BLYMYER
ENGINEERS, INC.

November 26, 1996
BEI Job No. 96004

Ms. Michyle A. LaPedis
Lanferman, Fisher & Hashimoto
3100 Mowry Avenue, Suite 300
Fremont, CA 94538-1509

Subject: **Recommendations for Additional Work**
Runnels Industries
3590 Enterprise Avenue
Hayward, California

Dear Ms. LaPedis:

At your request, Blymyer Engineers, Inc. has reviewed data from the two Blymyer Engineers' reports to provide recommendations for additional work at the subject site. In considering these recommendations, Blymyer Engineers has considered the expressed desire of Mr. Al Gant to sell the site in the relative near future. As a consequence, Blymyer Engineers has attempted to formulate an investigation that will collect sufficient data from the site during the proposed investigation in order to minimize the length of time until some resolution on the environmental status of the site is reached.

Background

Blymyer Engineers performed a Phase I ESA of the property in April 1996 (*Phase I Environmental Site Assessment*, dated April 26, 1996). Two major findings and two minor findings were identified in the assessment:

Major Findings

1. Case closure has been requested, but not yet obtained, from the City of Hayward Fire Department (HFD) for an underground storage tank (UST) release discovered at the property during the removal of three USTs in May 1993. Blymyer Engineers recommended no action regarding the UST release, pending closure of the case by the HFD.

2. Overspray from outside painting, spills of solvents documented in HFD inspection reports, filling in of low spots of the property with used blasting sand, historic use of lead-based paints, and diesel staining adjacent to a former aboveground storage tank (AST) were identified as conditions of concern at the property. Blymyer Engineers recommended a shallow soil and groundwater investigation to assess

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whether contaminants, including thinners, metals, solvents (chlorinated and non-chlorinated), and diesel, were present in soil or groundwater at levels of concern.

Minor Findings

1. Seven sites with documented UST releases within 1/8 mile of the property and in the assumed upgradient direction (east) from the property were identified. Blymyer Engineers recommended that either a grab groundwater sample be collected from the northeast corner of the property during the recommended shallow soil and groundwater investigation to assess potential impact from these off-site sources or that a review of the agency files for these sites be conducted to determine, if possible, whether any of these sites pose a risk to the property.

2. Several areas of stained soil were observed Blymyer Engineers recommended that these areas be properly cleaned up.

On June 7, 1996, Blymyer Engineers conducted a Phase II Subsurface Investigation (*Phase II Environmental Site Assessment*, July 11, 1996) at the request of Mr. Al Gant. Five 1.5-inch-diameter soil bores, B1 through B4, and B6, (Figure 1) were advanced under the supervision of a Blymyer Engineers geologist by Gregg Drilling & Testing using Geoprobe sampling equipment. Soil samples were collected continuously, in 4-foot lengths, for field observation, and one sample of surface fill materials from each bore was collected for laboratory analysis. The soil bores were advanced to 16 feet below grade surface (bgs). A hand-auger was used to install soil bore B5 due to restricted access. Groundwater samples were collected, without the aid of temporary PVC well screens, due to the slow recharge rate of groundwater, and the bores were subsequently grouted to grade surface with cement grout.

Detectable concentrations of Total Extractable Petroleum Hydrocarbons (TEPH) as diesel or TEPH as transmission fluid were detected in each soil sample. A very low concentration of TEPH as diesel was detected in soil sample B1-3, located very near the former location of the AST. Typically concentrations of TEPH as transmission fluid were detected below 100 milligrams per kilogram (mg/kg), although a concentration of 610 mg/kg TEPH as transmission fluid was detected in sample B5-0.5 (Please refer to the Tables contained in the referenced subsurface report). The laboratory indicated that the TEPH analysis chromatograms did not match the standards for bunker C, creosote, hydraulic oil, kerosene, motor oil, or stoddard solvent. Blymyer Engineers anticipated that the oil detected at the site may be a cutting oil used to lubricate metal during cutting processes off-site. The cutting oil could also be expected on some of the uncleaned metal pieces prior to cleaning for the spray painting operations at the site.

