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March 22, 1999

Mr. Phil Abel  
PC Innovations  
3448 South Taylor Avenue  
Milwaukee, Wisconsin 53207

Reference: *Limited Phase II Environmental Site Assessment Report*  
Former Wire and Metal Specialties, Inc.  
4021 South Kinnickinnic Avenue  
St. Francis, Wisconsin 53235

KEY ENGINEERING GROUP, LTD.  
File No. 0812011

Dear Mr. Abel:

In accordance with your request, Key Engineering Group, Ltd. (KEY) has completed a Limited Phase II Environmental Site Assessment (Limited Phase II ESA) at the above referenced (subject) site.

*Purpose and Scope of Services*

The purpose of the Limited Phase II ESA was to evaluate the potential for subsurface impacts at the subject site considering the past manufacturing use of the subject site and previously remediated environmental impacts at the subject site due to on-site and off-site sources. These prior land uses and previous on-site environmental remediation activities were discussed in detail in a preceding Phase I Environmental Site Assessment (Phase I ESA) for the subject site dated January 20, 1999. The previous land use and environmental remediation actions at the subject site are summarized below:

- The subject site was previously occupied by Wire and Metal Specialties, Inc., which conducted sheet metal fabricating operations since the mid-1960s and was occupied prior to then by similar metal fabrication operations since the 1940s.
- Migrating contaminants from a leaking underground storage tank (LUST) located on the adjacent property to the south of the subject site impacted a southern portion of the subject site. These impacts included soil and groundwater contamination at the subject site. These site impacts were investigated and remediated by on-site excavation and off-site disposal of the contaminated soil. However, residual soil and groundwater impacts remained on the subject site following these remedial actions.
- An apparent spill of hazardous material on the subject site was investigated and remediated by excavation and removal of the contaminated soil from the subject site.

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Post-excavation soil samples appeared to indicate that the soil impacts from this spill were completely remediated.

The Limited Phase II ESA involved advancing soil probes, collecting and submitting selected soil samples for laboratory analysis and evaluating the analytical data. Groundwater from an on-site groundwater monitoring well (MW-7), constructed during the preceding LUST site investigation and located closest to the remedial excavation as it extended onto the subject site, was also sampled and the sample submitted for analysis. The subject site layout and soil probe locations are depicted on Figure 1.

#### *Limited Subsurface Assessment Activities*

On March 10, 1999, four soil probes (GP-1, GP-2, GP-3 and GP-4) were advanced on the subject site at locations approved by Mr. Phil Abel of PC Innovations (client). Each of these soil probes were advanced to a depth of 11 feet below ground surface (bgs). Soil probe GP-1 was located near the northeast corner of the subject site property. Soil probe GP-2 was located a short distance north of the northern extent of the previous LUST site remedial excavation that extended onto the southern portion of the subject site. Soil probe GP-3 was located along the north side of the easterly Quonset hut. Soil probe GP-4 was located at the southwest corner of the subject site's main building.

The soil probes were advanced with a van-mounted Geoprobe<sup>®</sup> unit operated by Briohn Environmental Construction (Briohn) under the supervision of KEY. A 2-foot-long stainless steel sampler with an acetate liner was driven to the desired sampling depth using stainless steel rods and a hydraulic ram.

Downhole soil probe equipment and associated tools were washed prior to the start of the project. Cleaned soil probe equipment was used for each soil sampling interval to minimize the potential for cross-contamination. The cleaning procedure after each sampling interval consisted of scrubbing the 2-foot stainless steel sampler with a brush and a soap (Alconox<sup>®</sup>) and water solution followed by one tap water rinse.

Soil samples were collected from each soil probe location and classified in accordance with the Unified Soil Classification System (USCS). Soil boring logs were completed by KEY to document the drilling method, sampling method, depth of the sample, sample recovery, the USCS classifications, olfactory senses and groundwater level observations. The soil encountered at soil probe GP-1 was light brown silty sand underlain by silty clay and clayey silt. The soils encountered by GP-2 were light brown silty clay to approximately 5 feet bgs, underlain by mostly clayey silt to 11 feet bgs. The soils encountered by GP-3 were a silty sand to approximately four feet bgs underlain by silty clay and sand. Soils encountered at GP-4 were principally sand with gravel. The completed soil boring logs are attached.

