



PACIFIC ENVIRONMENTAL GROUP, INC.

FACSIMILE TRANSMITTAL

DATE: August 26, 1997 PROJECT #: 325-004.1E

TO: Madula Logan FAX: 510-337-9335

Alameda County Health Care Services

Updated RA Most Recent

FROM: Michelle Gracia

IF YOU HAVE ANY PROBLEMS RECEIVING THIS FACSIMILE, PLEASE CALL (408) 441-7500

SHEETS TO FOLLOW COVER PAGE

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COMMENTS:

Dear Ms. Logan: Here is a draft copy of the addendum to the RBCA for the Former Chevron Service Station at Grant Line Road, Tracy, California. I have changed the exposure frequency from 250 days to 85 days since you asked for it to be based on an eight hour day instead of 24 hours. Please let me know if you have any questions or comments on the addendum. After you have accepted the addendum, we will submit it in final form. Thank you for your help with this site.

Sincerely, Michelle Gracia



PACIFIC  
ENVIRONMENTAL  
GROUP INC.

DRAFT

August 26, 1997

Project 325-004.1E

Mr. Phil Briggs

Chevron Products Company

P.O. Box 5004

San Ramon, California 94583-0804

Re: *Addendum to the Risk-Based Corrective Action - Tier 2*

Former Chevron Service Station

Grant Line road at Interstate 580

Tracy, California

Dear Mr. Briggs:

On behalf of Chevron Products Company (Chevron), Pacific Environmental Group, Inc. (PACIFIC) has prepared this addendum to the *Risk-Based Corrective Action - Tier 2* (PACIFIC, June 27, 1997). On August 11, 1997 Ms. Madula Logan of the Alameda County Health Care Services (ACHCS) contacted Ms. Michelle Gracia of PACIFIC and requested a change to the *Risk-Based Corrective Action - Tier 2*. Ms. Logan requested that the exposure frequency used to calculate the Site-Specific Target Limits (SSTLs) be reduced from 24 hours to 8 hours since the site will be used as a commercial facility. This change was made to the Risk Based Corrective Action (RBCA) Toolkit software, manufactured by Groundwater Service's Inc. (GSI), and new SSTLs were calculated for the site.

The reduction in exposure frequency was made by changing the default value of 250 days per year to 85 days per year. The figure of 85 days per year was calculated by multiplying 250 days by 8 hours which equals 2,000 hours. This number was then divided by 24 hours to calculate how many days per year an employee would spend (in total) at the site; the outcome, 83.3 days, was rounded to 85 days per year. Thus the exposure frequency within the GSI RBCA software was changed from 250 days per year to 85 days per year. Following are the SSTLs generated for the different exposure pathways with this change. The revised SSTLs are presented below while the previous SSTLs are presented in parentheses next to the new SSTLs.

## GROUNDWATER

### Inhalation

An excess lifetime risk for cancer of 1:100,000 ( $10^{-5}$ ) was used for benzene because the site is planned to become a commercial business in the near future. All other non-cancerous petroleum hydrocarbon compounds (ETX) were evaluated using a hazard quotient of 1. All exposure parameters were assumed to be commercial, and the above referenced change to the exposure factor was incorporated. The representative concentrations were then compared to the SSTLs generated by the GSI software.

#### Groundwater - Inhalation

Constituent of Concern	Measured Mean Concentration (mg/L)	Modeled Volatilization to Ambient Air (mg/L)	Modeled Volatilization to Indoor Air (mg/L)	Minimum SSTL Exceeded (Yes/No)
Benzene	0.32	860 (290)	2.8 (0.96)	No (No)
Benzene - CA	0.32	250 (84)	0.82 (0.28)	No (Yes)
Ethylbenzene	0.58	>Sol (>Sol)	>Sol (>Sol)	No (No)
Toluene	0.59	>Sol (>Sol)	310 (110)	No (No)
Xylenes	0.15	>Sol (>Sol)	>Sol (>Sol)	No (No)

mg/L = Milligrams per liter  
 ( ) = SSTLs in ( ) are from the RBCA - Tier 2 (PACIFIC, June 27, 1997)  
 >Sol = Selected risk level is not exceeded for all possible dissolved levels ( $\leq$  pure component solubility).

All representative concentrations were below the revised SSTLs at the specified risk levels.

### Ingestion

Ingestion was evaluated by modeling the risk for human ingestion of groundwater on site. An excess lifetime cancer risk of 1:100,000 ( $10^{-5}$ ) was used for benzene because the site is to become a commercial business in the near future. All other non-cancerous petroleum hydrocarbon compounds (ETX) were evaluated using a hazard quotient of 1. All exposure parameters were assumed to be commercial. The representative concentrations were then compared to the SSTLs generated by the GSI software.

**Groundwater - Ingestion**

Constituent of Concern	Measured Mean Concentration (mg/L)	Modeled Ingestion (mg/L)	Minimum SSTL Exceeded (Yes/No)
Benzene	0.32	0.29 (0.099)	Yes (Yes)
Benzene - CA	0.32	0.084 (0.029)	Yes (Yes)
Ethylbenzene	0.58	30 (10)	No (No)
Toluene	0.59	60 (20)	No (No)
Xylenes	0.15	>Sol (>Sol)	No (No)

mg/L = Milligrams per liter  
 ( ) = SSTLs in ( ) are from the RBCA - Tier 2 (PACIFIC, June 27, 1997)  
 >Sol = Selected risk level is not exceeded for all possible dissolved levels (≤ pure component solubility).

All representative concentrations were below the revised SSTLs at the specified risk levels except benzene.

