EXHIBIT 5

Screening Risk Assessment

EXHIBIT 5

SCREENING RISK ASSESSMENT

AVIS / ALLSTATE (PAYLESS) CO-MINGLED GROUND-WATER PLUME

LAS VEGAS, NEVADA

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List of Acronyms

ADD:	Average Daily Dose
ASTM:	American Society of Testing and Materials
BAI:	Broadbent & Associates, Inc.
BTEX:	Benzene, Toluene, Ethylbenzene, and Xylene(s)
COPC:	Chemical of Potential Concern
DIPE:	Di-Isopropyl Ether
EPC:	Exposure Point Concentration
ETBE:	Ethyl Tertiary Butyl Ether
HRA:	Health Risk Assessment
ILCR:	Incremental Lifetime Cancer Risk
LADD:	Lifetime Average Daily Dose
LMS:	Linearized Multistage (Low Dose Extrapolation Model)
LOAEL:	Lowest-Observed Adverse Effect Level
MCL:	Maximum Contaminant Level
ug/kg:	micrograms per kilogram
ug/L:	micrograms per liter
mg/kg:	milligrams per kilogram
mg/L:	milligrams per liter
MTBE:	Methyl tertiary butyl ether
NDEP:	Nevada Division of Environmental Protection
NOAEL:	No-Observed Adverse Effect Level
RAGS:	Risk Assessment Guidance for Superfund
RfD:	Reference Dose
RME:	Reasonable Maximum Exposure
SF:	Slope Factor
SRA:	Screening Risk Assessment
TAME:	Tertiary Amyl Methyl Ether
TBA:	Tertiary Butyl Alcohol
TPH:	Total Petroleum Hydrocarbons
VOC:	Volatile Organic Compound
URS:	URS Corporation
USEPA:	United States Environmental Protection Agency
UST:	Underground Storage Tank

EXECUTIVE SUMMARY

A screening risk assessment (SRA) was conducted for a mixed commercial/residential area within the Las Vegas Valley to assess the potential risks associated with migration of volatile organic compounds (VOCs) from ground water to indoor and outdoor air at five locations above a petroleum hydrocarbon ground-water plume (Figures 1 and 2). Potential historical and current emissions of VOCs from ground water to the ground surface were estimated using the numerical vadose zone fate and transport code *VLEACH*. Standard indoor and outdoor air dispersion models were applied to the results of the *VLEACH* modeling to estimate reasonable maximum exposure (RME) concentrations in indoor and outdoor air.

The results of the screening risk assessment indicated that, based on the ground-water monitoring data for 1995 to 2000, volatilization of VOCs from ground water to air does not represent a significant exposure pathway for historical or current ground-water conditions.

1.0 INTRODUCTION

This section of the SRA presents the technical approach employed in the SRA and discusses the site background relevant to the SRA.

1.1 APPROACH

A health risk assessment (HRA) is an appropriate analytical methodology for determining the potential health risks for any hypothetical individual living or working at a site where a chemical release has, or may have, occurred (USEPA, 1989). The hypothetical individual that is evaluated in a standard HRA is assumed to have a reasonable maximum exposure by applicable exposure routes. The assumption of exposure represents an extremely conservative approach. This approach is recommended by regulatory risk assessment guidance in order to make the HRA sufficiently protective of all potential receptors.

The HRA applies four evaluation components as the basis for characterizing potential health risks posed to current and potential future receptors at a site (USEPA, 1989). These HRA components are:

Site Characterization/Selection of Chemicals of Potential Concern: Site characterization data are evaluated and the chemicals of potential concern (COPCs) are selected.

Toxicity Assessment: Hazard identification and dose-response evaluations are conducted for the COPCs.

Exposure Assessment: The routes through which potential exposure to COPCs may occur are identified and the magnitude and duration of the doses that people might receive as a result of their potential exposure are estimated.

Risk Characterization: The relationship between the estimated dose and the probability of observing an adverse effect is characterized for each COPC. The incremental lifetime cancer risk and the noncancer hazard indices are calculated.

The methodologies used in this SRA are consistent with standard risk assessment practices and information provided in the following guidance documents:

- USEPA, 1989. *Risk Assessment Guidance for Superfund (RAGS), Volume I Human Health Evaluation Manual (Part A)*, December.
- ASTM, 1995. Risk Based Corrective Action Applied at Petroleum Release Sites. E 1739-95.
- USEPA, 1996. Soil Screening Guidance: Technical Background Document, May.
- USEPA, 1997. *Exposure Factors Handbook*, August.

As recommended by USEPA (1996) and ASTM (1995), a tiered approach was employed. As an initial step, a simple Tier I analysis was conducted for all locations evaluated. The Tier I analysis relied on simplified, very conservative assumptions for fate/transport modeling. Based on the results of the Tier I analysis, a Tier II analysis was subsequently conducted where warranted (USEPA, 1996; ASTM, 1995). The Tier II analysis employed a more complex fate/transport modeling approach that more accurately reflects site conditions. More information regarding the Tier I and Tier II analyses is provided in Appendix A.

1.2 ORGANIZATION OF REPORT

The organization of this report is as follows:

Section 2.0 Site Characterization and Selection of Chemicals of Potential Concern: Background information for the site is discussed and site characterization data relevant to the SRA are presented. Rationale for the selection of the chemicals evaluated in the SRA is provided.

Section 3.0 Toxicity Assessment: The toxicity criteria established by the regulatory agencies are discussed and presented.

Section 4.0 Exposure Assessment: The exposure scenarios and pathways, exposure parameters, exposure point concentrations (including fate/transport modeling), and dose calculations are discussed.

Section 5.0 Risk Characterization: The potential health risks associated with assumed exposure to COPCs are presented.

Section 6.0 References: The references cited in the SRA are provided.

2.0 SITE CHARACTERIZATION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

This section provides a brief overview of the site background, discusses the ground-water monitoring data, and identifies the chemicals of potential concern.

2.1 BACKGROUND

Seven underground storage tanks (USTs) are currently located at the Avis site. Six of these USTs have been in place since 1981. Four of the USTs are used to store gasoline, one to store diesel, one to store new oil, and one to store used oil. A release was discovered in late 1992 during UST upgrades, at which time leaking piping and the new oil UST were replaced.

Three USTs (two gasoline and one waste oil) have been operating at the Allstate (Payless) site since 1982. A release resulting from a leaking dispenser pump, was found in September 1998. The two gasoline UST systems were subsequently repaired and upgraded. The waste oil UST was removed in 1999.

Remedial action of the contaminated groundwater is currently being conducted, with oversight by the Nevada Division of Environmental Protection (NDEP). The remedial action goals for groundwater identified by the NDEP are the federally promulgated Maximum Contaminant Levels (MCLs) for all chemicals other than methyl tertiary butyl ether (MTBE). The remedial action goal for MTBE is the State of Nevada action level of 200 ug/L.

As part of the site assessment, the NDEP and responsible parties identified the need to assess if significant vapor migration of volatile petroleum constituents released to groundwater is occurring or has potentially occurred in the past. This SRA has been completed to address that need.

2.2 SUMMARY OF GROUND-WATER DATA

Broadbent & Associates, Inc. (BAI) has monitored twenty-seven ground-water monitoring wells (MW-1 through MW-18 and MW-20 through MW-28) associated with

the Avis facility at the McCarran Airport. The locations of these wells are shown on Figure 3. Concentrations of benzene, toluene, ethylbenzene, xylene (BTEX), total petroleum hydrocarbons (TPH), and methyl tertiary butyl ether (MTBE) in ground-water samples collected from these wells are listed in Table 1. Table 2 lists concentrations for several fuel oxygenates including tertiary amyl methyl ether (TAME), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), ethanol, methanol, and tertiary butyl alcohol (TBA) for these twenty-seven wells. Naphthalene data and some additional MTBE data for these wells are also included in Table 2.

URS Corporation (URS) has monitored twelve ground-water monitoring wells associated with the Allstate (Payless) facility. The locations of these wells are shown on Figure 3. Concentrations of BTEX, TPH, and MTBE in ground-water samples collected from wells AMW-1A, AMW-2 through AMW-7, and AMW-11 through AMW-14 are listed in Table 3a. Like BAI, URS has also analyzed samples for the presence of oxygenates. These results are summarized in Table 3b.

All ground-water monitoring data were evaluated as appropriate for risk assessment application.

2.3 Identification of Chemicals of Potential Concern

Chemicals of potential concern (COPCs) are selected to ensure that the risk assessment focuses on those chemicals that are site-related and could significantly contribute to overall site risk (USEPA, 1989). Consistent with ASTM risk-based corrective action guidance (ASTM, 1995), the toxic and mobile constituents of petroleum hydrocarbons are targeted as COPCs. These (indicator) chemicals include BTEX, polycyclic aromatic hydrocarbons (PAHs), and fuel additives, including MTBE.

Based on a review of the ground-water data, discussions with NDEP, and consideration of toxicity and volatility of the indicator chemicals, the following chemicals were identified as COPCs for the SRA:

- Benzene
- Toluene
- Ethybenzene
- Xylenes
- MTBE.

Table 4 provides a summary of the rationale for the COPC selection. It should be noted that, although additional chemicals have been reported in one or more of the monitoring wells, none of these were identified as COPCs for the quantitative SRA.

3.0 Toxicity Assessment

This step of the SRA consists of the characterization of the nature and strength of the evidence of causation as well as the dose-response relationship for each COPC. Evidence of causation addresses the ability of the chemical to cause toxicity in humans. Dose-response assessment characterizes the relationship between the dose of a chemical and the potential for an adverse health effect in the exposed population. Based on this quantitative dose-response relationship, USEPA has applied the results of the chemical-specific toxicity assessments to derive numerical toxicity criteria to estimate the likelihood of a specific adverse health effect occurring as a function of exposure. The methods used to establish the dose-response criteria associated with evaluating potential chronic (long-term) carcinogenic and noncarcinogenic health impacts are addressed separately in the following sections.

3.1 Noncarcinogenic Health Effects

It is widely accepted that most biological effects of chemicals occur only after a threshold dose is reached. That is to say, there is a range of doses that exists from zero to some finite value that can be tolerated by an animal or human with essentially no adverse health effects. For the evaluation of noncarcinogenic health effects, USEPA Reference Doses (RfDs) that incorporate the concept of a biological threshold are used. USEPA (1989) defines the chronic RfD as a daily exposure level for the human population, including sensitive subpopulations that is likely to be without an appreciable risk of

deleterious effects during a lifetime. Chronic RfDs are specifically developed to be protective of long-term exposures to a chemical.

For the purposes of establishing health criteria, the threshold dose is usually estimated from the no-observed adverse effect level (NOAEL) or the lowest-observed adverse effect level (LOAEL) determined from human and/or animal studies. The NOAEL is defined as the highest dose at which no adverse effects are observed, while the LOAEL is defined as the lowest dose at which adverse effects are observed. Uncertainty factors are applied to the NOAEL or LOAEL observed in animal studies or human epidemiological studies to establish the chemical-specific RfD. The RfD is applied in the risk characterization to estimate the potential noncancer health hazards.

Benzene, toluene, ethylbenzene, xylenes,and MTBE were evaluated for noncarcinogenic health effects. The chemical-specific RfDs for these COPCs are summarized in Table 5.

3.2 Carcinogenic Health Effects

The current approach to carcinogenic risk assessment used by USEPA, and other U.S. regulatory agencies assumes, without confirmatory studies, that every exposure to a carcinogen poses a finite probability, however small, of producing a carcinogenic response. There are no data to substantiate this assumption. It is highly likely, based on studies to date, that this assumption results in predictions that overestimate risk (USEPA, 1986, 1989). The current approach assumes that there is no threshold to carcinogenic effects. The linearized multistage (LMS) low dose extrapolation model is applied to high dose data to predict carcinogenic response at low doses. The use of this model is recognized to represent an extremely conservative approach to assessing carcinogenic potency (USEPA, 1986, 1989).

Cancer slope factors (SFs) are derived in most cases from the LMS or similar model. Based on the nonthreshold theory for carcinogens, the modeling assumes a carcinogenic risk of zero only at zero dose, i.e., at all doses some risk is assumed to be present. The chemical-specific slope factor, which is expressed in units of $(mg/kg\text{-}day)^{-1}$, represents

the 95% upper confidence limit of the probability of carcinogenic response per unit daily intake of a substance over a lifetime.

Benzene was evaluated for carcinogenic health effects. The chemical-specific SF used in this SRA is provided in Table 5.

4.0 EXPOSURE ASSESSMENT

This section identifies the exposure scenarios and exposure pathways evaluated in the SRA. It also discusses the methods applied to estimate dose, including methods for fate/transport modeling, calculation of exposure concentrations, and discussion of the exposure assumptions (parameters). Estimated doses for each COPC are presented in this section.

4.1 EXPOSURE SCENARIOS

The exposure scenarios identify the potential exposure settings and potential receptors. The exposure settings include indoor and outdoor exposure at each of five locations. The following receptors and locations were evaluated in the SRA:

Hypothetical historical and current receptors living above the following locations:

- MW-8 (commercial worker)
- MW-13 (resident)
- MW-24 (resident)
- MW-28 (resident)
- AMW-12 (resident).

4.2 EXPOSURE PATHWAYS

Pathways of exposure are the means through which an individual may come into contact with a chemical. For a complete exposure pathway to exist, each of the following elements must be present (USEPA, 1989):

- A source and mechanism for chemical release;
- An environmental transport medium (i.e., air, water, soil);
- A point of potential human contact with the medium; and
- A route of exposure (e.g., inhalation, ingestion, dermal contact).

The only complete (or potentially complete) exposure pathways for historical and/or current receptors are inhalation of indoor air and inhalation of outdoor air. Accordingly, these pathways were evaluated in the SRA.

4.3 DOSE ESTIMATION

Dose is defined as the amount of chemical absorbed into the body over a given period of time (USEPA, 1989). For noncarcinogenic effects, the dose is averaged over the period of exposure and is referred to as the average daily dose (ADD). For carcinogenic effects, the dose is averaged over a lifetime and is referred to as the lifetime average daily dose (LADD).

Consistent with current USEPA guidance, the following dose equation was used to assess exposure to indoor and outdoor air:

$$Dose = \frac{C \times IR \times EF \times ED \times B}{BW \times AT}$$

where:

Dose		Average Daily Dose (ADD) (mg/kg-day) for noncarcinogens; Lifetime Average Daily Dose (LADD) (mg/kg-day) for carcinogens
C	=	Chemical concentration in air (mg/m^3)
IR	=	Intake rate (m^3/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
B	=	Bioavailability (fraction)
BW	=	Body weight (kg)
AT	=	Averaging time (period over which exposure is averaged - days) (= ED x 365 days/yr for noncarcinogens; 25,550 days for carcinogens)

Exposure point concentrations and the exposure parameter values are input into this equation to yield dose estimates. Exposure parameter values are summarized in Table 6. Exposure point concentrations are discussed in Section 4.4.

4.4 Exposure Point Concentrations

The exposure point concentration (EPC) is the representative concentration of a COPC in an environmental medium that is potentially contacted by a receptor (e.g., resident or worker). In this SRA, EPCs were estimated for the hypothetical indoor and outdoor receptors at each location of interest.

In order to estimate potential EPCs in air due to volatilization of VOCs from ground water, two modeling steps are employed (1) vapor flux (i.e., surface emission) rates are directly measured or estimated using a predictive model and (2) the measured or

estimated flux rates are subjected to indoor and outdoor air dispersion models to predict EPCs.

For purposes of this SRA, vapor flux modeling was conducted using the numerical vadose zone fate and transport code *VLEACH* (Ravi and Johnson, 1995). *VLEACH* is identified by USEPA as one of the appropriate models for use in risk assessment (USEPA, 1996). EPCs in air were estimated based on measured ground-water concentrations, which were input to the VLEACH model. A summary of the basis of air EPCs is provided below. The *VLEACH*-based fate and transport analysis is included as Appendix A.

Air EPC Scenario	**Fate/Transport Model Tier**
Current exposure (RME)	Tier I
Historical exposure (RME)	Tier I
Historical exposure (worst case)	MW-8, benzene: Tier II* MW-8, other COPCs: Tier I All other locations (all COPCs): Tier I

*See Appendix A for description of refined modeling method.
RME (reasonable maximum exposure) uses maximum measured ground-water concentration.
Worst case uses two times the maximum measured ground-water concentration.

5.0 RISK CHARACTERIZATION

This section of the SRA combines outputs of the exposure and dose-response assessments to characterize the potential health risks for hypothetical historical and current receptors for each exposure location evaluated. Section 5.1 summarizes the estimated incremental lifetime cancer risks. Section 5.2 summarizes the estimated noncancer hazard indices. Section 5.3 discusses the comparison of estimated EPCs in air to the odor threshold for the COPCs.

5.1 Incremental Lifetime Cancer Risk Estimates

The calculations for the incremental lifetime cancer risk (ILCR) estimates are provided in Table 7. Table 8 provides a summary of the risk estimates. None of the ILCRs exceeded the one-in-one million (1 E-06) *de minimus* level. Given the conservative methodology applied in estimating potential exposure, these results indicate no significant cancer risks for either the conservative historical scenarios or current scenario.

5.2 Noncancer Hazard Index Estimates

The calculations for the noncancer hazard indices are provided in Table 7. Table 9 provides a summary of the hazard index estimates. Given the conservative methodology applied in estimating potential exposure, these results indicate no potential for noncancer health effects for either the conservative historical scenario or current scenarios.

It should be noted that benzene contributes to over 95 percent of the hazard index, in all cases (except for MW-28, where only MTBE was detected). The hazard indices for MTBE are in the range of 0.0001 (one ten-thousandth of the acceptable hazard index). The other oxygenates (not included in the quantitative evaluation) were reported in lower concentrations than MTBE and are equally or less toxic than MTBE; accordingly, these observations further substantiate the low risk potential of the non-MTBE oxygenates.

5.3 Odor Thresholds of COPCs

It was of interest to compare the highest (historical) estimated air concentrations with the chemical-specific odor thresholds. The comparison, shown in Table 10, indicates that, for BTEX, odor thresholds are thousands of times higher than the highest estimated air concentrations. For MTBE, the odor threshold is over 50 times the highest estimated air concentration. Given the very conservative basis for the estimated air concentrations, it is unlikely that individuals have ever smelled the COPCs historically or currently present in ground water.

6.0 REFERENCES CITED

American Society for Testing and Materials (ASTM), 1995. *Risk Based Corrective Action Applied at Petroleum Release Sites.* E 1739-95.

Ravi, V. and J.A. Johnson. 1995. *VLEACH: A One-Dimensional Finite Difference Vadose Zone Leaching Model* (Version 2.2). Developed for the USEPA Office of Research and Development, Robert S. Kerr Environmental Research Laboratory, Center for Subsurface Modeling Support (Ada, Oklahoma). Based on the original VLEACH (Version 1.0) developed by CH2M-Hill for USEPA Region IX.

United States Environmental Protection Agency (USEPA), 1986. *Guidelines for Carcinogenic Risk Assessment.* 51 Federal Register, CFR 2984, No. 185, Sep. 24.

USEPA, 1989. *Risk Assessment Guidance for Superfund (RAGS), Volume I Human Health Evaluation Manual (Part A),* Office of Emergency and Remedial Response. December.

USEPA, 1996. *Soil Screening Guidance: Technical Background Document,* Office of Solid Waste and Emergency Response. May.

USEPA, 1997. *Exposure Factors Handbook,* Office of Research and Development. August.

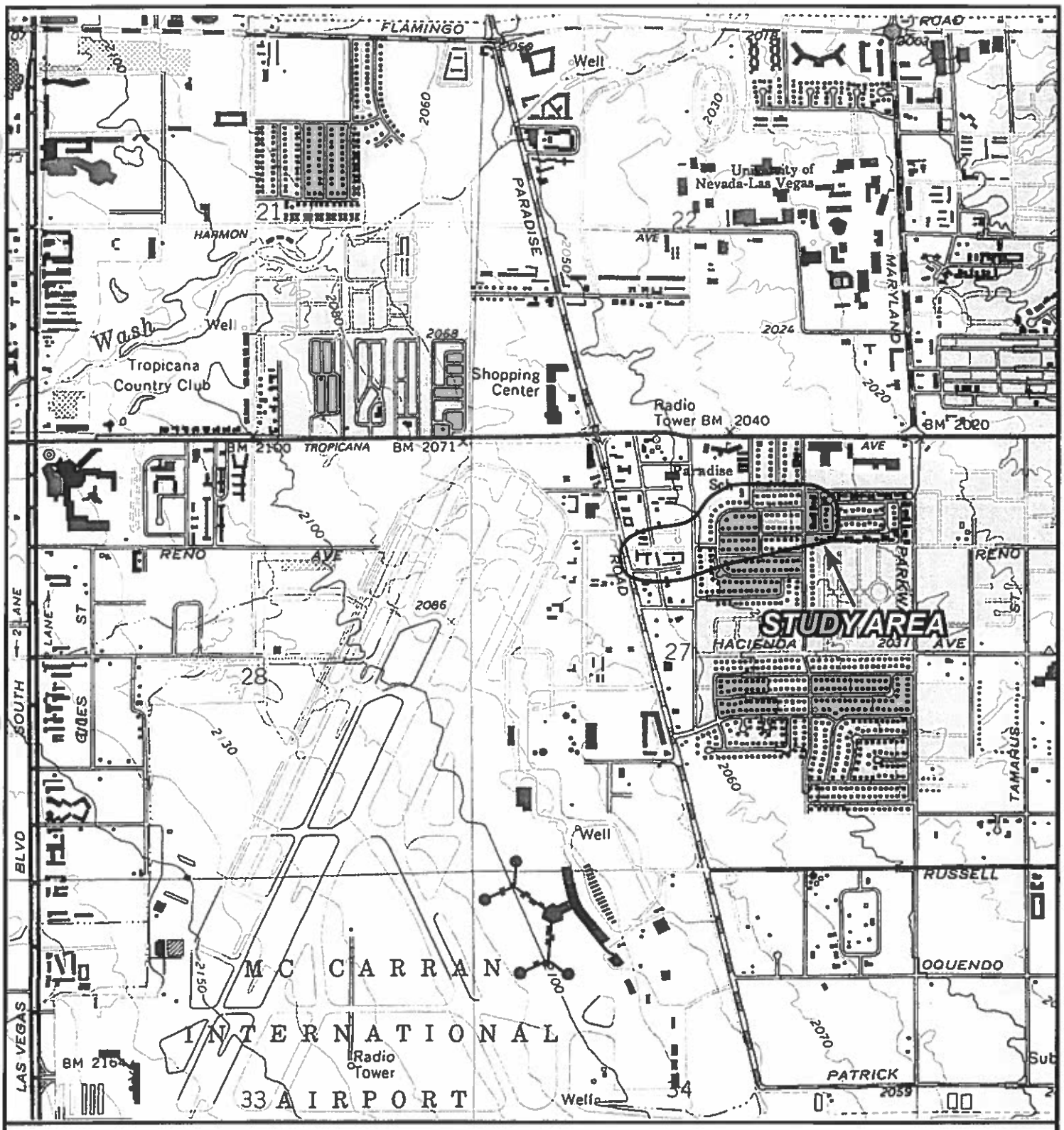


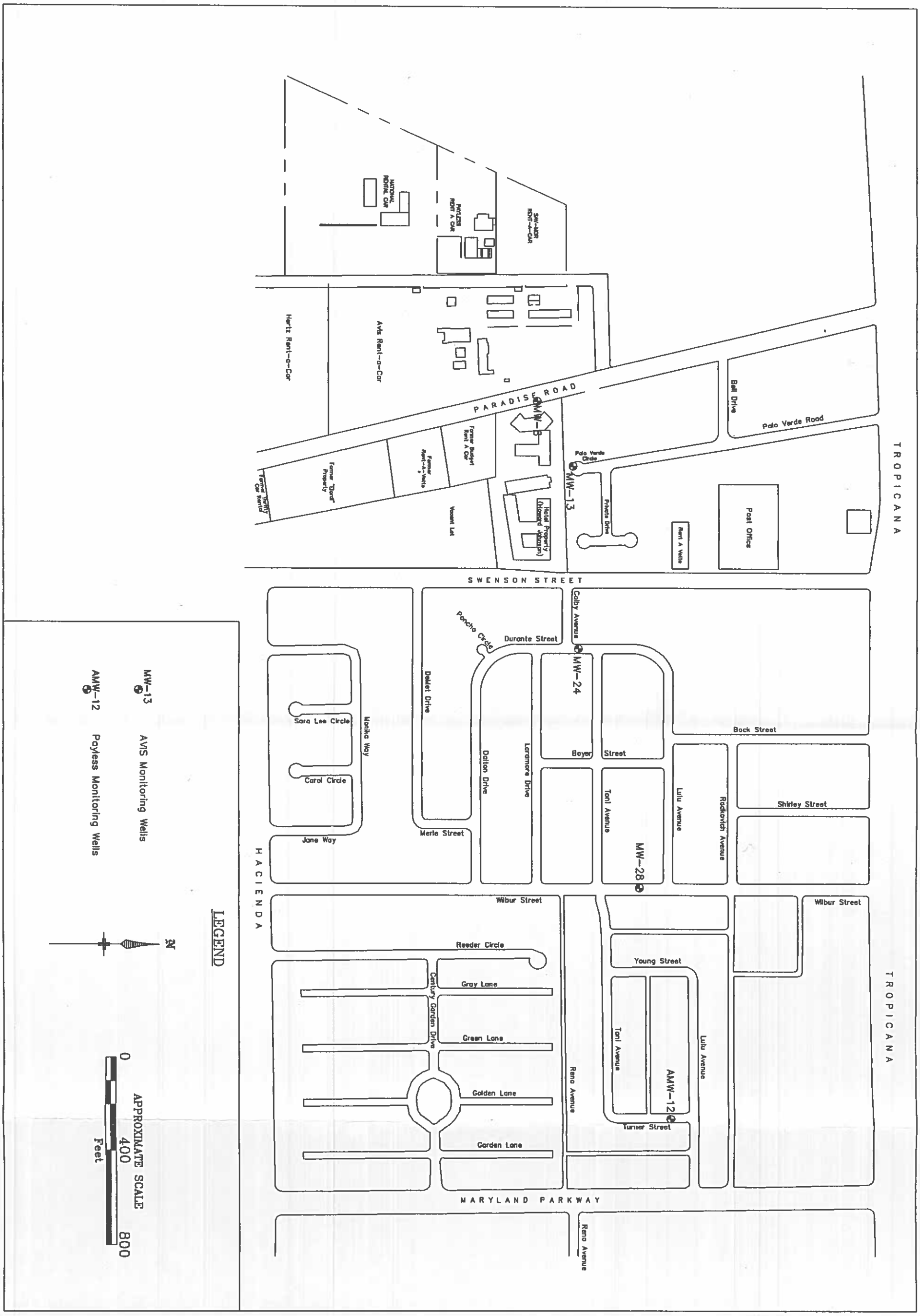
FIGURE 1

VICINITY MAP

AVIS/PAYLESS
CO-MINGLED PLUME
LAS VEGAS, NEVADA

REFERENCE: USGS 7.5 Minute Series Topographic Map, "Las Vegas SW, Nevada" Quadrangle, Photorevised 1984.