A portion of each soil sample collected from the soil probes was placed into a Ziploc<sup>®</sup> bag for field screening. The remaining portion of the sample was placed into laboratory supplied containers and stored on ice for potential laboratory analysis. One selected soil sample from each soil probe location and one collected groundwater sample from MW-7 were submitted for laboratory analysis.

Following soil and groundwater sample collection, the soil probes were abandoned with bentonite chips. Completed borehole abandonment forms are also attached.

### *Soil Field Screening*

The soil samples were field screened for volatile organic vapors using a model 580B Organic Vapor Meter (OVM) photoionization detector (PID) equipped with a 10.6 electron volt (eV) lamp, calibrated to isobutylene. The sealed bag was shaken and then slightly opened and the tip of the PID was inserted into the headspace and the highest reading was recorded. The PID readings are shown on the attached boring logs. The PID readings measured for soil samples collected from GP-1, GP-2 and GP-4 were all less than one instrument unit (i.u.). However, the upper two soil sample intervals from GP-3 detected volatile organic vapors. The uppermost GP-3 soil sample collected from 1 to 3 feet bgs measured a PID reading of 346 i.u. This soil sample also had a slight odor that was not believed to be petroleum.

### *Soil and Groundwater Sampling and Laboratory Analysis*

The selected soil samples and the collected groundwater sample were submitted for laboratory analysis to Great Lakes Analytical (GLA) (1380 Busch Parkway, Buffalo Grove, Illinois). The soil sample submitted for analysis from GP-2 was collected from 7 to 9 feet bgs, which appeared to be at or just above the groundwater interface. This groundwater interface depth was chosen considering that this soil probe was advanced north of the previous LUST excavation which reportedly impacted the subject site by means of groundwater migration to the subject site. The soil sample submitted for analysis from GP-3 was the 1 to 3 foot bgs interval that was field screened at 346 i.u. on the PID. Each of the soil samples, and the groundwater sample, were submitted for laboratory analysis for volatile organic compounds (VOCs). The soil and groundwater sample analytical results are summarized in Table 1 and 2, respectively, and on Figure 2.

Groundwater monitoring well MW-7 was purged of all groundwater within the well column (well casing and filter pack) and sampled using a clean Teflon bailer. The groundwater level in MW-7 was measured to be 10.26 feet bgs.

### *Soil and Groundwater Sample Analytical Results*

The soil sample analytical results indicated that no VOC concentrations were detected at GP-1 or GP-2. Concentrations of petroleum and chlorinated VOCs were detected at GP-3 and GP-4. The petroleum-related VOCs included n-butylbenzene, ethylbenzene, p-isopropyltoluene, n-propylbenzene, toluene, trimethylbenzenes and xylene. The chlorinated VOCs included 1,1-dichloroethane (DCA), tetrachloroethene (PCE), 1,1,1-trichloroethane (TCA) and trichloroethene (TCE).

The groundwater sample analytical results indicated that petroleum (benzene only) and chlorinated VOCs were detected at MW-7. Concentrations of benzene and TCE exceeded NR 140 enforcement standards (ESs), and concentrations of 1,2-DCA, 1,1-dichloroethene (DCE) and 1,1,1-TCA exceeded NR 140 preventive action limits (PALs).

### *Conclusions and Recommendations*

Based on the laboratory analytical results, soils south of the site building in the vicinity of the Quonset hut are impacted by elevated VOC concentrations. The presence of contaminants detected in site groundwater at MW-7 (a significant distance from the detected soil contaminants) which are generally consistent with those detected in on-site soils likely indicates that contaminants present

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in on-site soils have leached to groundwater. The presence of on-site groundwater contaminants at concentrations exceeding NR 140 ESs which could potentially be attributed to an on-site source (contaminated soils) would likely trigger regulatory enforcement by the Wisconsin Department of Natural Resources (WDNR). At a minimum, the WDNR would likely require additional investigation of groundwater quality in the proximity of the contaminated soils to evaluate whether remedial action is warranted at the site.

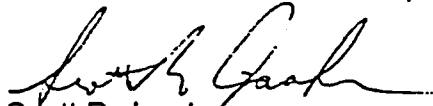
It should be noted that a component of the groundwater contamination in groundwater at MW-7 may be associated with previous remedial action activities conducted south of and on the subject site. However, the presence of contaminants in shallow site soils would likely suggest to the WDNR that the on-site groundwater contaminants are not likely solely attributable to the migration of contaminants onto the site from the south.

