Department of Toxic Substances Control

*Matthew Rodriquez*
Secretary for
Environmental Protection

Deborah O. Raphael, Director
8800 Cal Center Drive
Sacramento, California 95826-3200

*Edmund G. Brown Jr.*
Governor

**California Proposition 65**
**Notification Pursuant to California Health & Safety Code § 25180.7**
**Designated Government Employee Disclosure Requirement**

**TO:** Stanislaus County Board of Supervisors
Dick Monteith
Vice-Chairman
1010 10th Street, Suite 6500
Modesto, CA 95354

Stanislaus County Health Services Agency
Mary Ann Lee
Managing Director
830 Scenic Drive
P.O. Box 3271
Modesto, CA 95353

BOARD OF SUPERVISORS
2011 NOV 28 A 10:27

**FROM:** Charles Rideno[illegible] Charles Rideno[illegible]
Branch Chief
Cleanup Program – Sacramento Office
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

**DATE:** November 18, 2011

**PROPERTY NAME/ADDRESS:** FORMER SERVICE CLEANERS, 1425 LA LOMA AVENUE
MODESTO, CALIFORNIA

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The California Department of Toxic Substances Control ("DTSC") is providing the notification pursuant to the state's Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65"). More specifically, this notification is being made pursuant to California Health and Safety Code section 25180.7, which is part of Proposition 65. Indoor air samples collected on October 25-26 from the building located on 1425 La Loma Avenue, Modesto, California contained elevated concentrations of tetrachloroethylene (PCE). Risks to occupants of the building were analyzed by DTSC's Toxicologist for potential cancer risk and non-cancer hazard from inhalation of

PCE for the occupational exposure scenario using several health based action levels. The results of the DTSC Toxicologist analysis are summarized in a November 16, 2011 memo, and indicate a very significant potential cancer risk to the occupants of the building (see attached). A check cashing business called Money Mart currently occupies the building.

The City of Modesto is working on developing a full scale soil vapor extraction system but does not expect it to be operational for 9 months. We will be asking the City of Modesto and property owner for immediate action to reduce or eliminate the exposure.

If you have any questions, please call me at (916) 255-6442 or James Rohrer at (916) 255-3709 between 8:00 AM and 4:30 PM, Monday through Friday or I can be reached by e-mail at cridenou@dtsc.ca.gov.

I hereby certify that I am a designated employee and that I have reported the above information concerning a discharge or threatened discharge of hazardous waste to the appropriate officials pursuant to Section 25180.7 of the Health and Safety Code.

Signed Charles Ridenour

Title Sup HSE II

Date 11/18/11

Attachment

cc: Money Mart
Attention: Lily and Nancy
1425 La Loma Avenue
Modesto, CA 95354

Jeanie McKinstry
District Manager
Dollar Financial Group
1650 E. Hatch Road
Modesto, CA 95351

cc: DFC Global Corporation
Global Corporate HQ
1436 Lancaster Avenue, Suite 300
Berwyn, PA 9312

Roland Stevens
Assistant City Attorney
City of Modesto
1010 10th Street, #6300
Modesto, CA 95353

John Papini
1350 Main Street, Suite 1
Newman, CA 95360

Barbara A. Frantz
181 Sand Creek Road, Suite K
Brentwood, CA 94513

Mr. Stephen Carlton, P.G. (sent via email)
Tetra Tech GEO
2969 Prospect Park Drive, Suite 100
Rancho Cordova, California 95670

Bonnie Wolstoncroft (sent via email)
Senior Staff Counsel
Office of Legal Affairs
Department of Toxic Substances Control
1001 I Street
P.O. Box 806
Sacramento, CA 95812-0806

Richard Hume, P.E., Chief (sent via email)
National Priority List Unit
Cleanup Program – Sacramento Office
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

cc: James Rohrer, P.G. (sent via email)
Engineering Geologist
National Priority List Unit
Cleanup Program – Sacramento Office
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

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# *MEMORANDUM*

**TO:** Jim Rohrer, Project Manager
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

**FROM:** Gabriele Windgasse, DrPH
Staff Toxicologist
Human and Ecological Risk Office (HERO)
8800 Cal Center Drive
Sacramento, CA 95826