NDEP 00095



Monitoring Well Locations
Avis/Payless Co-Mingled Plume
Las Vegas, Nevada

Figure No. 2

URS Project No. 38257-004-169
Broadbent Project No. 95150

Prepared by: BEC/DDD
Approved by: KJS/SB Date: 11/01/00

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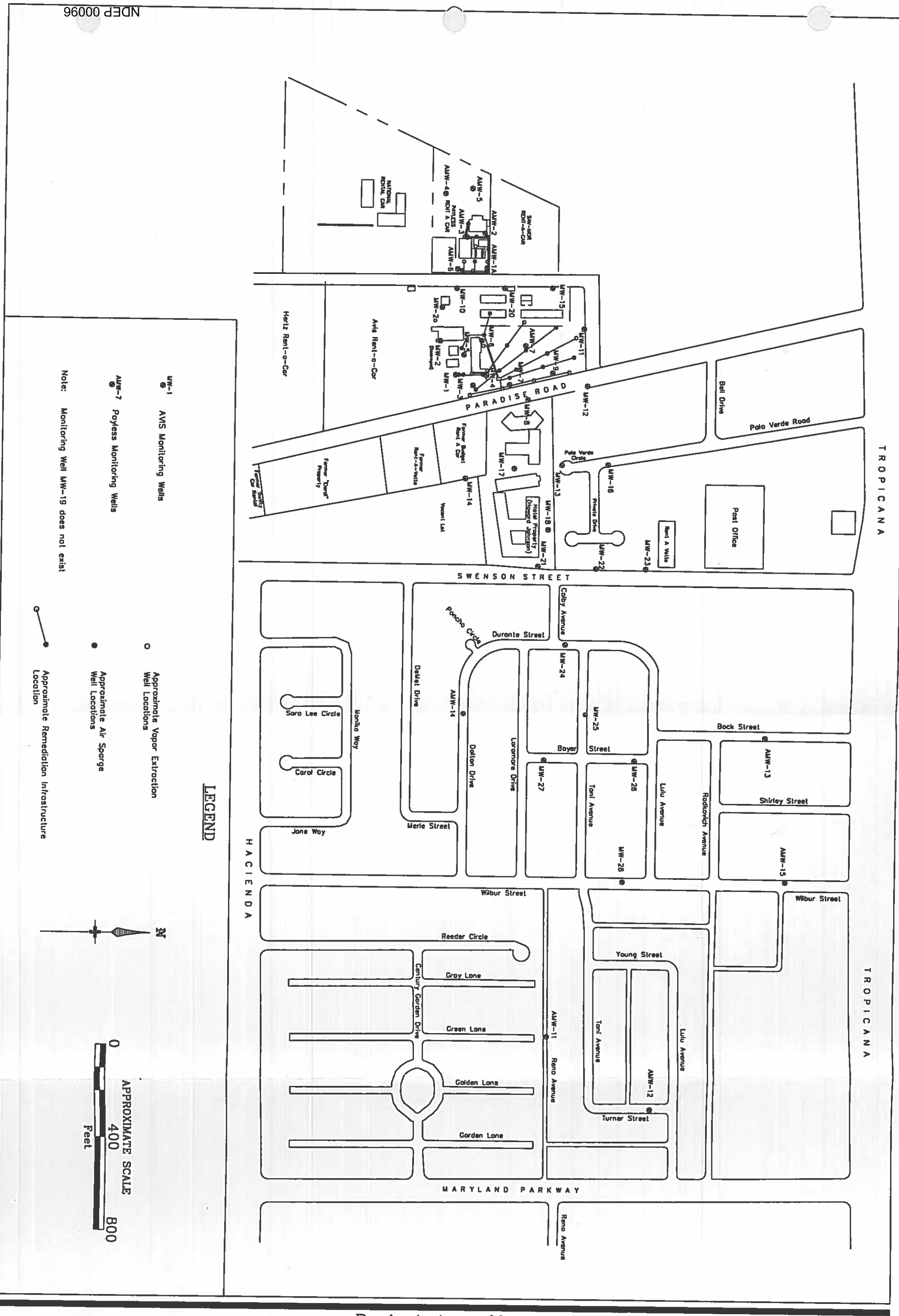

Project Area Map
Avis/Payless Co-Mingled Plume
Las Vegas, Nevada

Figure No. 3

URS Project No. 38257-004-169
Broadbent Project No. 95150

Prepared by: BEC/DDD
Approved by: KJS/SB Date: 11/01/00

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Table 1
Avis - McCarran Airport Results of Ground-Water Analyses
BTEX, TPH, and MTBE

Monitoring Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH (mg/L)	MTBE (µg/L)
MW-1	6/5/95	397	ND	75	ND	ND	NA
	9/11/95	357	23	ND	ND	12.2	NA
	12/28/95	193	3.4	ND	234	1.7	NA
	2/5/96	80	2.2	ND	4.1	ND	NA
	2/20/97	542	436	682	352	38.8	NA
	3/25/97	414	236	236	304	56.0	52,000
	6/22/97	208	94	ND	120	18.6	NA
	9/16/97	272	132	22	490	65.1	NA
	12/15/97	127	52	51	434	58.7	NA
	3/26/98	30	ND	ND	34	35.6	35,500
	9/15/98	56	ND	ND	53	19.9	19,784
	12/17/98	160	36	210	116	26.4	25,872
	3/3/99	13	6	15	18	0.29	9,400
	6/8/99	5.6	14	2.7	5.7	ND	5,200
	9/22/99	ND	ND	ND	ND	ND	2,300
	12/9/99	4	27	4	37	ND	4,600
	3/23/00	ND	3.7	ND	2.2	ND	4,400
	6/15/00	ND	ND	ND	ND	NA	3,400
MW-2A	3/26/98	16.9	13.3	3.6	149.4	1.5	609
	9/15/98	2.7	ND	ND	ND	0.68	634
	12/17/98	ND	ND	ND	ND	0.51	511
	3/3/99	ND	6	24	18	0.71	650
	6/8/99	21	9	21	25	0.33	750
	9/22/99	6.8	8.6	14	11	0.35	910
	12/9/99	11	31	59	59	0.57	820
	3/23/00	5.4	30	55	64	0.9	250
	6/15/00	3.8	14	40	45	NA	1,000
MW-3	6/5/95	9,540	10,420	2,640	7,340	80.7	NA
	9/11/95	14,490	7,506	2,864	6,324	74.7	NA
	12/28/95	5,989	2,275	3,015	1,247	16.7	NA
	2/5/96	5,400	6,304	2,233	3,985	22.1	NA
	2/20/97	1,876	832	984	620	94.9	NA
	3/25/97	2,730	1,746	1,058	802	129.0	118,620
	6/22/97	1,334	778	58	2,094	40.2	NA
	9/16/97	624	464	122	1,092	42.6	NA
	12/15/97	44	66	15	344	11.2	NA
	3/26/98	41	ND	ND	557	22.0	20,910
	9/15/98	3.6	ND	ND	10.4	27.4	25,784
	12/17/98	138	1,714	600	3,566	29.5	14,714
	3/3/99	ND	24	72	1,950	4.8	15,000
	6/8/99	6.0	0.3	ND	ND	ND	16,000
	9/22/99	ND	ND	ND	ND	ND	660
	12/9/99	ND	ND	ND	ND	ND	4,600
	3/23/00	ND	ND	ND	ND	ND	2,300
	6/15/00	ND	ND	ND	ND	NA	610
MW-4	9/16/97	1,353	2,036	1,510	1,685	18.5	NA
	12/15/97	1,347	3,312	2,356	2,544	21.1	NA
	3/26/98	732	1,666	1,309	1,819	25.7	1,705
	9/15/98	291	943	1,212	1,542	12.4	4,281
	12/17/98	228	678	1,056	1,240	10.6	3,781
	3/3/99	110	230	710	710	6.6	4,000
	6/8/99	57	34	330	240	2.7	2,300
	9/22/99	2.4	ND	ND	ND	1.1	1,700
	12/9/99	21	2.8	440	22	1.5	3,700
	3/23/00	35	4.9	190	23	2.1	1,800
	6/15/00	55	ND	410	ND	NA	1,300

Table 1
Avis - McCarran Airport Results of Ground-Water Analyses
BTEX, TPH, and MTBE

Monitoring Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH (mg/L)	MTBE (µg/L)
MW-5	6/5/95	710	344	158	106	7.6	NA
	9/11/95	2,143	448	173	166	10.5	NA
	12/28/95	1,242	250	176	64	4.3	NA
	2/5/96	569	21	ND	12.6	2.6	NA
	2/20/97	2,120	208	72	284	79.0	NA
	3/25/97	604	116	ND	100	24.5	23,084
	6/22/97	461	ND	ND	345	11.1	NA
	9/16/97	424	64	23.4	71	27.9	NA
	12/15/97	227	105	6.4	227	26.2	NA
	3/26/98	66	ND	ND	ND	9.6	5,069
	9/15/98	ND	ND	ND	ND	18.9	18,848
	12/17/98	ND	ND	ND	ND	16.7	16,698
	3/3/99	10	ND	22	21	0.4	10,000
	6/8/99	0.6	ND	1.5	ND	ND	3,400
	9/22/99	ND	ND	ND	ND	ND	880
	12/9/99	ND	ND	ND	ND	ND	1,200
	3/23/00	ND	ND	ND	6	ND	1,200
	6/15/00	ND	ND	ND	ND	NA	260
MW-6	9/16/97	4,460	11,360	3,880	9,780	69.9	NA
	12/15/97	2,340	2,360	4,440	7,410	45.8	NA
	3/26/98	1,494	552	3,208	3,864	18.5	3,320
	9/15/98	428	88	2,508	948	15.8	4,712
	12/17/98	268	52	3,160	778	17.4	2,448
	3/3/99	140	36	3,200	620	14.0	2,100
	6/8/99	46	17	1,600	190	7.7	2,400
	9/22/99	7	21	18	370	18	4,000
	12/9/99	98	1,100	2,300	140	12	2,600
	3/23/00	19	ND	890	15	12	3,900
	6/15/00	42	ND	860	ND	NA	5,000
MW-7	9/16/97	3,194	126	498	824	162	NA
	12/15/97	250	120	1,492	402	137	NA
	3/26/98	39	51	1,023	160	97.5	96,150
	9/15/98	54	50	1,014	186	71	64,448
	12/17/98	ND	ND	179	78	210	192,250
	3/3/99	8	ND	850	25	7.8	68,000
	6/8/99	14	5.8	550	6.8	2.2	68,000
	9/22/99	11	27	9.3	190	2.8	61,000
	12/9/99	ND	ND	130	ND	2.8	36,000
	3/23/00	2	ND	2	ND	12	40,000
	6/15/00	ND	ND	ND	ND	NA	40,000
MW-8	6/5/95	12,170	1,060	812	568	40.7	NA
	9/11/95	13,058	564	358	360	39.3	NA
	12/28/95	12,483	2,809	1,222	1,573	26.6	NA
	2/20/97	11,076	120	720	ND	119	NA
	3/25/97	10,676	476	772	336	188	175,740
	6/22/97	8,768	292	750	212	21.1	NA
	9/16/97	8,290	402	438	412	173	NA
	12/15/97	112	9.2	ND	32.6	96.6	NA
	3/26/98	310	ND	ND	ND	132	124,200
	9/15/98	46	ND	ND	ND	26.7	26,615
	12/17/98	80	ND	142	ND	112.0	111,918
	3/3/99	91	5	520	7	3.6	110,000
	6/8/99	39	3.4	170	1.6	0.67	120,000
	9/22/99	180	7.9	ND	270	4	110,000
	12/9/99	46	3.7	210	ND	1.8	95,000
	3/23/00	31	4	100	3	1.50	79,000
	6/15/00	380	ND	450	200	NA	77,000

Table 1
Avis - McCarran Airport Results of Ground-Water Analyses
BTEX, TPH, and MTBE

Monitoring Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH (mg/L)	MTBE (µg/L)
MW-9	6/5/95	12,848	11,262	1,584	3,312	49.9	NA
	9/11/95	21,504	6,084	1,240	2,028	66	NA
	12/28/95	10,276	5,272	2,280	984	23.4	NA
	2/20/97	1,920	1,500	1,056	612	12.7	NA
	3/25/97	4,030	3,574	1,736	1,444	31	4,150
	6/22/97	5,459	2,673	1,477	1,420	22.9	NA
	9/16/97	4,300	7,690	2,660	7,510	72.2	NA
	12/15/97	4,160	1,140	2,316	6,476	83.7	NA
	3/26/98	3,119	371	1,883	2,294	78.2	49,170
	9/15/98	720	100	450	570	29.9	28,050
	12/17/98	1,554	68	1,622	494	45.4	41,680
	3/3/99	930	28	1,400	64	8.8	39,000
	6/8/99	230	5.1	740	5.1	2.7	31,000
	9/22/99	24	ND	100	300	5.7	23,000
	12/9/99	54	5.6	210	66	1.1	16,000
	3/23/00	27	ND	130	6	0.67	13,000
	6/15/00	ND	ND	86	ND	NA	7,900
MW-10	6/5/95	145	41	ND	165	0.7	NA
	9/11/95	92.2	7.6	154	ND	1.5	NA
	12/28/95	71	ND	ND	ND	0.32	NA
	2/20/97	77.6	ND	ND	3.3	0.6	NA
	3/25/97	483	48	11	18	0.9	211
	6/22/97	158	103	9.5	32.5	1.1	NA
	9/16/97	308	21.3	ND	62.5	0.9	NA
	12/15/97	351	30.3	66.3	17.8	1.3	NA
	3/26/98	124	ND	ND	ND	2.7	154
	9/15/98	84.9	ND	7.1	4.4	0.78	443
	12/17/98	ND	ND	ND	ND	ND	353
	3/3/99	110	ND	18	ND	1.2	590
	6/8/99	61	3.3	80	48	0.73	550
	9/22/99	35	1.7	ND	8.7	1.5	580
	12/9/99	9.2	ND	2.7	ND	0.78	830
	3/23/00	6.2	ND	2.6	ND	0.72	500
	6/15/00	ND	ND	ND	ND	NA	570
MW-11	9/11/95	ND	ND	ND	ND	ND	NA
	12/28/95	ND	ND	ND	ND	ND	NA
	2/20/97	ND	ND	ND	ND	ND	NA
	3/25/97	ND	ND	ND	ND	ND	ND
	6/22/97	ND	ND	ND	ND	ND	NA
	9/16/97	ND	ND	ND	ND	ND	NA
	12/15/97	ND	ND	ND	ND	ND	NA
	3/26/98	ND	ND	ND	ND	ND	112
	9/15/98	ND	ND	ND	ND	ND	ND
	12/17/98	ND	ND	ND	ND	ND	ND
	3/3/99	ND	ND	ND	ND	ND	ND
	6/8/99	ND	ND	ND	ND	ND	ND
	9/22/99	ND	ND	ND	ND	ND	1.4
	12/9/99	ND	ND	ND	ND	ND	ND
	3/23/00	ND	ND	ND	ND	ND	11
	6/15/00	ND	ND	ND	ND	NA	ND
MW-12	9/11/95	ND	ND	ND	ND	ND	NA
	12/28/95	ND	ND	ND	ND	ND	NA
	2/20/97	ND	ND	ND	ND	ND	NA
	3/25/97	ND	ND	ND	ND	ND	40
	6/22/97	ND	ND	ND	ND	ND	NA
	9/16/97	ND	ND	ND	ND	ND	NA
	12/15/97	ND	ND	ND	ND	2.3	NA
	3/26/98	ND	ND	ND	ND	0.63	625
	9/15/98	ND	ND	ND	ND	1.3	1,269
	12/17/98	ND	ND	ND	ND	1.8	1,774
	3/3/99	ND	ND	ND	ND	ND	2,300
	6/8/99	ND	ND	ND	ND	ND	790
	9/22/99	ND	ND	ND	ND	ND	700
	12/9/99	ND	ND	ND	ND	ND	1,000
	3/23/00	ND	ND	ND	ND	ND	230
	6/15/00	ND	ND	ND	ND	NA	82

Table 1
Avis - McCarran Airport Results of Ground-Water Analyses
BTEX, TPH, and MTBE

Monitoring Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH (mg/L)	MTBE (µg/L)
MW-13	2/20/97	4,224	3,496	2,596	3,752	56.5	NA
	3/25/97	2,620	1,444	1,288	1,908	73	54,240
	6/22/97	1,288	1,140	1,388	2,280	65	NA
	9/16/97	2,132	3,316	1,820	4,288	71.9	NA
	12/15/97	1,010	1,320	660	2,140	91.1	NA
	3/26/98	1,704	2,118	610	2,026	55	44,420
	9/15/98	960	224	676	1,494	38.9	29,000
	12/17/98	826	222	416	822	45.7	39,192
	3/3/99	510	320	640	530	20.0	45,000
	6/8/99	ND	ND	ND	ND	5.7	45,000
	9/22/99	36	26	ND	770	25	37,000
	12/9/99	770	260	800	720	8.3	23,000
	3/23/00	460	87	490	520	11	34,000
	6/15/00	820	73	940	1,100	NA	41,000
MW-14	9/11/95	ND	ND	ND	ND	ND	NA
	12/28/95	ND	ND	ND	ND	ND	NA
	2/20/97	ND	ND	ND	ND	ND	NA
	3/25/97	ND	ND	ND	ND	ND	13
	6/22/97	ND	ND	ND	ND	ND	NA
	9/16/97	ND	ND	ND	ND	ND	NA
	12/15/97	ND	ND	ND	ND	1.1	NA
	3/26/98	ND	ND	ND	ND	1.1	1,008
	9/15/98	ND	ND	ND	ND	0.8	800
	12/17/98	ND	ND	ND	ND	1.1	1,045
	3/3/99	ND	ND	ND	ND	ND	420
	6/8/99	ND	ND	ND	ND	ND	610
	9/22/99	ND	ND	ND	ND	ND	940
	12/9/99	ND	ND	ND	ND	ND	1,700
	3/23/00	ND	ND	4.5	ND	ND	720
	6/15/00	ND	ND	ND	ND	NA	1,400
MW-15	2/20/97	ND	ND	ND	ND	ND	NA
	3/25/97	ND	ND	ND	ND	1.5	1,400
	6/22/97	ND	ND	ND	ND	0.6	NA
	9/16/97	ND	ND	ND	ND	1.9	NA
	12/15/97	ND	ND	ND	ND	2.4	NA
	3/26/98	ND	ND	ND	ND	1.6	1,600
	9/15/98	ND	ND	ND	ND	1.4	1,328
	12/17/98	ND	ND	ND	ND	1.0	1,003
	3/3/99	ND	ND	ND	ND	ND	1,100
	6/8/99	0.5	ND	ND	ND	ND	800
	9/22/99	ND	ND	ND	ND	ND	580
	12/9/99	ND	ND	ND	ND	ND	540
	3/23/00	ND	ND	ND	ND	ND	450
	6/15/00	ND	ND	ND	ND	NA	460
MW-16	2/20/97	ND	ND	ND	ND	ND	NA
	3/25/97	ND	ND	ND	ND	ND	ND
	6/22/97	ND	ND	ND	ND	ND	NA
	9/16/97	ND	ND	ND	ND	ND	NA
	12/15/97	ND	ND	ND	ND	ND	NA
	3/26/98	ND	ND	ND	ND	ND	23.4
	9/15/98	ND	ND	ND	ND	ND	12.3
	12/17/98	ND	ND	ND	ND	ND	ND
	3/3/99	ND	ND	ND	ND	ND	ND
	6/8/99	ND	ND	ND	ND	ND	ND
	9/22/99	ND	ND	ND	ND	ND	ND
	12/9/99	ND	ND	ND	ND	ND	ND
	3/23/00	ND	ND	ND	ND	ND	ND
	6/15/00	ND	ND	ND	ND	NA	ND

Table 1
Avis - McCarran Airport Results of Ground-Water Analyses
BTEX, TPH, and MTBE

Monitoring Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH (mg/L)	MTBE (µg/L)
MW-17	2/20/97	1,084	560	958	136	8.8	NA
	3/25/97	3,136	250	409	160	36	31,058
	6/22/97	3,450	226	1,690	118	15.8	NA
	9/16/97	1,915	159	585	73.4	18.5	NA
	12/15/97	343	150	101	178	12.6	NA
	3/26/98	1,905	349	170	422	30	25,410
	9/15/98	ND	ND	ND	ND	12.1	12,020
	12/17/98	1,832	46	702	78	31.9	27,900
	3/3/99	860	25	820	23	7.1	27,000
	6/8/99	820	65	1,000	11	5.4	26,000
	9/22/99	24	8.2	ND	260	13	26,000
	12/9/99	910	100	1,500	250	7.6	21,000
	3/23/00	600	18	1,300	18	7.1	28,000
	6/15/00	850	81	1,500	120	NA	26,000
MW-18	2/20/97	1,226	795	1,546	326	34.1	NA
	3/25/97	1,074	336	1,100	180	41	37,360
	6/22/97	402	130	696	102	5.2	NA
	9/16/97	1,444	514	1,074	432	36.7	NA
	12/15/97	594	84	758	170	33.4	NA
	3/26/98	521	137	787	325	40	36,340
	9/15/98	184	21	259	163	37.5	36,370
	12/17/98	486	24	694	244	21.7	18,704
	3/3/99	270	15	1,800	48	7.3	23,000
	6/8/99	51	21	960	76	3.2	28,000
	9/22/99	13	13	3.4	210	9.3	29,000
	12/9/99	84	17	930	270	6.1	22,000
	3/23/00	56	0	1,100	230	5.3	39,000
	6/15/00	71	ND	1,100	300	NA	38,000
MW-20	2/20/97	15,772	6,172	1,484	1,040	137	NA
	3/25/97	3,898	886	18	706	56	49,438
	6/22/97	10,328	5,054	1,056	1,834	41.9	NA
	9/16/97	13,150	4,482	576	1,998	138	NA
	12/15/97	13,720	2,396	2,848	2,260	168	NA
	3/26/98	1,666	2,087	1,251	2,115	136	105,990
	9/15/98	640	310	940	730	94.6	91,910
	12/17/98	8,530	380	1,760	1,760	105	89,850
	3/3/99	8,300	340	2,500	3,060	46	72,000
	6/8/99	5,100	570	2,000	1,200	15	77,000
	9/22/99	5,300	7.6	6.1	3,600	46	59,000
	12/9/99	4,200	480	3,000	3,400	22	40,000
	3/23/00	1,200	64	1,700	1,300	14	55,000
	6/15/00	850	36	1,600	1,000	NA	60,000
MW-21	4/24/97	2,172	196	1,298	144	11.9	4,502
	6/22/97	142	ND	ND	56	9	NA
	9/16/97	274	92	542	158	6.8	NA
	12/15/97	69.8	13.2	393	75	13.5	NA
	3/26/98	138	56	792	104	15.6	7,810
	9/15/98	42.6	5.2	ND	13.5	15.5	14,640
	12/17/98	ND	ND	ND	ND	9.7	9,120
	3/3/99	17	ND	1,100	ND	4.5	12,000
	6/8/99	310	21	1,100	89	4.5	18,000
	9/22/99	ND	10	3.3	590	6.9	7,100
	12/9/99	120	ND	1,800	ND	4.8	8,100
	3/23/00	140	8.8	1,700	91	6.2	16,000
	6/15/00	250	ND	1,900	300	NA	15,000

Table 1
Avis - McCarran Airport Results of Ground-Water Analyses
BTEX, TPH, and MTBE

Monitoring Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH (mg/L)	MTBE (µg/L)
MW-22	4/24/97	59	16	ND	4.1	7.6	7,090
	6/22/97	ND	ND	ND	8.9	2	NA
	9/16/97	23.4	37.4	16.2	58.2	21.9	NA
	12/15/97	ND	ND	ND	ND	6	NA
	3/26/98	26	ND	ND	48	16.5	16,384
	9/15/98	23.1	ND	2.5	2.1	12.4	12,310
	12/17/98	200	68	340	106	18.5	14,090
	3/3/99	36	26	220	91	2.2	18,000
	6/8/99	11	4.3	29	10	0.31	18,000
	9/22/99	15	7.9	1.3	210	8.6	15,000
	12/9/99	37	30	140	100	1.7	8,200
	3/23/00	7	3.4	28	9.2	0.91	15,000
	6/15/00	ND	ND	31	ND	NA	17,000
MW-23	4/24/97	ND	ND	ND	ND	1.4	1,416
	6/22/97	ND	ND	ND	ND	ND	NA
	9/16/97	ND	ND	ND	ND	2.1	NA
	12/15/97	ND	ND	ND	ND	3.3	NA
	3/26/98	ND	ND	ND	ND	2.8	2,794
	9/15/98	ND	ND	ND	2.5	4	3,980
	12/17/98	ND	ND	ND	ND	2.3	2,259
	3/3/99	ND	ND	ND	ND	ND	3,200
	6/8/99	ND	ND	0.6	ND	ND	2,500
	9/22/99	ND	ND	ND	ND	ND	1,700
	12/9/99	ND	ND	ND	ND	ND	3,000
	3/23/00	ND	ND	2.3	ND	ND	2,200
	6/15/00	ND	ND	ND	ND	NA	2,800
MW-24	11/13/97	904	296	1,128	460	48.3	NA
	12/15/97	309	26.4	1,019	118	14.3	NA
	3/26/98	372	21	55	120	19	18,241
	9/15/98	244	8.2	117	17.8	29.2	27,950
	12/17/98	314	32	270	90	18.9	17,020
	3/3/99	410	14	2,000	111	8.2	21,000
	6/8/99	150	38	1,000	95	4.3	20,000
	9/22/99	2	13	3.7	670	7.9	14,000
	12/9/99	150	39	1,400	81	7.0	16,000
	3/23/00	84	6	1,700	20	6.1	21,000
	6/15/00	100	ND	1,900	50	NA	24,000
MW-25	3/23/98	4.4	ND	244	ND	14	12,632
	3/26/98	ND	ND	16	ND	ND	ND
	9/15/98	ND	ND	ND	ND	7.7	7,691
	12/17/98	ND	ND	ND	ND	12.5	12,492
	3/3/99	ND	ND	ND	ND	0.87	18,000
	6/8/99	2.8	1.3	16	ND	0.27	15,000
	9/22/99	7.5	4.1	ND	120	1,100	14,000
	12/9/99	ND	17	ND	ND	0.61	8,800
	3/23/00	ND	ND	15	ND	0.46	15,000
	6/15/00	ND	ND	2.3	ND	NA	15,000
MW-26	5/6/98	ND	ND	ND	ND	ND	2,600
	9/15/98	ND	ND	ND	ND	3.7	3,705
	12/17/98	ND	ND	ND	ND	4.1	4,064
	3/3/99	ND	ND	ND	ND	ND	7,400
	6/8/99	ND	ND	ND	ND	ND	7,400
	9/22/99	ND	ND	ND	ND	ND	5,800
	12/9/99	ND	ND	ND	ND	ND	3,100
	3/23/00	ND	ND	2	ND	ND	6,000
	6/15/00	ND	ND	ND	ND	NA	6,800