No concentrations of volatile organic compounds (VOCs) were detectable in the soil samples. This would be consistent with the diffuse, low concentration, low volume, former usage of VOCs at the site to thin spray paint, and receipt of overspray by the ground surface over time.

Concentrations of all metals, except cadmium and molybdenum were detected in soil samples. Concentrations of chromium, lead, and zinc exceed 10X the Soluable Threshold Limit Concentration (STLC) in two samples; however, the respective Total Threshold Limit Concentration (TTLC) for these metals was not exceeded in any soil sample. Ten times the STLC is a general rule-of-thumb used to determine if additional analytical testing for STLC metals should be conducted. Based on the results of the rule-of-thumb evaluation, STLC analysis for lead was requested for soil sample B4-1, and STLC analysis for chromium, lead, and zinc was requested for soil sample B5-0.5. The STLC concentration for each element at each location exceeded each respective STLC.

Relatively low detectable concentrations of TEPH as diesel and/or TEPH as transmission fluid were detected in each grab groundwater sample collected from the soil bores. TEPH as diesel was present at concentrations of 0.38 milligram per liter (mg/L) and 0.25 mg/L in grab groundwater samples from bores B1 and B4, respectively. TEPH as transmission fluid was present at detectable concentrations ranging from 0.56 mg/L to 10 mg/L in groundwater samples from all bores except bore B1, where it was not detected The laboratory indicated that the TEPH analysis chromatograms did not match the standards for bunker C, creosote, hydraulic oil, kerosene, motor oil, or stoddard solvent. Blymyer Engineers again anticipated that the oil detected at the site may be a cutting oil used lubricate metal during the cutting process.

Detectable concentrations of seven VOCs were present in the grab groundwater samples from all soil bores except B6. Concentrations of 1,1-Dichloroethane (1,1-DCA), cis-1,2-Dichloroethene (cis-1,2-DCE), 1,1-Dichloroethene (1,1-DCE), Tetrachloroethene (PCE), 1,1,2-Trichloroethane (1,1,2-TCA), Trichloroethene (TCE), and Vinyl Chloride (VC) were detected. Maximum Contaminant Levels (MCLs) were exceeded for four of these compounds. Available data appears to indicate on-site, and potentially, off-site sources may be present.

Soluble concentrations of lead, nickel, and zinc were detected in the grab groundwater samples. The STLC for the analyzed metals was not exceeded in any of the groundwater samples. MCLs for metals were not exceeded, however, the method detection limit for antimony and cadmium was greater than the respective MCL value. In general this indicates that soluble lead detected in bore B4 did not reach groundwater. Soluble metal in bore B5 should be further investigated as discussed below.

Recommendations

Primarily, Blymyer Engineers believes that risk-based analysis should be utilized at the subject site. It most likely provides the least expensive method to obtain either site closure, or to significantly reduce the cost of future work. Risk analysis is not a new technology, but has been used at Federal sites for a number of years, and has only recently been allowed to be used at non-Federal sites in an attempt to minimize costs (Please see the enclosed information sheet). As a consequence, the additional investigation at the site should not only attempt to identify the extent of chemical contaminants at the site, but should also collect data on the physical characteristics of site soils (both in the zone above groundwater and in the water-bearing zone). To the extent possible, the investigation should be oriented toward minimizing the exploration of the entire extent (to nondetectable concentrations) of the chemical concentrations anticipated to be found at the site, but should consequently focus on understanding the general extent of the anticipated worst-case concentrations to be found at the site and the extent concentrations could pose health risks to human populations (site workers), or to organisms anticipated to be in the adjacent wetlands.

