COMMENTS ON THE REVISED RMP FOR PROPERTY AT 4200 ALAMEDA AVENUE, OAKLAND, CA 94601

P. 17 - There should be an additional well between the two proposed new wells on the East 8th Street boundary. The originally proposed upgradient well between MW-1 and MW-2 should be kept in the plan.

P. 17 - (Editorial comments) The bottom of this page says that the wells will be sampled for Total Purgeable Petroleum Hydrocarbons by Modified 8105. Shouldn't it be 8015? In addition, the wells should be sampled semi-annually for the second and third year, not "semi-sampled annually".

P. 23 - The soils excavated during foundation construction could only be ~~backfilled~~ reused if the backfilled areas already contain contamination at levels equal to or higher than the excavated soils prior to the construction activities and that the assumptions and criteria used in the human health risk assessment are not changed. To these ends, soils to be excavated should be analyzed before or during construction.

P. 25 - The sentences, "As the wells on the property boundary become free of hydrocarbons, the continued value of the offsite and up gradient monitoring wells will be reexamined. When an offsite well has a boundary well between it and the remaining separate phase hydrocarbon plume, it will (be) considered redundant and abandoned...." are confusing. The mere "cleanness" of the boundary wells don't give a good indication of how clean the downgradient and offsite wells are and will be. It is not until both the downgradient and boundary wells are both clean and stay that way for a while can we be sure that they're likely to remain free of pollutants due to migration. Furthermore, as discussed before, closure of the downgradient wells will be contingent upon satisfactory results of a sound Fate and Transport Study and confirmation sampling.

** The RMP should clearly state that a list of threshold or action levels for the HASP will be sent to ACDEH for approval prior to construction.

** The final submitted RMP should include proposed deed restrictions based on the Board template provided at the meeting.

x All reports should be sent to RWQCB + ACEH (p. 17 bottom p 23, soil reloc rep)

Post-it® Fax Note 7671	Date 6/23/98	# of pages ▶ 1
To Barney Chan	From Derek Lee	
Co./Dept. ACDEH	Co. RWQCB	
Phone #	Phone #	
Fax # 337-9335	Fax #	

ENVIRONMENTAL LIABILITY MANAGEMENT
11014 Lindblade Street
Culver City, CA 90230

FAX COVER SHEET

DATE:	June18,1998	**TIME:**	7:15 PM
TO:	Derek Lee, RWQCB-SF	**FAX:**	**1-510-286-1380**
	Barney Chan-ACDEH	**FAX:**	**1-510-337-9335**
FROM:	Mikk Anderson	**PHONE:**	1-310-202-8480
	ELM	**FAX:**	1-310-838-7511

RE: Amendments to the EkoTek Site Draft RMP

Number of pages including cover sheet: 6

Desi County comments w/ D. Lee on 6/22/98

Message

Attached are the pages that are changed in response to your comments from our last meeting. The new text is bolded and the text to be replaced is lined through so that you can see the change. I tried to address all of your concerns, but the toughest one is how to decide when to close. I left that intentionally a bit in the future so that we have the flexibility to respond to the data we get from remediation. And, to state the obvious, the final will be cleaned so that the bold and lined out will not appear.

Also note that I caught an error on the Figures. The scale is wrong and should read that the scaled length represents 40 feet, not eighty as shown. Not sure where the error came from, but it does put the Site into proper perspective. Note too, that I have moved the two northerly well down gradient of the floating product for a denser spacing, now roughly twenty to thirty feet apart.

Call if you have questions,

Thanks

Mikk Anderson

acknowledged that there is a desire on the part of the State Water Resources Control Board to remove separate phase hydrocarbons where they occur in contact with waters of the State when it is reasonable to do so. This policy was aimed at circumstances where hydrocarbons in separate phase form were floating on the groundwater table and able to be transported by groundwater flow. As mentioned earlier, the hydrocarbons on the Site are not mobile and should not flow with the groundwater.

