STD 5567

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FROM: Michelle King PAGES (including cover sheet): 15

PROJECT: Exposure Inc PROJECT #: 940018-03

TO THE FOLLOWING:

NAME:	Sum Arigala	NAME:	Ravi Arulanantham
COMPANY:	RWQCB	COMPANY:	RWQCB
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COMPANY:		COMPANY:	
FAX NO.:		FAX NO.:	

☒ REPORT DRAFT ☐ AS REQUESTED

☐ LETTER/MEMORANDUM ☐ FOR APPROVAL

☐ SPECIFICATIONS: ☒ FOR REVIEW & COMMENTS

☐ OTHER: ☐ FOR INFORMATION & COORDINATION

MESSAGE: Changes to Risk Management Plan pursuant to our meeting on Friday, Oct 13. Please call with any comments. Thanks! Michelle

FOR VOICE CONTACT CALL: (415) 578-1172
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Risk Management Plan
for the 64th and 65th Street Properties
Emeryville, California

Sybase, Inc., Emeryville, California
(EKI 940018.03)

EXECUTIVE SUMMARY

This risk management plan has been prepared for the properties at 1410 and 1450 64th Street and 1465 65th Street ("the Site") in Emeryville, California by Erler & Kalinowski, Inc. ("EKI") for Sybase, Inc. Sybase, Inc. is planning to acquire the Site and redevelop it for commercial/office uses. The risk management plan has been prepared in accordance with the recommendations of the Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB") and Alameda County Department of Environmental Health ("ACDEH") to provide a framework to manage residual chemical occurrence in soil and groundwater on the Site in a manner that is consistent with a commercial/industrial land use and is protective of human health and the environment, including water quality. Implementation of the risk management plan is subject to Sybase, Inc.'s acquisition of the Site and will apply to the property acquired by Sybase, Inc.

Petroleum hydrocarbons and low concentrations of volatile organic compounds, polychlorinated biphenyls, arsenic, nickel and zinc were detected in soil and/or groundwater at the Site (EKI, 1995a). The risk management plan contains the following: (1) an introduction to the Site and Sybase, Inc.'s planned redevelopment; (2) a short-term risk management plan to be implemented during Site redevelopment; and (3) a post-construction plan for mitigation of any long-term risks. Also included in the risk management plan is a provision to ensure long-term compliance with this risk management plan. } *

Sybase, Inc.'s redevelopment plan for the Site includes construction of a road along the west property boundary, a multi-level parking structure, and a U-shaped office building. One existing facility is planned to be converted to office/commercial space.

The short-term risk management plan addresses precautions that will be taken to mitigate any risks to human health and the environment during construction for Sybase, Inc.'s planned redevelopment of the Site. The precautions to be taken are:

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Risk Management Plan
for the 64th and 65th Street Properties
Emeryville, California

Sybase, Inc., Emeryville, California
(EKI 940018.08)

1.0 INTRODUCTION

At the request of AMB Corporate Real Estate Advisors, Inc. ("AMB") and its client, Sybase, Inc., Erler & Kalinowski, Inc. ("EKI") has prepared this risk management plan for the properties at 1410 and 1450 64th Street and 1465 65th Street ("the Site") in Emeryville, California (Figure 1). Sybase in planning to acquire the Site and redevelop it to commercial/office uses.

On the basis of the current condition and planned use of the Site, Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB") and Alameda County Department of Environmental Health ("ACDEH") staff have recommended completion of a risk management plan to provide a framework to manage residual chemical occurrence in soil and groundwater on the Site in a manner that is consistent with a commercial/industrial land use and is protective of human health and the environment, including water quality. Implementation of the risk management plan is subject to Sybase, Inc.'s acquisition of the Site and will apply to the property acquired by Sybase, Inc.