To begin to investigate the extent, concentration, and location of VOCs and petroleum hydrocarbons in groundwater, Blymyer Engineers recommends that four groundwater monitoring wells be installed at the subject property. Potential monitoring well locations have been tentatively positioned on Figure 1. The exact location of each well can be modified, but the proposed locations will allow confirmation of the potential highest concentration of VOCs and TEPH previously discovered during the boring program, will begin to identify the downgradient extent of these chemicals, and will help determine if upgradient contaminants may also be impacting the site by migrating from across Whitesell Drive (for which there is some evidence). Soil and groundwater samples should be collected for the anticipated chemicals (TEPH and VOCs).

Blymyer Engineers does not believe that groundwater samples need to be collected for soluble metals, except in the vicinity of soil sample B5-0.5, as the June 1996 Geoprobe bore program strongly indicates that significant soluble metals are not present in groundwater beneath of the site. The extent of high concentrations of metals in near surface soil in the vicinity of B5-0.5 should be further delineated in addition to determining if the soluble fraction of metals at this near surface location has additionally impacted surface water.

In addition to the chemical analysis of the soil samples, the physical parameters of soil in both the confining zone above the water-bearing unit, and in the water-bearing zone, should be collected. This data will allow risk-based modeling to more closely reproduce site conditions. Testing for Total Organic Carbon (TOC), grain-size distribution, permeability, porosity, and moisture content should be conducted. These parameters will help to determine the rate of movement (partitioning) of chemicals from soil to groundwater, and then the rate of migration

of the chemicals across the site once the chemicals have entered groundwater. (The rate of migration is not the same as the rate of groundwater flow, and depends upon a number of factors).

As a part of the risk-based data collection, rising and falling head slug tests should be conducted on two of the proposed groundwater monitoring wells in order to determine aquifer characteristics (transmissivity, storitivity, and conductivity). Slug tests are typically the least expensive method by which these data may be obtained from an aquifer. These tests will help determine at what rate groundwater is flowing across the site in order to help determine how far the chemicals in the subsurface have migrated, and thus to help determine how the chemicals may be impacting groundwater quality and wetland organisms to the west of the site.

Existing site environmental data should be reviewed to determine if the data can be incorporated into the anticipated investigation, and whether some data may already exist which should not be recollected. In particular, the existing groundwater monitoring well should be considered for use in the anticipated investigation.

Fate and transport modeling at some level of involvement (simple to more complex) will be required depending upon the extent of exposure to the chemicals to either the site workers or to the wetlands. Relatively simple fate and transport modeling programs are contained in the American Society of Testing and Materials (ASTM) Risk-Based Corrective Action (RBCA) Tool-kit modeling program. This model may be suitable for use at the site depending in part on the results of the proposed investigation. Should chemical contaminants be found to be potentially endangering wetlands to the immediate west of the site more sophisticated models may be required. Typically the higher the level of sophistication, the more cost. Additionally, should the wetlands be found to be endangered, a Wetlands Survey may be required to determine what species are normally expected to inhabit these lands and that could be exposed to the chemicals of potential concern.

Blymyer Engineers appreciates this opportunity to provide you with environmental services. Please call Mark Detterman at (510) 521-3773 with any questions or comments regarding this letter report.

Sincerely,

Blymyer Engineers, Inc.

By: _____
Mark E. Detterman, C.E.G. 1788
Senior Geologist

And: _____
Sue Black
Vice President, Environmental Services

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The property is ~4 acres in size and contains 11 buildings + numerous storage containers. Ronnel Industries, a metal painting company has occupied the site since 1966. The property is primarily unpaved except around buildings, where concrete + asphalt aprons are present.

In April 1986 a phase I environmental site assessment was conducted at the site. Areas of environmental concern identified include:

① - overspray from outside painting
② - spills of solvents
③ - filling in of low spots w/ used blasting sand
④ - historic use of lead-based paints.
⑤ - diesel staining adjacent to the former diesel AST.
⑥ - wash out

) Used thinners are stored in 55 gal. drums to allow particles to settle. The thinner is then removed + reused. The sludge was emptied into sludge bins to allow to air dry, the disposed in garbage dumpsters.