**DATE:** November 16, 2011

**SUBJECT:** Review of "Technical Memorandum – Sampling Results – Indoor Air Samples 1425 La Loma Ave, Modesto, CA". The report was submitted from Steve Carlton, Tetra Tech GEO on behalf of the City of Modesto and is dated November 7, 2011

PCA: 12050 Site: 102108-11

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## Document Reviewed

Per your request, the Human and Ecological Risk Office (HERO) has reviewed the "Technical Memorandum – Sampling Results – Indoor Air Samples 1425 La Loma Ave, Modesto, CA" for the former Service Cleaners building.

## Scope of Work

HERO has reviewed the Technical Memorandum and the concentrations of various Volatile Organic Compounds (VOC) present in two indoor air samples and one ambient air sample. HERO analyzed the potential cancer risk and non-cancer hazard from inhalation using several health-based action levels.

## Background

The City of Modesto has collected environmental samples for the ongoing investigation of the environmental impact of dry cleaning businesses throughout the city. Based on active soil gas data collected from the City of Modesto from 2001 through 2008, DTSC identified seven areas where the potential cancer risk from vapor intrusion of tetrachloroethylene (PCE) to indoor air exceeds 1/10,000 (1E-04). In two areas (Elwoods and Sparkleen/Service Cleaners) the estimated indoor air concentration of PCE exceeded the Acute Minimal Risk Level (MRL) of 1356 µg/m$^3$.

The USEPA Region 9 in San Francisco agreed to take action in 2010 as part of an emergency response and conducted indoor air sampling in four residences near Elwoods Dry Cleaning and in nine residences near Sparkleen/Service Cleaners. The former Service Cleaners operated from approximately 1960 to 1985 at 1425 La Loma Ave and is currently a cash checking business (Money Mart). In one apartment north of Service Cleaners/Sparkleen elevated concentrations of PCE were found indoors (up to 200 µg/m3) and the USEPA installed a sub-slab depressurization system for the entire apartment building to prevent soil gas from entering indoor air. The most recent soil gas concentrations were provided in an email from Steve Carlton (TetraTech GEO) on October 17, 2011: at location IA3-VMP-3 outside the former Service Cleaners facility, PCE was found up to 1,500,000 µg/m3 at 5 ft bgs, 6,900,000 µg/m3 at 15 ft bgs and 38,000,000 µg/m3 at 45 ft bgs. In addition to soil gas, PCE was also found in groundwater in the vicinity of former Service Cleaners.

As part of the ongoing investigation of the former Service Cleaners facility, the City of Modesto collected air samples inside and outside the former Service Cleaners building on October 25/26, 2011, to determine if vapor intrusion of VOCs occurs and if potential health effect for the workers exists. In addition, the city is currently testing soil vapor extraction wells in the vicinity of former Service Cleaners.

## Sampling

Two 6-Liter summa canisters (SIM Certified) were installed in the bathroom and the main office area, respectively. One 6-Liter summa canister was installed outside the building near the eastern building wall. Sampling occurred for 8 hours from 11:45pm on October 25 to 7:45 am on October 26, 2011. The air samples were analyzed from Air Toxics LTD using USEPA Method TO-15 SIM. In addition, readings of a hand-held Photo Ionization Detector (PID) were recorded at the beginning of the sampling period at various locations. Other sampling conditions (monitoring in breathing zone, meteorological conditions, status of ventilation/heating, etc.) were not described in the Technical Memorandum.

## Results

In the summa canisters, PCE was detected at 630 µg/m3 (bathroom) and 640 µg/m3 (main office), and at 5.9 µg/m3 in the outdoor air. Indoors, the only other VOC detected above the reporting limit was toluene (1.0 µg/m3 in both bathroom and main office). Low concentrations of toluene were found in the laboratory blank as well. Outdoors, in addition to PCE, toluene (0.81 µg/m3), benzene (0.35 µg/m3) and m,p-xylenes (0.34 µg/m3) were found. PID readings were done with a MiniRae 3000, calibrated 10/25/2011 using 100 ppmv isobutylene and a 10.6 eV lamp. The indoor readings ranged from 0.202 ppmv to 0.248 ppmv. The only outdoor reading was 0.000 ppmv.