Petroleum hydrocarbons and low concentrations of volatile organic compounds, polychlorinated biphenyls, arsenic, nickel and zinc were detected in soil and/or groundwater at the Site (EKI, 1995a). The risk management plan contains the following: (1) an introduction to the Site and Sybase, Inc.'s planned redevelopment; (2) a short-term risk management plan to be implemented during Site redevelopment; and (3) a post-construction plan for mitigation of any long-term risks. Also included in the risk management plan is a provision to ensure long-term compliance with this risk management plan.

2.0 SYBASE, INC.'S PLANNED REDEVELOPMENT

The Site is located on the west side of Hollis Street between 64th and 65th Streets in Emeryville, California. The south portion of the Site is occupied by the former Breuner's warehouse ("Lowenberg property") and an asphalt-paved storage area ("Ryerson paved lot property")

and groundwater sampling (EKI, 1995a). The approximate boundaries of these areas are depicted on Figure 4. Area A includes the former refinery, the former Ryerson underground storage tank, and the surrounding area (i.e., areas where elevated levels of petroleum hydrocarbons have been detected in soil and groundwater). Area B includes portions of the Site where (1) chemical concentrations in soil samples were low or not detected and (2) there are no known sources of chemicals in soil (EKI, 1995a). Area C includes the former Lowenberg tanks and vicinity (where elevated levels of petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylenes ("BTEX") compounds have been detected in soil and groundwater samples).

Decision diagrams for handling soil excavated from Areas A, B, and C are presented on Figures 5, 6, and 7, respectively. The decision diagrams present the methodology that will be used to determine where excavated soil can be re-used as backfill on the Site. The decision process illustrated on the diagrams also provides an option to test and appropriately dispose of excavated soil at an off-site location. Soil from the Site will be handled and re-used as backfill in accordance with the following criteria:

- Soil excavated from Area A can remain in Area A without any testing.

- If soil is not visibly stained and organic vapor meter ("OVM") readings (i.e., measured with a photoionization detector) are less than 5 parts per million ("ppm"), soil from any area can be used as backfill in any area on the Site.

- If soil is from Areas A or B and is visibly stained or OVM readings exceed 5 ppm, soil can be used as backfill in Area A only. → capped area

- If soil is from Area C and is visibly stained or OVM readings exceed 5 ppm, soil must be analyzed for BTEX. If BTEX concentrations are less than the decision criteria for Area C, then soil can be used as backfill in Areas A or C. If BTEX concentrations exceed the decision criteria for Area C, then soil must be disposed appropriately at an off-site location.

For benzene, the decision criterion for Area C is defined as 10 times the U.S. Environmental Protection Agency's ("EPA") Preliminary Remediation Goal ("PRG") for industrial soil containing benzene (EPA, 1995a). The EPA PRG for industrial soil containing benzene, i.e., 3.2 mg/kg, is adjusted to include the more stringent California Cancer Potency Factor *

of 0.1 (mg/kg-day)$^{-1}$ for benzene (Office of Environmental Health Hazard Assessment, 1994), rather than the EPA cancer slope factor of 0.029 (mg/kg-day)$^{-1}$ (EPA, 1995a). Accounting for this difference, the California-adjusted PRG for benzene is equal to 0.93 mg/kg.

PRGs are calculated based on human health risk estimates that assume an industrial exposure scenario and a target incremental lifetime cancer risk level of 10^{-6} or a noncarcinogenic hazard index of unity, whichever is more stringent (EPA, 1995a). Because an incremental lifetime cancer risk level of 10^{-5} has been determined to represent an acceptable exposure level (National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300), the decision criterion for benzene in Area C is defined as 10 times the California-adjusted PRG, or 9.3 mg/kg.

For toluene, ethylbenzene, and xylenes, the EPA PRG is based on the soil saturation concentration (i.e., the concentration at which the compound is expected to be present in a free phase) because of the low toxicity of these compounds. Therefore, the decision criteria for toluene, ethylbenzene, and xylenes are defined as the EPA PRG. PRGs and decision criteria for BTEX compounds in Area C are summarized below:

Compound	PRG for Industrial Soil (mg/kg)	Decision Criteria for Area C (mg/kg)
Benzene	0.93*	9.3
Toluene	2,700	2,700
Ethylbenzene	3,100	3,100
Xylenes	980	980

Note:
*The PRG for benzene is the California-adjusted value (see above for discussion).