It is KEY's interpretation of Wisconsin's Spill Statutes that these findings are reportable to the WDNR by the owner of the subject site.

Please feel free to call us if you have any questions. KEY can assist with the WDNR reporting if desired. Thank you for the opportunity to provide you with our services.

Sincerely,

KEY ENGINEERING GROUP, LTD.



Scott R. Jacobson  
Staff Professional

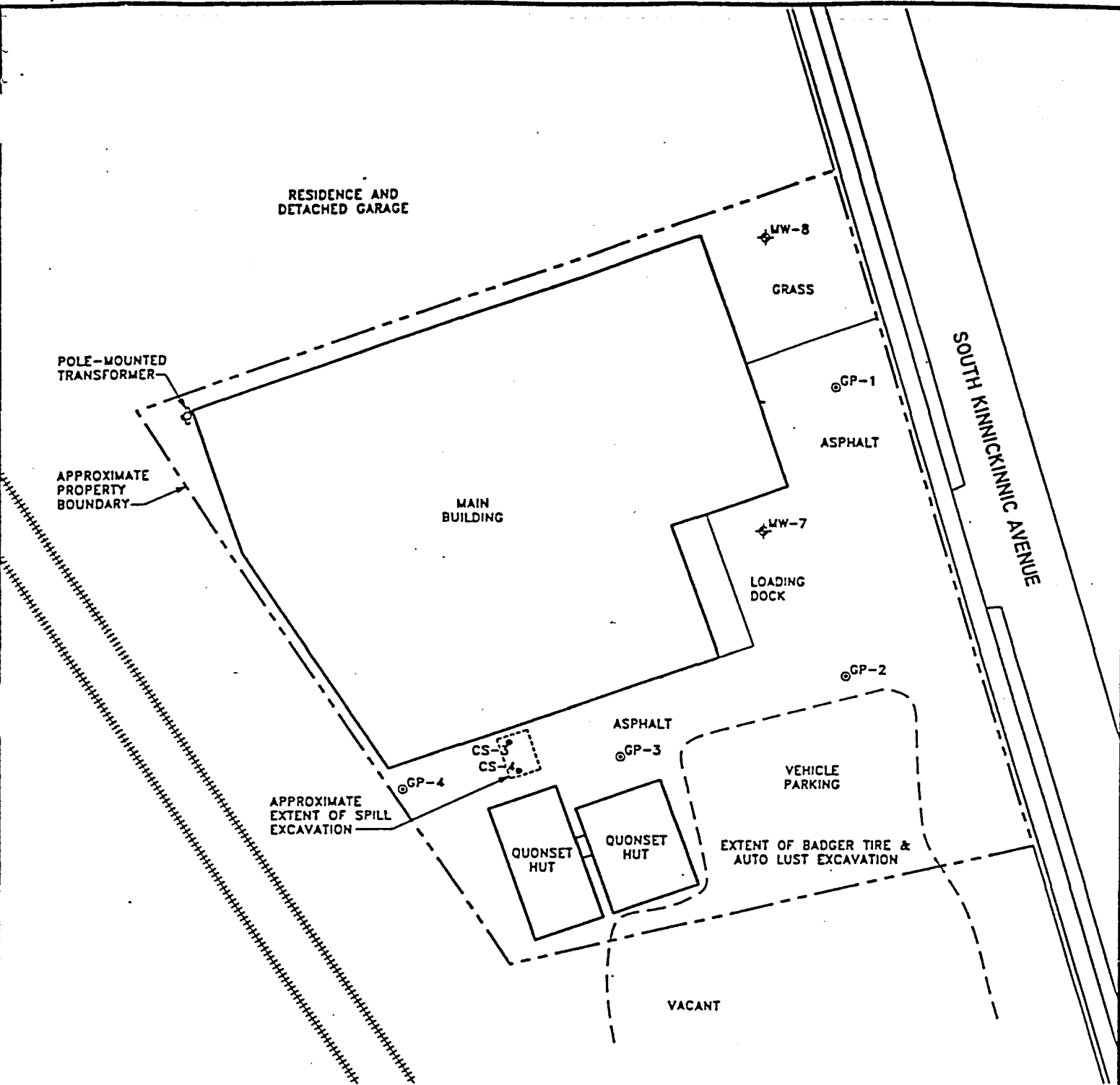


Gregory A. Konicek, P.G., CHMM  
President

SRJ/kar

Enclosures: Figure 1: Site Layout and Soil Probe Locations  
Figure 2: Summary of Soil and Groundwater Sample Analytical Results  
Table 1: Summary of Soil Sample Analytical Results  
Table 2: Summary of Groundwater Sample Analytical Results  
Soil Boring Logs  
Borehole Abandonment Forms  
Analytical Laboratory Report and Chain of Custody Documentation