Table 1
Avis - McCarran Airport Results of Ground-Water Analyses
BTEX, TPH, and MTBE

Monitoring Well	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	TPH (mg/L)	MTBE (µg/L)
MW-27	5/6/98	ND	ND	ND	ND	ND	ND
	9/15/98	ND	ND	ND	ND	ND	ND
	12/17/98	ND	ND	ND	ND	ND	ND
	3/3/99	ND	ND	ND	ND	ND	ND
	6/8/99	ND	ND	ND	ND	ND	ND
	9/22/99	ND	ND	ND	ND	ND	1.3
	12/9/99	ND	ND	ND	ND	ND	ND
	3/23/00	ND	ND	ND	ND	ND	19
	6/15/00	ND	ND	ND	ND	NA	ND
MW-28	4/6/98	ND	ND	ND	ND	ND	683
	9/15/98	ND	ND	ND	ND	1.4	1,330
	12/17/98	ND	ND	ND	ND	1.1	1,110
	3/3/99	ND	ND	ND	ND	ND	1,400
	6/8/99	ND	ND	ND	ND	ND	900
	9/22/99	ND	ND	ND	ND	ND	2,100
	12/9/99	ND	ND	ND	ND	ND	2,200
	3/23/00	ND	ND	ND	ND	ND	2,600
	6/23/00	ND	ND	ND	ND	ND	3,300

NA = Not Analyzed
ND = Not Detected at Method Detection Limit

Table 2
Avis - McCarran Airport Results of Ground-Water Analyses
Oxygenates and Naphthalene

Monitoring Well	Date	MTBE	TAME	DIPE	ETBE	Naphthalene	Ethanol	Methanol	TBA
MW-1	3/2/99	9,400	7	ND	ND	ND	ND	ND	ND
	10/4/00	5,200	5.3	ND	ND	NA	NA	NA	3,400
MW-2a	3/2/99	650	ND	ND	ND	ND	ND	ND	ND
	10/4/00	1,500	ND	ND	ND	NA	NA	NA	700
MW-3	3/2/99	15,000	6	ND	ND	290	ND	ND	ND
	10/4/00	5,700	5.9	ND	NN	NA	NA	NA	2,700
MW-4	3/2/99	4,000	ND	ND	ND	96	ND	ND	ND
	10/4/00	1,200	ND	ND	N	NA	NA	NA	480
MW-5	3/2/99	10,000	8	ND	ND	ND	ND	ND	ND
	10/4/00	930	ND	ND	ND	NA	NA	NA	260
MW-6	3/2/99	2,100	ND	ND	ND	370	ND	ND	ND
	10/4/00	9,000	15	ND	ND	NA	NA	NA	5,400
MW-7	3/2/99	68,000	66	ND	7	32	ND	ND	ND
	10/4/00	23,000	27	ND	ND	NA	NA	NA	4,600
MW-8	3/2/99	110,000	120	ND	16	ND	ND	ND	ND
	10/4/00	68,000	93	ND	10	NA	NA	NA	43,000
MW-9	3/2/99	39,000	43	ND	ND	16	ND	ND	ND
	10/4/00	2,100	ND	ND	ND	NA	NA	NA	2,000
MW-10	3/2/99	590	ND	ND	ND	ND	ND	ND	ND
	10/4/00	530	ND	ND	ND	NA	NA	NA	230
MW-11	3/2/99	ND	ND	ND	ND	ND	ND	ND	ND
	10/4/00	ND	ND	ND	ND	NA	NA	NA	ND
MW-12	3/2/99	2,300	ND	ND	ND	ND	ND	ND	ND
	10/4/00	68	ND	ND	ND	NA	NA	NA	ND
MW-13	3/2/99	45,000	80	ND	12	82	ND	ND	ND
	10/4/00	30,000	70	ND	ND	NA	NA	NA	1,200
MW-14	3/2/99	420	ND	ND	ND	ND	ND	ND	ND
	10/4/00	1,800	ND	ND	ND	NA	NA	NA	260
MW-15	3/2/99	1,100	ND	ND	ND	ND	ND	ND	ND
	10/4/00	1,100	ND	ND	ND	NA	NA	NA	140

Table 2
Avis - McCarran Airport Results of Ground-Water Analyses
Oxygenates and Naphthalene

Monitoring Well	Date	MTBE	TAME	DIPE	ETBE	Naphthalene	Ethanol	Methanol	TBA
MW-16	3/2/99	ND	ND	ND	ND	ND	ND	ND	ND
	10/4/00	ND	ND	ND	ND	NA	NA	NA	ND
MW-17	3/2/99	27,000	50	ND	ND	29	ND	ND	ND
	10/4/00	1,600	36	ND	ND	NA	NA	NA	5,100
MW-18	3/2/99	23,000	42	ND	6	28	ND	ND	ND
	10/4/00	30,000	58	ND	7.2	NA	NA	NA	3,600
MW-20	3/2/99	7,200	95	ND	19	300	ND	ND	ND
	10/4/00	62,000	210	ND	ND	NA	NA	NA	50,000
MW-21	3/2/99	12,000	24	ND	ND	ND	ND	ND	ND
	10/4/00	9,100	19	ND	ND	NA	NA	NA	2,300
MW-22	3/2/99	18,000	40	ND	8	41	ND	ND	ND
	10/4/00	24,000	ND	ND	ND	NA	NA	NA	2,300
MW-23	3/2/99	3,200	ND	ND	ND	ND	ND	ND	ND
	10/4/00	1,600	ND	ND	ND	NA	NA	NA	120
MW-24	3/2/99	21,000	36	ND	ND	54	ND	ND	ND
	10/4/00	22,000	33	ND	ND	NA	NA	NA	3,400
MW-25	3/2/99	18,000	32	ND	ND	ND	ND	ND	ND
	10/4/00	15,000	27	ND	ND	NA	NA	NA	2,800
MW-26	3/2/99	7,400	18	ND	ND	ND	ND	ND	ND
	10/4/00	7,000	17	ND	ND	NA	NA	NA	930
MW-27	3/2/99	ND	ND	ND	ND	ND	ND	ND	ND
	10/4/00	38	ND	ND	ND	NA	NA	NA	ND
MW-28	3/2/99	1,400	ND	ND	ND	ND	ND	ND	ND
	10/4/00	2,700	5.2	ND	ND	NA	NA	NA	380

MTBE = Methyl tertiary butyl ether
TAME = Tertiary amyl methyl ether
TBA = Tertiary Butanol
DIPE = Di-isopropyl ether
ETBE = Ethyl tertiary butyl ether
ND = Not Detected
NA = Not Analyzed

Table 3a
Allstate (Payless) Results of Ground-Water Analyses
BTEX, TPH, and MTBE

Well No.	Date	Analytical Results (µg/L or as shown)					
		Benzene	Toluene	Ethylbenzene	Xylenes	TPH (mg/L)	MTBE
AMW-5	Apr-98	<5	<5	<5	<5	<0.6	<5
	Sep-98	<2	<2	<2	<2	<0.25	<5
	Dec-98	<5	<5	<5	<5	<0.25	<5
	Mar-99	<5	<5	<5	<5	<0.25	<5
	Jun-99	<5	<5	<5	<5	<0.25	<5
	Oct-99	<5	<5	<5	<5	na	<5
	Jan-00	<5	<5	<5	<5	na	<5
	Mar-00	<5	<5	<5	<5	na	<5
	Jun-00	<5	<5	<5	<5	na	<5
	10/3/00	<5	<5	<5	<5	na	<5
AMW-6	Apr-98	43	7	220	7	1.6	100
	Sep-98	130	3	200	<2	2.0	190
	Dec-98	140	<5	220	19	1.8	100
	Mar-99	70	<5	92	<5	2.0	89
	Jun-99	81	<5	42	<5	1.5	140
	Oct-99	270	<5	270	5.2	na	130
	Jan-00	58	<5	180	<5	na	130
	Mar-00	31.1	<5	106	68.9	na	85
	Jun-00	74	<5	100	<5	na	140
	10/5/00	4.5	<2	10	2.6	na	27
AMW-7	Apr-98	5,900	2,400	2,600	2,890	17.0	90,000
	Sep-98	4,600	180	3,200	560	24.0	69,000
	Dec-98	3,500	91	2,800	387	17.0	56,000 E
	Mar-99	2,300	46	2,400	167	15.0	47,000
	Jun-99	1,400	<5	2,300	<5	6.8	61,000
	Oct-99	690	16	1,400	140	na	52,000
	Jan-00	420	10	860	23	na	50,000 E
	Mar-00	152	<5	344	216	na	16,000
	Jun-00	260	<5	960	<5	na	42,000
	10/5/00	8	3.6	430	3.3	na	31,000
AMW-11*	Jun-00	<5	<5	<5	<5	na	<.25
	10/5/00	<2	<5	<5	<4	na	2.3
AMW-12*	Jun-00	<5	<5	<5	<5	na	<.25
	10/5/00	<2	<2	<5	<4	na	10
AMW-13*	Jun-00	<5	<5	<5	<5	na	<.25
	10/5/00	<2	<2	<5	<4	na	<2
AMW-14*	Jun-00	<5	<5	<5	<5	na	<.25
	10/5/00	<2	<2	<5	<4	na	<2
AMW-15*	10/5/00	<2	<2	<5	<4	na	<2

Adapted from URS Corporation Table 6 (filename: s:\169\Payless Car Rental\QMRs\GW Tables for Teri

TPH - total petroleum hydrocarbon, milligrams per liter. TPH values are total extractable prior to September 1998; values since September 1998 are purgeable gasoline-range organics.

BTEX - benzene, ethylbenzene, toluene, and total xylenes.

MTBE - methyl tertiary butyl ether, micrograms per liter.

Concentrations highlighted in bold exceed their respective Federal Drinking Water Maximum Contaminant Level (MCL) or State interim action level.

E- Exceeded Calibration Range

na- Not Analyzed

* Denotes off-site well

URS GW Tables (modified) | BTEX

Table 3b
Allstate (Payless) Results of Ground-Water Analyses
Oxygenates

Well No.	Date	Analytical Results (µg/L)			
		TAME	DIPE	ETBE	TBA
AMW-1A	10/5/00	<200	<200	<200	<2000
AMW-2	10/3/00	<5	<5	<5	<50
AMW-3	10/5/00	<2	<2	<2	<20
AMW-4	10/3/00	<5	<5	<5	<50
AMW-5	10/3/00	<5	<5	<5	<50
AMW-6	10/5/00	<2	<2	<2	<20
AMW-7	10/5/00	32	<2	<2	<20
AMW-11*	10/5/00	<2	<2	<2	<20
AMW-12*	10/5/00	<2	<2	<2	<20
AMW-13*	10/5/00	<2	<2	<2	<20
AMW-14*	10/5/00	<2	<2	<2	<20
AMW-15*	10/5/00	<2	<2	<2	<20

Adapted from URS Corporation Table 8 (filename: s:\169\Payless Car Rental\QMRs\GW Tables for Teri)
(TAME) Tertiary amyl mether ether
(DIPE) Di-isopropyl ether
(ETBE) Ethyl tertiary butyl ether
(TBA) Tertiary butyl alcohol
* Denotes off-site well

TABLE 4
SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Chemical	Frequency of Detection	Relative Concentration - Toxicity	Physical/Chemical and Toxicological Data	Other	COPC?
Benzene	High	High	Available		Yes
Toluene	High	Medium	Available		Yes
Ethylbenzene	High	Medium	Available		Yes
Xylenes	High	Medium	Available		Yes
MTBE	High	Medium	Available		Yes
TAME	Low	Low	Not available		No
DIPE	Low	Low	Not available		No
ETBE	Low	Low	Not available		No
TBA	Med - High	Low	Not available		No
Ethanol	Low	Low	Available		No
Methanol	Low	Low	Available		No
Naphthalene	Low	Low	Available	Semivolatile	No

MTBE - methyl tert-butyl ether (fuel oxygenate)
TAME – tert-amyl methyl ether (fuel oxygenate)
DIPE – diisopropyl ether (fuel oxygenate)
ETBE – Ethyl tert-butyl ether (fuel oxygenate)
TBA – tert-butyl alcohol (fuel oxygenate and breakdown product of MTBE).

Table 5
Summary of Toxicity Criteria for COPCs

Chemical	SF_i $(mg/kg\text{-}day)^{-1}$	RfD_i (mg/kg-day)
Carcinogens		
Benzene	2.7E-02 [i]	0.0017 [n]
Noncarcinogens		
Toluene	N/A	0.11 [h]
Ethylbenzene	N/A	0.29 [i]
Xylenes	N/A	0.20 [x]
MTBE	N/A	0.86 [i]

References:

USEPA - Region IX Preliminary Remediation Goals (PRGs), 1999

References quoted in the 1999 PRGS:

n	from NCEA
i	from IRIS
h	from HEAST
x	withdrawn

Definitions:

SFi	Slope Factor for the inhalation route (applicable only for carcinogens)
RfDi	Reference Dose for the inhalation route (for noncarcinogenic effects)
N/A	Not applicable for noncarcinogens
--	A reference dose is not available for this chemical

Table 6A
Child Resident Exposure Assessment Parameters

Parameter	Reasonable Maximum Exposure (RME) Value
Body Weight (BW)	Value: 15 kg Rationale: Average body weight, USEPA, 1989
Exposure Frequency (EF)	Value: 350 days/year Rationale: RME, USEPA, 1997
Exposure Duration (ED)	Value: 6 years Rationale: Default value, USEPA, 1997
Averaging Time (AT)	Value: Carcinogenic Effects: 70 years (25,550 days) Noncarcinogenic Effects: AT = Exposure duration or 6 years (2,190 days) Rationale: Average lifetime, USEPA, 1997
Breathing Rate (BR)	Value: 8 m^3/day Rationale: USEPA, 1997

Table 6B
Residential Adult Exposure Assessment Parameters

Parameter	Reasonable Maximum Exposure (RME)
Body Weight (BW)	Value: 70 kg Rationale: Average body weight, USEPA, 1989
Exposure Frequency (EF)	Value: 350 days/year Rationale: RME, USEPA, 1997
Exposure Duration (ED)	Value: 24 years Rationale: 95th percentile value, USEPA, 1997
Averaging Time (AT)	Value: Carcinogenic Effects: 70 years (25,550 days) Noncarcinogenic Effects: AT = Exposure duration or 24 years (8,760 days) Rationale: Average lifetime, USEPA, 1997
Breathing Rate (BR)	Value: 13.2 m^3/kg Rationale: Default value, USEPA, 1997

Table 6C
Worker Exposure Assessment Parameters

Parameter	Reasonable Maximum Exposure (RME)
Body Weight (BW)	Value: 70 kg Rationale: Average body weight, USEPA, 1989
Exposure Frequency (EF)	Value: 250 days/year Rationale: RME, USEPA, 1991
Exposure Duration (ED)	Value: 25 years Rationale: 95th percentile value, USEPA, 1997
Averaging Time (AT)	Value: Carcinogenic Effects: 70 years (25,550 days) Noncarcinogenic Effects: AT = Exposure duration or 25 years (9,125 days) Rationale: Average lifetime, USEPA, 1997
Breathing Rate (BR)	Value: 10.4 m^3/day Rationale: USEPA, 1997

TABLE 7

RISK / HAZARD CALCULATION SPREADSHEETS

Cancer Risk Estimates
INDOOR AIR
2X Maximum Historical Groundwater Concentration

MW-8 CANCER RISK (TIER 2)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFI $(mg/kg\text{-}day)^{-1}$	= Cancer Risk (U)
Benzene	7.25E-04	10.4	250	25	1	70	25550	2.63E-05	2.7E-02	7E-07
								Total Excess Cancer Risk:		**7E-07**

* See Air Dispersion Model Output

MW-13 CANCER RISK (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFI $(mg/kg\text{-}day)^{-1}$	= Cancer Risk (U)
Benzene	3.33E-04	13.2	350	24	1	70	25550	2.06E-05	2.7E-02	5.6E-07
								Total Excess Cancer Risk:		**5.6E-07**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFI $(mg/kg\text{-}day)^{-1}$	= Cancer Risk (U)
Benzene	3.27E-04	8	350	6	1	15	25550	1.43E-05	2.7E-02	3.9E-07
								Total Excess Cancer Risk:		**3.9E-07**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	**9E-07**

NDEP 00114

Cancer Risk Estimates
INDOOR AIR
2X Maximum Historical Groundwater Concentration

MW-24 CANCER RISK (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	8.03E-05	13.2	350	24	1	70	25550	4.98E-06	2.7E-02	1.3E-07
								Total Excess Cancer Risk:		**1.3E-07**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	7.90E-05	8	350	6	1	15	25550	3.46E-06	2.7E-02	9.4E-08
								Total Excess Cancer Risk:		**9.4E-08**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child): 2E-07

MW-28 CANCER RISK (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child): 0E+00

NDEP 001115

Cancer Risk Estimates
INDOOR AIR
2X Maximum Historical Groundwater Concentration

AMW-12 CANCER RISK (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(	C_{air}* mg/m³	•	IR (m³/day)	•	EF (days/yr)	•	ED (yrs)	•	B (U)	)/(	BW (kg)	•	AT (days)	)=	LADD-inh (mg/kg-day)	•	SFI $(mg/kg\text{-}day)^{-1}$	=	Cancer Risk (U)
Benzene		0.0E+00		13.2		350		24		1		70		25550		0.00E+00		2.7E-02		0.0E+00
																Total Excess Cancer Risk:				0.0E+00

Exposure Scenario: Residential Child

Chemical	(	C_{air}* mg/m³	•	IR (m³/day)	•	EF (days/yr)	•	ED (yrs)	•	B (U)	)/(	BW (kg)	•	AT (days)	)=	LADD-inh (mg/kg-day)	•	SFI $(mg/kg\text{-}day)^{-1}$	=	Cancer Risk (U)
Benzene		0.0E+00		8		350		6		1		15		25550		0.00E+00		2.7E-02		0.0E+00
																Total Excess Cancer Risk:				0.0E+00

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	0E+00

NDEP 00116

Cance[illegible] Estimates
INDOOR AIR
Maximum Historical Groundwater Concentration

MW-8 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	6.74E-04	10.4	250	25	1	70	25550	2.45E-05	2.7E-02	7E-07
								Total Excess Cancer Risk:		7E-07

* See Air Dispersion Model Output

MW-13 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	1.67E-04	13.2	350	24	1	70	25550	1.04E-05	2.7E-02	2.8E-07
								Total Excess Cancer Risk:		2.8E-07

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	1.63E-04	8	350	6	1	15	25550	7.15E-06	2.7E-02	1.9E-07
								Total Excess Cancer Risk:		1.9E-07

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	5E-07

NDEP 00117

Cancer Risk Estimates
INDOOR AIR
Maximum Historical Groundwater Concentration

MW-24 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFi (mg/kg-day)$^{-1}$	= Cancer Risk (U)
Benzene	4.01E-05	13.2	350	24	1	70	25550	2.49E-06	2.7E-02	6.7E-08
								Total Excess Cancer Risk:		**6.7E-08**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFi (mg/kg-day)$^{-1}$	= Cancer Risk (U)
Benzene	3.95E-05	8	350	6	1	15	25550	1.73E-06	2.7E-02	4.7E-08
								Total Excess Cancer Risk:		**4.7E-08**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child): 1E-07

MW-28 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFi (mg/kg-day)$^{-1}$	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFi (mg/kg-day)$^{-1}$	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child): 0E+00

NDEP 00118

Cancer Estimates
INDOOR AIR
Maximum Historical Groundwater Concentration

AMW-12 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-Inh (mg/kg-day)	• SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-Inh (mg/kg-day)	• SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	**0E+00**

NDEP 001119

Cancer Risk Estimates
INDOOR AIR
Current Groundwater Concentration

MW-8 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	1.97E-05	10.4	250	25	1	70	25550	7.16E-07	2.7E-02	2E-08
								Total Excess Cancer Risk:		2E-08

* See Air Dispersion Model Output

MW-13 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	3.23E-05	13.2	350	24	1	70	25550	2.00E-06	2.7E-02	5.4E-08
								Total Excess Cancer Risk:		5.4E-08

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	3.17E-05	8	350	6	1	15	25550	1.39E-06	2.7E-02	3.8E-08
								Total Excess Cancer Risk:		3.8E-08

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	9E-08

NDEP 00120

MW-24 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	4.44E-06	13.2	350	24	1	70	25550	2.75E-07	2.7E-02	7.4E-09
								Total Excess Cancer Risk:		**7.4E-09**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	4.37E-06	8	350	6	1	15	25550	1.92E-07	2.7E-02	5.2E-09
								Total Excess Cancer Risk:		**5.2E-09**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child): 1E-08

MW-28 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child): 0E+00

AMW-12 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)(BW (kg)	• AT (days)	)= LADD-Inh (mg/kg-day)	• SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)(BW (kg)	• AT (days)	)= LADD-Inh (mg/kg-day)	• SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	**0E+00**

Noncancer Hazard Indices
INDOOR AIR
2 X Maximum Historical Concentrations

MW-8 HAZARD INDEX (TIER 2 - BENZENE)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m³	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	1.35E-03	13.2	350	24	1	70	8760	2.44E-04	0.0017	1.4E-01
Toluene	4.46E-04	13.2	350	24	1	70	8760	8.06E-05	0.11	7.3E-04
Ethylbenzene	1.62E-04	13.2	350	24	1	70	8760	2.93E-05	0.29	1.0E-04
Xylenes	1.94E-04	13.2	350	24	1	70	8760	3.51E-05	0.20	1.8E-04
MTBE	2.44E-03	13.2	350	24	1	70	8760	4.41E-04	0.86	5.1E-04
									Total Adult Hazard Index:	**1.5E-01**

* See Air Dispersion Model Output

NDEP 00123

Noncancer Hazard Indices
INDOOR AIR
2 X Maximum Historical Concentrations

MW-13 HAZARD INDEX (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	3.34E-04	13.2	350	24	1	70	8760	6.04E-05	0.0017	3.6E-02
Toluene	4.24E-04	13.2	350	24	1	70	8760	7.67E-05	0.11	7.0E-04
Ethylbenzene	2.62E-04	13.2	350	24	1	70	8760	4.74E-05	0.29	1.6E-04
Xylenes	4.04E-04	13.2	350	24	1	70	8760	7.31E-05	0.20	3.7E-04
MTBE	5.72E-04	13.2	350	24	1	70	8760	1.03E-04	0.86	1.2E-04
									Total Adult Hazard Index:	**3.7E-02**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	3.30E-04	8	350	6	1	15	2190	1.69E-04	0.0017	9.9E-02
Toluene	4.19E-04	8	350	6	1	15	2190	2.14E-04	0.11	1.9E-03
Ethylbenzene	2.56E-04	8	350	6	1	15	2190	1.31E-04	0.29	4.5E-04
Xylenes	3.95E-04	8	350	6	1	15	2190	2.02E-04	0.20	1.0E-03
MTBE	5.63E-04	8	350	6	1	15	2190	2.88E-04	0.86	3.3E-04
									Total Child Hazard Index: =	**1.0E-01**

* See Air Dispersion Model Output

NDEP 00124

Noncancer Hazard Indices
INDOOR AIR
2 X Maximum Historical Concentrations

MW-24 HAZARD INDEX (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	8.04E-05	13.2	350	24	1	70	8760	1.45E-05	0.0017	8.6E-03
Toluene	4.04E-05	13.2	350	24	1	70	8760	7.31E-06	0.11	6.6E-05
Ethylbenzene	2.27E-04	13.2	350	24	1	70	8760	4.10E-05	0.29	1.4E-04
Xylenes	7.11E-05	13.2	350	24	1	70	8760	1.29E-05	0.20	6.4E-05
MTBE	3.32E-04	13.2	350	24	1	70	8760	6.00E-05	0.86	7.0E-05
									Total Adult Hazard Index:	**8.9E-03**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	7.96E-05	8	350	6	1	15	2190	4.07E-05	0.0017	2.4E-02
Toluene	4.00E-05	8	350	6	1	15	2190	2.05E-05	0.11	1.9E-04
Ethylbenzene	2.23E-04	8	350	6	1	15	2190	1.14E-04	0.29	3.9E-04
Xylenes	6.98E-05	8	350	6	1	15	2190	3.57E-05	0.20	1.8E-04
MTBE	3.28E-04	8	350	6	1	15	2190	1.68E-04	0.86	2.0E-04
									Total Child Hazard Index: =	**2.5E-02**

* See Air Dispersion Model Output

NDEP 00125

Noncancer Hazard Indices
INDOOR AIR
2 X Maximum Historical Concentrations

MW-28 HAZARD INDEX (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	4.18E-05	13.2	350	24	1	70	8760	7.56E-06	0.86	8.8E-06
									Total Adult Hazard Index:	**8.8E-06**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	4.13E-05	8	350	6	1	15	2190	2.11E-05	0.86	2.5E-05
									Total Child Hazard Index: =	**2.5E-05**