## Human Health Risk Assessment

HERO evaluated the potential cancer risk and non-cancer hazard from inhalation of PCE and toluene for the occupational exposure scenario using several methods: Risk Assessment Guidance for Superfund Part F (Supplemental Guidance for Inhalation Risk Assessment)[1] (RAGS Part F; USEPA), California Human Health Screening Levels (CHHSL, Cal/EPA), Minimal Risk Level (MRL, ATSDR), Reference Exposure Level (REL, OEHHA); Permissible Exposure Levels (PEL, OSHA, Cal/OSHA). For all calculations, the highest indoor air concentrations were used: 640 µg/m3 for PCE and 1 µg/m3 for toluene.

1) **RAGS Part F**
In RAGS Part F, the potential cancer risk and non-cancer hazard for inhalation exposure are calculated using the exposure concentration (EC) and toxicity factors, such as the Inhalation Unit Risk (IUR, cancer endpoints) and Reference Concentration ($RfC_i$, non-cancer endpoints). According to RAGS Part F, the Exposure Concentration (EC) for chronic exposures is derived from the contaminant concentration in air (CA, µg/m3), Exposure Time (ET, hrs/day), Exposure Frequency (days/year), the Exposure Duration (years) and the Averaging Time (hours; lifetime in years x 365 days/year x 24 hours/day):

$$EC = (CA \times ET \times EF \times ED) / AT$$

CA: 640 µg/m3 for PCE and 1.0 µg/m3 for toluene.

ET: HERO calculated the potential risks and hazards for two exposure times: ET = 8 hrs and ET = 12 hrs.

The remaining parameters are derived from HERO's recommended Human Health Risk Assessment Exposure Parameters for the "industrial reasonable maximum exposure scenario":[2]
EF = 250 days
ED = 25 years

[1] http://www.epa.gov/oswer/riskassessment/ragsf/

[2] http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA_Note1.pdf

AT = 25,550 days = 613,200 hours (carcinogens, 70 years)
= 9,125 days = 219,000 hours (non-carcinogens, 25 years)

| Estimated Exposure Concentration (µg/m3) | | | | |
|---|---|---|---|---|
| | Hazard | | Risk | |
| Exposure Time | 8 hours | 12 hours | 8 hours | 12 hours |
| PCE (640 µg/m3) | 146.11 | 219.17 | 52.18 | 78.27 |
| Toluene (1 µg/m3) | 0.22 | 0.34 | - | - |

For toxicity factors, IRIS[3] is usually consulted. For PCE only an Oral RfD is available at IRIS (no carcinogenicity assessment or $RfC_i$). For toluene the data for carcinogenicity in humans is inadequate, but the non-cancer $RfC_i$ is listed as 5 $mg/m^3$. According to RAGS Part F, Section 1.3, the IUR and $RfC_i$ listed in USEPA's Regional Screening Levels[4] (RSL) are consistent with RAGS Part F. For PCE and Toluene the toxicity data from the RSL table (June 2011) are as follows:

| | Inhalation Unit Risk IUR, $(\mu g/m3)^{-1}$ | $RfC_i$ ($mg/m^3$) |
|---|---|---|
| PCE | 5.9E-06 | 0.27 |
| Toluene | - | 5.0 |

Risk Calculation: Risk = IUR x EC
Hazard Calculation: Hazard Quotient = EC / ($RfC_i$ x 1000 µg/mg)

| RAGS Part F HHRA Calculations | | | | |
|---|---|---|---|---|
| | Hazard | | Risk | |
| | 8 hours | 12 hours | 8 hours | 12 hours |
| PCE | 0.54 | 0.81 | 3.1E-04 | 4.6E-04 |
| Toluene | 0.00004 | 0.00006 | - | - |
| **Total** | **0.54** | **0.81** | **3.1E-04** | **4.6E-04** |

Based on the RAGS part F evaluation, the potential cancer risk from long term occupational exposure (either 8 hours or 12 hours per day) exceeds the USEPA risk threshold of 1E-04, and requires further action. The hazard associated with either an 8 hour or a 12 hour long term exposure is not significant (less than 1).