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RESIDENCE AND  
DETACHED GARAGE

POLE-MOUNTED  
TRANSFORMER

APPROXIMATE  
PROPERTY  
BOUNDARY

MAIN  
BUILDING

MW-8

GRASS

GP-1

ASPHALT

SOUTH KINNICKINNIC AVENUE

MW-7

LOADING  
DOCK

GP-2

ASPHALT

GP-3

VEHICLE  
PARKING

APPROXIMATE  
EXTENT OF SPILL  
EXCAVATION

GP-4

CS-3  
CS-4

QUONSET  
HUT

QUONSET  
HUT

EXTENT OF BADGER TIRE &  
AUTO LUST EXCAVATION

VACANT

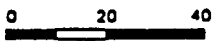


**LEGEND**

- ◆ MONITORING WELL LOCATION
- CONFIRMATION SOIL SAMPLE LOCATION
- ◎ SOIL PROBE LOCATION

SOURCE: Plot Plan  
Blong, Kempf and Ehrlich, Inc.  
July 12, 1973

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SCALE: 1"=40'



**FIGURE 1**  
**SITE LAYOUT WITH SOIL**  
**PROBE LOCATIONS**

PHASE II ENVIRONMENTAL SITE ASSESSMENT  
FORMER WIRE & METAL SPECIALTIES, INC.  
4021 SOUTH KINNICKINNIC AVENUE  
ST. FRANCIS, WISCONSIN

DRN. BY:	S.L.G.	DATE:	03/19/99
DSN. BY:	S.R.J.	FILE NO.:	0812011
CHK. BY:	S.R.J.	DWG. NO.:	08120112
REV. BY:	G.L.J.	SHEET NO.:	1

**SOIL NOTES**

P.L.D.: PHOTOIONIZATION DETECTOR I.U.  
 I.C.: INSTRUMENT UNITS  
 VOCs: VOLATILE ORGANIC COMPOUNDS, ug/kg  
 n-BB: n-BUTYLCHLORIDE, ug/kg  
 1,1-DCA: 1,1-DICHLOROETHANE, ug/kg  
 E: ETHYLENE, ug/kg  
 p-BT: p-ISOPROPYLTOLUENE, ug/kg  
 n-PB: n-PROPYLBENZENE, ug/kg  
 PCE: TETRACHLOROETHENE, ug/kg  
 T: TOLUENE, ug/kg  
 1,1,1-T: 1,1,1-TRICHLOROETHANE, ug/kg  
 TCE: TRICHLOROETHENE, ug/kg  
 TMBs: TOTAL TRIMETHYLBENZENES, ug/kg  
 X: TOTAL XYLENES, ug/kg  
 ug/kg: MICROGRAMS PER KILOGRAM  
 <: LESS THAN  
 ND: NOT DETECTED ABOVE LABORATORY METHOD DETECTION LIMITS

**GROUNDWATER NOTES**

E: ETHYLENE, ug/l  
 1,1-DCA: 1,1-DICHLOROETHANE, ug/l  
 1,2-DCA: 1,2-DICHLOROETHANE, ug/l  
 1,1-DCE: 1,1-DICHLOROETHENE, ug/l  
 cis-1,2: cis-1,2-DICHLOROETHENE, ug/l  
 trans-1,2: trans-1,2-DICHLOROETHENE, ug/l  
 PCE: TETRACHLOROETHENE, ug/l  
 1,1,1-T: 1,1,1-TRICHLOROETHANE, ug/l  
 TCE: TRICHLOROETHENE, ug/l  
 ug/l: MICROGRAMS PER LITER

GROUNDWATER	
MW-7	
DATE	3/10/99
B	10
1,1-DCA	4.1
1,2-DCA	2.3
1,1-DCE	2.2
cis-1,2	1.1
trans-1,2	2.9
PCE	2.7
1,1,1-T	120
TCE	110