* See Air Dispersion Model Output

NDEP 00126

Noncancer Hazard Indices
INDOOR AIR
2 X Maximum Historical Concentrations

AMW-12 HAZARD INDEX (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.86	0.0E+00
									Total Adult Hazard Index:	**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.86	0.0E+00
									Total Child Hazard Index: =	**0.0E+00**

* See Air Dispersion Model Output

NDEP 00127

Noncancer Hazard Indices
INDOOR AIR
Maximum Historical Concentrations

MW-8 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	6.76E-04	13.2	350	24	1	70	8760	1.22E-04	0.0017	7.2E-02
Toluene	2.23E-04	13.2	350	24	1	70	8760	4.03E-05	0.11	3.7E-04
Ethylbenzene	8.09E-05	13.2	350	24	1	70	8760	1.46E-05	0.29	5.0E-05
Xylenes	9.72E-05	13.2	350	24	1	70	8760	1.76E-05	0.20	8.8E-05
MTBE	1.22E-03	13.2	350	24	1	70	8760	2.21E-04	0.86	2.6E-04
									Total Adult Hazard Index:	**7.3E-02**

* See Air Dispersion Model Output

NDEP 00128

Noncancer Hazard Indices
INDOOR AIR
Maximum Historical Concentrations

MW-13 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	1.67E-04	13.2	350	24	1	70	8760	3.02E-05	0.0017	1.8E-02
Toluene	2.12E-04	13.2	350	24	1	70	8760	3.83E-05	0.11	3.5E-04
Ethylbenzene	1.31E-04	13.2	350	24	1	70	8760	2.37E-05	0.29	8.2E-05
Xylenes	2.02E-04	13.2	350	24	1	70	8760	3.65E-05	0.20	1.8E-04
MTBE	2.86E-04	13.2	350	24	1	70	8760	5.17E-05	0.86	6.0E-05
									Total Adult Hazard Index:	**1.8E-02**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	1.65E-04	8	350	6	1	15	2190	8.44E-05	0.0017	5.0E-02
Toluene	2.09E-04	8	350	6	1	15	2190	1.07E-04	0.11	9.7E-04
Ethylbenzene	1.28E-04	8	350	6	1	15	2190	6.55E-05	0.29	2.3E-04
Xylenes	1.97E-04	8	350	6	1	15	2190	1.01E-04	0.20	5.0E-04
MTBE	2.81E-04	8	350	6	1	15	2190	1.44E-04	0.86	1.7E-04
									Total Child Hazard Index: =	**5.2E-02**

* See Air Dispersion Model Output

NDEP 00129

Noncancer Hazard Indices
INDOOR AIR
Maximum Historical Concentrations

MW-24 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	4.02E-05	13.2	350	24	1	70	8760	7.27E-06	0.0017	4.3E-03
Toluene	2.02E-05	13.2	350	24	1	70	8760	3.65E-06	0.11	3.3E-05
Ethylbenzene	1.14E-04	13.2	350	24	1	70	8760	2.06E-05	0.29	7.1E-05
Xylenes	3.55E-05	13.2	350	24	1	70	8760	6.42E-06	0.20	3.2E-05
MTBE	1.66E-04	13.2	350	24	1	70	8760	3.00E-05	0.86	3.5E-05
									Total Adult Hazard Index:	**4.4E-03**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	3.98E-05	8	350	6	1	15	2190	2.04E-05	0.0017	1.2E-02
Toluene	2.00E-05	8	350	6	1	15	2190	1.02E-05	0.11	9.3E-05
Ethylbenzene	1.12E-04	8	350	6	1	15	2190	5.73E-05	0.29	2.0E-04
Xylenes	3.49E-05	8	350	6	1	15	2190	1.78E-05	0.20	8.9E-05
MTBE	1.64E-04	8	350	6	1	15	2190	8.39E-05	0.86	9.8E-05
									Total Child Hazard Index: =	**1.2E-02**

* See Air Dispersion Model Output

NDEP 00130

Noncancer Hazard Indices
INDOOR AIR
Maximum Historical Concentrations

MW-28 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	2.09E-05	13.2	350	24	1	70	8760	3.78E-06	0.86	4.4E-06
									Total Adult Hazard Index:	**4.4E-06**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	2.07E-05	8	350	6	1	15	2190	1.06E-05	0.86	1.2E-05
									Total Child Hazard Index: =	**1.2E-05**

* See Air Dispersion Model Output

NDEP 00131

Noncancer Hazard Indices
INDOOR AIR
Maximum Historical Concentrations

AMW-12 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.86	0.0E+00
									Total Adult Hazard Index:	**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.86	0.0E+00
									Total Child Hazard Index: =	**0.0E+00**

* See Air Dispersion Model Output

NDEP 00132

Noncancer Hazard Indices
INDOOR AIR
Current Groundwater Concentrations

MW-8 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	1.97E-05	10.4	250	25	1	70	9125	2.00E-06	0.0017	1.2E-03
Toluene	0.00E+00	10.4	250	25	1	70	9125	0.00E+00	0.11	0.0E+00
Ethylbenzene	2.98E-05	10.4	250	25	1	70	9125	3.03E-06	0.29	1.0E-05
Xylenes	1.24E-05	10.4	250	25	1	70	9125	1.26E-06	0.20	6.3E-06
MTBE	5.34E-04	10.4	250	25	1	70	9125	5.43E-05	0.86	6.3E-05
									Total Adult Hazard Index:	**1.3E-03**

* See Air Dispersion Model Output

NDEP 00133

Noncancer Hazard Indices
INDOOR AIR
Current Groundwater Concentrations

MW-13 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	3.24E-05	13.2	350	24	1	70	8760	5.86E-06	0.0017	3.4E-03
Toluene	4.43E-06	13.2	350	24	1	70	8760	8.01E-07	0.11	7.3E-06
Ethylbenzene	4.74E-05	13.2	350	24	1	70	8760	8.57E-06	0.29	3.0E-05
Xylenes	5.18E-05	13.2	350	24	1	70	8760	9.37E-06	0.20	4.7E-05
MTBE	2.16E-04	13.2	350	24	1	70	8760	3.91E-05	0.86	4.5E-05
									Total Adult Hazard Index:	**3.6E-03**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	3.20E-05	8	350	6	1	15	2190	1.64E-05	0.0017	9.6E-03
Toluene	4.37E-06	8	350	6	1	15	2190	2.23E-06	0.11	2.0E-05
Ethylbenzene	4.64E-05	8	350	6	1	15	2190	2.37E-05	0.29	8.2E-05
Xylenes	5.06E-05	8	350	6	1	15	2190	2.59E-05	0.20	1.3E-04
MTBE	2.13E-04	8	350	6	1	15	2190	1.09E-04	0.86	1.3E-04
									Total Child Hazard Index: =	**1.0E-02**

* See Air Dispersion Model Output

NDEP 00134

Noncancer Hazard Indices
INDOOR AIR
Current Groundwater Concentrations

MW-24 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	4.45E-06	13.2	350	24	1	70	8760	8.05E-07	0.0017	4.7E-04
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	1.08E-04	13.2	350	24	1	70	8760	1.95E-05	0.29	6.7E-05
Xylenes	2.65E-06	13.2	350	24	1	70	8760	4.79E-07	0.20	2.4E-06
MTBE	1.43E-04	13.2	350	24	1	70	8760	2.59E-05	0.86	3.0E-05
									Total Adult Hazard Index:	**5.7E-04**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	4.40E-06	8	350	6	1	15	2190	2.25E-06	0.0017	1.3E-03
Toluene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	1.06E-04	8	350	6	1	15	2190	5.42E-05	0.29	1.9E-04
Xylenes	2.60E-06	8	350	6	1	15	2190	1.33E-06	0.20	6.6E-06
MTBE	1.41E-04	8	350	6	1	15	2190	7.21E-05	0.86	8.4E-05
									Total Child Hazard Index: =	**1.6E-03**

* See Air Dispersion Model Output

NDEP 00135

Noncancer Hazard Indices
INDOOR AIR
Current Groundwater Concentrations

MW-28 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	2.09E-05	13.2	350	24	1	70	8760	3.78E-06	0.86	4.4E-06
									Total Adult Hazard Index:	**4.4E-06**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	2.07E-05	8	350	6	1	15	2190	1.06E-05	0.86	1.2E-05
									Total Child Hazard Index: =	**1.2E-05**

* See Air Dispersion Model Output

NDEP 00136

Noncancer Hazard Indices
INDOOR AIR
Current Groundwater Concentrations

AMW-12 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.86	0.0E+00
									Total Adult Hazard Index:	**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.86	0.0E+00
									Total Child Hazard Index: =	**0.0E+00**

* See Air Dispersion Model Output

Cance[illegible] Estimates

OUTDOOR AIR

2 X Maximum Historical Groundwater Concentration

MW-8 CANCER RISK (TIER 2)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-Inh (mg/kg-day)	• SFI $(mg/kg\text{-}day)^{-1}$	= Cancer Risk (U)
Benzene	1.09E-03	10.4	250	25	1	70	25550	3.96E-05	2.7E-02	1E-06
								Total Excess Cancer Risk:		**1E-06**

* See Appendix for calculation of estimated VOC Air Concentrations

MW-13 CANCER RISK (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-Inh (mg/kg-day)	• SFI $(mg/kg\text{-}day)^{-1}$	= Cancer Risk (U)
Benzene	5.01E-04	13.2	350	24	1	70	25550	3.11E-05	2.7E-02	8.4E-07
								Total Excess Cancer Risk:		**8.4E-07**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-Inh (mg/kg-day)	• SFI $(mg/kg\text{-}day)^{-1}$	= Cancer Risk (U)
Benzene	4.91E-04	8	350	6	1	15	25550	2.15E-05	2.7E-02	5.8E-07
								Total Excess Cancer Risk:		**5.8E-07**

* See Appendix for calculation of estimated VOC Air Concentrations

Total Inhalation Risk (Adult and Child):	**1E-06**

NDEP 00138

Cancer Risk Estimates
OUTDOOR AIR
2 X Maximum Historical Groundwater Concentration

MW-24 CANCER RISK (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	1.21E-04	13.2	350	24	1	70	25550	7.50E-06	2.7E-02	2.0E-07
								Total Excess Cancer Risk:		**2.0E-07**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	1.19E-04	8	350	6	1	15	25550	5.22E-06	2.7E-02	1.4E-07
								Total Excess Cancer Risk:		**1.4E-07**

* See Appendix for calculation of estimated VOC Air Concentrations

Total Inhalation Risk (Adult and Child): 3E-07

MW-28 CANCER RISK (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Appendix for calculation of estimated VOC Air Concentrations

Total Inhalation Risk (Adult and Child): 0E+00

NDEP 00139

AMW-12 CANCER RISK (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFI $(mg/kg\text{-}day)^{-1}$	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-Inh (mg/kg-day)	* SFI $(mg/kg\text{-}day)^{-1}$	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Appendix for calculation of estimated VOC Air Concentrations

Total Inhalation Risk (Adult and Child):	**0E+00**

NDEP 00140

Cance... Estimates
OUTDOOR AIR
Maximum Historical Groundwater Concentration

MW-8 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	1.01E-03	10.4	250	25	1	70	25550	3.67E-05	2.7E-02	1E-06
								Total Excess Cancer Risk:		1E-06

* See Air Dispersion Model Output

MW-13 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	2.50E-04	13.2	350	24	1	70	25550	1.55E-05	2.7E-02	4.2E-07
								Total Excess Cancer Risk:		4.2E-07

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	2.45E-04	8	350	6	1	15	25550	1.07E-05	2.7E-02	2.9E-07
								Total Excess Cancer Risk:		2.9E-07

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	7E-07

NDEP 00141

Cancer Estimates

OUTDOOR AIR

Maximum Historical Groundwater Concentration

MW-24 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	6.03E-05	13.2	350	24	1	70	25550	3.74E-06	2.7E-02	1.0E-07
								Total Excess Cancer Risk:		**1.0E-07**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	5.94E-05	8	350	6	1	15	25550	2.60E-06	2.7E-02	7.0E-08
								Total Excess Cancer Risk:		**7.0E-08**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child): 2E-07

MW-28 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child): 0E+00

NDEP 00142

Cancer [illegible] Estimates

OUTDOOR AIR

Maximum Historical Groundwater Concentration

AMW-12 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)/(BW	* AT	)= LADD-inh	* SFi	= Cancer Risk
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)⁻¹	(U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)/(BW	* AT	)= LADD-inh	* SFi	= Cancer Risk
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)⁻¹	(U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	**0E+00**

NDEP 00143

Canc. Estimates

OUTDOOR AIR

Current Groundwater Concentration

MW-8 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	2.95E-05	10.4	250	25	1	70	25550	1.07E-06	2.7E-02	3E-08
								Total Excess Cancer Risk:		3E-08

* See Air Dispersion Model Output

MW-13 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	4.86E-05	13.2	350	24	1	70	25550	3.01E-06	2.7E-02	8.1E-08
								Total Excess Cancer Risk:		8.1E-08

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	4.76E-05	8	350	6	1	15	25550	2.09E-06	2.7E-02	5.6E-08
								Total Excess Cancer Risk:		5.6E-08

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	1E-07

NDEP 00144

Cancer ... Estimates
OUTDOOR AIR
Current Groundwater Concentration

MW-24 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	6.67E-06	13.2	350	24	1	70	25550	4.14E-07	2.7E-02	1.1E-08
								Total Excess Cancer Risk:		1.1E-08

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	6.62E-06	8	350	6	1	15	25550	2.90E-07	2.7E-02	7.8E-09
								Total Excess Cancer Risk:		7.8E-09

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	2E-08

MW-28 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		0.0E+00

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)/(BW (kg)	* AT (days)	)= LADD-inh (mg/kg-day)	* SFi (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		0.0E+00

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	0E+00

NDEP 00145

Cancer risk Estimates
OUTDOOR AIR
Current Groundwater Concentration

AMW-12 CANCER RISK

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	13.2	350	24	1	70	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	• IR (m³/day)	• EF (days/yr)	• ED (yrs)	• B (U)	)/(BW (kg)	• AT (days)	)= LADD-inh (mg/kg-day)	• SFI (mg/kg-day)⁻¹	= Cancer Risk (U)
Benzene	0.0E+00	8	350	6	1	15	25550	0.00E+00	2.7E-02	0.0E+00
								Total Excess Cancer Risk:		**0.0E+00**

* See Air Dispersion Model Output

Total Inhalation Risk (Adult and Child):	**0E+00**

NDEP 001146

Noncancer Hazard Indices
OUTDOOR AIR
2X Maximum Historical Concentrations

MW-8 HAZARD INDEX (TIER 2 - BENZENE)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	2.03E-03	10.4	250	25	1	70	9125	2.07E-04	0.0017	1.2E-01
Toluene	6.71E-04	10.4	250	25	1	70	9125	6.83E-05	0.11	6.2E-04
Ethylbenzene	2.43E-04	10.4	250	25	1	70	9125	2.47E-05	0.29	8.5E-05
Xylenes	2.92E-04	10.4	250	25	1	70	9125	2.97E-05	0.20	1.5E-04
MTBE	3.66E-03	10.4	250	25	1	70	9125	3.72E-04	0.86	4.3E-04
									Total Worker Hazard Index:	**1.2E-01**

* See Air Dispersion Model Output

NDEP 00147

Noncancer Hazard Indices
OUTDOOR AIR
2X Maximum Historical Concentrations

MW-13 HAZARD INDEX (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	5.02E-04	13.2	350	24	1	70	8760	9.08E-05	0.0017	5.3E-02
Toluene	6.38E-04	13.2	350	24	1	70	8760	1.15E-04	0.11	1.0E-03
Ethylbenzene	3.94E-04	13.2	350	24	1	70	8760	7.12E-05	0.29	2.5E-04
Xylenes	6.07E-04	13.2	350	24	1	70	8760	1.10E-04	0.20	5.5E-04
MTBE	8.60E-04	13.2	350	24	1	70	8760	1.56E-04	0.86	1.8E-04
									Total Adult Hazard Index:	**5.5E-02**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	4.95E-04	8	350	6	1	15	2190	2.53E-04	0.0017	1.5E-01
Toluene	6.30E-04	8	350	6	1	15	2190	3.22E-04	0.11	2.9E-03
Ethylbenzene	3.86E-04	8	350	6	1	15	2190	1.97E-04	0.29	6.8E-04
Xylenes	5.93E-04	8	350	6	1	15	2190	3.03E-04	0.20	1.5E-03
MTBE	8.46E-04	8	350	6	1	15	2190	4.33E-04	0.86	5.0E-04
									Total Child Hazard Index: =	**1.5E-01**

* See Air Dispersion Model Output

NDEP 00148

Noncancer Hazard Indices
OUTDOOR AIR
2X Maximum Historical Concentrations

MW-24 HAZARD INDEX (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	1.21E-04	13.2	350	24	1	70	8760	2.19E-05	0.0017	1.3E-02
Toluene	6.08E-05	13.2	350	24	1	70	8760	1.10E-05	0.11	1.0E-04
Ethylbenzene	3.41E-04	13.2	350	24	1	70	8760	6.17E-05	0.29	2.1E-04
Xylenes	1.07E-04	13.2	350	24	1	70	8760	1.93E-05	0.20	9.7E-05
MTBE	4.99E-04	13.2	350	24	1	70	8760	9.02E-05	0.86	1.0E-04
									Total Adult Hazard Index:	**1.3E-02**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	1.20E-04	8	350	6	1	15	2190	6.14E-05	0.0017	3.6E-02
Toluene	6.01E-05	8	350	6	1	15	2190	3.07E-05	0.11	2.8E-04
Ethylbenzene	3.36E-04	8	350	6	1	15	2190	1.72E-04	0.29	5.9E-04
Xylenes	1.05E-04	8	350	6	1	15	2190	5.37E-05	0.20	2.7E-04
MTBE	4.92E-04	8	350	6	1	15	2190	2.52E-04	0.86	2.9E-04
									Total Child Hazard Index: =	**3.8E-02**

* See Air Dispersion Model Output

NDEP 001149

Noncancer Hazard Indices
OUTDOOR AIR
2X Maximum Historical Concentrations

MW-28 HAZARD INDEX (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-Inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	6.29E-05	13.2	350	24	1	70	8760	1.14E-05	0.86	1.3E-05
									Total Adult Hazard Index:	1.3E-05

Exposure Scenario: Residential Child

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-Inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	6.21E-05	8	350	6	1	15	2190	3.18E-05	0.86	3.7E-05
									Total Child Hazard Index: =	3.7E-05

* See Air Dispersion Model Output

NDEP 00150

Noncancer Hazard Indices
OUTDOOR AIR
2X Maximum Historical Concentrations

AMW-12 HAZARD INDEX (TIER 1)

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.86	0.0E+00
									Total Adult Hazard Index:	0.0E+00

Exposure Scenario: Residential Child

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.86	0.0E+00
									Total Child Hazard Index: =	0.0E+00

* See Air Dispersion Model Output

NDEP 00151

Noncancer Hazard Indices
OUTDOOR AIR
Maximum Historical Concentrations

MW-8 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-Inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	1.02E-03	10.4	250	25	1	70	9125	1.04E-04	0.0017	6.1E-02
Toluene	3.36E-04	10.4	250	25	1	70	9125	3.42E-05	0.11	3.1E-04
Ethylbenzene	1.22E-04	10.4	250	25	1	70	9125	1.24E-05	0.29	4.3E-05
Xylenes	1.46E-04	10.4	250	25	1	70	9125	1.49E-05	0.20	7.4E-05
MTBE	1.83E-03	10.4	250	25	1	70	9125	1.86E-04	0.86	2.2E-04
									Total Worker Hazard Index:	**6.2E-02**

* See Air Dispersion Model Output

NDEP 00152

Noncancer Hazard Indices
OUTDOOR AIR
Maximum Historical Concentrations

MW-13 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)/(BW	* AT	)= ADD-Inh	/ RfDI	= Hazard
	mg/m^3	(m^3/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	2.51E-04	13.2	350	24	1	70	8760	4.54E-05	0.0017	2.7E-02
Toluene	3.19E-04	13.2	350	24	1	70	8760	5.77E-05	0.11	5.2E-04
Ethylbenzene	1.97E-04	13.2	350	24	1	70	8760	3.56E-05	0.29	1.2E-04
Xylenes	3.04E-04	13.2	350	24	1	70	8760	5.50E-05	0.20	2.7E-04
MTBE	4.30E-04	13.2	350	24	1	70	8760	7.78E-05	0.86	9.0E-05
									Total Adult Hazard Index:	**2.8E-02**

Exposure Scenario: Residential Child

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)/(BW	* AT	)= ADD-Inh	/ RfDI	= Hazard
	mg/m^3	(m^3/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	2.48E-04	8	350	6	1	15	2190	1.27E-04	0.0017	7.5E-02
Toluene	3.15E-04	8	350	6	1	15	2190	1.61E-04	0.11	1.5E-03
Ethylbenzene	1.93E-04	8	350	6	1	15	2190	9.87E-05	0.29	3.4E-04
Xylenes	2.97E-04	8	350	6	1	15	2190	1.52E-04	0.20	7.6E-04
MTBE	4.23E-04	8	350	6	1	15	2190	2.16E-04	0.86	2.5E-04
									Total Child Hazard Index: =	**7.7E-02**

* See Air Dispersion Model Output

NDEP 00153

Noncancer Hazard Indices
OUTDOOR AIR
Maximum Historical Concentrations

MW-24 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	6.04E-05	13.2	350	24	1	70	8760	1.09E-05	0.0017	6.4E-03
Toluene	3.04E-05	13.2	350	24	1	70	8760	5.50E-06	0.11	5.0E-05
Ethylbenzene	1.71E-04	13.2	350	24	1	70	8760	3.09E-05	0.29	1.1E-04
Xylenes	5.34E-05	13.2	350	24	1	70	8760	9.66E-06	0.20	4.8E-05
MTBE	2.50E-04	13.2	350	24	1	70	8760	4.52E-05	0.86	5.3E-05
									Total Adult Hazard Index:	**6.7E-03**

Exposure Scenario: Residential Child

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	5.98E-05	8	350	6	1	15	2190	3.06E-05	0.0017	1.8E-02
Toluene	3.01E-05	8	350	6	1	15	2190	1.54E-05	0.11	1.4E-04
Ethylbenzene	1.68E-04	8	350	6	1	15	2190	8.59E-05	0.29	3.0E-04
Xylenes	5.24E-05	8	350	6	1	15	2190	2.68E-05	0.20	1.3E-04
MTBE	2.46E-04	8	350	6	1	15	2190	1.26E-04	0.86	1.5E-04
									Total Child Hazard Index: =	**1.9E-02**

* See Air Dispersion Model Output

Noncancer Hazard Indices
OUTDOOR AIR
Maximum Historical Concentrations

MW-28 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-Inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	3.14E-05	13.2	350	24	1	70	8760	5.68E-06	0.86	6.6E-06
									Total Adult Hazard Index:	**6.6E-06**

Exposure Scenario: Residential Child

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-Inh	/ RfDi	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	3.11E-05	8	350	6	1	15	2190	1.59E-05	0.86	1.8E-05
									Total Child Hazard Index: =	**1.8E-05**

* See Air Dispersion Model Output

NDEP 00155

Noncancer Hazard Indices
OUTDOOR AIR
Maximum Historical Concentrations

AMW-12 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.86	0.0E+00
									Total Adult Hazard Index:	**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.86	0.0E+00
									Total Child Hazard Index: =	**0.0E+00**

* See Air Dispersion Model Output

NDEP 00156

Noncancer Hazard Indices
OUTDOOR AIR
Current Groundwater Concentrations

MW-8 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Worker

Chemical	(C_{air}*	* IR	* EF	* ED	* B	)(BW	* AT	)= ADD-Inh	/ RfDI	= Hazard
	mg/m³	(m³/day)	(days/yr)	(yrs)	(U)	(kg)	(days)	(mg/kg-day)	(mg/kg-day)	Quotient
Benzene	2.96E-05	10.4	250	25	1	70	9125	3.01E-06	0.0017	1.8E-03
Toluene	0.00E+00	10.4	250	25	1	70	9125	0.00E+00	0.11	0.0E+00
Ethylbenzene	4.48E-05	10.4	250	25	1	70	9125	4.56E-06	0.29	1.6E-05
Xylenes	1.86E-05	10.4	250	25	1	70	9125	1.89E-06	0.20	9.5E-06
MTBE	8.02E-04	10.4	250	25	1	70	9125	8.16E-05	0.86	9.5E-05
									Total Worker Hazard Index:	**1.9E-03**

* See Air Dispersion Model Output

NDEP 00157

Noncancer Hazard Indices
OUTDOOR AIR
Current Groundwater Concentrations

MW-13 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	4.87E-05	13.2	350	24	1	70	8760	8.81E-06	0.0017	5.2E-03
Toluene	6.66E-06	13.2	350	24	1	70	8760	1.20E-06	0.11	1.1E-05
Ethylbenzene	7.13E-05	13.2	350	24	1	70	8760	1.29E-05	0.29	4.4E-05
Xylenes	7.79E-05	13.2	350	24	1	70	8760	1.41E-05	0.20	7.0E-05
MTBE	3.26E-04	13.2	350	24	1	70	8760	5.89E-05	0.86	6.9E-05
									Total Adult Hazard Index:	**5.4E-03**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m^3	* IR (m^3/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	4.81E-05	8	350	6	1	15	2190	2.46E-05	0.0017	1.4E-02
Toluene	6.57E-06	8	350	6	1	15	2190	3.36E-06	0.11	3.1E-05
Ethylbenzene	6.98E-05	8	350	6	1	15	2190	3.57E-05	0.29	1.2E-04
Xylenes	7.61E-05	8	350	6	1	15	2190	3.89E-05	0.20	1.9E-04
MTBE	3.20E-04	8	350	6	1	15	2190	1.64E-04	0.86	1.9E-04
									Total Child Hazard Index: =	**1.5E-02**