2) **CHHSL**
The California Human Health Screening Levels[5] for indoor air for the commercial/industrial exposure scenario are associated with a 1E-06 cancer risk for carcinogens (PCE) or a Hazard Index of 1 for non-carcinogens (toluene).

[3] http://www.epa.gov/IRIS/

[4] http://www.epa.gov/region9/superfund/prg/

[5] http://www.oehha.ca.gov/risk/Sb32soils05.html

| | CHHSL (µg/m3) | Indoor Air Concentration (µg/m3) | Potential Cancer Risk | Potential Non-cancer Hazard Index |
|---|---|---|---|---|
| PCE | 0.693 | 640 | 9.2E-04 | - |
| toluene | 438 | 1 | - | 0.002 |
| **Total** | | | **9.2E-04** | **0.002** |

The potential cancer risk from long-term exposure under the occupational scenario is very significant at 9E-04, significantly higher than the USEPA threshold risk of 1E-04 that requires further action. The non-cancer hazard is not significant (less than 1).

3) **Reference Exposure Level [6] (REL)**
The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) publishes the Reference Exposure Levels (REL): "*RELs are concentrations of a chemical at or below which adverse noncancer health effects are not anticipated to occur for a specified exposure duration.*" Specifically, the RELs take children's health into account[7]. The timeframe for exposures is one hour for acute exposure and "annual average exposure over a lifetime" for chronic exposure. No 8-hour RELs are available for PCE or toluene. The acute RELs are 20,000 µg/m3 for PCE and 37,000 µg/m3 for toluene, respectively.

| | Chronic REL(µg/m3) | Indoor Air Concentration (µg/m3) | Potential non-cancer Hazard |
|---|---|---|---|
| PCE | 35 | 640 | 18.2 |
| toluene | 300 | 1 | 0.003 |
| **Total** | | | **18.2** |

The acute exposure levels for PCE or toluene were not exceeded in the indoor air samples at the former Service Cleaners. However, non-cancer effects from chronic exposure over a lifetime are significant. Note, that the REL assumes "continuous exposure over a lifetime", not an occupational scenario.

4) **Minimal Risk Level[8] (MRL)**
The Agency for Toxic Substances and Disease Registry (ATSDR) publishes the Minimal Risk Levels (MRL): "*The MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse, non-cancer health effects over a specified duration of exposure.*"[9] The target population is the most

[6] http://oehha.ca.gov/air/allrels.html

[7] http://oehha.ca.gov/air/hot_spots/pdf/TSDbundle071808.pdf

[8] http://www.atsdr.cdc.gov/mrls/index.asp

[9] http://www.atsdr.cdc.gov/mrls/index.asp

sensitive population to a substance and the timeframe for acute exposure is 1-14 days and for chronic exposures > 365 days. The acute MRLs are 1356 µg/m3 for PCE and 3768 µg/m3 for toluene, respectively.

| | Chronic Inhalation MRL (µg/m3) | Indoor Air Concentration (µg/m3) | Potential non-cancer Hazard |
|---|---|---|---|
| PCE | 271 | 640 | 2.3 |
| toluene | 301 | 1 | 0.003 |
| **Total** | | | **2.3** |

The indoor air concentrations measured did not exceed the acute MRLs, which were also used from USEPA as the "Short Term Relocation Limit" for the indoor air investigation of residences near former Service Cleaners in 2010. However, based on the MRL evaluation, a non-cancer chronic exposure effect is likely to exist. Note however, that the MRL exposure scenario assumes "continuous exposure" and is not an occupational scenario.

5) **Permissible Exposure Limits (PEL)**
The Federal OSHA PEL[10] (8 hr Time Weighted Average) for PCE is 680,000 µg/m3 and the Cal/OSHA PEL[11] is 170,000 µg/m3. HERO does not believe that the PELs are appropriate criteria for health effects evaluation in a situation where Vapor Intrusion occurs (compare Vapor Intrusion Guidance, Appendix F[12]).