5.3 GROUNDWATER REMEDIATION FEASIBILITY

Four strategies for dealing with the subsurface hydrocarbons were reviewed for economic and environmental feasibility. These were excavation, groundwater pump and treat, bioremediation, and long-term passive recovery. The options were reviewed in light of the limited size of the Site and the characteristics of the hydrocarbon mass discussed in the previous section.

Excavation of the contaminant mass is technically feasible, but not economical. In order to extract the hydrocarbons, a large percentage of the Site would have to be excavated to groundwater and deeper. The locations of the former tank farm and the processing area are very close to the property boundaries and excavations would require costly shoring to prevent undermining of the adjacent road ways. **For the estimate it was assumed** ~~Assuming~~ that **a conservative** 25% of the Site would requires removal **to only three feet of depth and 5% requires removal to three feet below groundwater (i.e. a total of thirteen feet). Assuming soil disposal as a RCRA waste delivered, stabilized and buried for $200 a ton, seventy linear feet of shoring along one side of the excavation near the street, and customary estimates for mobilization, health and safety/decontamination, engineering, overhead and profit, the projected cost would be in the range of $1,800,000.** ~~and that 10% of that also has some soil with hydrocarbons below the water table, the~~ **These** costs are **substantially** in excess of the market value of the property.

Bioremediation is another common way to deal with hydrocarbons in soil and groundwater. It involves bringing soil microorganisms, trace nutrients and, usually, oxygen together to allow the microbes to use the targeted chemicals as a food source. Under certain circumstances it can be done in place or can be done in specially designed surface facilities known as land farms. Unfortunately, the heavy end hydrocarbons that predominate at this site are not conducive to microbial breakdown except at very slow rates. The Site is a poor candidate for accelerated bioremediation in place. The alternative would be removing the hydrocarbons to the surface, breaking the soil and oil up into smaller, well mixed pieces and managing the process on the surface. This landfarming option would have to be done at a remote location as there is insufficient space on-site for this approach and none available adjacent. Since the possibility on-site landfarming is not available, all of the cost and excavation considerations of the excavate and disposal option apply. Bioremediation is not viewed as a viable choice.

If the hydrocarbons cannot be feasibly removed from the Site, then the concern is to manage the impact to the groundwater of leaving them in place. The two alternatives are

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jeopardizing the integrity of the soil capping pavements that are needed to manage the soil ingestion pathway and to be compatible with the anticipated use of the Site. The use of soil heating techniques to reduce the product viscosity and increase the flow rate was rejected as it would greatly increase the volatilization of the halogenated organics that are in solution in the separate phase hydrocarbons, thereby greatly increasing the Site health risk and the off-site migration potential.

need to estimate risk

In light of all of the above, the remediation system chosen for the Site will have a series of **dual purpose** groundwater monitoring~~/ and~~ separate phase hydrocarbons recovery wells spaced around the perimeter. A total of five new wells will be installed, two between **existing** wells MW-1 and MW-4 to cover the former processing area, and ~~two~~ **three** more between MW-4 and MW-3 to address the tank farm. ~~One new well will be located between MW-1 and MW-2 to monitor upgradient boundary conditions.~~ **The existing monitoring wells adjacent to the boundary will be retrofitted for product recovery. To address the presence of floating product,** ~~E~~existing well MW-5 will ~~be abandoned in order to avoid conflict with development activities~~ **also be converted to a recovery well. This well has historically shown the largest depth of product on the groundwater table. If this well is in the way of site improvements, it will be abandoned and replaced with a new well as close to the former location as practical.**. Well locations are displayed in Figure 3.

1) why remove MW btw MW-1+2
2) Reg addn well on E side (3 not 2)

To monitor off-site separate phase hydrocarbon conditions, two new wells will be placed near the former data sites CPT-1 and CPT-3 as presented by Erler & Kalinowski, Inc. in the report titled *Additional Off-site Groundwater Investigations Report*, dated November 10, 1997. Final placement of the new wells will be subject to access agreements from the appropriate property owners and safety issues relative to access for maintenance and monitoring.