* See Air Dispersion Model Output

NDEP 00158

Noncancer Hazard Indices
OUTDOOR AIR
Current Groundwater Concentrations

MW-24 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	6.69E-06	13.2	350	24	1	70	8760	1.21E-06	0.0017	7.1E-04
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	1.62E-04	13.2	350	24	1	70	8760	2.93E-05	0.29	1.0E-04
Xylenes	3.99E-06	13.2	350	24	1	70	8760	7.21E-07	0.20	3.6E-06
MTBE	2.14E-04	13.2	350	24	1	70	8760	3.87E-05	0.86	4.5E-05

Exposure Scenario: Residential Child

Total Adult Hazard Index: 8.6E-04

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-Inh (mg/kg-day)	/ RfDI (mg/kg-day)	= Hazard Quotient
Benzene	6.62E-06	8	350	6	1	15	2190	3.39E-06	0.0017	2.0E-03
Toluene	0.00E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	1.59E-04	8	350	6	1	15	2190	8.13E-05	0.29	2.8E-04
Xylenes	3.91E-06	8	350	6	1	15	2190	2.00E-06	0.20	1.0E-05
MTBE	2.11E-04	8	350	6	1	15	2190	1.08E-04	0.86	1.3E-04

Total Child Hazard Index: = 2.4E-03

* See Air Dispersion Model Output

NDEP 001159

Noncancer Hazard Indices
OUTDOOR AIR
Current Groundwater Concentrations

MW-28 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(	C_{air}* mg/m³	*	IR (m³/day)	*	EF (days/yr)	*	ED (yrs)	*	B (U)	)(	BW (kg)	*	AT (days)	)=	ADD-inh (mg/kg-day)	/	RfDi (mg/kg-day)	=	Hazard Quotient
Benzene		0.00E+00		13.2		350		24		1		70		8760		0.00E+00		0.0017		0.0E+00
Toluene		0.00E+00		13.2		350		24		1		70		8760		0.00E+00		0.11		0.0E+00
Ethylbenzene		0.00E+00		13.2		350		24		1		70		8760		0.00E+00		0.29		0.0E+00
Xylenes		0.00E+00		13.2		350		24		1		70		8760		0.00E+00		0.20		0.0E+00
MTBE		3.14E-05		13.2		350		24		1		70		8760		5.68E-06		0.86		6.6E-06
																		Total Adult Hazard Index:		**6.6E-06**

Exposure Scenario: Residential Child

Chemical	(	C_{air}* mg/m³	*	IR (m³/day)	*	EF (days/yr)	*	ED (yrs)	*	B (U)	)(	BW (kg)	*	AT (days)	)=	ADD-inh (mg/kg-day)	/	RfDi (mg/kg-day)	=	Hazard Quotient
Benzene		0.00E+00		8		350		6		1		15		2190		0.00E+00		0.0017		0.0E+00
Toluene		0.00E+00		8		350		6		1		15		2190		0.00E+00		0.11		0.0E+00
Ethylbenzene		0.00E+00		8		350		6		1		15		2190		0.00E+00		0.29		0.0E+00
Xylenes		0.00E+00		8		350		6		1		15		2190		0.00E+00		0.20		0.0E+00
MTBE		3.11E-05		8		350		6		1		15		2190		1.59E-05		0.86		1.8E-05
																		Total Child Hazard Index:	=	**1.8E-05**

* See Air Dispersion Model Output

NDEP 001160

Noncancer Hazard Indices
OUTDOOR AIR
Current Groundwater Concentrations

AMW-12 HAZARD INDEX

Exposure Pathway: Inhalation of Vapors (for VOCs)

Exposure Scenario: Residential Adult

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.0017	0.0E+00
Toluene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.29	0.0E+00
Xylenes	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.20	0.0E+00
MTBE	0.00E+00	13.2	350	24	1	70	8760	0.00E+00	0.86	0.0E+00
									Total Adult Hazard Index:	**0.0E+00**

Exposure Scenario: Residential Child

Chemical	(C_{air}* mg/m³	* IR (m³/day)	* EF (days/yr)	* ED (yrs)	* B (U)	)(BW (kg)	* AT (days)	)= ADD-inh (mg/kg-day)	/ RfDi (mg/kg-day)	= Hazard Quotient
Benzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.0017	0.0E+00
Toluene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.11	0.0E+00
Ethylbenzene	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.29	0.0E+00
Xylenes	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.20	0.0E+00
MTBE	0.0E+00	8	350	6	1	15	2190	0.00E+00	0.86	0.0E+00
									Total Child Hazard Index: =	**0.0E+00**

* See Air Dispersion Model Output

NDEP 00161

TABLE 8

SUMMARY OF INCREMENTAL LIFETIME CANCER RISK (ILCR) ESTIMATES

Indoor Exposure Scenario:

	Groundwater Concentration Scenario		
Receptor Location	2 Max. Historical	Max. Historical	Current
MW-8	7 E-07	7E-07	2E-08
MW-13	9E-07	5E-07	9E-08
MW-24	2E-07	1E-07	1E-08
MW-28	NA	NA	NA
MWA-12	NA	NA	NA

Outdoor Exposure Scenario:

	Groundwater Concentration Scenario		
Receptor Location	2 Max. Historical	Max. Historical	Current
MW-8	1E-06	1E-06	3E-08
MW-13	1E-06	7E-07	1E-07
MW-24	3E-07	2E-07	2E-08
MW-28	NA	NA	NA
MWA-12	NA	NA	NA

Note: ILCR = (Site Estimated Dose) x (USEPA Cancer Slope Factor)

The USEPA *de minimus* (not significant) cancer risk range is 1E-06 (one in one million *or* 0.000001) to 1E-04 (one in ten thousand *or* 0.0001). An ILCR within this range (or lower) indicates that the risk is within the USEPA acceptable risk range and therefore there are no significant carcinogenic health risks associated with the exposure evaluated.

TABLE 9

SUMMARY OF HAZARD INDEX ESTIMATES

Indoor Exposure Scenario:

Receptor Location	Groundwater Concentration Scenario					
	2 Max. Historical		Max. Historical		Current	
	Child	Adult	Child	Adult	Child	Adult
MW-8	--	0.15	--	0.073	--	0.0013
MW-13	0.10	0.037	0.052	0.018	0.01	0.0036
MW-24	0.025	0.0089	0.012	0.0044	0.0016	0.00057
MW-28	0.000025	0.0000088	0.000012	0.0000044	0.000012	0.0000044
MWA-12	NA	NA	NA	NA	NA	NA

Outdoor Exposure Scenario:

Receptor Location	Groundwater Concentration Scenario					
	2 Max. Historical		Max. Historical		Current	
	Child	Adult	Child	Adult	Child	Adult
MW-8	--	0.12	--	0.062	--	0.0019
MW-13	0.15	0.055	0.077	0.028	0.015	0.0054
MW-24	0.038	0.013	0.019	0.0067	0.0024	0.00086
MW-28	0.000037	0.000013	0.000018	0.0000066	0.000018	0.0000066
MWA-12	NA	NA	NA	NA	NA	NA

Note: Hazard Index = $\frac{\text{Site Estimated Dose}}{\text{USEPA Reference Dose}}$

A Hazard Index of less than 1 indicates that the site dose does not exceed the USEPA acceptable Reference Dose and therefore there are no noncarcinogenic health hazards associated with the exposure evaluated.

APPENDIX A

FATE-AND-TRANSPORT ANALYSIS

1 PURPOSE

The purpose of this fate-and-transport analysis (analysis) is to estimate the vapor-phase concentration of the chemicals of potential concern (COPCs)[1] in indoor and outdoor air as the result of volatilization[2] from impacted ground water that is part of the Avis and Allstate/Payless Co-mingled Plume in Las Vegas, Nevada. The analysis is conducted at five ground-water monitoring well locations:

- Avis MW-8
- Avis MW-13
- Avis MW-24
- Avis MW-28
- Allstate/Payless AMW-12.

These wells are located hydraulically downgradient (east/northeast) of the Avis and Allstate/Payless facilities. The estimated vapor-phase concentrations serve as input to intake models, which are used to calculate a portion of the total risk posed by the co-mingled plume.

Site-specific data[3,4,5,6], literature data, a proprietary version of the EPA-sponsored computer code *VLEACH*[7], which was specifically designed to assess fate and transport of volatile organic compounds (VOCs) at the Goodyear Superfund site located in an arid climate (Phoenix)[8] and has since been used at numerous sites, and indoor and outdoor air models were used to complete the analysis.

2 CONCEPTUAL MODEL

The conceptual model for each ground-water monitoring well location is based on site-specific lithologic and chemical data and consists of, from top to bottom, the atmosphere, the unsaturated zone, and the water table. The conceptual model considers the potential upward, one-dimensional, diffusion of BTEX and MTBE from impacted ground water into the unsaturated zone and, ultimately, volatilization from the unsaturated zone into the atmosphere. The atmosphere is modeled as both 'indoor air' and 'outdoor air'. The components of the conceptual model for each ground-water monitoring well location are summarized in Table A-1.

3 AIR MODELS

The indoor and outdoor air models are "mixing cell" models based on the principle of mass balance. Both models calculate concentrations in the air by mixing the volatile emissions, as estimated using *VLEACH*, with ambient air.

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[1] The COPCs evaluated include benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tertiary butyl ether (MTBE).

[2] Volatilization is defined herein as upward diffusion of vapor-phase BTEX and MTBE from ground water, through unsaturated zone soils, into the atmosphere.

[3] Broadbent & Associates, Inc. Facsimile dated October 5, 2000. Boring logs for Avis ground-water monitoring wells MW-8, MW-13, MW-24, and MW-28.

[4] *Ibid.* Microsoft® Excel files received via electronic mail on October 3, 2000. Historical BTEX and MTBE concentrations in ground-water (filename "95150tbl2.xls") and depth to ground-water (filename "95150tbl1.xls") for Avis ground-water monitoring wells MW-8, MW-13, MW-24, and MW-28.

[5] URS Corporation. Facsimile dated October 9, 2000. Boring log for Allstate/Payless ground-water monitoring well AMW-12.

[6] *Ibid.* Facsimile dated October 12, 2000. Historical BTEX and MTBE concentrations in ground-water and depth to ground-water for Allstate/Payless ground-water monitoring well AMW-12.

[7] Ravi, V. and J.A. Johnson. 1995. *VLEACH: A One-Dimensional Finite Difference Vadose Zone Leaching Model* (Version 2.2). Developed for the USEPA Office of Research and Development, Robert S. Kerr Environmental Research Laboratory, Center for Subsurface Modeling Support (Ada, Oklahoma). Based on the original VLEACH (Version 1.0) developed by CH2M-Hill for USEPA Region IX.

[8] Rosenbloom, J., Mock, P., Lawson, P., Brown, J., and H.J. Turin. 1993. *Application of VLEACH to Vadose Zone Transport of VOCs at an Arizona Superfund Site*, Ground Water Monitoring and Remediation, vol. 13, no. 3, pp.159-169.

Thus, the output of *VLEACH* serves as the input to the air models. The ambient air is introduced in the form of exchanged (ventilated) air for the indoor air model and in the form of wind for the outdoor air model.

3.1 INDOOR AIR MODEL

The indoor air model is:

$$C_{a-in} = \frac{Q_{volatile} \times A \times F}{V \times E} \qquad \text{[Eqn. A-1]}$$

where: C_{a-in} is the concentration in indoor air in $\mu g/m^3$.

$Q_{volatile}$ is the *VLEACH*-calculated emission rate from the unsaturated zone through the floor of a hypothetical residential dwelling in $\mu g/m^2$-s.

A is the plan-view area (92.4 m^2) through which simulated volatile vapors are emitted into a hypothetical residential dwelling in m^2[9].

F is the ratio of the open area ('crack area') through which vapors may be emitted to A in m^2/m^2 (default value is 4.16×10^{-4} m^2/m^2)[10].

V is the volume of the hypothetical residential dwelling in m^3 (default value is 451 m^3)[11].

E is the air exchange rate coefficient in s^{-1} (default value is 1.25×10^{-4} s^{-1})[12].

3.2 OUTDOOR AIR MODEL

The outdoor air model is:

$$C_{a-out} = \frac{Q_{volatile} \times A}{v \times w \times h} \qquad \text{[Eqn. A-2]}$$

where: C_{a-out} is the concentration in outdoor air in micrograms per cubic meter ($\mu g/m^3$).

$Q_{volatile}$ is the *VLEACH*-calculated upward volatile flux ('emission rate') from the unsaturated zone through the ground surface in micrograms per square meter per second ($\mu g/m^2$-s).

A is the plan-view area through which simulated volatile vapors are emitted in m^2 (default value is 92.4 m^2)[13].

v is the wind velocity parallel to the ground surface in m/s (default value is 4.69 m/s)[14].

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[9] U.S. Department of Energy. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

[10] Calculated using crack width of 0.1 cm based on Eaton and Scott. 1984. *Understanding radon transport into houses*. Radiation Protection Dosimetry, 7:251-253. and Louriero, C.O., Abriola, L.M., Martin, J.E., and R.G. Sextro. *Three-dimensional simulation of radon transport into houses with basements under constant negative pressure*. Environ. Sci. Technology, 24:1338-1348.

[11] U.S. Department of Energy. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

[12] Consistent with the findings of Koontz, M.D., and H.E. Rector. 1995. *Estimations of Distributions fro Residential Air Exchange Rates*. EPA Contract No. 68-D9-0166, Work Assignment No. 3-19, U.S. EPA, Office of Pollution Prevention and Toxics, Washington, D.C. and Parker G.B., McSorley, M., and J. Harris. 1990. *The northwest residential infiltration survey: a field study of ventilation in new houses in the Pacific northwest*. In: *Air Change Rate and Air Tightness in Buildings*, ASTM STP 1067, pp. 93-103. American Society for Testing and Materials, Philadelphia, Pennsylvania.

[13] U.S. Department of Energy. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

[14] U.S. Environmental Protection Agency. 1996. *Soil Screening Guidance: User's Guide*. Office of Solid Waste and Emergency Response, Washington, D.C. (Equation 5, page 23).

w is the width through which the wind blows in m (default value is 9.6 m)[15].

h is the height of the atmospheric mixing zone in m (2 m)[16].

4 VLEACH

VLEACH[17] is a one-dimensional finite difference (numerical) code that simulates fate and transport in the unsaturated zone. Specifically, *VLEACH* simulates fate and transport of analytes within and between three different phases:

1. As a solute dissolved in water (i.e., the aqueous phase);
2. As a gas in the vapor phase; and
3. As an adsorbed analyte in the solid (soil/soil organic carbon) phase.

Equilibration of the analyte between the phases (equilibrium partitioning) occurs according to analyte-specific distribution coefficients defined by the user (i.e., Henry's constant [K_H] for equilibrium partitioning between the vapor phase and aqueous phase and an organic carbon-water partition coefficient [K_{oc}] for equilibrium partitioning between the aqueous phase and solid phase. *VLEACH* then simulates the one-dimensional vertical transport of the analyte via advection in the aqueous phase and diffusion in the vapor phase. A schematic showing the fate and transport processes accounted for by *VLEACH* is included as Figure A-1.

These fate and transport processes are conceptualized as occurring in an analyte-specific polygon that can be vertically divided into a maximum of 150 cells of equal thickness. The soil properties (e.g., ground-water recharge rate, dry bulk density, effective porosity, volumetric moisture content, and organic carbon content) are constant over the entire polygon. That is, these soil properties are applied uniformly to all cells within the polygon. The only variable ("cell-specific") property that may be defined is the vertical distribution of analyte concentrations in soil. The provision of up to 150 cells provides good resolution of the vertical distribution of analytes for typical environmental applications.

As depicted in Figure A-1, *VLEACH* simulates vertical diffusion and volatilization in both the upward and downward direction. The rate of diffusion and volatilization depends on the soil properties and the properties and distribution of the analyte. The diffusion/volatilization model in *VLEACH* is based on the model of Millington[18] and is a discretized version of Fick's First Law over space:

$$Q_{volatile} = D_a \left(\frac{\Psi_a^{10/3}}{\Psi^2} \right) \frac{dC_{sa}}{dz} \qquad \text{[Eqn. A-3]}$$

where: $Q_{volatile}$ is the *VLEACH*-calculated emission rate from the unsaturated zone in $\mu g/m^2$-s.

D_a is the vapor-phase diffusion coefficient of the analyte in air in square centimeters per second (cm^2/s).

Ψ_a is the air-filled porosity of the soil in cm^3/cm^3.

Ψ is the porosity of the soil in cm^3/cm^3.

---

[15] Calculated as the square root of the value of "A" (see footnote 8).

[16] Professional judgment.

[17] Ravi, V. and J.A. Johnson. 1995. *VLEACH: A One-Dimensional Finite Difference Vadose Zone Leaching Model* (Version 2.2). Developed for the USEPA Office of Research and Development, Robert S. Kerr Environmental Research Laboratory, Center for Subsurface Modeling Support (Ada, Oklahoma). Based on the original VLEACH (Version 1.0) developed by CH2M-Hill for USEPA Region IX.

[18] Millington, J.R. 1959. Gas diffusion in porous media. Science. 130:100-102.

dC_{sa} is the equilibrium analyte concentration in soil air, based on equilibrium partitioning between the vapor, aqueous, and sorbed phases as governed by the Henry's law constant (K_H) and the soil-water partition coefficient (K_d)[19], in $\mu g/m^3$.

z is depth in cm.

The upper boundary condition (i.e., the soil – atmosphere interface; the ground surface) and the lower boundary condition (i.e., the unsaturated zone – saturated zone interface; the water table) can be set so that vapors are allowed to diffuse in either direction (i.e., upward or downward). To provide a conservative analysis, the boundary conditions were set such that vapors were only 'allowed' to diffuse in the upward direction (see Section 4.1.5).

The one-dimensional nature of *VLEACH* (demonstrated in Eqn. A-3)[20] is inherently conservative as it simulates the shortest distance between the source term(s) and the exposure points, thus maximizing predicted exposure point vapor-phase concentrations (EPCs). Attenuation due to lateral deflection or entrapment of migrating COPCs by low permeability units within the unsaturated zone (such as the caliche identified at each well location) and lateral diffusion arising from concentration gradients conceptually identical to those used by *VLEACH* to simulate vertical diffusion are conservatively ignored when using a one-dimensional code.

4.1 INPUT PARAMETERS

VLEACH simulates fate and transport through the use of a single input file. The input file contains five types of user-defined input parameters:

1. Spatial Parameters
2. Timing Parameters
3. COPC Parameters
4. Soil Parameters
5. Boundary Conditions for Vapors
6. Initial Conditions (COPC Distribution in Unsaturated Zone Soils)

4.1.1 Spatial Parameters

The spatial parameters include the plan-view (horizontal) area normal to the direction of COPC transport (A) and the vertical thickness of the individual finite difference cells used to discretize the unsaturated zone. For the simulations, the value A is as defined in Eqns. A-1 and A-2 (92.4 m^2 [995 $feet^2$]).[21]

The vertical thickness of the individual cells was set to 1 foot. Using this cell thickness and the thickness of the unsaturated zone at well as specified in Table A-1 (conservative, minimum values), the number of cells at each well is as follows:

- MW-8: 17 cells
- MW-13: 17 cells
- MW-24: 15 cells
- MW-28: 14 cells
- AMW-12: 13 cells.

---

[19] VLEACH calculates the value of K_d as the product of the organic carbon-water partition coefficient (K_{oc}) and the organic carbon content (f_{oc}).

[20] There is no differentiation of concentration with respect to lateral ("x" or "y") ordinates. Concentration is differentiated with respect to a vertical "z" ordinate only.

[21] U.S. Department of Energy. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

4.1.2 Timing Parameters

These input parameters include times associated with the simulation. The values used for the simulations are listed in Table A-2.

4.1.3 COPC Parameters

These input parameters include the organic carbon partition coefficient (K_{oc}), Henry's constant (K_H), aqueous solubility (S), and free air diffusion coefficient (D_o). The COPC-specific values used for the simulations are listed in Table A-3. *VLEACH* is inherently conservative in that it does not consider degradation of COPCs by any means.

4.1.4 Soil Parameters

These input parameters include: effective porosity, soil grain density, dry bulk density, water-filled porosity (volumetric moisture content), and fraction organic carbon. Although not an input parameter to *VLEACH*, the total porosity is also included in the table as it is used to calculate the dry bulk density. The well-specific values used for the simulations are based on the conceptual model summarized in Table A-1 and listed in Table A-4.

Other soil parameters used as input to *VLEACH* include the ground-water recharge rate and the concentration of COPCs within the recharge water. The ground-water recharge rate was conservatively assumed to be zero for the simulations. The concentration of COPCs within the recharge water was also set to zero as the recharge process was conservatively ignored in the analysis.

4.1.5 Boundary Conditions for Vapors

The boundary conditions for vapor-phase transport include a water table boundary at the base of the unsaturated zone and an atmospheric boundary at the ground surface. The water table boundary condition is specified as a constant concentration in ground water. The atmospheric boundary condition is specified as a constant vapor-phase concentration in the atmosphere immediately above the ground surface.

The water table boundary condition was set at each well for all COPCs as follows:

- Two times the historical maximum concentration in ground water
- The historical maximum concentration in ground water
- The current concentration in ground water.

The COPC-specific values used for these scenarios are listed in Tables A-5 through A-9. Setting the water table boundary condition in this manner fixes the water table as the ultimate "source" for the simulation and maximizes the simulated diffusive flux from the water table upward through the unsaturated zone and into the atmosphere, thus providing a conservative analysis.

The atmospheric boundary was set to 0 milligrams per liter$_{(air)}$. Setting the atmospheric boundary in this manner fixes the atmosphere as the ultimate "sink" for the simulation and maximizes the simulated diffusive flux from the water table upward through the unsaturated zone and into the atmosphere, thus providing a conservative analysis.

4.1.6 Initial Conditions (COPC Distribution in Unsaturated Zone Soils)

Based on conversations with Broadent & Associates, Inc. and URS Corporation, the COPCs are not present in unsaturated zone soils at the wells evaluated in this analysis. Therefore, concentrations in soil of all COPCs at each well were assigned an initial condition value of 0 micrograms per kilogram.

4.2 Summary of Conservative Assumptions

Input parameters were assigned 'conservative' values so as to maximize the predicted emission rate, and thus, the predicted EPCs. The conservative assumptions include:

- The minimum depth to water is used to establish the thickness of the unsaturated zone thus minimizing the distance between the source (the ground water) and the exposure point (the atmosphere immediately above the ground surface).
- The low permeability caliche layer, identified in all wells evaluated in this analysis, is ignored.
- Diffusion and volatilization are one-dimensional in the upward direction only. Therefore, no attenuation of COPCs due to lateral deflection or entrapment by low permeability layers is considered.
- Degradation of COPCs, by any means, was not included in the analysis.
- Ground-water recharge, which would serve to hinder the upward diffusive transport of COPCs through the unsaturated zone, was ignored.
- Boundary conditions were set to maximize the diffusive flux from the water table, through the unsaturated zone, and ultimately into the atmosphere.

4.3 Tier I and Tier II Analyses

A "Tier I" and "Tier II" analysis was performed using *VLEACH*. The assumptions for the Tier I analysis have been given in the previous sections and the associated tables and figures.

The Tier I analysis is reported for all COPCs at all wells with the exception of benzene at MW-8. The Tier II analysis is reported only for benzene at MW-8 and replaces the "twice the maximum historical concentration" simulation performed as part of the Tier I analysis. Therefore, the assumptions for the Tier II analysis are identical to those for the Tier I analysis with the exception that the water table boundary condition (i.e., the concentration of benzene in ground-water at MW-8) was more realistically considered. This was accomplished by subdividing the evaluation into three separate, consecutive *VLEACH* simulations in which the water table boundary condition was varied to more closely match the actual benzene concentrations in ground water at MW-8 as listed in Table 1. Specifically, the water table boundary condition for benzene at MW-8 for the three separate, consecutive *VLEACH* simulations associated with the Tier II analysis was set as follows:

Simulation 1: Twice the maximum historical concentration from January 1, 1981[22] to December 31, 1995[23]

Simulation 2: The maximum historical concentration from January 1, 1996 to December 31, 1997[24]

Simulation 3: The current concentration from January 1, 1998 to December 31, 2005.

These benzene concentration values are listed in Table A-5.

The analyses were "consecutive" in that the distribution of COPCs in the unsaturated zone resulting from Simulation 1 were used as the initial conditions for Simulation 2. Similarly, the distribution of COPCs in the unsaturated zone resulting from Simulation 2 were used as the initial conditions for Simulation 3.

5 Results

Presented in Appendices E through H are the results of the *VLEACH* model and the Indoor and Outdoor Air models. As summarized in Section 4, the results are conservative (i.e., the predicted vapor-phase concentrations in indoor and outdoor air are maximum values) due to the conservative assumptions made in developing the model input.

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[22] The estimated date of installation for the underground storage tanks.

[23] The time period is conservatively extended to include all of 1995 despite the fact that data collected as early as June 5, 1995 indicates that the benzene concentration had dropped to a value approaching the maximum historical concentration (i.e., a value approximately one-half of that assumed in the Tier II evaluation).

[24] The time period is conservatively extended to include all of 1997 despite the fact that benzene concentrations decreased approximately 70-fold from 8,290 micrograms per liter (ug/L) on September 16, 1997 to 112 ug/L on December 15, 1997.

The results are presented as:

1. The *VLEACH*-predicted upward volatile flux ('emission rate') from the unsaturated zone in $\mu g/m^2$-s ($Q_{volatile}$) and
2. The indoor and outdoor air EPCs based on the *VLEACH*-predicted values of $Q_{volatile}$ and the Indoor and Outdoor Air models.

The *VLEACH*-predicted values of $Q_{volatile}$ are independent of the air models. As described in Section 3 and shown in Eqns. A-1 and A-2, $Q_{volatile}$ is simply an input parameter to the air models. As such, the *VLEACH* results are shown together with the EPCs predicted using the air models in COPC-specific tables for:

- Tier I Analysis - Indoor Air model (Appendix E)
- Tier I Analysis - Outdoor Air model (Appendix F)
- Tier II Analysis - Indoor Air model (Appendix G)
- Tier II Analysis - Outdoor Air model (Appendix H)

5.1 EXPOSURE SCENARIOS

The model-predicted EPCs are based on the following well-specific exposure scenarios:

- MW-8: Adult/Worker
- MW-13: Residential (Child and Adult)
- MW-24: Residential (Child and Adult)
- MW-28: Residential (Child and Adult)
- AMW-12: Residential (Child and Adult)

The EPCs were calculated for each of these exposure scenarios by using the following values of $Q_{volatile}$:

MW-8 (Adult/Worker): The average and maximum values of $Q_{volatile}$ over Years 0 through 25.

