time basis or for a specified period of time. The Permittee must reapply for a new special discharge permit for any subsequent discharges.

COMPLETED BY THE PERMITTEE AND APPROVED BY THE IWD PRIOR TO DISCHARGE:

Discharge Source:
Name: _____
Site Address: _____
City: _____ State: _____ Zip Code: _____
Mailing Address: _____
City: _____ State: _____ Zip Code: _____

Responsible Party:
Name: _____
Address: _____
City: _____ State: _____ Zip Code: _____

Proposed Discharge:
Type of Waste: _____ Quantity Discharged: _____
Discharge Location: _____
Discharge Date: _____ Duration of Discharge: _____

COMPLETED BY IWD AND ACKNOWLEDGED BY RESPONSIBLE PARTY:

Permit Fee: $100.00
Sewer Service Charge: _____
Total: _____

Date Analysis Received: _____
Analysis Accepted: _____YES _____NO Maximum Rate of Flow: _____
Flow Meter Required: _____YES _____NO Discharge Period: _____
Pretreatment or other Requirements: _____

Approved By: _____
Industrial Waste Supervisor

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Acknowledged By: _____
Responsible Party

2. Surcharge Loadings For TSS and BOD

Constituent	Average Conc. (mg/L)	Threshold Conc. (mg/L)	Difference In Conc. (mg/L)	Loading in Excess of Threshold (lbs)
BOD	432.5	250	182.5	10,591
TSS	158.5	250	-91.5	0

3. Surcharge Calculation

Constituent	Loading in Excess of Threshold (lbs)	Rate Per Pound	Multiplier To Rate	Surcharge
BOD	10,591	$0.3892	1.2	$4,946.64

4. Laboratory Charge

Collection Charge	Analysis Charge	No. of Samples	Total
$235	$125	4	$1,440.00

5. Total Charges

Effective Date	Fixed Fee	Quantity Charge	BOD Surcharge	TSS Surcharge	Oil & Grease Surcharge	Copper Surcharge	Laboratory Charge	Total Charge For Period
After Jan 2000	$7.14	$19,630.93	$4,946.64	$0.00	$0.00	$0.00	$1,440.00	$26,224.71
After Jan 2001	$9.04	$24,139.77	$4,946.64	$0.00	$0.00	$0.00	$1,440.00	$30,535.45
After Jan 2002	$11.38	$28,562.54	$4,946.64	$0.00	$0.00	$0.00	$1,440.00	$34,960.56

SECTION 3.3 OTHER SPECIAL DISCHARGES. (A.) Septic Waste. Discharge of septic waste shall be charged at $0.194 per gallon of discharge. Discharge may not occur without a permit.

(B.) Short-Term Discharge. A short-term discharge fee is hereby established at **$0.05 per gallon with a $500.00** minimum fee, plus a **permit fee of $100.00**. These fees shall apply to direct temporary discharges from a point of discharge for which a City connection charge is inapplicable or for which connection charges sufficient to address the temporary discharge have not been paid, including, but not limited to, temporary discharges of groundwater. Discharge may not occur without a permit and may not continue for more than one year from the effective date of permit. If the discharge period does continue beyond one year, discharger will be assessed applicable and then-current wastewater service and connection fees. The decision to accept any such temporary discharge and all requirements pertaining to the

CHAPTER 15.48 - SEWER USE REGULATIONS

Section 15.48.010 - General Discharge Prohibitions

No User shall contribute or cause to be contributed, directly or indirectly, any pollutant(s) or wastewater which will:

a) cause a violation of the Petaluma owned treatment works NPDES Permit or a deterioration of water quality in the receiving stream;

b) cause pass through or interfere with the Petaluma owned treatment works operations;

c) restrict sludge disposal options or cause a violation of sludge disposal regulations;

d) endanger the health and safety of the Petaluma owned treatment works or collection systems employees or the general public.

These general prohibitions and the specific prohibitions of this section apply to each User introducing pollutants into the Petaluma owned treatment works whether or not the User is subject to other National Pretreatment Standards or any other Federal, State, Regional or local pretreatment standards or requirements.

Section 15.48.020 - Specific Discharge Prohibitions

No User shall discharge any wastewater having the following characteristics:

(a) High Temperature - Any water or waste having a temperature higher than 140 F (60 C) at the point of discharge or which causes the plant influent temperature to exceed 104 F (40 C). Any wastewater having a temperature which will inhibit biological activity in the Petaluma owned treatment works resulting in interference.