SOIL	
GP-1	
DEPTH	3'-5'
PID	<1
VOCs	ND

SOIL	
GP-4	
DEPTH	3'-5'
PID	<1
PCE	150
T	34
1,1,1-T	220
TCE	1,100

SOIL	
GP-3	
DEPTH	1'-3'
PID	346
n-BB	22,000
1,1-DCA	1,800
E	1,900
p-IPT	1,700
n-PB	6,900
PCE	4,200
1,1,1-T	26,000
TCE	7,500
TMBs	20,900
X	1,500

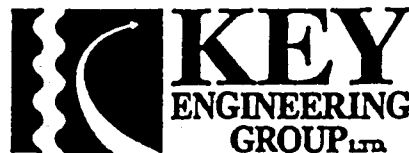
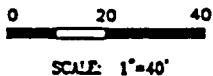
SOIL	
GP-2	
DEPTH	7'-9'
PID	<1
VOCs	ND

**LEGEND**

- ★ MONITORING WELL LOCATION
- CONFIRMATION SOIL SAMPLE LOCATION
- ⊙ SOIL PROBE LOCATION
- CONCENTRATION GREATER THAN NR 140 ENFORCEMENT STANDARD (ES)
- 2.3 CONCENTRATION GREATER THAN NR 140 PREVENTIVE ACTION LIMIT (PAL)

SOURCE: Plot Plan  
 Blong, Kempf and Ehrlich, Inc.  
 July 12, 1973

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**FIGURE 2**  
 SOIL AND GROUNDWATER  
 SAMPLE ANALYTICAL RESULTS

PHASE II ENVIRONMENTAL SITE ASSESSMENT  
 FORMER WIRE & METAL SPECIALTIES, INC.  
 4021 SOUTH KINNICKINNIC AVENUE  
 ST. FRANCIS, WISCONSIN

DRN. BY:	S.L.G.	DATE:	03/19/99
DSN. BY:	S.R.J.	FILE NO.:	0812011
CHK. BY:	S.R.J.	DWG. NO.:	08120113
REV. BY:	G.L.J.	SHEET NO.:	2

TABLE 1

## SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS

## LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT

## FORMER WIRE AND METAL SPECIALTIES, INC.

St. Francis, Wisconsin

PARAMETER	SAMPLE IDENTIFICATION				GRCL
	GP-1	GP-2	GP-3	GP-4	
Date Collected	3/10/99	3/10/99	3/10/99	3/10/99	
Depth (feet)	3-5	7-9	1-3	3-5	
PID (i.u.)	<1	<1	346	<1	
VOCs (ug/kg)					
n-Butylbenzene	<25	<25	22,000	<25	NE
1,1-Dichloroethane	<25	<25	1,900	<25	NE
Ethylbenzene	<25	<25	1,900	<25	2,900
p-Isopropyltoluene	<25	<25	1,700	<25	NE
n-Propylbenzene	<25	<25	6,900	<25	NE
Tetrachloroethene	<25	<25	4,200	150	NE
Toluene	<25	<25	<500	34	1,500
1,1,1-Trichloroethane	<25	<25	26,000	220	NE
Trichloroethene	<25	<25	7,500	1,100	NE
Trimethylbenzenes	<50	<50	20,900	<50	NE
Xylenes	<25	<25	1,500	<25	4,100

## Notes:

&lt; - less than

GRCL - NR 720 generic residual contaminant based on the protection of groundwater

i.u. - instrument units

NE - generic RCLs not established

PID - photoionization detector

ug/kg - micrograms per kilogram

VOCs - volatile organic compounds

TABLE 2

SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT

FORMER WIRE AND METAL SPECIALTIES, INC.

St. Francis, Wisconsin

	MW-7	ES	PAL
Date	3/10/99		
Detected VOCs (ug/l)			
Benzene	<b>10</b>	5	0.5
1,1-Dichloroethane	4.1	850	85
1,2-Dichloroethane	2.3	5	0.5
1,1-Dichloroethene	2.2	7	0.7
cis-1,2-Dichloroethene	1.1	70	7
trans-1,2-Dichloroethene	2.9	100	20
Tetrachloroethene	2.7	5	0.5
1,1,1-Trichloroethane	120	200	40
Trichloroethene	<b>110</b>	5	0.5

Bold values exceed the NR 140 PAL for that substance

Bold and shaded values exceed the NR 140 ES for that substance

ES - NR 140 enforcement standard

PAL - NR 140 preventive action limit

ug/l - micrograms per liter

VOCs - volatile organic compounds