MW-13 (Residential Child): The average value of $Q_{volatile}$ over Years 0 through 6.
The maximum value of $Q_{volatile}$ over Years 0 through 6.

MW-13 (Residential Adult): The average value of $Q_{volatile}$ over Years 7 through 30.
The maximum value of $Q_{volatile}$ over Years 0 through 30.

MW-24 (Residential Child): The average value of $Q_{volatile}$ over Years 0 through 6.
The maximum value of $Q_{volatile}$ over Years 0 through 6.

MW-24 (Residential Adult): The average value of $Q_{volatile}$ over Years 7 through 30.
The maximum value of $Q_{volatile}$ over Years 0 through 30.

MW-28 (Residential Child): The average value of $Q_{volatile}$ over Years 0 through 6.
The maximum value of $Q_{volatile}$ over Years 0 through 6.

MW-28 (Residential Adult): The average value of $Q_{volatile}$ over Years 7 through 30.
The maximum value of $Q_{volatile}$ over Years 0 through 30.

AMW-12 (Residential Child): The average value of $Q_{volatile}$ over Years 0 through 6.
The maximum value of $Q_{volatile}$ over Years 0 through 6.

AMW-12 (Residential Adult): The average value of $Q_{volatile}$ over Years 7 through 30.
The maximum value of $Q_{volatile}$ over Years 0 through 30.

5.2 EXPOSURE POINT CONCENTRATIONS

Exposure point concentrations (EPCs) in air were calculated using the *VLEACH* output and the indoor and outdoor air models. All EPCs are presented in Appendices E through H and the first column of Table 7.

The following summarizes the maximum model-predicted EPCs for a child. As expected, the maximum EPCs are all based on simulations that used twice the maximum historical concentration in ground water as the water table boundary condition and the maximum annual *VLEACH*-predicted flux during years 0 through 6.[25]

The maximum benzene EPC for a child:	0.495 ug/m^3 (MW-13, outdoor air, maximum 0 to 6 years)
The maximum toluene EPC for a child:	0.630 ug/m^3 (MW-13, outdoor air, maximum 0 to 6 years)
The maximum ethylbenzene EPC for a child:	0.385 ug/m^3 (MW-13, outdoor air, maximum 0 to 6 years)
The maximum xylene EPC for a child:	0.593 ug/m^3 (MW-13, outdoor air, maximum 0 to 6 years)
The maximum MTBE EPC for a child:	0.846 ug/m^3 (MW-13, outdoor air, maximum 0 to 6 years)

The following summarizes the maximum model-predicted EPCs for an adult. As expected, the maximum benzene EPC was based on the Tier II simulations that included a water table boundary condition set at twice the maximum historical concentration in ground water at MW-8 from 1981 through 1995. Also as expected, the maximum EPCs for the remaining COPCs are all based on simulations that used twice the maximum historical concentration in ground water as the water table boundary condition.

The maximum benzene EPC for an adult:	2.03 ug/m^3 (MW-8, outdoor air, maximum 0 to 25 years)[26]
The maximum toluene EPC for an adult:	0.671 ug/m^3 (MW-8, outdoor air, maximum 0 to 25 years)[27]
The maximum ethylbenzene EPC for an adult:	0.394 ug/m^3 (MW-13, outdoor air, maximum 0 to 30 years)[27]
The maximum xylene EPC for an adult:	0.607 ug/m^3 (MW-13, outdoor air, maximum 0 to 30 years)[27]
The maximum MTBE EPC for an adult:	3.66 ug/m^3 (MW-8, outdoor air, maximum 0 to 25 years)[27]

[25] Recall that the child receptor is not exposed at MW-8. Thus, all EPCs for the child receptor are based on the Tier I analysis. The only potential receptor at MW-8 is an adult/worker.

[26] Tier II analysis for adult/worker.

[27] Tier I analysis for adult/worker.

LITHOLOGIC LOG MW-8

SITE LOCATION: Avis Rent-A-Car

ADDRESS: 5164 Rent-A-Car Road, Las Vegas, Nevada

DATE: June 1, 1995

DRILLING CO: Converse Consultants

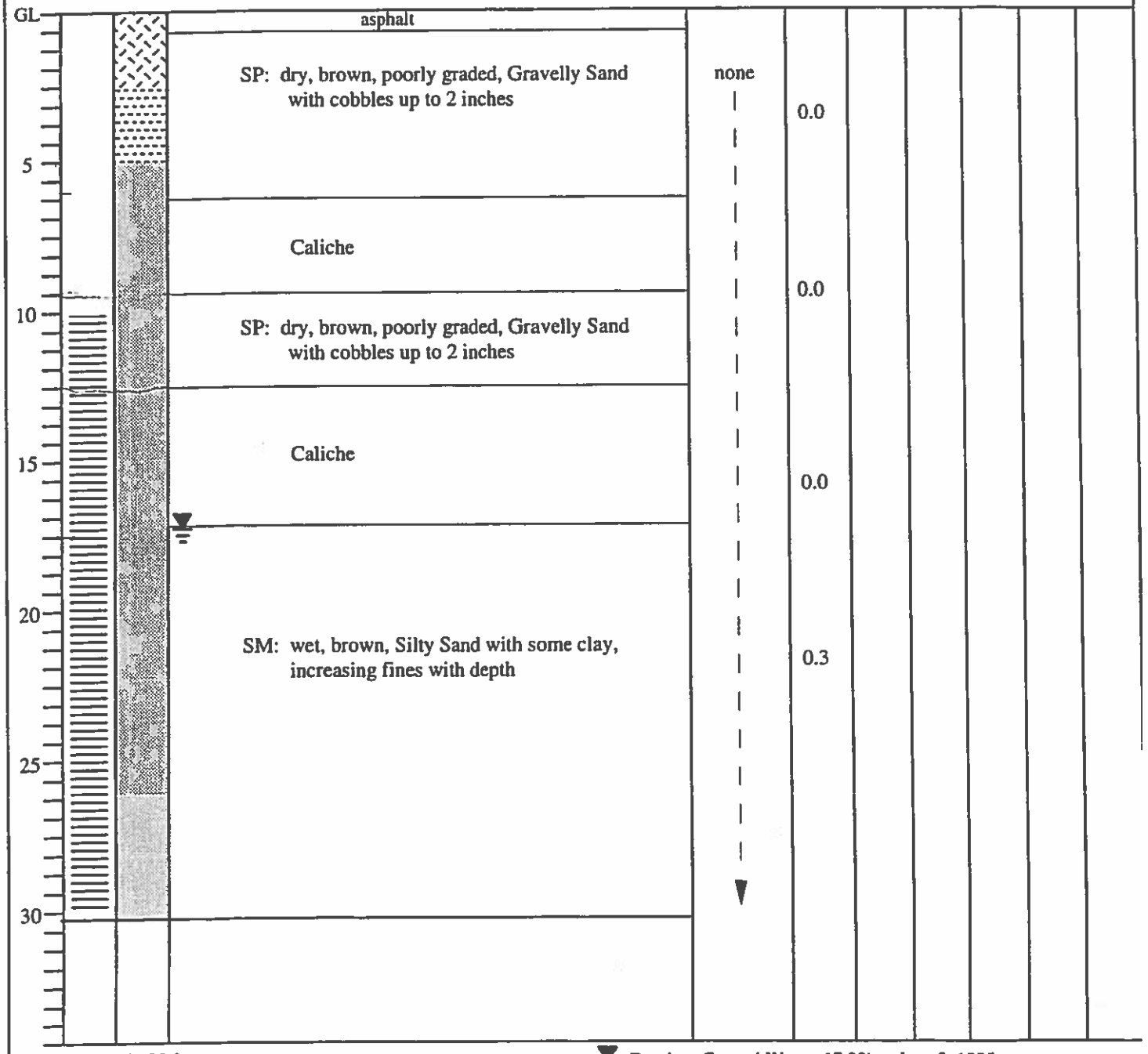
START TIME: 8:15

DRILLING METHOD: Air Rotary

STOP TIME: 8:55

LOGGED BY: Scott McNulty

MEASURING ELEVATION: 2058.80



Total Depth: 30 feet

Depth to Ground Water: 17.33' on June 5, 1995.

Prepared by: SCM Approved by: TTC

BROADBENT & ASSOCIATES, INC.

LITHOLOGIC LOG MW-13

SITE LOCATION: Avis Rent-A-Car

ADDRESS: 5164 Rent-A-Car Road, Las Vegas, Nevada

DATE: September 6, 1995

DRILLING CO: Converse Consultants

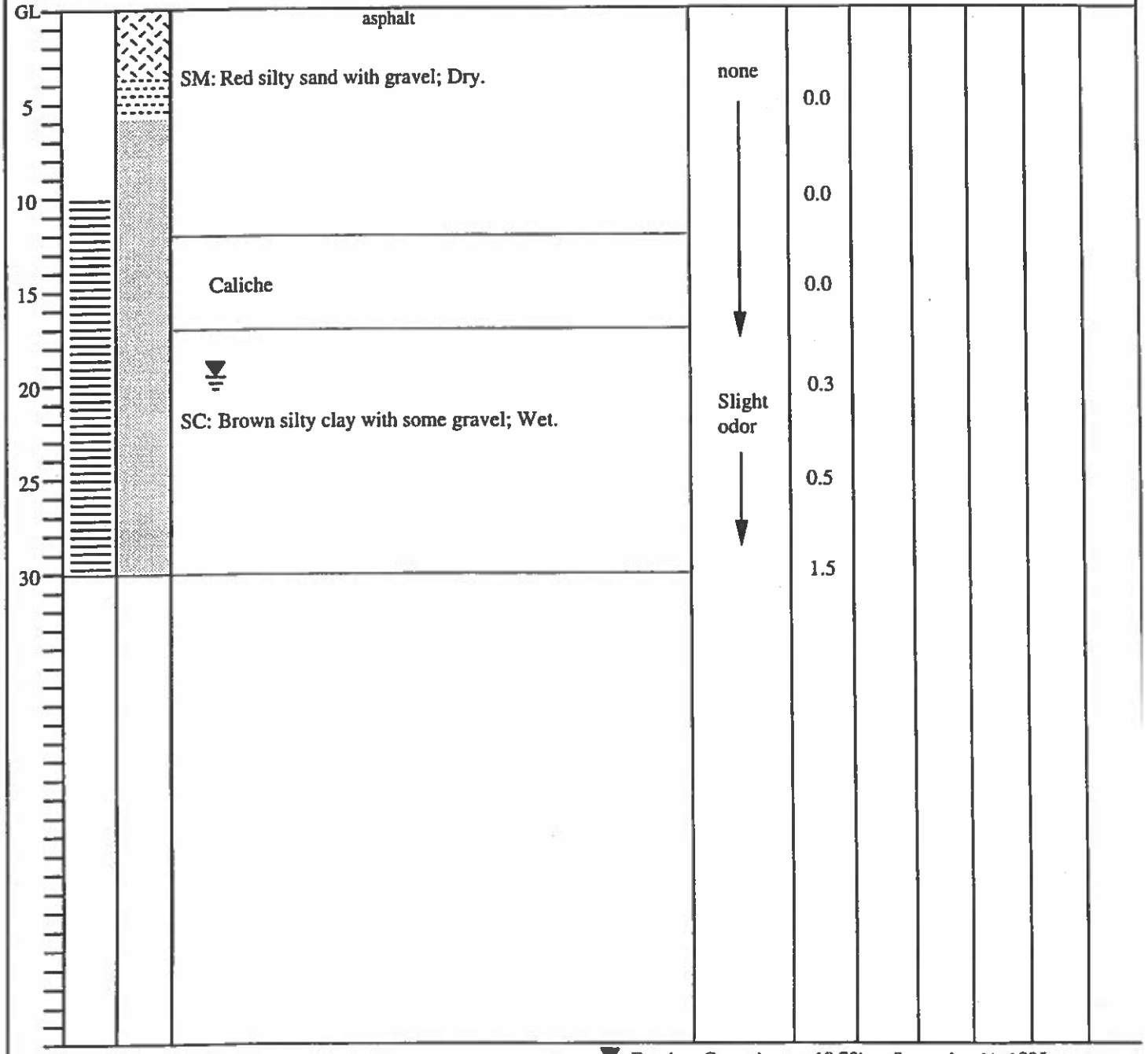
START TIME: 12:30 PM

DRILLING METHOD: Air Rotary

STOP TIME: 13:05 PM

LOGGED BY: Scott McNulty

MEASURING ELEVATION: 2055.30



Total Depth: 30 feet

Depth to Groundwater: 19.73' on September 11, 1995

Prepared by: SCM Approved by: TTC

BROADBENT & ASSOCIATES, INC.

LITHOLOGIC LOG MW-24

SITE LOCATION: Avis Rent-A-Car

ADDRESS: 5164 Rent-A-Car Road, Las Vegas, Nevada

DATE: November 5, 1997

DRILLING CO: Converse Consultants

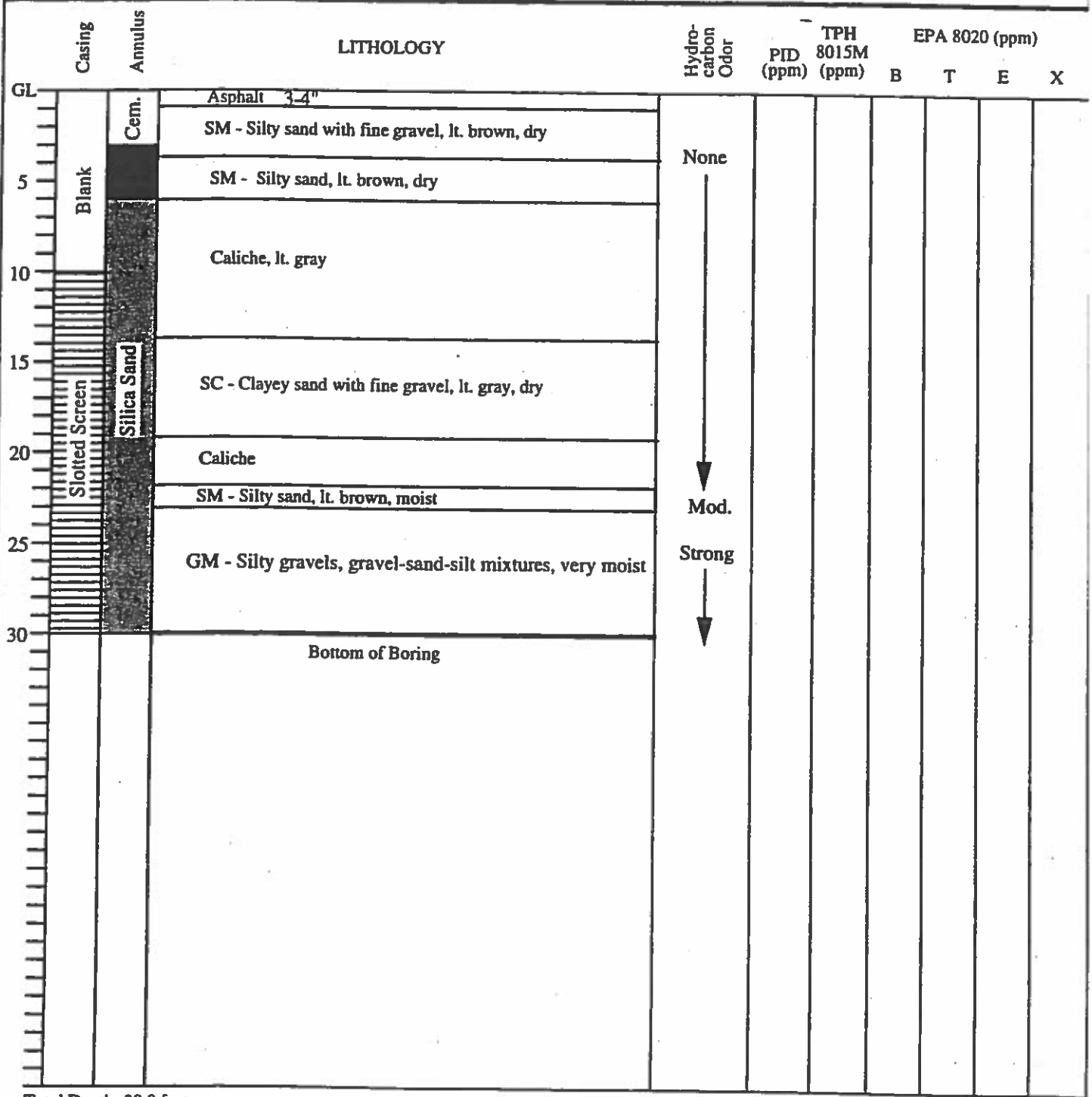
START TIME: 07:32

DRILLING METHOD: Hollow Stem Lauger

STOP TIME: 09:10

LOGGED BY: H. Nash

MEASURING ELEVATION:



Total Depth: 30.0 feet

Prepared by: HAN Approved by: KJS

BROADBENT & ASSOCIATES, INC.

LITHOLOGIC LOG MW-28

SITE LOCATION: Avis Rent A Car Systems, Inc.

ADDRESS: Wilbur Avenue

DATE: April 1, 1998

DRILLING CO: Converse Consultants

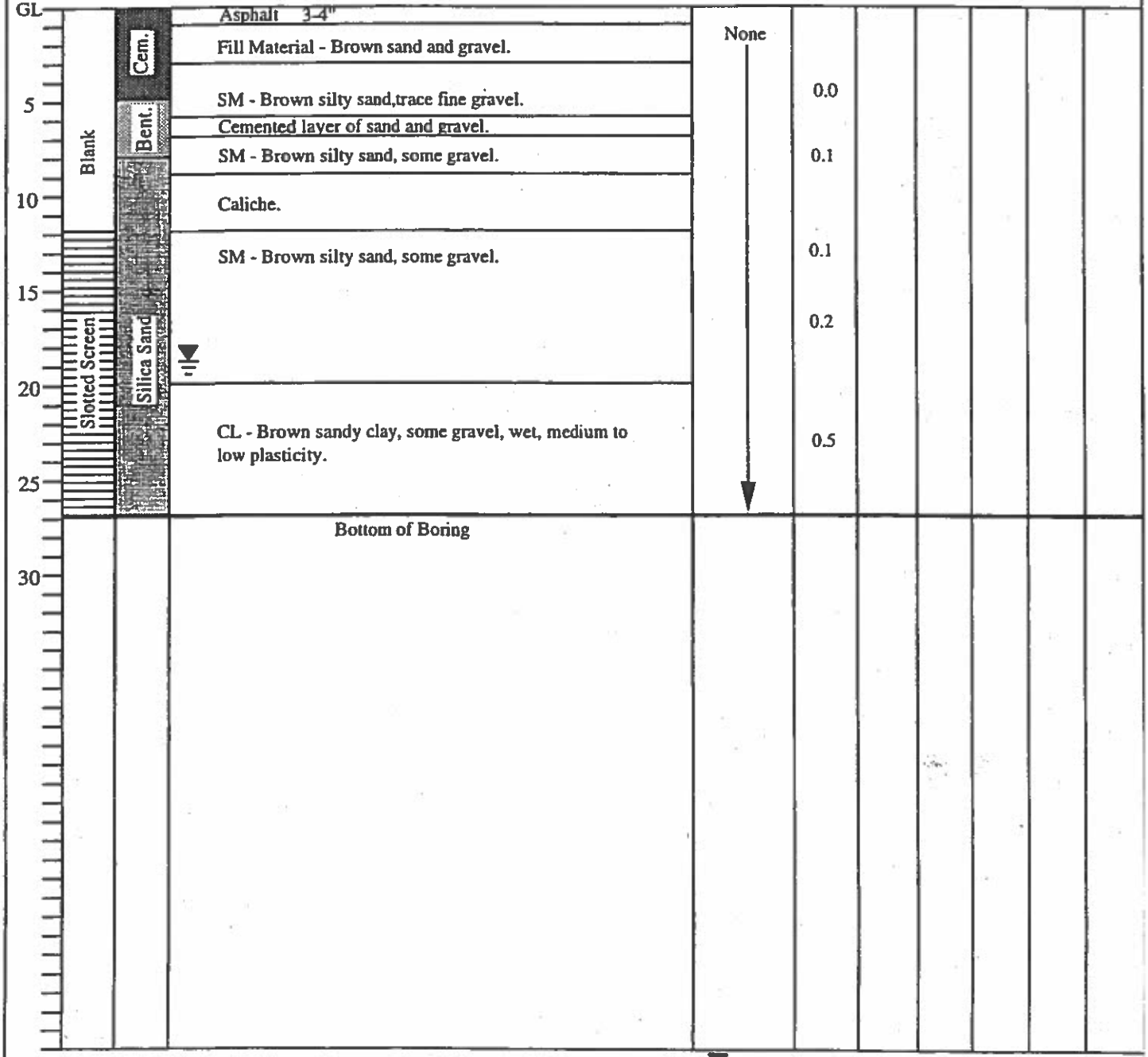
START TIME: 8:15

DRILLING METHOD: Hollow Stem Auger

STOP TIME: 9:55

LOGGED BY: C. Scmidt

MEASURING ELEVATION: 2038.28



Total Depth: 27.0 feet

Depth to Groundwater on 5/26/98: 15.00'

Prepared by: CES Approved by: BAP

BROADBENT & ASSOCIATES, INC.

URS

LOG OF BOREHOLE AMW-12

(Page 1 of 1)

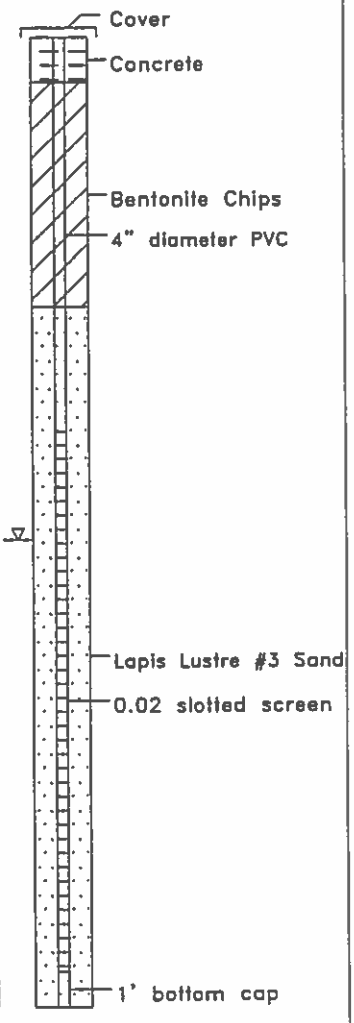
Payless/Allstate Car Rental
5175 Rent-A-Car Road
Las Vegas, Nevada
Job No.: 38257-004-169

Date Completed : 5/6/2000
Drilling Method : 8" Hollow Stem Auger
Driller : Kleinfelder
Sampling Method : Split Spoon; 140 lb. Hammer
Site Location : Lulu & Turner

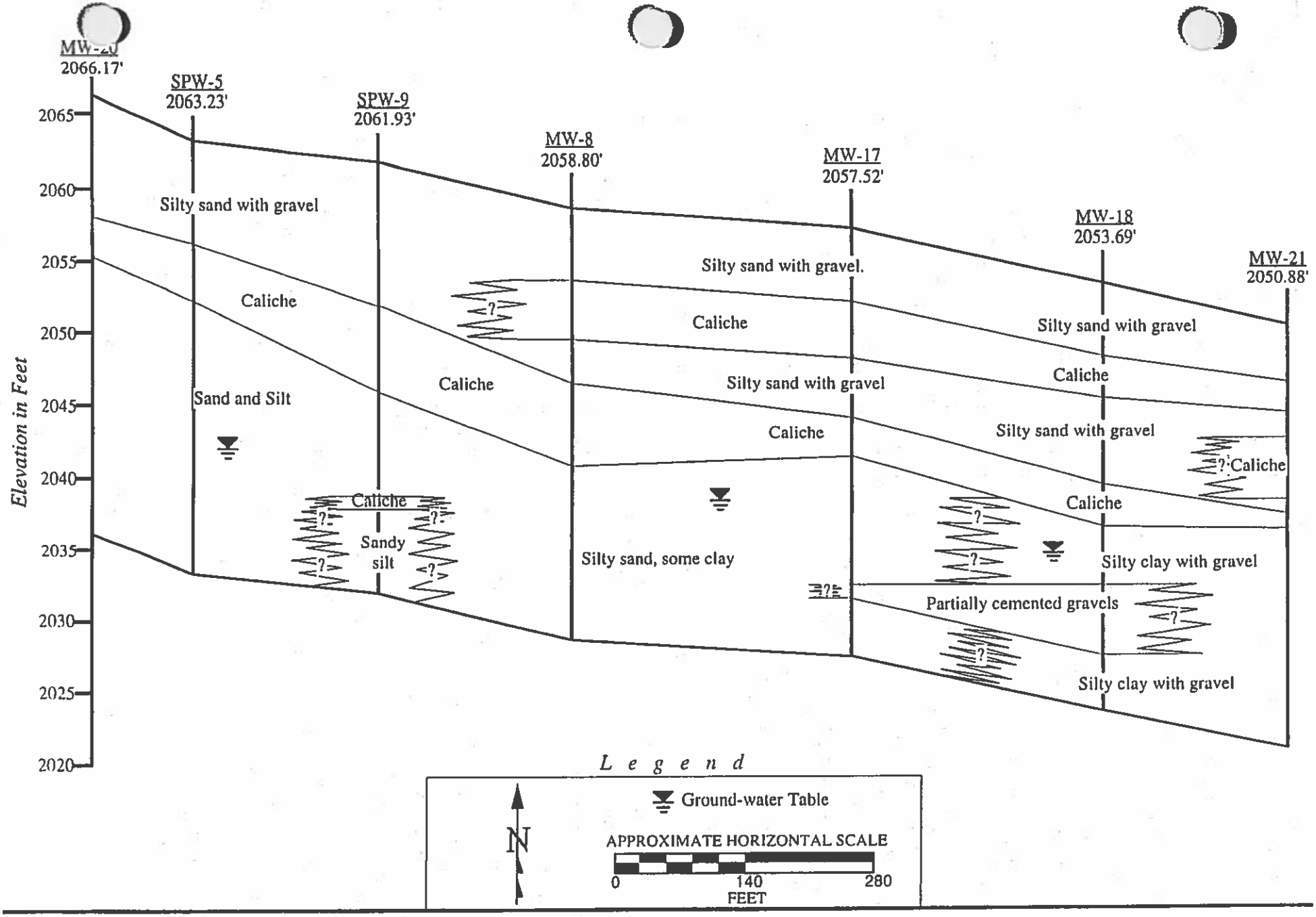
Elevation MSL : 2031
Surface Conditions : Asphalt
Logged By : KE
Start Time : 1340
Finish Time : 1535