After installation, the five new perimeter wells will each be fitted with a passive product recovery device consisting of a hydrocarbon absorbent polymer, as supplied by MicroClean of Concord, California, or equivalent, in a specially designed sleeve that is connected by cable to the inside of the locking well cover at the surface. At regular intervals, dictated by the actual recovery rate of the individual wells, the absorbent sleeves will be removed and replaced with fresh absorbent. Spent absorbent will be classified for waste characteristics and disposed of at an approved facility.

8015

Groundwater elevation and product thickness will be monitored in the wells annually to verify the stability of the groundwater gradients and the separate phase hydrocarbons recovery efficiency. For the first year, quarterly groundwater samples will be taken from each well to establish a baseline to evaluate future trends. Each well will be sampled for Total Purgeable Petroleum Hydrocarbons by Modified 8103, and Halogenated Volatile Organics by 8010. For the second and ~~subsequent years~~ **third year**, the wells will be ~~semi-~~sampled annually, **once during October and once during March. Assuming the data remain stable, the wells will be sampled annually the fourth and following years.** These data and a summary of hydrocarbon capture activities will be provided to the RWQCB as part of the annual report.

and Alameda County Env Health.

of much of the Site once redevelopment activities are complete. Exposure concerns will arise at joints and cracks and as the cover materials age.

- Soil under buildings is the category of soils that will be located under the foundations of buildings that will be constructed on the Site. The primary pathway of concern will be the potential inhalation of volatile chemicals that might invade indoor air spaces.

While the majority of chemicals on the Site are very insoluble and highly adsorbable in soil and therefor highly immobile, it will add to the effectiveness of the remedial measures if as much soil as possible, regardless of chemical concentrations, is kept beneath all pavements and buildings. For this reason, the Site grading plan will accommodate all expected excess excavation from the foundation construction under pavement or building pad areas. If soil is found that has poor structural properties **due to excessive oils or other ;characteristics -**that soil will be **analyzed for hazardous properties,** properly manifested and removed to an appropriate disposal site, as necessary. **This soil, if any, may be discovered during routine geotechnical testing before development or discovered during construction. Construction specifications will highlight known areas of unsuitable material and include provisions for the safe handling of any discovered during construction.**

1) analyze sples routinely ?

characterization needed either pre or during construction or provide conc. contours of soils stockpile

As a final management approach to deal with soil issues, a vapor barrier will be installed under all buildings intended for occupancy. The vapor barrier will be either a solid sheet membrane or a spray applied, rubberized, reinforced membrane of a composition suitable to resist chemical attack from the known chemicals on the Site.

It should be noted that the groundwater separate phase hydrocarbon control wells at the Site boundary will serve as a backup to the other controls described above and will represent a redundancy in the remediation system.

How so?

6.5 SOIL RELOCATION REPORT

After earthwork activities are complete and pavements are in place, a report will be prepared to document the relocation and/or covering of any soil that differs in its contamination characteristics from the general soil at the Site. At a minimum, this report will include a narrative of the observations of the soil excavated for foundations, the placements of soil on the Site, the presence of unsuitable soil, and any disposal methods used. This report will be submitted to the RWQCB. + ACEH.

Very vague

7.0 RISK MANAGEMENT AFTER REDEVELOPMENT

The post construction portion of this Plan addresses the precautions that will be undertaken to mitigate the long term human health and environmental risks from the Site

after all redevelopment activities are complete. Any future reuse of the Site that will involve the disturbance of soil, pavements or building foundations must be accomplished consistent with the objectives of this Plan.

Components of the post construction portion of this Plan include the following:

- Prevention of the exposure of Site occupants or visitors to contaminated soil by maintaining cover materials in good repair;
- Establishment of protocols for on-site workers engaged in subsurface excavation activities such as buried utility repair, work on buried foundations, or pavement requiring the exposure of soil;
- Prevention of the use of groundwater under the Site;
- Establishment of a notification procedure to ensure long term compliance with this Plan;
- Inspection of the Site, at least annually, to verify that the risk management controls are being implemented and that they are effective in preventing potential exposure to contaminated soils; and
- Management controls to prevent uses of the Site that would be inconsistent with this Plan and the remediation strategies that will be employed for the Site.