) Sand blast materials (used to clean rust off metal and remove paint + epoxy off metal) were analyzed for metals. Only chromium @ 78 ppm and copper @ 1400 ppm exceed 10 x their respective STLC. Soiled Sand blast material was used to fill low spots on the property and off the property at the adjacent radio station KFAX

⑤ 0-8 stains were noted in soil adjacent to the above gd diesel tank. Aerial photos from 1977 identified dark staining east of Blasting Building B, north of open paint building A, and northwest of Blasting Bldg C. Mrs Ruglee believes the darkening staining is likely due to rain water ~~and the a significant portion of the business is painting tanks, and large vertical tank were on the property for painting~~

⑦ The ground surface in the ~~area~~ outside spray painting area south of Open paint Bldg B was red in color, which appeared to have resulted from overspray ⑩ The uncoated metal is cleaned in the pressure washer container. The effluent from the A1 cleaning operation discharges directly to soil and then drains offsite to the west, onto the radio station property.

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A Tool for the 90s: Risk Assessment for Site Closure

Historically risk assessment has been used as a tool on a national level to determine the significance of contamination in food, soil, water, and air. With enactment of the Superfund legislation, it has been used to determine health risks associated with potential exposure to contaminants, and has played an important role in the development of cleanup goals for site closure at contaminated sites. During the past two years an evolution in the use of risk assessment has occurred and it is now being used on sites of all sizes and complexities, including the cleanup occurring at your corner gas station, or at your facility.

Until recently, regulatory agencies have generally required sites to cleanup to generic cleanup goals for soil and groundwater at non-Superfund sites (non-detect, background, 100 ppm, etc.) based upon the perceived threat to the environment and human health. Due to the collection of data at thousands of sites over the past 10 years, and the financial constraints most state underground storage tank (UST) reimbursement funds now operate under, regulatory agencies and industry are now recognizing the need to determine cleanup levels at sites of all sizes based upon health risks rather than uniform generic standards. Risk assessment, including the recently finalized American Society of Testing and Materials (ASTM) document for risk-based corrective actions, otherwise known as RBCA or "ReBecCA", is now in the initial stages of being used to help determine the most cost-effective approach for determining site-specific cleanup goals based upon a quantified and qualified determination of risks to human health and the environment.

The RBCA process is based upon existing EPA risk assessment techniques. The RBCA approach uses three tiers, each based upon health risk, to determine the degree to which a site must be investigated. The first steps following the discovery of a release still require determining the magnitude and extent of the resulting contamination. This will still require collecting soil, and perhaps groundwater, samples for analysis. Tier I is generally used for small releases which can be characterized as a low hazard based on the collected data. If the release is significant, or the released substance is more hazardous, additional data may be required to understand the nature of the problem, and higher Tiers (II or III) are entered, each with increasing sophistication and cost. Within each Tier level, hazard identification, dose-response assessment, exposure assessment, and risk characterization are used to define and characterize the potential risks to health. Both commercial/industrial and residential risk levels and goals have been defined. Once the data have been collected, and the extent of the contamination understood, an evaluation and selection of the least expensive approach for achieving site-specific corrective actions protective of human health and the environment is completed. The RBCA framework offers a cost-effective method of determining and supporting minimal corrective actions. In a growing number of cases "no further action", or passive bioremediation, is the recommended health protective action. This specifically selected option allows contaminants to remain in place with the knowledge that natural processes will remediate the contaminants in a passive, but long-term manner.

Although RBCA is a powerful tool to help protect public and ecologic health, it is not at the same time a panacea. Additional considerations must be given to how long-term remediation will effect the use of a parcel; future property transactions involving any remaining contaminated soil or groundwater; deed restrictions prohibiting certain actions such as excavation, land use changes to residential, etc.; and third-party liability issues involving the potential offsite migration of low-risk contaminants. Each of these considerations, and possibly others, should be evaluated on a site-specific basis.

For more information on how RBCA may affect you, or how it can be applied at your site, please contact Mark Detterman at our Alameda office.

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