(b) Corrosive Wastes - Waste having a pH lower than 6.0 or higher than 9.5, or having a pH which will cause damage to the collection system or interfere with Petaluma owned treatment works treatment processes.

(c) Fire or Explosion - Any liquids, solids or gases which by reason of their nature or quantity are, or may be sufficient either alone or by interaction with other substances to cause a fire or explosion or endanger public safety or interfere with the operation of the Petaluma owned treatment works.

At no time, shall two successive readings on an explosion hazard meter, at the point of discharge into the sanitary sewer (or at any point in the system) be more than five percent (5%) or any single reading over ten percent (10%) of the Lower Explosive Limit (LEL) of the meter, or have a Closed-Cup Flash point of less than 140 degrees F (60 C) using the test methods specified in 40 CFR 261.21. . Prohibited materials include, but are not limited to gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides and any other substances which the City, the State and EPA has identified as a fire hazard or a hazard to the system.

d) Obstruction of Flow - Solids or viscous substances which may cause obstruction of the flow in a sewer or other interference with the operation of the wastewater treatment facilities such as, but not limited to: grease, garbage with particles greater than one-half (1/2) inch (1.27 centimeters) in any dimension, animal guts or tissues, paunch manure, bones, hair, hides, fleshing, entrails, whole blood, feathers, ashes, cinders, wax, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, plastics, tar, asphalt residues, residues from refining, or processing of fuel or lubrication oil, mud or glass grinding or polishing wastes.

e) Toxic Pollutants - Any wastewater containing toxic pollutants in sufficient quantity, either singly or interaction with other pollutant, that would pass-through or interfere with the wastewater treatment process, or constitute a hazard to human, animal or plant

life, including aquatic organisms, or create any hazards in the waters receiving the wastewater treatment plant effluent.

A toxic pollutant shall include but not be limited to any pollutant identified pursuant to Section 307(a) of the act. Compounds specifically prohibited include any poly-chlorinated biphenyl (PCB), any pesticide (including any insecticides, herbicides, or fungicides) such as, but not limited to chlordane, heptachlor, heptachlor epoxide, aldrin, dieldrin, dichlorodiphenyl trichloro ethane (DDT), dichloro-diphenyldichloro ethene (DDE), rothane (DPD).

f) Noxious or Malodorous Substances - Any harmful or offensive, gases, or solids which either singly or by interaction with other wastes are sufficient to violate air quality standards at the Petaluma owned treatment works, create a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for maintenance and repair. Any volatile organic pollutant in such concentration that would cause the headspace gases to exceed a 300 hexane equivalent level over equilibrated wastewater or exceed Toxicity Discharge Screening Levels based on Fume Toxicity.

g) Disposal/Reclamation - Any substance which may cause the Petaluma owned treatment work's effluent or any other product of the Petaluma owned treatment works such as residues, sludges, or scum, to be unsuitable for reclamation and reuse or to interfere with the reclamation process. In no case, shall a substance discharged to the Petaluma owned treatment works cause a violation of the criteria, guideline or regulations developed under Section 405 of the Act; any criteria, guidelines or regulations affecting sludge use or disposal developed pursuant to the Solid Waste Disposal Act, the Clean Air Act, the Toxic Substances Control Act, or State or local criteria applicable to the sludge disposal.

h) Petaluma owned treatment works Violation - Any substances which will interfere with the wastewater treatment process, or cause the Petaluma owned treatment works to violate or continue to violate its NPDES permit. This includes, but is not limited to slug discharges, oxygen demanding pollutants (BOD or COD), suspended solids, heavy metals, oil and greases or toxic organic compounds; released at a flow rate and/or

pollutant concentration which will cause interference to the Petaluma owned treatment works.

i) Detrimental Environmental Impact - Any substance which may have a harmful environmental impact or create a nuisance in the waters of the state or a condition which violates the rules and regulations of any public agency having regulatory jurisdiction over the City, including but not limited to any statute or any rule, regulation, or requirement of any public agency or State or Federal regulatory body.

j) Discoloration - Any wastewater creating discoloration or any other condition in the quality of the Petaluma owned treatment works effluent such that receiving water quality requirements established by law cannot be met.