7.1 COVERING OF THE SITE

Soil will be contained under buildings or structural pavements that will be in the form of asphalt or concrete. The Site will be inspected annually to ensure that the cover materials remain in good shape. Damage to the integrity of the cover materials will be promptly repaired. Any actions taken will be part of the annual report described earlier.

7.2 CRITERIA FOR TERMINATING GROUNDWATER CONTROL

It is anticipated that recovery of free phase hydrocarbons will be most effective in the early years of operation and taper off over time in terms of the quantities of chemicals removed per year. The hydrocarbons are high molecular weight, highly to completely insoluble, and highly adsorbable. Mass flow rates into the remediation system will be small in any event. It is the intent of the groundwater remediation system to significantly reduce the potential for the formation of free product in or on the groundwater adjacent to the submerged impacted soil and to capture the small soluble faction possibly present. It is envisioned that an equilibrium will be reached at some unpredictable point in the future where the mass of hydrocarbons will match the sorptive power of the soil, above and below the groundwater, and the soluble portion will be in balance with the natural degradation potential of the Site. **When the Site has stabilized, the Board will be asked to provide closure.**

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The recovery efforts associated with the hydrocarbons will continue until no appreciable hydrocarbons are absorbed on the collection media between the servicing periods of that well. As part of the initial normal maintenance of the well system, the technician servicing the absorbent polymer sleeves will note the relative capture weight for each of the wells. Each sleeve has a predetermined capacity for hydrocarbon capture. By leaving the device in place until a sheen coexists with an apparently saturated sleeve, the technician can judge the rate of capture and project replacement cycles and the approximate removal rates. When a sheen no longer coexists with the sleeve in a given well, the technician will note this fact and judge the remaining absorption capacity of the sleeve. On the next subsequent visit, if no sheen has appeared and the sleeve shows no appreciable increase in capture, the sleeve will be removed and replaced with a fresh sleeve. The new sleeve will be left in place for at least three months and then reexamined. If no appreciable separate phase hydrocarbons have been absorbed, the sleeve will be removed and the well will be designated as free of product and will thereafter be used for monitoring only. This process will be repeated for all wells until they all are deemed free of separate phase hydrocarbons or until other evidence exists that suggests the recovery efforts are complete.

free of HC

As ~~the wells~~ **the wells on the property boundary** become free of hydrocarbons, ~~their~~ **the** continued value ~~as~~ **of the offsite and up gradient** monitoring wells will be reexamined. When **an offsite** well has a ~~neighboring~~ **boundary** well between it and the remaining separate phase hydrocarbon plume, it will be considered redundant and abandoned to eliminate the small but real potential of it acting as a future conduit for the surface release of anything reaching groundwater without first having to pass through the soil column. **When the up gradient wells show no evidence of free product for at least a year, the board will be notified and the wells properly abandoned. Notification** ~~Approval~~ of the RWQCB will be ~~sought~~ **provided** prior to the abandonment of any well.

Confusing

need approval

All groundwater monitoring will be terminated when all of the wells in operation show no evidence of separate phase hydrocarbons for ~~at least six months~~ **a year. When this point is reached, the Board, ACDEH, and other involved agencies will be notified.** Once the operation of all the wells is terminated, the wells will be properly abandoned **according to Alameda County Department of Public Works standards and other applicable standards current at the time of abandonment.**

SCM HTS plan must be provided for approval prior to Cert

Final closure will be based on a concept of the probable fate and transport of the Site's hydrocarbons. The premise is that a stable or diminishing plume of dissolved hydrocarbons will be achieved when there is no longer any evidence of free product in the monitoring wells and water quality parameters show evidence of aerobic degradation. Aerobic degradation will be assumed to exist if dissolved oxygen or other biological parameter are measureable in the groundwater wells in a generally favorable trend. At the point that the monitoring wells show no separate phase product reduced dissolved hydrocarbons and the presence of dissolved oxygen, the transport of the remaining hydrocarbons will be evaluated to predict the point of plume stability confined to the Site's boundaries.

previously said it won't work

specify

Keep down-gradient wells until confirmed w/ F+T model