**Photoionization Detector (PID)**

HERO converted the indoor PID readings (0.202 – 0.248 ppmv) using the information on Corrections Factors from the manufacturer of the MiniRae[13]. The PID was calibrated to 100 ppmv isobutylene and a 10.6eV lamp was used. The confirmed conversion factor for PCE is listed as 0.57. If PCE was the only detectable material present in the sampling gas, the PCE concentration indoors would range between 0.115 - 0.141 ppmv or between 780 µg/m3 and 956 µg/m3. HERO believes that the use of PID results for Human Health Risk Assessment calculations is inappropriate.

[10] http://www.osha.gov/SLTC/pel/

[11] http://www.dir.ca.gov/title8/ac1.pdf

[12] "Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air, DTSC, October 2011: http://www.dtsc.ca.gov/AssessingRisk/upload/Final_VIG_Oct_2011.pdf

[13] http://www.raesystems.com/sites/default/files/downloads/FeedsEnclosure-TN-106_Correction_Factors.pdf

### Outdoor air

In addition to PCE and toluene, benzene and xylenes were found in the ambient air outside the former Service Cleaners. The concentrations of toluene, benzene and xylenes are not unusual in urban areas. HERO calculated the risk and hazard associated with inhalation of these VOC concentrations using the occupational exposure scenario and the CHHSLs for the industrial/commercial exposure scenario:

| Outdoor exposure | | | |
|---|---|---|---|
| **Compound** | **CHHSL indoor air, industrial/ commercial (µg/m3)** | **Outdoor Concentrations (µg/m3)** | **Potential Cancer risk** |
| PCE | 0.693 | 5.9 | 8.5E-06 |
| toluene | 438 | 0.81 | 1.8E-09 |
| benzene | 0.141 | 0.35 | 2.5E-06 |
| m,p-xylene | 1,020 | 0.34 | 3.3E-10 |
| **Total** | | | **1.1E-05** |

A continuous 8 hour a day exposure to ambient air would convey a potential cancer risk of 1.1E-05, elevated above the point of departure (1E-06).

### General Comments

1. Human Health Risk Assessment
   HERO is concerned about the concentration of PCE in the indoor air at the former Service Cleaners building. HERO used several health-based standards to evaluate the indoor air concentrations. For the risk and hazard calculations, only PCE concentrations are relevant.

| **Action levels for PCE (inhalation exposure)** | | **Potential Cancer Risk from 640 µg/m3 PCE** | **Potential non-cancer Hazard from 640 µg/m3 PCE** | **Comments** |
|---|---|---|---|---|
| RAGS Part F | IUR = 5.9E-06 $(\mu g/m3)^{-1}$ $RfC_i$ = 0.27 $(mg/m^3)$ | 3.1E-04 (8 hrs)<br>4.6E-04 (12 hrs) | 0.54 (8 hours)<br>0.81 (12 hours) | Occupational scenario |
| CHHSL (indoor air, industrial/ commercial) | 0.693 µg/m3 | 9.2E-04 | 0.002 | Occupational scenario |
| REL (chronic) | 35 µg/m3 | - | 18.2 | non-occupational scenario |
| MRL (chronic) | 271 µg/m3 | | 2.3 | non-occupational |

| | | | | |
|---|---|---|---|---|
| | | | | scenario |
| MRL (acute) | 1356 µg/m3 | - | - | |
| REL (acute) | 20,000 µg/m3 | - | - | |

The maximum concentration found (640 µg/m3) does not appear to pose an acute health hazard, based on MRL and REL standards. However, chronic exposures to PCE at this concentration appear to convey a very significant cancer risk: between 3.1E-04 and 9.2E-04 for the occupational exposure scenario. This cancer risk exceeds the 1E-04 threshold and requires further action. The non-cancer hazard may not be significantly elevated using the occupational exposure scenario (hazard quotient 0.002 – 0.81). However, chronic continuous exposures at these concentrations definitely convey a non-cancer hazard (2.3 – 18.2).