k) Hazard or Public Nuisance - Any waste, which, as determined by the Director, may have an adverse or harmful effect on sewer, maintenance personnel, wastewater treatment plant personnel or equipment, treatment plant effluent quality, public or private property or may otherwise endanger the public, the local environment or create a public nuisance. The Director shall in determining the acceptability of specific wastes, consider the nature of the waste and the adequacy of the collection, treatment and disposal system available to accept the waste.

l) Excessive Flow - Total quantities of flow or instantaneous peaks which due to volume or manner of delivery require a disproportionate share of the City's treatment plant capacity. This also includes flows which, alone or in combination with others, cause excessive treatment costs and/or treatment plant process upsets.

m) Radioactive Wastes - No User shall, and it shall be unlawful, to discharge, cause to be discharged, or permit to be discharged, any radioactive waste into the sanitary sewer, except:

i) Users authorized to use radioactive materials by the State Department of Health or other governmental agency empowered to regulate the use of radioactive materials may discharge, cause to be discharged, permit to be discharged such

wastes, provided that such wastes are discharged in strict conformance with the current State of California Code of Regulations, Title 17 and Federal Regulations and recommendations for safe disposal of such wastes as they now exist or may hereafter be amended; and

ii) The User so acting does so in compliance with all applicable rules and regulations of all other regulatory agencies having jurisdiction over such discharges.

(n) Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.

(o) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems.

(p) Any trucked or hauled pollutants, except at discharge points designated by the POTW.

Section 15.48.030 - Specific Limitations on Wastewater Strength

These limits shall be deemed Pretreatment Standards for the purposes of Section 307(d) of the Act.

a) No person shall discharge wastewater containing in excess of:

DISCHARGE LIMITATIONS

POLLUTANT	DAILY COMPOSITE SAMPLE (values in mg/L)
ARSENIC	0.20
BARIUM	7.00
BERYLLIUM	0.03
CADMIUM	0.01
CHROMIUM–TOTAL	0.42
CYANIDE	0.26
LEAD	0.12
MERCURY	0.001

SELENIUM	0.10
SILVER	0.10
ZINC	1.00
PHENOL	1.00

b) Any discharge which contains greater than 700 mg/L of suspended solids or 900 mg/L of BOD.

c) Any water or waste which contains more than 100 mg/L, by weight, of oil or grease of petroleum origin or fat, oil or grease of animal or vegetable origin, or which contains grease or oil or other substances that will solidify or become viscous at temperatures between 32 to 140 F (0 to 60 C).

d) Any waste containing Total Toxic Organics (TTO), as defined in this ordinance, greater than 1 mg/L.

e) Any wastewater containing copper or nickel at levels above the domestic concentrations as determined by the Control Authority, unless issued a Wastewater Discharge Permit containing mass-based limits for copper and/or nickel.

f) Any wastewater having BOD, TSS, oil and grease or copper in excess of concentrations found in normal domestic sewage unless an Abnormal Sewage Surcharge is levied as defined by this Ordinance. At no time shall a 24 hour composite sample of a User's discharge contain these constituents in excess of permit limits.

Section 15.48.040 - Discharge Into Storm Drain Prohibited

It shall be unlawful to discharge any waste or wastewater into any storm drain or natural outlet unless the User has obtained an NPDES permit and the User is in compliance with all applicable rules and regulations of all agencies having jurisdiction over such discharge.

Section 15.48.050 - Prohibition of Storm Drainage and Ground Water

Storm water, ground water, rain water, street drainage, subsurface drainage or yard drainage shall not be discharged through direct or indirect connections to the sanitary sewer. The City may approve the discharge of such water only when no reasonable alternative method of disposal is available. If a permit is granted for the discharge of such water into the sanitary sewer, the User shall pay the applicable User charges and fees and meet such other conditions as required by the City.

Section 15.48.060 - Prohibition on Unpolluted Water

Unpolluted water including, but not limited to cooling water, process water or blow-down from cooling towers or evaporative coolers shall not be discharged through direct or indirect connection to a City sewer unless a permit is issued. The City may approve the discharge of such only when no reasonable alternative is available.

If a permit is granted for the discharge of such water into a community sewer, the User shall pay the applicable charges and fees and shall meet such other conditions as required by the City.

Section 15.48.070 - Prohibition on Use of Dilution Waters

No User shall ever increase the use of process water or in other way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with a Pretreatment Standard or Requirement or any other State or local requirement or standard.