Efforts will be made to place affected soil within Areas A and C beneath future buildings sites and as shallow as possible. The purpose of placing affected soil beneath buildings is to restrict potential contact with such soil by future Site occupants. By also placing affected soil as shallow as possible, contact of such soil with groundwater will be restricted.

If subsurface conditions encountered during earthwork activities are substantially different than conditions encountered previously, the RWQCB and the ACDEH will be contacted. Under such conditions, soil handling and re-use protocols may be modified.

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3.2.4 Abandoned Subsurface Structures

Abandoned subsurface structures which may contain liquids, e.g., sumps, storage tanks and pipes, may be encountered in the vicinity of the former refinery (Figure 2). Such structures may be on-going sources of petroleum hydrocarbons to soil and groundwater if they were not emptied prior to abandonment Decision diagrams present protocol to manage subsurface sumps and storage tanks (Figure 8), and pipes (Figure 9) if they are encountered.

The following procedures will be followed if sumps, underground tanks, or pipes are encountered:

- ACDEH will be informed and applicable paperwork, such as the ACDEH Underground Tank Closure Plan (6 April 1995) will be initiated.

- Residual liquids will be removed, contained, tested for hazardous constituents, and appropriately disposed.

- The sump or tank will be cleaned and closed in place or excavated and appropriately disposed.

- Pipes can be cut, the desired portion of the pipe can be removed and appropriately disposed, and ends remaining in place will be capped.

If residual liquids are determined to contain compounds other than petroleum hydrocarbon constituents at significant concentrations or quantities, ACDEH will be contacted and confirmation soil sampling in accordance with ACDEH guidance (ACDEH, November 1992; ACDEH, 6 April 1995) may be required.

3.3 MONITORING WELL ABANDONMENT

Prior to or during construction, existing monitoring wells will be abandoned in accordance with Alameda County Zone 7 procedures in order to prevent accidental contamination of groundwater. Appropriate permits will be obtained from Alameda County Zone 7. Alameda County Zone 7 refers to the California Department of Water Resources procedures (December 1981; June 1991).

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3.4 INSTALLATION OF PILINGS THROUGH AFFECTED SOIL LAYER

As noted in Section 2.0 above, the multi-level parking structure will require a pile foundation. Piles are expected to be 40 to 70 feet deep. Thus, there is the potential to drive shallow affected soil in Area A (see Figure 4 and Section 3.2.1) into deeper clean areas.

To mitigate the potential for driving affected soil towards the deep aquifer, one of two techniques will be used if piles are driven into soil in Area A. These two techniques are: (1) predrilling the affected soil layer (approximately 5 feet below ground surface), or (2) installing pilings using a cone-shaped tip on the end of the pile (see also the letter dated 18 September 1995 from Treadwell & Rollo, Inc. ("T&R"), the geotechnical engineers for the Sybase, Inc. redevelopment project, attached as Appendix B). If the piles are predrilled, the removed soil will be handled as described in Section 3.2.1, above.

Chemicals in the shallow groundwater should not impact the deep aquifer because: (1) the soils along the sides of the pile adhere to the pile and form a low permeability seal, and (2) the pile is of low permeability and, thus, cannot act as groundwater conduit (T&R, 18 September 1995, Appendix B).

4.0 LONG-TERM RISK MANAGEMENT

The long-term risk-management plan addresses precautions that will be undertaken for mitigation of any risks to human health and the environment after construction and redevelopment of the Site are complete. The hypothetical risk to on-site personnel after construction is evaluated in a risk analysis included as Appendix C.

As described in the risk analysis, the relevant exposure pathway for on-site personnel is inhalation of chemicals volatilizing from soil and groundwater. The risk analysis confirms that under relevant exposure scenarios, the potential risk to on-site personnel from inhalation of chemicals volatilizing from soil or groundwater is negligible.