2) Sampling situation
The indoor air samples were collected during non-business hours (11:45 pm – 7:45 am) and may not present a regular day-to-day working scenario with doors and windows opening and closing and heating/air conditioning operating. The sampling conditions (including meteorological conditions) should be confirmed with the consultant, as the Technical Memo does not describe the sampling situation further. HERO recommends collecting another indoor air sample during regular day-to-day business operation to confirm the results under working conditions. The reporting limits should be adjusted and the number of analytes should be expanded, according to the comments below.

3) Reporting Limits
HERO is concerned that the reporting limit for some VOCs in the indoor air analyses are very high. For example: the reporting limits for benzene in indoor air are 1.3 µg/m3 and 1.4 µg/m3, which is approximately 10 times the CHHSL of 0.141 µg/m3. Similarly, the RL for vinyl chloride and 1,2 Dichloroethane (0.22 µg/m3 and 0.7 µg/m3, respectively) were higher than the CHHSLs (0.0524 µg/m3 and 0.195 µg/m3, respectively). If these compounds were present at concentrations just below their RL, they would contribute an inhalation risk greater than 1E-05, but they would not be recognized chemicals of concern. Note in particular, that 1,2 DCA was found in some of the residences/apartments nearby (up to 1.8 µg/m3 in 2010). HERO is aware that the high concentrations of PCE in the indoor air samples required the dilution of the samples (dilution factors of 8.45 and 8.6). The concern of high RL should be addressed either by re-analyzing the first undiluted sample injection (if available), or by addressing this concern in future studies. Future investigations should present reporting limits below the CHHSL for the indoor air analyses.

**Specific Comments**

1) Benzene
The potential sources for benzene in outdoor air should be discussed (for example, urban traffic). Given the high RL for indoor air samples, future studies should determine if benzene is found indoors as well. If benzene concentrations are traffic-related, their ambient concentration should increase during daytime sampling, as compared to the

ambient sample collected between 11:45 pm and 7:45am.

2) TO-15 GC/MS SIM
It appears that the USEPA method TO-15 GC/MS SIM analyzed for a subset of 17 VOCs. To determine if other VOCs are present in the indoor air HERO recommends modifying the sampling analyses to include additional analytes in the next sampling round.

3) Future sampling
Note that DTSC's Vapor Intrusion Guidance (October 2011) states that indoor air samples should be collected at least twice, during different seasons. In addition, an inventory of other potential sources of VOCs indoors should be conducted.

**Conclusions and Recommendations**

The indoor air data supports that vapor intrusion of PCE into indoor air occurs at 1425 La Loma Ave. HERO believes that the long term exposure to PCE at the observed concentrations is associated with a very significant potential cancer risk for the occupants of the building. Based on current toxicity factors, HERO believes that acute health effects from VOCs are less likely to occur at the concentrations detected. The sampling time (11:45pm to 7:45 am) did not present a regular day-to-day working scenario. Without knowledge of the actual working-day exposures, measures should be taken as soon as possible to reduce exposures to the staff working in the building (such as increasing ventilation, reducing hours spent in the building, etc.) until mitigation and/or remediation actions prevent the VOCs in soil gas from entering the indoor air. If sensitive subpopulations are present in the building (for example: pregnant women, small children brought to work) these measures take on even greater urgency. HERO recommends notifying the occupants of the building and discussing sampling results, potential health effects and additional information sources with them. The City of Modesto is currently testing a pilot soil vapor extraction system in the vicinity of the former Service Cleaners building which should reduce the potential for vapor intrusion when the system is in continuous operation in the future. The effectiveness of reducing the indoor air concentrations of VOCs in the former Service Cleaners must be confirmed with additional indoor air sampling.

If you have additional questions please contact me at Tel. 916-255 4332, or email: gwindgas@dtsc.ca.gov

Reviewed by: Claudio Sorrentino, PhD
Senior Toxicologist, Northern California Unit Chief
Human and Ecological Risk Office, DTSC