**SUBSURFACE SOIL**

**Inhalation**

Inhalation was evaluated by modeling the risk from subsurface soil volatilization to enclosed spaces and to ambient air on site. An excess lifetime cancer risk of 1:100,000 ( $10^{-5}$ ) was used for benzene because the site is planned to become a commercial business in the near future. All other non-cancerous petroleum hydrocarbon compounds (ETX) were evaluated using a hazard quotient of 1. All exposure parameters were assumed to be commercial. The representative concentrations were then compared to the SSTLs generated by the GSI software.

**Subsurface Soil - Inhalation**

Constituent of Concern	Measured Mean Concentration (mg/kg)	Modeled Volatilization to Ambient Air (mg/kg)	Modeled Volatilization to Indoor Air (mg/kg)	Minimum SSTL Exceeded (Yes/No)
Benzene	0.18	640 (220)	1.5 (0.53)	No (No)
Benzene - CA	0.18	190 (63)	0.45 (0.15)	No (Yes)
Ethylbenzene	0.48	>Res (>Res)	>Res (>Res)	No (No)
Toluene	0.38	>Res (>Res)	470 (160)	No (No)
Xylenes	0.73	>Res (>Res)	>Res (>Res)	No (No)

mg/kg = Milligrams per kilogram  
 ( ) = SSTLs in ( ) are from the RBCA - Tier 2 (PACIFIC, June 27, 1997)  
 >Res = Selected risk level is not exceeded for pure compound present at any concentration

All representative concentrations were below the revised SSTLs at the specified risk levels.

### Soil Leaching to Groundwater

Although soil leaching to groundwater is not an exposure pathway, it could provide a source for possible groundwater ingestion. Therefore, this pathway was evaluated for the Tier 2 RBCA. Again, an excess lifetime risk for cancer of 1:100,000 ( $10^{-5}$ ) was used for benzene because the site is planned to become a commercial business in the near future. All other non-cancerous petroleum hydrocarbon compounds (ETX) were evaluated using a hazard quotient of 1. All exposure parameters were assumed to be commercial. The representative concentrations were then compared to the SSTLs generated by the GSI software.

### Subsurface Soil - Leaching to Groundwater

Constituent of Concern	Measured Mean Concentration (mg/kg)	Leaching to Groundwater (mg/kg)	Minimum SSTL Exceeded (Yes/No)
Benzene	0.18	0.37 (0.13)	No (Yes)
Benzene - CA	0.18	0.11 (0.037)	Yes (Yes)
Ethylbenzene	0.48	80 (27)	No (No)
Toluene	0.38	210 (73)	No (No)
Xylenes	0.73	>Res (>Res)	No (No)

mg/kg = Milligrams per kilogram  
 ( ) = SSTLs in ( ) are from the RBCA - Tier 2 (PACIFIC, June 27, 1997)  
 >Res = Selected risk level is not exceeded for pure compound present at any concentration

All representative concentrations were below the revised SSTLs at the specified risk levels except for benzene-CA for the modeled leaching of subsurface soil to groundwater.

### RECOMMENDATIONS

Inhalation of petroleum hydrocarbons volatilizing from the soil or groundwater at the site is not a risk as shown by the revised SSTLs. However, the benzene concentrations at the site have been shown to present a risk to commercial workers for groundwater

ingestion above an excess lifetime cancer risk of 1:100,000 ( $10^{-5}$ ), thus action needs to be taken in order to eliminate the possible exposure of future employees or customers to groundwater from the site.

There are two corrective actions which could be undertaken in order to reduce the exposure to benzene in groundwater; however, the most logical and cost-effective of these actions would be to properly abandon the existing water-supply well if it is not needed. Note that originally, the water-supply well was not installed as a drinking water source, but rather to operate the restrooms at the former service station. The water-supply well was recently sampled on February 19, 1997, and general mineral, physical, and inorganic analyses were performed on the water obtained from the supply well. The results indicate that nitrate, specific conductance, and total dissolved solids are above drinking water standards and therefore the water is not suitable for human consumption. However, if site use depicts that non-potable water is necessary, the well may still be used, however a carbon adsorption vessel is recommended to be attached prior to resuming the use of the water-supply well. This would eliminate any potential risk from benzene for anyone ingesting the groundwater on the site, even though it is non-potable water.

## CONCLUSION

PACIFIC believes that the risk at the site can be reduced and managed by limiting exposure. Abandonment of the existing extraction well, or installation of a carbon adsorption vessel to treat water from the well prior to non-potable use should prevent potential risk from the site while also allowing natural attenuation to biodegrade BTEX compounds present in soil and groundwater at the site.

If you have any questions or comments on the contents of this letter, please call.

**DRAFT**  
**August 26, 1997**  
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Sincerely,

**Pacific Environmental Group, Inc.**

**Michelle Gracia**  
**Senior Staff Scientist**

**Ross W.N. Tinline**  
**Senior Geologist**  
**RG 5860**

3250041ERBCA2.DOC

**580/Grantline Site - Comments on Final Risk Assessment Update  
August 28, 1997**

Eva,

In the update, they changed the exposure time to 8 hrs to account for a commercial scenario. Based on the new calculations there appears to be no problem with groundwater or soil volatilization to indoor or outdoor air for 10-5 risk. However, since groundwater ingestion is a problem, PEG's recommendation in the updated risk assessment to close out the well or install a carbon adsorption vessel should be seriously considered. If they don't want to close out the well (or install carbon system) prior to closure, then they should at least submit a risk management plan wherein they can mention the options they will follow to reduce exposure through ingestion. And I really think they should record the risk management plan in the deed.

Madhulla

Exposure  
Soil leaching to GW  
should be addressed  
24hr/day since it  
is not human  
dependent