Any future construction that may modify potentially affected soil, the clean soil cap, building foundations, or pavement must be completed in a manner that is consistent with the risk management plan. Components of the long-term risk management plan are as follows:

installed, the chemical analyses to be performed on groundwater samples, the frequency of monitoring, contingency options if chemical concentration trends significantly increase, and the option to terminate monitoring once it is shown that conditions are stable or improving.

As part of the groundwater investigations on the Site, levels of petroleum hydrocarbons suggestive of a residual free hydrocarbon phase were measured in groundwater samples collected in the vicinity of the former oil refinery (EKI, 1995a). However, soil and groundwater sample analyses indicated that the hydrocarbons are of high molecular weight and they do not contain polycyclic aromatic hydrocarbons ("PAHs"). Ethylbenzene and xylenes were detected in only two groundwater samples collected in the vicinity of the former refinery, at low concentrations (i.e., less than 44 ug/L). Low petroleum hydrocarbon concentrations detected in groundwater samples collected 110 to 160 feet downgradient of the Site (i.e., 110 to 250 ug/L) indicate that migration of petroleum hydrocarbons from the former oil refinery has not occurred or is negligible (EKI, 1995a).

Benzene, ethylbenzene, and xylenes have been detected in groundwater samples collected from two of the monitoring wells in the vicinity of the former Lowenberg tanks (i.e., up to 26 ug/L benzene) (EKI, 1995a). TPH and BTEX concentrations in the vicinity of the former Lowenberg tanks generally have been stable or decreasing with time (EKI, 1995a). In the event that the Lowenberg tank site has not been closed by ACDEH prior to Sybase, Inc.'s development of the Site, a monitoring well will be installed in the vicinity of the former Lowenberg tanks as part of this groundwater monitoring plan. *

The groundwater monitoring detailed below includes monitoring of the more shallow of the two aquifers beneath the Site because, as described in Appendix D, neither significant short-term or long-term migration of petroleum hydrocarbons from the shallow aquifer zone to the deeper aquifer zone is expected.

4.4.1 Proposed Monitoring Well Locations

After the Site is redeveloped, four wells proposed for the perimeter groundwater monitoring program (Figure 10) will be constructed, subject to the receipt of necessary permits or approvals. Monitoring wells SMW-1, SMW-2, and SMW-3 will be located in the sidewalk along Bay Street. Well SMW-4 will be located inside the property boundary between the U-shaped office building and parking structure. As discussed above, a fifth well, SMW-5, may be installed in the vicinity of the former Lowenberg tanks. *

All wells will be drilled and screened in the shallow aquifer zone (i.e., less that 25 ft bgs). If possible, the well will be screened across the water table-unsaturated zone interface. Monitoring well installation and sampling procedures are described in Appendix E. The data from groundwater collected from the monitoring wells will be evaluated to determine if groundwater quality on the Site is stable or improving.

Proposed wells SMW-1 through SMW-3 are located downgradient and off-site (i.e., outside of the area with hydrocarbon concentrations suggestive of residual free phase hydrocarbons). Well SMW-4 is located downgradient of sampling location P-4, in the vicinity of the former refinery. The likely presence of residual free phase hydrocarbons in well SMW-4 might give rise to significant variation in the groundwater chemical analytical results. Well SMW-5 will be located near the former Lowenberg tanks, in the area where groundwater samples have contained elevated levels of benzene, if the tank site has not been closed prior to Sybase, Inc.'s redevelopment of the Site. *

The proposed monitoring schedule, analytical program, and contingency plan are discussed below. The monitoring schedule and analytical program are summarized in Table 1.