Section 15.48.080 - Limitations on Point of Discharge

No User shall discharge any substance directly into a manhole, clean out or other opening in a sanitary sewer other than through an approved building sewer, unless upon written application by the User and payment of the applicable User charges and fees, the City issues a permit for such direct discharges.

No person shall discharge any holding tank wastes, or wastes from barrels, storage tanks or any other such containers not directly connected to the City sewer unless the User has obtained a Special Discharge Permit. Unless otherwise allowed by the City, under the terms and conditions of the Special Discharge Permit, a separate Permit must be secured for each separate discharge. The User may be required to sample, analyze and report to the Director the characteristics of the waste, prior to the

issuance of the permit. The Permit may stipulate the specific location of the discharge, the time of day the discharge is to occur, limits of the volume discharged and the constituents and characteristics of the waste. The User shall pay all applicable charges and fees and shall meet such other conditions as required by the City.

Section 15.48.090 - Limitations on Use of Garbage Grinders

Waste from garbage grinders shall not be discharged into the sanitary sewer except where:

a) Waste from residential premises generated in the preparation of food;

b) The User has an existing garbage grinder and has a permit for that specific use from the City;

c) At any time the property or business changes ownership, excluding residential property, the existing garbage grinders on the property must be removed unless the User has obtained a permit for that specific use from the City, agrees to undertake whatever self-monitoring is required to enable the City to equitably determine the charges and fees based on the waste constituents and characteristics.

All garbage grinders must be repaired or replaced as necessary in order to at all times ensure that the waste is shredded to a degree that all particles will be carried freely under normal flow conditions prevailing in the City sanitary sewer, with no particle greater than one half (1/2) inch (1.27 centimeters) in any dimension. Garbage grinders shall not be used for grinding plastic, or paper products, inert materials, or garden refuge.

Section 15.48.100 - Prohibition on Hospital Wastes

Hospitals, clinics, offices of medical doctors, and convalescent homes shall not discharge to the sanitary sewer:

a) Equipment, instruments, utensils, hypodermic needles, syringes and associated articles.

Waste Discharge Permit Application
Groundwater Remediation Sites
City of Petaluma, California
Chapter 15.48 - Sewer Use Regulation

This is an application for a **Waste Discharge Permit** under the City of Petaluma, California Chapter 15.52 Wastewater Discharge Permit to discharge wastewater to from groundwater remediation sites.

Please enclose a check in the amount of $100.00, payable to the City of Petaluma, for payment of the Waste Discharge Permit application fee.

Once deemed complete, your application will be subject to review by City of Petaluma to evaluate the impact of the proposed hydraulic loading on the City of Petaluma sewer systems. If the proposed hydraulic loading is acceptable, the City of Petaluma GVRD will advise you of the amount of the municipal discharge fee, where applicable.

GENERAL INSTRUCTIONS

1. Provide all required information and attachments.
2. If you do not have an answer for the requested information, indicate so and explain why.
3. Indicate 'n/a' if a section does not apply to your application.
4. Use additional pages, as required.
5. Send the completed application form, attachments, and the application fee to the following address:

City of Petaluma Wastewater Treatment Facility
950 Hopper Street
Petaluma, CA 94952
Telephone: (707) 762-5892
Facsimile: (707) 762-5318

Waste Discharge Permit Application
Groundwater Remediation Sites

CONTENTS

Waste Discharge Permit Application
Groundwater Remediation Sites

SECTION A: APPLICANT INFORMATION

APPLICANT BUSINESS NAME (Registered Company Name):

INCORPORATION NUMBER:

SITE ADDRESS:

BUSINESS MAILING ADDRESS:

(Street)

(City)

(Zip Code)

SECTION B: SITE HISTORY

Summarize the business activities and/or manufacturing processes responsible for the site contamination and/or construction excavation and provide the name of the current property owner.

(use additional pages if necessary)

SECTION C: SITE CONTAMINATION CHARACTERIZATION

Characterize the nature of the site contamination:

Include supporting analytical data for the soil, groundwater and/or collected storm water.

Provide an assessment of whether Special Wastes are present in the soil, groundwater and/or storm water.