Depth in Feet	Blow Count	PID (ppm)	Time	DESCRIPTION	USCS	GRAPHIC
0			1340	SANDY SILT with clay, light brown, dry, fine sand	ML	
5	21 47 50/6	0.0	1350	CALICHE, white, hard		
10	23 35 37	0.0	1430	SILTY SAND, light brown, moist, poorly graded groundwater measured @ 14.00'	SM	
15	25 50/6 50/5	0.0	1443	color change to brown		
				SANDY GRAVEL with silt, light brown, wet, poorly graded	GP	
20	27 50/3	0.0	1510	SILTY SAND some clay, light brown, wet, poorly graded	SM	
25			1535			
			0800	TD @ 27' bgs		
30						
35						

Well:
Elev.:



11-08-2000 C:\PROGRAM FILES\WTECH35-32\PAYLESS_MW12.BOR

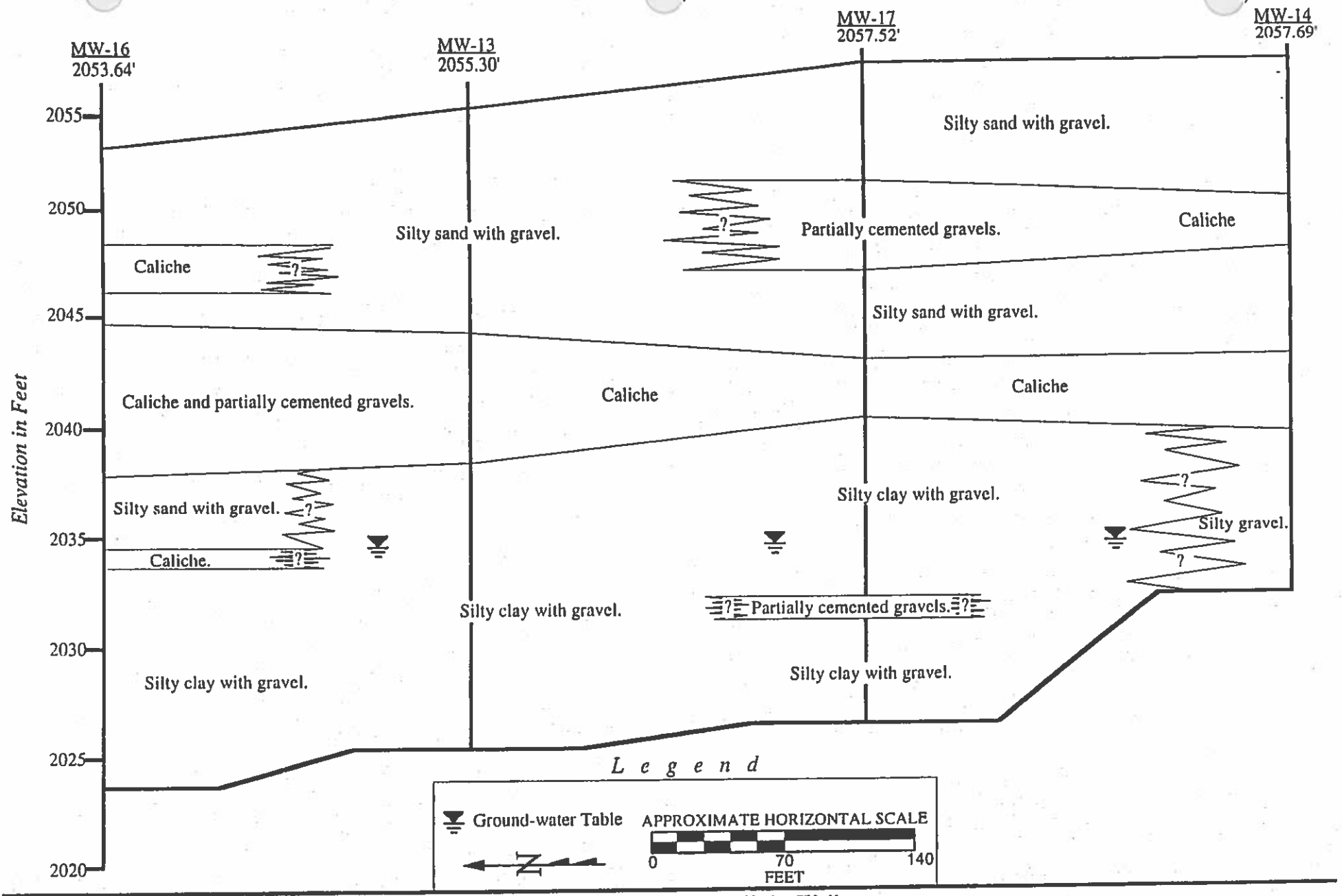


Idealized Cross Section , Hydrocarbon Plume
AVIS Rent-A-Car
Las Vegas, Nevada

Drawing 1

Project Number 95150

BROADBENT & ASSOCIATES, INC.



Idealized Cross Section, Off-site Wells
AVIS Rent-A-Car
Las Vegas, Nevada

Drawing 2

Project Number 95150

BROADBENT & ASSOCIATES, INC.

NDEP 00178

Ground-water Monitoring Well MW-8
(Photograph 1 of 2)

Ground-water Monitoring Well MW-8
(Photograph 2 of 2)

Ground-water Monitoring Well MW-13
(Photograph 1 of 2)

Ground-water Monitoring Well MW-13
(Photograph 2 of 2)

Ground-water Monitoring Well MW-24
(Photograph 1 of 2)

Ground-water Monitoring Well MW-24
(Photograph 2 of 2)

Ground-water Monitoring Well MW-28
(Photograph 1 of 3)
Well is under rear bumber

Ground-water Monitoring Well MW-28
(Photograph 2 of 3)

Ground-water Monitoring Well MW-28
(Photograph 3 of 3)

Ground-water Monitoring Well AMW-12
(Photograph 1 of 3)

Ground-water Monitoring Well AMW-12
(Photograph 2 of 3)

Ground-water Monitoring Well AMW-12
(Photograph 3 of 3)

Table E-1. Tier I Analysis: Benzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 3] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-8	Maximum (13,058 ug/L; Sep. 11, 1995)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	6.74E-01	6.74E-04
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	6.78E-01	6.78E-04
MW-8	Current (380 ug/L; June 15, 2000)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.96E-02	1.96E-05
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.97E-02	1.97E-05

Table E-1. Tier I Analysis: Benzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 3] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-13	Two times the maximum (8,448 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.27E-01	3.27E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	3.33E-01	3.33E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.30E-01	3.30E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	3.34E-01	3.34E-04
MW-13	Maximum (4,224 ug/L; Feb. 20, 1997)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.63E-01	1.63E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.67E-01	1.67E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.65E-01	1.65E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.67E-01	1.67E-04
MW-13	Current (820 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.17E-02	3.17E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	3.23E-02	3.23E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.20E-02	3.20E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	3.24E-02	3.24E-05

Table E-1. Tier I Analysis: Benzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 2] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-24	Two times the maximum (1,808 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	7.90E-02	7.90E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	8.03E-02	8.03E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	7.96E-02	7.96E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	8.04E-02	8.04E-05
MW-24	Maximum (904 ug/L; Nov. 13, 1997)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.96E-02	3.96E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.01E-02	4.01E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.98E-02	3.98E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.02E-02	4.02E-05
MW-24	Current (100 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.37E-03	4.37E-06
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.44E-03	4.44E-06
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.40E-03	4.40E-06
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.45E-03	4.45E-06

Table E-1. Tier I Analysis: Benzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See f] (ug/m^2-s)	Area[See g] (m^2)	Crack fraction[See g] (m^2/m^2)	Building volume[See g] (m^3)	Air exchanges[See g] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-28	Two times the maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
MW-28	Maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
MW-28	Current ("ND"; June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Table E-1. Tier I Analysis: Benzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 3] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
AMW-12	Two times the maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Current ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: Calculated using crack width of 0.1 cm based on Eaton and Scott. 1984. *Understanding radon transport into houses*. Radiation Protection Dosimetry, 7:251-253.

Note 4: Consistent with findings of Koontz, M.D. and H.E. Rector. 1995. *Estimation of Distributions for Residential Air Exchange Rates*. EPA Contract No. 68-D9-0166, Work Assignment No. 3-19, U.S. EPA, Office of Pollution Prevention and Toxics, Washington, D.C.
and Parker, G.B., McSorley, M., and J. Harris. 1990. *The northwest residential infiltration survey: a field study of ventilation in new houses in the Pacific northwest*. In: Air Change Rate and Air Tightness in Buildings, ASTM STP 1067, pp:93-103. American Society for Testing and Materials, Philadelphia, Pennsylvania.

Table E-2. Tier I Analysis: Toluene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 3] (m^2/m^2)	Building volume[See 3] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-8	Two times the maximum (5,618 ug/L)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	4.46E-01	4.46E-04
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	4.46E-01	4.46E-04
MW-8	Maximum (2,809 ug/L; Dec. 28, 1995)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	2.23E-01	2.23E-04
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	2.23E-01	2.23E-04
MW-8	Current ("ND"; June 15, 2000)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Table E-2. Tier I Analysis: Toluene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 3] (m^2/m^2)	Building volume[See 3] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-13	Two times the maximum (6,992 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.16E-01	4.16E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.23E-01	4.23E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.19E-01	4.19E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.24E-01	4.24E-04
MW-13	Maximum (3,496 ug/L; Feb. 20, 1997)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.08E-01	2.08E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.12E-01	2.12E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.09E-01	2.09E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.12E-01	2.12E-04
MW-13	Current (73 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.34E-03	4.34E-06
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.42E-03	4.42E-06
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.37E-03	4.37E-06
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.43E-03	4.43E-06

Table E-2. Tier I Analysis: Toluene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 3] (m^2/m^2)	Building volume[Note 3] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-24	Two times the maximum (592 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.97E-02	3.97E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.04E-02	4.04E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.00E-02	4.00E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.04E-02	4.04E-05
MW-24	Maximum (296 ug/L; Nov. 13, 1997)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.98E-02	1.98E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.02E-02	2.02E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.00E-02	2.00E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.02E-02	2.02E-05
MW-24	Current (100 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Table E-2. Tier I Analysis: Toluene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 3] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-28	Two times the maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
MW-28	Maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
MW-28	Current ("ND"; June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Table E-2. Tier I Analysis: Toluene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] ($\mu g/m^2$-s)	Area[Note 2] (m^2)	Crack fraction[Note 3] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ ($\mu g/m^3$)	$C_{a\text{-}indoor}$ (mg/m^3)
AMW-12	Two times the maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Current ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: Calculated using crack width of 0.1 cm based on Eaton and Scott. 1984. *Understanding radon transport into houses*. Radiation Protection Dosimetry, 7:251-253.

Note 4: Consistent with findings of Koontz, M.D. and H.E. Rector. 1995. *Estimation of Distributions for Residential Air Exchange Rates*. EPA Contract No. 68-D9-0166, Work Assignment No. 3-19, U.S. EPA, Office of Pollution Prevention and Toxics, Washington, D.C.
and Parker, G.B., McSorley, M., and J. Harris. 1990. *The northwest residential infiltration survey: a field study of ventilation in new houses in the Pacific northwest*. In: Air Change Rate and Air Tightness in Buildings, ASTM STP 1067, pp:93-103. American Society for Testing and Materials, Philadelphia, Pennsylvania.

Table E-3. Tier I Analysis: Ethylbenzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 2] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-8	Two times the maximum (2,444 ug/L)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.61E-01	1.61E-04
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.62E-01	1.62E-04
MW-8	Maximum (1,222 ug/L; Dec. 28, 1995)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	8.05E-02	8.05E-05
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	8.09E-02	8.09E-05
MW-8	Current (450 ug/L; June 15, 2000)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	2.96E-02	2.96E-05
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	2.98E-02	2.98E-05

Table E-3. Tier I Analysis: Ethylbenzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 2] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-13	Two times the maximum (5,192 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.64E-01	2.64E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.60E-01	2.60E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.66E-01	2.66E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.62E-01	2.62E-04
MW-13	Maximum (2,596 ug/L; Feb. 20, 1997)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.27E-01	1.27E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.30E-01	1.30E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.28E-01	1.28E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.31E-01	1.31E-04
MW-13	Current (940 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.61E-02	4.61E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.71E-02	4.71E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.64E-02	4.64E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.74E-02	4.74E-05

Table E-3. Tier I Analysis: Ethylbenzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 3] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-24	Two times the maximum (4,000 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.22E-01	2.22E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.26E-01	2.26E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.23E-01	2.23E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.27E-01	2.27E-04
MW-24	Maximum (2,000 ug/L; Mar. 3, 1999)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.11E-01	1.11E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.13E-01	1.13E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.12E-01	1.12E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.14E-01	1.14E-04
MW-24	Current (1,900 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.06E-01	1.06E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.07E-01	1.07E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.06E-01	1.06E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.08E-01	1.08E-04

Table E-3. Tier I Analysis: Ethylbenzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 3] (m^2)	Crack fraction[See 4] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-28	Two times the maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
MW-28	Maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
MW-28	Current ("ND"; June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Table E-3. Tier I Analysis: Ethylbenzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 3] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
AMW-12	Two times the maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Current ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: Calculated using crack width of 0.1 cm based on Eaton and Scott. 1984. *Understanding radon transport into houses*. Radiation Protection Dosimetry, 7:251-253.

Note 4: Consistent with findings of Koontz, M.D. and H.E. Rector. 1995. *Estimation of Distributions for Residential Air Exchange Rates*. EPA Contract No. 68-D0-0166, Work Assignment No. 3-19, U.S. EPA, Office of Pollution Prevention and Toxics, Washington, D.C.
and Parker, G.B., McSorley, M., and J. Harris. 1990. *The northwest residential infiltration survey: a field study of ventilation in new houses in the Pacific northwest*. In: Air Change Rate and Air Tightness in Buildings, ASTM STP 1067, pp:93-103. American Society for Testing and Materials, Philadelphia, Pennsylvania.

Table E-4. Tier I Analysis: Xylene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 2] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-8	Two times the maximum (3,146 ug/L)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.93E-01	1.93E-04
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.94E-01	1.94E-04
MW-8	Maximum (1,573 ug/L; Dec. 28, 1995)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	9.67E-02	9.67E-05
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	9.72E-02	9.72E-05
MW-8	Current (200 ug/L; June 15, 2000)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.23E-02	1.23E-05
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.24E-02	1.24E-05

Table E-4. Tier I Analysis: Xylene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 2] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-13	Two times the maximum (8,576 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.92E-01	3.92E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.01E-01	4.01E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.96E-01	3.96E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.04E-01	4.04E-04
MW-13	Maximum (4,288 ug/L; Sep. 16, 1997)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.96E-01	1.96E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.01E-01	2.01E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.97E-01	1.97E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.02E-01	2.02E-04
MW-13	Current (1,100 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	5.02E-02	5.02E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	5.15E-02	5.15E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	5.06E-02	5.06E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	5.18E-02	5.18E-05

Table E-4. Tier I Analysis: Xylene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 2] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-24	Two times the maximum (1,340 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	6.93E-02	6.93E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	7.07E-02	7.07E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	6.98E-02	6.98E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	7.11E-02	7.11E-05
MW-24	Maximum (670 ug/L; Sep. 22, 1999)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.47E-02	3.47E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	3.53E-02	3.53E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.49E-02	3.49E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	3.55E-02	3.55E-05
MW-24	Current (50 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.59E-03	2.59E-06
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.64E-03	2.64E-06
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.60E-03	2.60E-06
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.65E-03	2.65E-06

Table E-4. Tier I Analysis: Xylene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 3] (m^2/m^3)	Building volume[See 3] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-28	Two times the maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
MW-28	Maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
MW-28	Current ("ND"; June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Table E-4. Tier I Analysis: Xylene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] ($\mu g/m^2$-s)	Area[Note 2] (m^2)	Crack fraction[Note 3] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
AMW-12	Two times the maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Current ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: Calculated using crack width of 0.1 cm based on Eaton and Scott. 1984. *Understanding radon transport into houses*. Radiation Protection Dosimetry, 7:251-253.

Note 4: Consistent with findings of Koontz, M.D. and H.E. Rector. 1995. *Estimation of Distributions for Residential Air Exchange Rates*. EPA Contract No. 68-D9-0166, Work Assignment No. 3-19, U.S. EPA, Office of Pollution Prevention and Toxics, Washington, D.C.
and Parker, G.B., McSorley, M., and J. Harris. 1990. *The northwest residential infiltration survey: a field study of ventilation in new houses in the Pacific northwest*. In: Air Change Rate and Air Tightness in Buildings, ASTM STP 1067, pp:93-103. American Society for Testing and Materials, Philadelphia, Pennsylvania.

Table E-5. Tier I Analysis: MTBE Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See n] (ug/m^2-s)	Area[See o] (m^2)	Crack fraction[See p] (m^2/m^2)	Building volume[See q] (m^3)	Air exchanges[See r] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-8	Two times the maximum (351,480 ug/L)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	2.42E+00	2.42E-03
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	2.43E+00	2.43E-03
MW-8	Maximum (175,740 ug/L; Mar. 25, 1997)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.21E+00	1.21E-03
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.22E+00	1.22E-03
MW-8	Current (77,000 ug/L; June 15, 2000)	Adult (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	5.30E-01	5.30E-04
		Adult (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	5.33E-01	5.33E-04

Table E-5. Tier I Analysis: MTBE Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 3] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-13	Two times the maximum (108,480 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	5.80E-01	5.80E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	5.69E-01	5.69E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	5.83E-01	5.83E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	5.72E-01	5.72E-04
MW-13	Maximum (54,240 ug/L; Mar. 25, 1997)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.90E-01	2.90E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.85E-01	2.85E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.81E-01	2.81E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.86E-01	2.86E-04
MW-13	Current (41,000 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.12E-01	2.12E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.16E-01	2.16E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.13E-01	2.13E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.16E-01	2.16E-04

Table E-5. Tier I Analysis: MTBE Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Eqn 1] (ug/m^2-s)	Area[Eqn 2] (m^2)	Crack fraction[Eqn 3] (m^2/m^2)	Building volume[Eqn 3] (m^3)	Air exchanges[Eqn 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-24	Two times the maximum (55,900 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.27E-01	3.27E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	3.31E-01	3.31E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	3.28E-01	3.28E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	3.32E-01	3.32E-04
MW-24	Maximum (27,950 ug/L; Sep. 15, 1998)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.63E-01	1.63E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.65E-01	1.65E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.64E-01	1.64E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.66E-01	1.66E-04
MW-24	Current (24,000 ug/L; June 15, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.40E-01	1.40E-04
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.42E-01	1.42E-04
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	1.41E-01	1.41E-04
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	1.43E-01	1.43E-04

Table E-5. Tier I Analysis: MTBE Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[See 1] (ug/m^2-s)	Area[See 2] (m^2)	Crack fraction[See 2] (m^2/m^2)	Building volume[See 2] (m^3)	Air exchanges[See 2] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-28	Two times the maximum (6,600 ug/L)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.12E-02	4.12E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.17E-02	4.17E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	4.13E-02	4.13E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	4.18E-02	4.18E-05
MW-28	Maximum (3,300 ug/L; June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.06E-02	2.06E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.08E-02	2.08E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.07E-02	2.07E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.09E-02	2.09E-05
MW-28	Current (3,300 ug/L; June 23, 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.06E-02	2.06E-05
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.08E-02	2.08E-05
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	2.07E-02	2.07E-05
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	2.09E-02	2.09E-05

Table E-5. Tier I Analysis: MTBE Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 3] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
AMW-12	Two times the maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
AMW-12	Current ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)		92.4	4.16E-04	451	1.25E-04	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: Calculated using crack width of 0.1 cm based on Eaton and Scott. 1984. *Understanding radon transport into houses*. Radiation Protection Dosimetry, 7:251-253.

Note 4: Consistent with findings of Koontz, M.D. and H.E. Rector. 1995. *Estimation of Distributions for Residential Air Exchange Rates*. EPA Contract No. 68-D9-0166, Work Assignment No. 3-19, U.S. EPA, Office of Pollution Prevention and Toxics, Washington, D.C.
and Parker, G.B., McSorley, M., and J. Harris. 1990. *The northwest residential infiltration survey: a field study of ventilation in new houses in the Pacific northwest*. In: Air Change Rate and Air Tightness in Buildings, ASTM STP 1067, pp:93-103. American Society for Testing and Materials, Philadelphia, Pennsylvania.

Table F-1. Tier I Analysis: Benzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[see b] (ug/m^2-s)	Area[see a] (m^2)	Velocity[see a] (m/s)	Width[see a] (m)	Height[see a] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-8	Maximum (13,058 ug/L; Sep. 11, 1995)	Adult (Average 0 - 25 years)	9.880E-01	92.4	4.69	9.6	2.00	1.01E+00	1.01E-03
		Adult (Maximum 0 - 25 years)	9.910E-01	92.4	4.69	9.6	2.00	1.02E+00	1.02E-03
MW-8	Current (380 ug/L; June 15, 2000)	Adult (Average 0 - 25 years)	2.875E-02	92.4	4.69	9.6	2.00	2.95E-02	2.95E-05
		Adult (Maximum 0 - 25 years)	2.884E-02	92.4	4.69	9.6	2.00	2.96E-02	2.96E-05

Table F-1. Tier I Analysis: Benzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] ($ug/m^2\text{-}s$)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 5] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-13	Two times the maximum (8,448 ug/L)	Child (Average 0 - 6 years)	4.790E-01	92.4	4.69	9.6	2.00	4.91E-01	4.91E-04
		Adult (Average 7 - 30 years)	4.886E-01	92.4	4.69	9.6	2.00	5.01E-01	5.01E-04
		Child (Maximum 0 - 6 years)	4.833E-01	92.4	4.69	9.6	2.00	4.95E-01	4.95E-04
		Adult (Maximum 0 - 30 years)	4.898E-01	92.4	4.69	9.6	2.00	5.02E-01	5.02E-04
MW-13	Maximum (4,224 ug/L; Feb. 20, 1997)	Child (Average 0 - 6 years)	2.395E-01	92.4	4.69	9.6	2.00	2.45E-01	2.45E-04
		Adult (Average 7 - 30 years)	2.443E-01	92.4	4.69	9.6	2.00	2.50E-01	2.50E-04
		Child (Maximum 0 - 6 years)	2.417E-01	92.4	4.69	9.6	2.00	2.48E-01	2.48E-04
		Adult (Maximum 0 - 30 years)	2.449E-01	92.4	4.69	9.6	2.00	2.51E-01	2.51E-04
MW-13	Current (820 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	4.649E-02	92.4	4.69	9.6	2.00	4.76E-02	4.76E-05
		Adult (Average 7 - 30 years)	4.742E-02	92.4	4.69	9.6	2.00	4.86E-02	4.86E-05
		Child (Maximum 0 - 6 years)	4.691E-02	92.4	4.69	9.6	2.00	4.81E-02	4.81E-05
		Adult (Maximum 0 - 30 years)	4.754E-02	92.4	4.69	9.6	2.00	4.87E-02	4.87E-05

Table F-1. Tier I Analysis: Benzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m²-s)	Area[Note 2] (m²)	Velocity[Note 3] (m/s)	Width[Note 4] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m³)	$C_{a\text{-}outdoor}$ (mg/m³)
MW-24	Two times the maximum (1,808 ug/L)	Child (Average 0 - 6 years)	1.159E-01	92.4	4.69	9.6	2.00	1.19E-01	1.19E-04
		Adult (Average 7 - 30 years)	1.177E-01	92.4	4.69	9.6	2.00	1.21E-01	1.21E-04
		Child (Maximum 0 - 6 years)	1.167E-01	92.4	4.69	9.6	2.00	1.20E-01	1.20E-04
		Adult (Maximum 0 - 30 years)	1.179E-01	92.4	4.69	9.6	2.00	1.21E-01	1.21E-04
MW-24	Maximum (904 ug/L; Nov. 13, 1997)	Child (Average 0 - 6 years)	5.793E-02	92.4	4.69	9.6	2.00	5.94E-02	5.94E-05
		Adult (Average 7 - 30 years)	5.885E-02	92.4	4.69	9.6	2.00	6.03E-02	6.03E-05
		Child (Maximum 0 - 6 years)	5.836E-02	92.4	4.69	9.6	2.00	5.98E-02	5.98E-05
		Adult (Maximum 0 - 30 years)	5.897E-02	92.4	4.69	9.6	2.00	6.04E-02	6.04E-05
MW-24	Current (100 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	6.409E-03	92.4	4.69	9.6	2.00	6.57E-03	6.57E-06
		Adult (Average 7 - 30 years)	6.510E-03	92.4	4.69	9.6	2.00	6.67E-03	6.67E-06
		Child (Maximum 0 - 6 years)	6.455E-03	92.4	4.69	9.6	2.00	6.62E-03	6.62E-06
		Adult (Maximum 0 - 30 years)	6.523E-03	92.4	4.69	9.6	2.00	6.69E-03	6.69E-06

Table F-1. Tier I Analysis: Benzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m²-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-28	Two times the maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
MW-28	Maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
MW-28	Current ("ND"; June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Table F-1. Tier I Analysis: Benzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m²-s)	Area[Note 2] (m²)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m³)	$C_{a\text{-}outdoor}$ (mg/m³)
AMW-12	Two times the maximum ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-12	Current ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: U.S. EPA. 1996. *Soil Screening Guidance: User's Guide*. Office of Emergency and Remedial Response, Washington, D.C. (Equation 5, page 23).

Note 4: Default value based on professional judgment.

