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cc: Hugh Murphy fax (510) 293-5017
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DATE: 10 Feb 1998 FROM: Paul Hoffey

TO: Madhulla Logan PROJECT: Review Way, Hayward

FIRM NAME: Alameda Co. PROJECT#: 970033.02

TELECOPIER NUMBER OF ADDRESSEE: (510) 337-9335

TOTAL NUMBER OF PAGES TRANSMITTED W/COVER SHEET: 4

☐ REPORT ☐ AS REQUESTED

☐ LETTER/MEMORANDUM ☐ FOR APPROVAL

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☐ OTHER: ☐ FOR INFORMATION & COORDINATION

DESCRIPTION: Addendum to Risk Assessment

REMARKS: Madhulla: Please see addendum to 11 December 1997 Risk Assessment for Review Way in Hayward. I understand you've been in contact with Jim Anderson of our office.

Thank you for your prompt attention to these matters.

Paul

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9 February 1998

Ms. Madhulla Logan
Department of Environmental Health
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Subject: Addendum to Screening Human Health Risk Evaluation for Property Located at 45 to 89 Review Way, Hayward, California (EKI 970033.02)

Dear Ms. Logan:

On behalf of our client, Narom Development Company, Erler & Kalinowski, Inc. ("EKI") has prepared this addendum to the screening human health risk evaluation for the property at 45 to 89 Review Way in Hayward, California ("the subject property"). The original human health risk evaluation, requested by the Alameda County Department of Environmental Health ("ACDEH") and submitted to ACDEH in a letter dated 11 December 1997, assessed potential human health risks to future residential occupants of the subject property that may result from chemicals detected in soil and groundwater. The results of that risk evaluation indicated no significant human health risks to future residents from the chemicals detected in soil and groundwater. This addendum to the risk evaluation was prepared at the request of the City of Hayward Fire Department, which asked that a discussion of potential risks to future construction workers at the subject property be included in the risk evaluation. As discussed below, risks to future construction workers are expected to be significantly less than those for future residents, indicating no significant human health risks to future construction workers from the chemicals detected in soil and groundwater.

Original Human Health Risk Evaluation

The original risk evaluation considered exposure to chemicals detected in both soil and groundwater. Exposure to the low concentrations of chemicals detected in soil (i.e., for mercury, toluene, ethylbenzene, xylenes, 4,4'-DDE, 4,4'-DDT, and dieldrin) were evaluated to be insignificant because the exposure concentrations were less than preliminary remediation goals ("PRGs") for soil in residential areas, as presented by U.S. EPA Region IX (1 August 1996), and for metals, exposure concentrations were less than

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or equal to background concentrations in soil in the San Francisco Bay area. The PRGs for soil in residential areas should also be protective of construction workers, whose overall exposure is significantly less than residential populations (see below).

Chemicals of concern detected in groundwater include chlorinated volatile organic chemicals ("VOCs") (i.e., chloroform, 1,1-dichloroethene, tetrachloroethene, 1,1,1-trichloroethane, and trichloroethene) and petroleum hydrocarbons quantified as diesel. The VOCs detected in groundwater at the subject property appear to be migrating onto the subject property from an off-site, upgradient source or sources.

Human health risk calculations for future adult and child residents at the subject property included exposure to VOCs volatilized from groundwater and inhaled in outdoor air and indoor building air. The resulting estimates of human health risks indicated that the chemicals detected in groundwater should not pose an adverse risk to future residential occupants. Dermal contact with groundwater and ingestion of groundwater were evaluated to be incomplete exposure pathways because (1) groundwater at the subject property is first encountered at a depth of approximately 45 feet and (2) the shallow groundwater at the subject property containing the VOCs is not currently used for any purpose and it is not expected to be used in the future. For the same reasons, these exposure pathways would also be incomplete for a future construction worker; only the inhalation pathway is a potentially complete exposure pathway at the subject property.

Evaluation of Risks for Construction Worker Exposure Scenario

Potential risks to future construction workers are expected to be much less than risks for future residential populations. This conclusion is based on the fact that standard assumptions used in risk evaluations generally result in lower calculated chemical doses (and thus lower risks) for a construction worker scenario than for a residential child scenario, the most sensitive residential population assumed in the original risk evaluation. For example, the exposure duration for a construction worker is typically assumed to be less than one year, whereas U.S. EPA and Cal-EPA guidance specify a 30-year exposure duration for residential populations, resulting in a lower chemical dose and risk for a construction worker scenario. The greater body weight for an adult construction worker as compared to the assumed child resident also results in lower daily chemical dose and lower estimated risks. The residential scenario also includes indoor inhalation exposure to VOCs from groundwater, whereas the construction worker exposure would typically be entirely outdoors. Because estimated concentrations of VOCs in outdoor air are generally much lower than are estimated for indoor air, the construction worker would receive a lower chemical dose and lower risks than a resident. Although the soil ingestion rate assumed for construction workers is typically assumed to be up to 2.4 times greater than that for residential populations, the factors discussed above (i.e., significantly

shorter exposure duration and greater body weight) more than offset the higher soil ingestion rate.

Because the above considerations for risks to construction workers result in overall lower predicted risks than were originally calculated for residential populations, no significant human health risks to future construction workers are expected from the chemicals detected in soil and groundwater.

Based on our telephone conversation on 6 February 1998, it is our understanding that after being provided with this addendum, you will issue a letter stating that the risk evaluation is acceptable and that risks to future residential occupants and construction workers at the subject property are not significant.

Please call with any questions or comments.

Very truly yours,

ERLER & KALINOWSKI, INC.

Paul B. Hoffey
Project Manager

James E. Anderson, Ph.D.
Project Engineer

Theodore G. Erler, P.E.
President

cc: Hugh Murphy (Hayward Fire Department)
Marshall Moran (Narom Development Company)

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