4.4.2 Well Sampling Schedule

The four or five groundwater monitoring wells will be sampled quarterly during the first year, semi-annually during the second year, and annually thereafter (Table 1). If a statistically significant upward trend in dissolved petroleum hydrocarbon concentrations is identified using the first four quarters of monitoring data or a greater than 10-fold difference in concentrations is measured during the first four quarters of monitoring, the wells will be sampled quarterly in the second year. If significant variations of dissolved petroleum hydrocarbons are present in well SMW-4 due to the presence of residual free-phase hydrocarbons, groundwater monitoring of well SMW-4 will be re-evaluated. Efforts will be made to minimize entrainment of free-phase hydrocarbons in groundwater samples from well SMW-4 by sampling groundwater through a stilling tube, as described by EPA (1992) and summarized in Appendix E.

Once annual monitoring commences, Sybase, Inc. can submit a request to the RWQCB and the ACDEH to discontinue groundwater monitoring if it can be demonstrated that hydrocarbon concentrations are stable or decreasing.

4.4.3 Well Sampling Analytical Program

Groundwater samples collected as part of the monitoring program will be analyzed by a State-certified laboratory for total extractable petroleum hydrocarbons using EPA Method 8015, modified. Groundwater samples collected from well SMW-5 will also be analyzed for total petroleum hydrocarbons quantified as gasoline and BTEX compounds using EPA Methods 8015 modified and 8020, respectively. Appropriate quality assurance and quality control measures will be taken in the field (e.g., chain-of-custody records, field duplicates) and in the laboratory (e.g., matrix spike, matrix spike duplicates, method blanks).

Results of sampling and analysis performed for the perimeter groundwater monitoring program will be submitted in reports after each sampling event to the RWQCB and the ACDEH.

4.4.4 Contingency Plan

In the event that hydrocarbon concentrations in samples collected as part of the monitoring program exhibit an increasing trend, the contingency plan described below will be implemented.

If hydrocarbon concentrations increase (as defined in Section 4.4.2, above) an additional year of quarterly monitoring will be performed to confirm the increasing trend. Attempts will be made to identify the source of the increasing hydrocarbon concentration if hydrocarbon concentrations continue to increase after a year of quarterly monitoring. Under such circumstances, Sybase, Inc. will contact the RWQCB and the ACDEH. A plan of action will be submitted to the RWQCB and the ACDEH, as appropriate.

It should be noted that potential hydrocarbon sources exist between the Site and proposed monitoring wells SMW-1 through SMW-3. Pipelines carrying petroleum products run parallel to and underneath the Southern Pacific Railroad tracks located immediately west of the Site. Releases of hydrocarbons may occur or may have occurred from these pipelines and/or along the railroad tracks themselves. Thus, if hydrocarbon concentrations measured in downgradient off-site wells SMW-1 through SMW-3 were to increase, it may not be the result of hydrocarbons migrating from the Site. The plan of action submitted to the RWQCB and the ACDEH will address this issue as deemed appropriate.

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5.0 LONG-TERM COMPLIANCE

The City of Emeryville may establish administrative procedures requiring that this plan be reviewed prior to the issuance of any building, grading, or excavation permits to any owner at the Site, and that this plan be implemented during the permitted activity.

If procedures acceptable to the RWQCB and the ACDEH are not established, then Sybase, Inc. will submit to the Alameda County Recorder's Office a Notification to apprise any future owner of the existence of the plan.

*

when ?

by ?