Table F-2. Tier I Analysis: Toluene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note b] (ug/m^2-s)	Area[Note c] (m^2)	Velocity[Note d] (m/s)	Width[Note e] (m)	Height[Note d] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-8	Two times the maximum (5,618 ug/L)	Adult (Average 0 - 25 years)	6.528E-01	92.4	4.69	9.6	2.00	6.69E-01	6.69E-04
		Adult (Maximum 0 - 25 years)	6.547E-01	92.4	4.69	9.6	2.00	6.71E-01	6.71E-04
MW-8	Maximum (2,809 ug/L; Dec. 28, 1995)	Adult (Average 0 - 25 years)	3.264E-01	92.4	4.69	9.6	2.00	3.35E-01	3.35E-04
		Adult (Maximum 0 - 25 years)	3.274E-01	92.4	4.69	9.6	2.00	3.36E-01	3.36E-04
MW-8	Current ("ND"; June 15, 2000)	Adult (Average 0 - 25 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 25 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Table F-2. Tier I Analysis: Toluene Outdoor Air Concentration ($C_{a-outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m²-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 4] (m)	Height[Note 4] (m)	$C_{a-outdoor}$ (ug/m^3)	$C_{a-outdoor}$ (mg/m^3)
MW-13	Two times the maximum (6,992 ug/L)	Child (Average 0 - 6 years)	6.090E-01	92.4	4.69	9.6	2.00	6.24E-01	6.24E-04
		Adult (Average 7 - 30 years)	6.209E-01	92.4	4.69	9.6	2.00	6.36E-01	6.36E-04
		Child (Maximum 0 - 6 years)	6.144E-01	92.4	4.69	9.6	2.00	6.30E-01	6.30E-04
		Adult (Maximum 0 - 30 years)	6.225E-01	92.4	4.69	9.6	2.00	6.38E-01	6.38E-04
MW-13	Maximum (3,496 ug/L; Feb. 20, 1997)	Child (Average 0 - 6 years)	3.046E-01	92.4	4.69	9.6	2.00	3.12E-01	3.12E-04
		Adult (Average 7 - 30 years)	3.105E-01	92.4	4.69	9.6	2.00	3.18E-01	3.18E-04
		Child (Maximum 0 - 6 years)	3.072E-01	92.4	4.69	9.6	2.00	3.15E-01	3.15E-04
		Adult (Maximum 0 - 30 years)	3.113E-01	92.4	4.69	9.6	2.00	3.19E-01	3.19E-04
MW-13	Current (73 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	6.358E-03	92.4	4.69	9.6	2.00	6.52E-03	6.52E-06
		Adult (Average 7 - 30 years)	6.483E-03	92.4	4.69	9.6	2.00	6.64E-03	6.64E-06
		Child (Maximum 0 - 6 years)	6.415E-03	92.4	4.69	9.6	2.00	6.57E-03	6.57E-06
		Adult (Maximum 0 - 30 years)	6.499E-03	92.4	4.69	9.6	2.00	6.66E-03	6.66E-06

Table F-2. Tier I Analysis: Toluene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[see s] (ug/m^2-s)	Area[see n] (m^2)	Velocity[see b] (m/s)	Width[see b] (m)	Height[see d] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-24	Two times the maximum (592 ug/L)	Child (Average 0 - 6 years)	5.828E-02	92.4	4.69	9.6	2.00	5.97E-02	5.97E-05
		Adult (Average 7 - 30 years)	5.918E-02	92.4	4.69	9.6	2.00	6.07E-02	6.07E-05
		Child (Maximum 0 - 6 years)	5.869E-02	92.4	4.69	9.6	2.00	6.01E-02	6.01E-05
		Adult (Maximum 0 - 30 years)	5.930E-02	92.4	4.69	9.6	2.00	6.08E-02	6.08E-05
MW-24	Maximum (296 ug/L; Nov. 13, 1997)	Child (Average 0 - 6 years)	2.914E-02	92.4	4.69	9.6	2.00	2.99E-02	2.99E-05
		Adult (Average 7 - 30 years)	2.959E-02	92.4	4.69	9.6	2.00	3.03E-02	3.03E-05
		Child (Maximum 0 - 6 years)	2.934E-02	92.4	4.69	9.6	2.00	3.01E-02	3.01E-05
		Adult (Maximum 0 - 30 years)	2.965E-02	92.4	4.69	9.6	2.00	3.04E-02	3.04E-05
MW-24	Current (100 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Table F-2. Tier I Analysis: Toluene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 3] (ug/m^2-s)	Area[Note 2] (m^2)	Velocity[Note 5] (m/s)	Width[Note 5] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-28	Two times the maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
MW-28	Maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
MW-28	Current ("ND"; June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Table F-2. Tier I Analysis: Toluene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
AMW-1	Two times the maximum ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-1	Maximum ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-1	Current ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: U.S. EPA. 1996. *Soil Screening Guidance: User's Guide*. Office of Emergency and Remedial Response, Washington, D.C. (Equation 5, page 23).

Note 4: Default value based on professional judgment.

Table F-3. Tier I Analysis: Ethylbenzene Outdoor Air Concentration ($C_{a-outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 6] (ug/m²-s)	Area[Note 3] (m²)	Velocity[Note 5] (m/s)	Width[Note 5] (m)	Height[Note 4] (m)	$C_{a-outdoor}$ (ug/m³)	$C_{a-outdoor}$ (mg/m³)
MW-8	Two times the maximum (2,444 ug/L)	Adult (Average 0 - 25 years)	2.360E-01	92.4	4.69	9.6	2.00	2.42E-01	2.42E-04
		Adult (Maximum 0 - 25 years)	2.372E-01	92.4	4.69	9.6	2.00	2.43E-01	2.43E-04
MW-8	Maximum (1,222 ug/L; Dec. 28, 1995)	Adult (Average 0 - 25 years)	1.180E-01	92.4	4.69	9.6	2.00	1.21E-01	1.21E-04
		Adult (Maximum 0 - 25 years)	1.186E-01	92.4	4.69	9.6	2.00	1.22E-01	1.22E-04
MW-8	Current (450 ug/L; June 15, 2000)	Adult (Average 0 - 25 years)	4.345E-02	92.4	4.69	9.6	2.00	4.46E-02	4.46E-05
		Adult (Maximum 0 - 25 years)	4.368E-02	92.4	4.69	9.6	2.00	4.48E-02	4.48E-05

Table F-3. Tier I Analysis: Ethylbenzene Outdoor Air Concentration ($C_{s\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[see note 9] (ug/m^2-s)	Area[see note 8] (m^2)	Velocity[see note 5] (m/s)	Width[see note 5] (m)	Height[see note 6] (m)	$C_{s\text{-}outdoor}$ (ug/m^3)	$C_{s\text{-}outdoor}$ (mg/m^3)
MW-13	Two times the maximum (5,192 ug/L)	Child (Average 0 - 6 years)	3.731E-01	92.4	4.69	9.6	2.00	3.82E-01	3.82E-04
		Adult (Average 7 - 30 years)	3.818E-01	92.4	4.69	9.6	2.00	3.91E-01	3.91E-04
		Child (Maximum 0 - 6 years)	3.759E-01	92.4	4.69	9.6	2.00	3.85E-01	3.85E-04
		Adult (Maximum 0 - 30 years)	3.843E-01	92.4	4.69	9.6	2.00	3.94E-01	3.94E-04
MW-13	Maximum (2,596 ug/L; Feb. 20, 1997)	Child (Average 0 - 6 years)	1.866E-01	92.4	4.69	9.6	2.00	1.91E-01	1.91E-04
		Adult (Average 7 - 30 years)	1.909E-01	92.4	4.69	9.6	2.00	1.96E-01	1.96E-04
		Child (Maximum 0 - 6 years)	1.880E-01	92.4	4.69	9.6	2.00	1.93E-01	1.93E-04
		Adult (Maximum 0 - 30 years)	1.921E-01	92.4	4.69	9.6	2.00	1.97E-01	1.97E-04
MW-13	Current (940 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	6.755E-02	92.4	4.69	9.6	2.00	6.92E-02	6.92E-05
		Adult (Average 7 - 30 years)	6.912E-02	92.4	4.69	9.6	2.00	7.08E-02	7.08E-05
		Child (Maximum 0 - 6 years)	6.806E-02	92.4	4.69	9.6	2.00	6.98E-05	6.98E-05
		Adult (Maximum 0 - 30 years)	6.957E-02	92.4	4.69	9.6	2.00	7.13E-02	7.13E-05

Table F-3. Tier I Analysis: Ethylbenzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m²-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-24	Two times the maximum (4,000 ug/L)	Child (Average 0 - 6 years)	3.255E-01	92.4	4.69	9.6	2.00	3.34E-01	3.34E-04
		Adult (Average 7 - 30 years)	3.315E-01	92.4	4.69	9.6	2.00	3.40E-01	3.40E-04
		Child (Maximum 0 - 6 years)	3.275E-01	92.4	4.69	9.6	2.00	3.36E-01	3.36E-04
		Adult (Maximum 0 - 30 years)	3.332E-01	92.4	4.69	9.6	2.00	3.41E-01	3.41E-04
MW-24	Maximum (2,000 ug/L; Mar. 3, 1999)	Child (Average 0 - 6 years)	1.628E-01	92.4	4.69	9.6	2.00	1.67E-01	1.67E-04
		Adult (Average 7 - 30 years)	1.658E-01	92.4	4.69	9.6	2.00	1.70E-01	1.70E-04
		Child (Maximum 0 - 6 years)	1.637E-01	92.4	4.69	9.6	2.00	1.68E-01	1.68E-04
		Adult (Maximum 0 - 30 years)	1.666E-01	92.4	4.69	9.6	2.00	1.71E-01	1.71E-04
MW-24	Current (1,900 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	1.546E-01	92.4	4.69	9.6	2.00	1.58E-01	1.58E-04
		Adult (Average 7 - 30 years)	1.575E-01	92.4	4.69	9.6	2.00	1.61E-01	1.61E-04
		Child (Maximum 0 - 6 years)	1.555E-01	92.4	4.69	9.6	2.00	1.59E-01	1.59E-04
		Adult (Maximum 0 - 30 years)	1.583E-01	92.4	4.69	9.6	2.00	1.62E-01	1.62E-04

Table F-3. Tier I Analysis: Ethylbenzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[see note 1] (ug/m^2-s)	Area[see note 2] (m^2)	Velocity[see note 3] (m/s)	Width[see note 4] (m)	Height[see note 5] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-28	Two times the maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
MW-28	Maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
MW-28	Current ("ND"; June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Table F-3. Tier I Analysis: Ethylbenzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m²-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
AMW-12	Two times the maximum ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-12	Current ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: U.S. EPA. 1996. *Soil Screening Guidance: User's Guide*. Office of Emergency and Remedial Response, Washington, D.C. (Equation 5, page 23).

Note 4: Default value based on professional judgment.

Table F-4. Tier I Analysis: Xylene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 3] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-8	Two times the maximum (3,146 ug/L)	Adult (Average 0 - 25 years)	2.835E-01	92.4	4.69	9.6	2.00	2.91E-01	2.91E-04
		Adult (Maximum 0 - 25 years)	2.851E-01	92.4	4.69	9.6	2.00	2.92E-01	2.92E-04
MW-8	Maximum (1,573 ug/L; Dec. 28, 1995)	Adult (Average 0 - 25 years)	1.417E-01	92.4	4.69	9.6	2.00	1.45E-01	1.45E-04
		Adult (Maximum 0 - 25 years)	1.425E-01	92.4	4.69	9.6	2.00	1.46E-01	1.46E-04
MW-8	Current (200 ug/L; June 15, 2000)	Adult (Average 0 - 25 years)	1.802E-02	92.4	4.69	9.6	2.00	1.85E-02	1.85E-05
		Adult (Maximum 0 - 25 years)	1.812E-02	92.4	4.69	9.6	2.00	1.86E-02	1.86E-05

Table F-4. Tier I Analysis: Xylene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 3] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-13	Two times the maximum (8,576 ug/L)	Child (Average 0 - 6 years)	5.741E-01	92.4	4.69	9.6	2.00	5.88E-01	5.88E-04
		Adult (Average 7 - 30 years)	5.884E-01	92.4	4.69	9.6	2.00	6.03E-01	6.03E-04
		Child (Maximum 0 - 6 years)	5.787E-01	92.4	4.69	9.6	2.00	5.93E-01	5.93E-04
		Adult (Maximum 0 - 30 years)	5.925E-01	92.4	4.69	9.6	2.00	6.07E-01	6.07E-04
MW-13	Maximum (4,288 ug/L; Sep. 16, 1997)	Child (Average 0 - 6 years)	2.871E-01	92.4	4.69	9.6	2.00	2.94E-01	2.94E-04
		Adult (Average 7 - 30 years)	2.942E-01	92.4	4.69	9.6	2.00	3.02E-01	3.02E-04
		Child (Maximum 0 - 6 years)	2.894E-01	92.4	4.69	9.6	2.00	2.97E-01	2.97E-04
		Adult (Maximum 0 - 30 years)	2.962E-01	92.4	4.69	9.6	2.00	3.04E-01	3.04E-04
MW-13	Current (1,100 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	7.364E-02	92.4	4.69	9.6	2.00	7.55E-02	7.55E-05
		Adult (Average 7 - 30 years)	7.547E-02	92.4	4.69	9.6	2.00	7.74E-02	7.74E-05
		Child (Maximum 0 - 6 years)	7.423E-02	92.4	4.69	9.6	2.00	7.61E-02	7.61E-05
		Adult (Maximum 0 - 30 years)	7.600E-02	92.4	4.69	9.6	2.00	7.79E-02	7.79E-05

Table F-4. Tier I Analysis: Xylene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m²-s)	Area[Note 2] (m²)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m³)	$C_{a\text{-}outdoor}$ (mg/m³)
MW-24	Two times the maximum (1,340 ug/L)	Child (Average 0 - 6 years)	1.016E-01	92.4	4.69	9.6	2.00	1.04E-01	1.04E-04
		Adult (Average 7 - 30 years)	1.036E-01	92.4	4.69	9.6	2.00	1.06E-01	1.06E-04
		Child (Maximum 0 - 6 years)	1.023E-01	92.4	4.69	9.6	2.00	1.05E-01	1.05E-04
		Adult (Maximum 0 - 30 years)	1.042E-01	92.4	4.69	9.6	2.00	1.07E-01	1.07E-04
MW-24	Maximum (670 ug/L; Sep. 22, 1999)	Child (Average 0 - 6 years)	5.082E-02	92.4	4.69	9.6	2.00	5.21E-02	5.21E-05
		Adult (Average 7 - 30 years)	5.162E-02	92.4	4.69	9.6	2.00	5.31E-02	5.31E-05
		Child (Maximum 0 - 6 years)	5.114E-02	92.4	4.69	9.6	2.00	5.24E-02	5.24E-05
		Adult (Maximum 0 - 30 years)	5.210E-02	92.4	4.69	9.6	2.00	5.34E-02	5.34E-05
MW-24	Current (50 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	3.792E-03	92.4	4.69	9.6	2.00	3.89E-03	3.89E-06
		Adult (Average 7 - 30 years)	3.867E-03	92.4	4.69	9.6	2.00	3.96E-03	3.96E-06
		Child (Maximum 0 - 6 years)	3.817E-03	92.4	4.69	9.6	2.00	3.91E-03	3.91E-06
		Adult (Maximum 0 - 30 years)	3.888E-03	92.4	4.69	9.6	2.00	3.99E-03	3.99E-06

Table F-4. Tier I Analysis: Xylene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-28	Two times the maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
MW-28	Maximum ("ND"; Apr. 6, 1998 through June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
MW-28	Current ("ND"; June 23, 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Table F-4. Tier I Analysis: Xylene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
AMW-12	Two times the maximum ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-12	Current ("ND"; initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: U.S. EPA. 1996. *Soil Screening Guidance: User's Guide*. Office of Emergency and Remedial Response, Washington, D.C. (Equation 5, page 23).

Note 4: Default value based on professional judgment.

Table F-5. Tier I Analysis: MTBE Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[see f] (ug/m^2-s)	Area[see m] (m^2)	Velocity[see b] (m/s)	Width[see b] (m)	Height[see d] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-8	Two times the maximum (351,480 ug/L)	Adult (Average 0 - 25 years)	3.549E+00	92.4	4.69	9.6	2.00	3.64E+00	3.64E-03
		Adult (Maximum 0 - 25 years)	3.570E+00	92.4	4.69	9.6	2.00	3.66E+00	3.66E-03
MW-8	Maximum (175,740 ug/L; Mar. 25, 1997)	Adult (Average 0 - 25 years)	1.774E+00	92.4	4.69	9.6	2.00	1.82E+00	1.82E-03
		Adult (Maximum 0 - 25 years)	1.785E+00	92.4	4.69	9.6	2.00	1.83E+00	1.83E-03
MW-8	Current (77,000 ug/L; June 15, 2000)	Adult (Average 0 - 25 years)	7.775E-01	92.4	4.69	9.6	2.00	7.97E-01	7.97E-04
		Adult (Maximum 0 - 25 years)	7.822E-01	92.4	4.69	9.6	2.00	8.02E-01	8.02E-04

Table F-5. Tier I Analysis: MTBE Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] ($ug/m^2\text{-}s$)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-13	Two times the maximum (108,480 ug/L)	Child (Average 0 - 6 years)	8.218E-01	92.4	4.69	9.6	2.00	8.42E-01	8.42E-04
		Adult (Average 7 - 30 years)	8.345E-01	92.4	4.69	9.6	2.00	8.55E-01	8.55E-04
		Child (Maximum 0 - 6 years)	8.253E-01	92.4	4.69	9.6	2.00	8.46E-01	8.46E-04
		Adult (Maximum 0 - 30 years)	8.394E-01	92.4	4.69	9.6	2.00	8.60E-01	8.60E-04
MW-13	Maximum (54,240 ug/L; Mar. 25, 1997)	Child (Average 0 - 6 years)	4.109E-01	92.4	4.69	9.6	2.00	4.21E-01	4.21E-04
		Adult (Average 7 - 30 years)	4.173E-01	92.4	4.69	9.6	2.00	4.28E-01	4.28E-04
		Child (Maximum 0 - 6 years)	4.126E-01	92.4	4.69	9.6	2.00	4.23E-01	4.23E-04
		Adult (Maximum 0 - 30 years)	4.197E-01	92.4	4.69	9.6	2.00	4.30E-01	4.30E-04
MW-13	Current (41,000 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	3.106E-01	92.4	4.69	9.6	2.00	3.18E-01	3.18E-04
		Adult (Average 7 - 30 years)	3.154E-01	92.4	4.69	9.6	2.00	3.23E-01	3.23E-04
		Child (Maximum 0 - 6 years)	3.119E-01	92.4	4.69	9.6	2.00	3.20E-01	3.20E-04
		Adult (Maximum 0 - 30 years)	3.172E-01	92.4	4.69	9.6	2.00	3.25E-01	3.25E-04

Table F-5. Tier I Analysis: MTBE Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[see note 1] (ug/m^2-s)	Area[see note 2] (m^2)	Velocity[see note 3] (m/s)	Width[see note 3] (m)	Height[see note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-24	Two times the maximum (55,900 ug/L)	Child (Average 0 - 6 years)	4.769E-01	92.4	4.69	9.6	2.00	4.91E-01	4.91E-04
		Adult (Average 7 - 30 years)	4.848E-01	92.4	4.69	9.6	2.00	4.97E-01	4.97E-04
		Child (Maximum 0 - 6 years)	4.805E-01	92.4	4.69	9.6	2.00	4.92E-01	4.92E-04
		Adult (Maximum 0 - 30 years)	4.870E-01	92.4	4.69	9.6	2.00	4.99E-01	4.99E-04
MW-24	Maximum (27,950 ug/L; Sep. 15, 1998)	Child (Average 0 - 6 years)	2.395E-01	92.4	4.69	9.6	2.00	2.45E-01	2.45E-04
		Adult (Average 7 - 30 years)	2.424E-01	92.4	4.69	9.6	2.00	2.48E-01	2.48E-04
		Child (Maximum 0 - 6 years)	2.403E-01	92.4	4.69	9.6	2.00	2.46E-01	2.46E-04
		Adult (Maximum 0 - 30 years)	2.435E-01	92.4	4.69	9.6	2.00	2.50E-01	2.50E-04
MW-24	Current (24,000 ug/L; June 15, 2000)	Child (Average 0 - 6 years)	2.056E-01	92.4	4.69	9.6	2.00	2.11E-01	2.11E-04
		Adult (Average 7 - 30 years)	2.081E-01	92.4	4.69	9.6	2.00	2.13E-01	2.13E-04
		Child (Maximum 0 - 6 years)	2.063E-01	92.4	4.69	9.6	2.00	2.11E-01	2.11E-04
		Adult (Maximum 0 - 30 years)	2.091E-01	92.4	4.69	9.6	2.00	2.14E-01	2.14E-04

Table F-5. Tier I Analysis: MTBE Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m²-s)	Area[Note 2] (m²)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 3] (m)	$C_{a\text{-}outdoor}$ (ug/m³)	$C_{a\text{-}outdoor}$ (mg/m³)
MW-28	Two times the maximum (6,600 ug/L)	Child (Average 0 - 6 years)	6.046E-02	92.4	4.69	9.6	2.00	6.20E-02	6.20E-05
		Adult (Average 7 - 30 years)	6.110E-02	92.4	4.69	9.6	2.00	6.26E-02	6.26E-05
		Child (Maximum 0 - 6 years)	6.063E-02	92.4	4.69	9.6	2.00	6.21E-02	6.21E-05
		Adult (Maximum 0 - 30 years)	6.135E-02	92.4	4.69	9.6	2.00	6.29E-02	6.29E-05
MW-28	Maximum (3,300 ug/L; June 23, 2000)	Child (Average 0 - 6 years)	3.023E-02	92.4	4.69	9.6	2.00	3.10E-02	3.10E-05
		Adult (Average 7 - 30 years)	3.055E-02	92.4	4.69	9.6	2.00	3.13E-02	3.13E-05
		Child (Maximum 0 - 6 years)	3.032E-02	92.4	4.69	9.6	2.00	3.11E-02	3.11E-05
		Adult (Maximum 0 - 30 years)	3.067E-02	92.4	4.69	9.6	2.00	3.14E-02	3.14E-05
MW-28	Current (3,300 ug/L; June 23, 2000)	Child (Average 0 - 6 years)	3.023E-02	92.4	4.69	9.6	2.00	3.10E-02	3.10E-05
		Adult (Average 7 - 30 years)	3.055E-02	92.4	4.69	9.6	2.00	3.13E-02	3.13E-05
		Child (Maximum 0 - 6 years)	3.032E-02	92.4	4.69	9.6	2.00	3.11E-02	3.11E-05
		Adult (Maximum 0 - 30 years)	3.067E-02	92.4	4.69	9.6	2.00	3.14E-02	3.14E-05

Table F-5. Tier I Analysis: MTBE Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
AMW-12	Two times the maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-12	Maximum ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
AMW-12	Current ("ND"; Initial sampling event, June 2000)	Child (Average 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Average 7 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Child (Maximum 0 - 6 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00
		Adult (Maximum 0 - 30 years)	0.000E+00	92.4	4.69	9.6	2.00	0.00E+00	0.00E+00

Notes

Note 1: Flux based on *VLEACH* results.

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: U.S. EPA. 1996. *Soil Screening Guidance: User's Guide*. Office of Emergency and Remedial Response, Washington, D.C. (Equation 5, page 23).

Note 4: Default value based on professional judgment.

Table G-1. Tier II Analysis: Benzene Indoor Air Concentration ($C_{a\text{-}indoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Crack fraction[Note 3] (m^2/m^2)	Building volume[Note 2] (m^3)	Air exchanges[Note 4] (1/s)	$C_{a\text{-}indoor}$ (ug/m^3)	$C_{a\text{-}indoor}$ (mg/m^3)
MW-6	26,116 ug/L (1981-1995); 13,058 ug/L (1996-1997); 380 ug/L (1998-2005)	Adult/Worker (Average 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	7.25E-01	7.25E-04
		Adult/Worker (Maximum 0 - 25 years)		92.4	4.16E-04	451	1.25E-04	1.35E+00	1.35E-03

Notes

Note 1: Flux based on *VLEACH* results. Value for 'Adult/Worker' calculated as the arithmetic average of the flux over the first 25 years of the simulation (i.e., years 0 through 25).

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: Calculated using crack width of 0.1 cm based on Eaton and Scott. 1984. *Understanding radon transport into houses*. Radiation Protection Dosimetry, 7:251-253.

Note 4: Consistent with findings of Koontz, M.D. and H.E. Rector. 1995. *Estimation of Distributions for Residential Air Exchange Rates*. EPA Contract No. 68-D0-0166, Work Assignment No. 3-19, U.S. EPA, Office of Pollution Prevention and Toxics, Washington, D.C.
and Parker, G.B., McSorley, M., and J. Harris. 1990. *The northwest residential infiltration survey: a field study of ventilation in new houses in the Pacific northwest*. In: Air Change Rate and Air Tightness in Buildings, ASTM STP 1067, pp:93-103. American Society for Testing and Materials, Philadelphia, Pennsylvania.

Table H-1. Tier II Analysis: Benzene Outdoor Air Concentration ($C_{a\text{-}outdoor}$)

Location	Ground-water Concentration	Receptor	Flux[Note 1] (ug/m^2-s)	Area[Note 2] (m^2)	Velocity[Note 3] (m/s)	Width[Note 3] (m)	Height[Note 4] (m)	$C_{a\text{-}outdoor}$ (ug/m^3)	$C_{a\text{-}outdoor}$ (mg/m^3)
MW-8	26,116 ug/L (1981-1995); 13,058 ug/L (1996-1997); 380 ug/L (1998-2005)	Adult/Worker (Average 0 - 25 years)		92.4	4.69	9.8	2.00	1.09E+00	1.09E-03
		Adult/Worker (Maximum 0 - 25 years)		92.4	4.69	9.8	2.00	2.03E+00	2.03E-03

Notes

Note 1: Flux based on *VLEACH* results. Value for 'Adult/Worker' calculated as the arithmetic average of the flux over the first 25 years of the simulation (i.e., years 0 through 25).

Note 2: U.S. DOE. 1995. *Housing Characteristics*. Report No. DOE/EIA-0314(93). Energy Information Administration, Washington, D.C.

Note 3: U.S. EPA. 1996. *Soil Screening Guidance: User's Guide*. Office of Emergency and Remedial Response, Washington, D.C. (Equation 5, page 23).

Note 4: Default value based on professional judgment.