If Special Wastes are present, detail the provisions taken to comply with Column 3 of Schedule 1.2 (Standard for Discharges Directed to Municipal or Industrial Effluent Treatment Works) of the provincial Special Waste Regulation.
(use additional pages if necessary)

Waste Discharge Permit Application
Groundwater Remediation Sites

Background Information

Is this a pump & treat? _____
Is this an open excavation? _____
Is this a combination pump
& treat / open excavation? _____

SECTION D: OPERATING PERIOD

Specify the proposed operating period for the activities (i.e. the period during which wastewater is discharged to the sanitary sewer):

Hours/Day:_____ Days/Week:_____ Weeks/Year:_____

Specify the typical number of hours of discharge to the sanitary sewer during the following periods:

08:00 to 16:00: _____ 16:00 to 24:00:_____ 0:00 to 08:00:_____

Expected duration of the project: _____

SECTION E: WASTEWATER QUALITY

Identify the contaminants of concern in your wastewater discharge (eg. hydrocarbons, BETX, PAHs, Metals, Suspended Solids, etc.).

_____
_____
_____
_____

Identify whether the discharge includes storm water from direct precipitation.

_____
_____
_____

Provide a characterization of the wastewater before and after treatment, noting the presence of hydrocarbons, BETX, PAHs, Metals, Suspended Solids, and any other pertinent contaminants specified in Chapter 15.48 - Sewer Use Regulation, Section 15.48.020 – Specific Discharge Prohibitions. Include supporting analytical data.

_____
_____
_____

Waste Discharge Permit Application
Groundwater Remediation Sites

SECTION F: WASTEWATER TREATMENT

Describe the wastewater treatment works that will be utilized to treat the wastewater prior to discharge to sewer. Please include the following:

1. Basic design criteria and sizing calculations for the treatment system components.

2. The maximum design flow rate for the treatment works.

3. Justification of the works based on wastewater quality data, results from other similar installations and/or scientific evidence from literature demonstrating performance.

4. Maintenance procedures to be carried out to ensure integrity of the works.

5. Any provisions to bypass the treatment works.

6. For carbon filters, identify procedures/monitoring that will be implemented to ensure carbon replacement prior to breakthrough.

7. Method(s) of disposal of any treatment byproducts.

8. A schematic flow diagram, identifying wastewater sources, collection piping, treatment works, instrumentation, sampling point, and the point of connection to sewer (Example in Attachment A).

Waste Discharge Permit Application
Groundwater Remediation Sites

SECTION G: SPILL PREVENTION AND CONTAINMENT

Summarize the provisions taken to prevent spills (e.g. from a hydrocarbon storage tank) or untreated groundwater from entering the sanitary sewer system:

(use additional pages, if necessary)

SECTION H: FLOW INFORMATION

1. Requested Discharge Flow Rates

The following process flow information is required to complete hydraulic loading capacity evaluations.

Total remediation or excavation site area: _____ acres
Total discharge volume over the requested term of the Permit: _____ gpd
Maximum daily discharge rate: _____ gpd
Maximum instantaneous peak flow rate: _____ gal/minute
Maximum discharge duration: _____ hours/day _____ days/week
_____ weeks/year

SECTION H: FLOW INFORMATION CONTINUED

1. Discharge Flow Rate Estimation Methods

Indicate the method used to estimate the discharge flow rates and provide the supporting information specified.

Method Additional Information Required

Discharge Pump Capacity Provide pump specifications and all supporting calculations, assumptions, etc.
Flow Measurement: _____
Provide specifications for the flow monitoring and recording equipment used:

4. Discharge Flow Rate Profile

Please provide a graphic representation of a 24 hour profile of the instantaneous flow rate from your remediation activities on both average and high discharge days.

Waste Discharge Permit Application
Groundwater Remediation Sites

Time (hours) _____
Flow (gals/min.) _____

SECTION I: FLOW CURTAILMENT PROCEDURES

In the event of excess hydraulic loadings to the sewer system, the Permit holder may be required to immediately curtail or cease the discharge to sewer upon receiving notice from the City of Petaluma. This may occur at any time during the term of the Permit.

Please provide a description of the procedure by which a company representative can be contacted 24 hours/day by Source Control in the event of such a condition.

_____
_____
_____

Include the contact person(s):_____
Telephone number(s): _____

Normal working:
hours:_____evenings:_____weekends:_____
holidays:_____

SECTION J: REQUESTED PERMIT TERM

Please indicate in the appropriate categories below the length of time that you will require a Waste Discharge Permit (Note: the maximum term for an excavation or groundwater remediation Permit is one year).