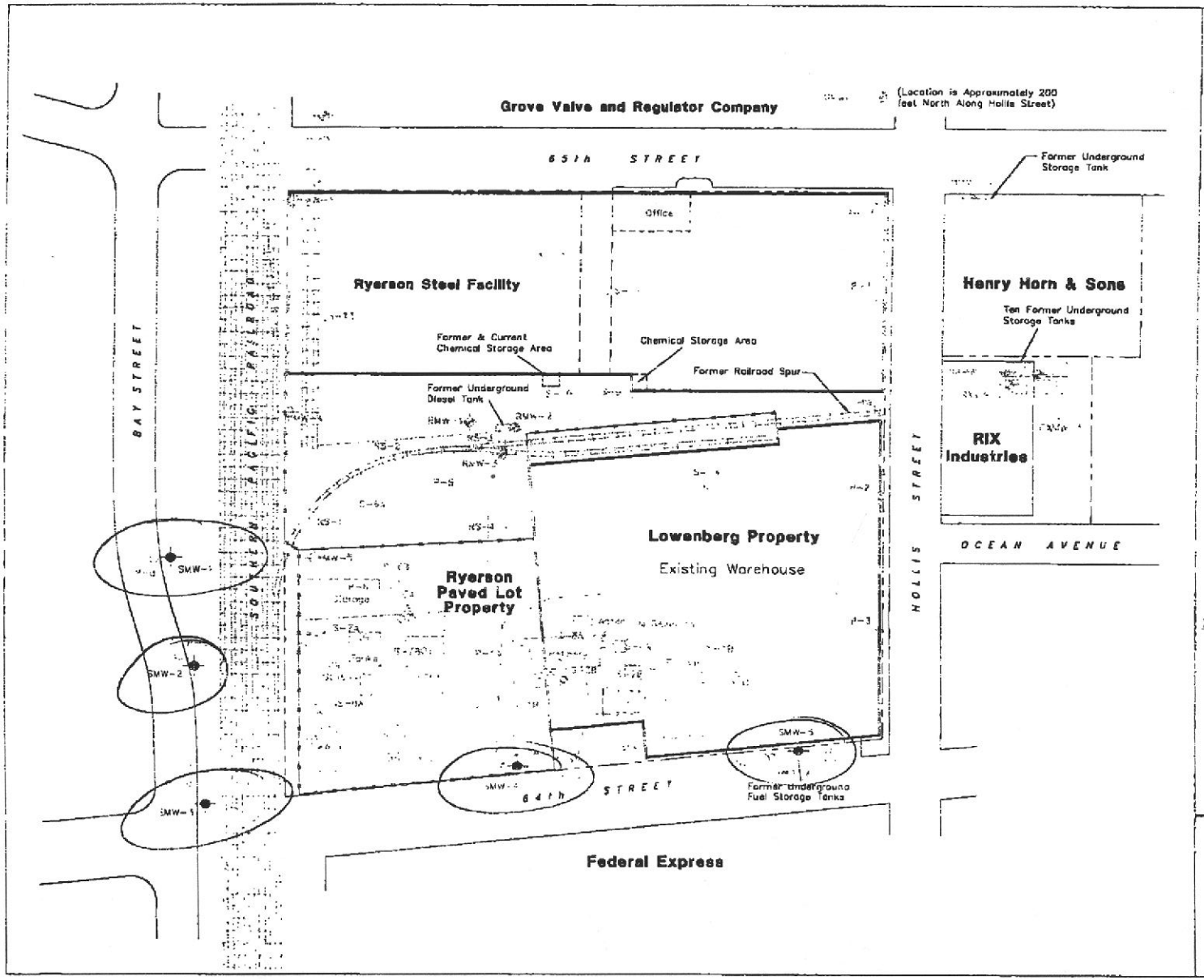
deed notification

Table 1
Schedule and Analytical Requirements for the Perimeter Groundwater Monitoring Program (a)
Sybase, Inc.
64th and 65th Street Properties, Emeryville, California
(EKI 940018.03)

Monitoring Year	Monitoring Frequency	Analysis (b)	
		Wells SMW-1 through SMW-4	Well SMW-5
1	Quarterly	TEPH (8015m)	TEPH, TPPH (8015m) BTEX (8020)
2	Semi-Annually (c)	TEPH (8015m)	TEPH, TPPH (8015m) BTEX (8020)
3 and thereafter	Annually (d)	TEPH (8015m)	TEPH, TPPH (8015m) BTEX (8020)

Notes:

(a) Up to five wells are to be installed subsequent to Site redevelopment (Figure 10). Well SMW-5 will be installed only if the former Lowenberg tank site has not been closed by the ACDEH prior to Site redevelopment.
(b) Total extractable petroleum hydrocarbons (TEPH) by EPA Method 8015 modified. Total purgeable petroleum hydrocarbons (TPPH) by EPA Method 8015 modified. Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020.
(c) If TEPH concentrations show an upward trend or a greater than 10-fold difference in concentration, continue quarterly monitoring for year 2.
(d) Once annual monitoring commences, Sybase, Inc. can submit a request to the RWQCB and the ACDEH to discontinue monitoring if TEPH concentrations are stable or decreasing.