Less than 7 days:_____
91 - 180 days: _____
7 - 30 days: _____
181 - 270 days: _____
31 - 90 days: _____
271 - 365 days: _____

Comments:

_____
_____
_____

Waste Discharge Permit Application
Groundwater Remediation Sites

SECTION K: DECLARATION

This application form must be signed by a representative of your company, who will be responsible for complying with all terms and conditions of the Waste Discharge Permit.

I declare that the information given on this form is correct and accurate to the best of my knowledge.

Name (please print)

Title

Telephone

Fax

Signature

Date

If you elect to appoint another company employee or consultant as the primary contact for this application, please complete the following:

Primary Contact Information

Name (please print)

Title

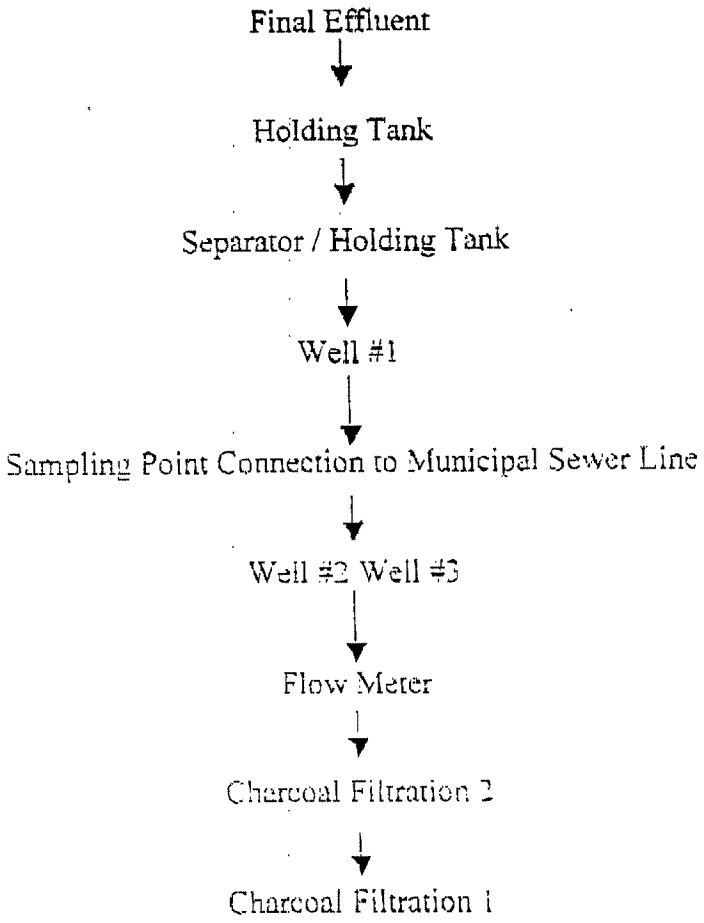
Company Name (if Consultant)

Telephone

Fax

Waste Discharge Permit Application
Groundwater Remediation Sites

ATTACHMENT A: EXAMPLE OF SCHEMATIC FLOW DIAGRAM



City of Petaluma 11 English Street
Post Office Box 61 - Petaluma, California 94953

CITY OF PETALUMA
ENVIRONMENTAL COMPLIANCE WASTE DEPARTMENT

SPECIAL DISCHARGE PERMIT CONDITIONS

The Special Discharge Permit is a one-site discharge permit. Each site should have a separate permit.

- DISCHARGE LIMITS - TPH<100MG/L. MTBE+BTX&E<1MG/L.
  All pollutants that can reasonably be expected, shall be analyzed for i.e., Lead (Pb).
- Each discharge site shall have an annual permit obtained from the Environmental Compliance Department.
- A uniform discharge shall not exceed 50 gallons per minute (gpm).
- An outline of sample techniques must be filed. It can be referred to in future sampling if there are no changes.
- The exact time and point of discharge shall be noted. The Environmental Compliance Department shall approve any deviation from the schedule.
- In the event that wastewater hauling is needed, waste haulers licensed with the City of Petaluma will be used.
- United States Environmental Protection Agency sampling and testing procedures, 40CFR136 shall be followed.
- Chain-of-Custody, QA/QC data and detection limits shall be supplied with sample results.
- The responsible party, or their direct representative capable of decision making, shall be present during all activities.

Please follow these guidelines and the instructions on the Special Discharge Permit.