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0 120 240

(Approximate Scale in Feet)

LEGEND

- Railroad Tracks
- Approximate Property Boundary
- Historical Site Features (1911 Sanborn Map)
- Monitoring Well Installed by EKI
- Shallow Soil Boring Installed by EKI
- Monitoring Well Installed by Others
- Soil and Grab Groundwater Sampling Location Collected by Others
- Soil/Grab Groundwater Sampling Location Collected by EKI, July 1995
- Proposed Location of Perimeter Monitoring Well

Notes:

1. All locations are approximate.
2. Basemap taken from Sanborn maps dated 1911 and 1967.
3. Well SMW-5 will be installed only if the Lowenberg tank site has not been closed prior to development of the Lowenberg Property by Sybase, Inc.

Erler & Kalinowski, Inc.

Proposed Locations of Perimeter Monitoring Wells

64th & 65th Street Properties
Emeryville, CA
October 1995
EKI 940018.03
Figure 10

from Appendix E

groundwater from the respective well(s). The development will then be disposed of properly.

WELL SAMPLING

Monitoring wells will be sampled in a sequence beginning with the well that has the lower anticipated hydrocarbon concentration and proceeding to the well exhibiting higher hydrocarbon concentrations, based on the most recent chemical analyses of water samples from the wells.

Prior to sampling any well, all tools and equipment that are to be used in the well will be thoroughly decontaminated. Decontamination may be accomplished by either (1) steam cleaning or (2) washing in a solution of Liquinox® or equivalent non-phosphate detergent, followed by rinsing with clean water, then rinsing with distilled water.

At each well to be sampled, the depth to water and the depth to the bottom of the well will be measured and recorded. This information will be used to calculate the volume of water in the well casing. Each well will also be checked for the presence of floating product on the water surface in the well.

Prior to sampling, a pump, a Teflon® bailer, and/or a disposable bailer will be used to purge each well. A different disposable bailer will be used for each well that is purged with a disposable bailer. Each well will be purged by removing a minimum of 3 well casing volumes of water from the well. If a well dewaters during purging, it will be allowed to recharge to at least 75 percent of original volume before sampling. If a well contain less than one foot of water, a grab water sample will be collected instead. During purging, each well will be monitored for temperature, conductivity, and pH. Purging will be considered complete when these parameters stabilize or a minimum of 3 casing volumes of water have been removed. The water level will be measured again immediately upon completion of purging.

Following purging, each well will be sampled with a Teflon® or disposable bailer. The sample will be collected from the midpoint of the water column. Upon retrieval of the bailer, the water samples will be transferred to the appropriate laboratory-supplied bottles.

For well SMW-4, which may contain free-phase hydrocarbons, groundwater samples will be collected through a chemically-inert stilling tube, as described by EPA (EPA, 1992) and summarized below. The end of the stilling tube will be covered with a membrane or other material that will be

*

ruptured by the pump. The stilling tube will be inserted into the well to a depth that is significantly below the upper portion of the screened interval where free-phase hydrocarbons may be entering the well. Groundwater samples will be collected by inserting a pump through the stilling tube. Water samples will be transferred to the appropriate laboratory-supplied bottles. *

A sample label will be attached to each sample container. The label will include a unique sample identification number, the well number, the time, and the date when the sample was collected. The sealed containers will be placed in zip-closure plastic bags, then placed on ice in a cooler for temporary storage and transport to the laboratory for chemical analysis. Chain-of-custody records will be initiated.

Well development water will be temporarily contained in steel drums pending receipt of results of analyses of groundwater from the respective well(s). The development water will then be disposed of properly.