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MCB CAMP LEJEUNE
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Environmental
Science &
Engineering, Inc.
A CILCORP Company

March 6, 1992
ESE # 490-2036

Mr. Byron Brandt
Commander, Code 1822, Bldg IAA
Atlantic Division
Naval Facilities Engineering Command
Norfolk, VA 23511-6287

RE: **Marine Corps Base Camp LeJeune Hadnot Point Revised Risks**

Dear Mr. Brandt:

Transmitted with this letter are copies of the revised risk calculations for the soils in the Hadnot Point Industrial Area. Most of these have already been faxed to Laurie.

If you have any questions or require any additional information, please feel free to contact me.

Sincerely,

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

Michael J. Geden, P.G.
Project Manager

cc: Laurie Boucher, LANTDIV

Attachments

404\A:MJG\eh

6280 Hazeltine National Drive Orlando, FL 32822-5114 Phone (407) 240-1288 Fax (407) 240-1788

Environmental
Science &
Engineering, Inc.
A CILCORP Company

MEMO

March 4, 1992

To: Mike Geden
ESE-Orlando

From: Henry Bell HB
ESE-Denver

Subject: HPIA Risk Assessment Comments (Project 4902036)

As I mentioned in our phone conversation today, Dr. Jim Baker, ESE-Gainesville, revisited in total with the data used in the HPIA risk assessment since he has access to the original data. In summary, Jim has recalculated all the data, and where appropriate, has used the information provided by EPA, Region IV (February 10, 1992 memo). Jim has further included some thoughts on aspects of the risk assessment I could not address since I did not have the information here in Denver.

The results of the data recalculations do not change the basic conclusions expressed in the risk assessment report. Rather, they are a refinement of the data that is always possible when reviewed a second time.

Enclosed are copies of the revised data as provided by Dr. Baker.

2 Inverness Drive East, Suite 201 Englewood, CO 80112 Phone (303) 790-0770 Fax (303) 790-4411

DRAFT

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ENVIRONMENTAL SCIENCE & ENGINEERING INC.
MEMORANDUM
GAINESVILLE, FL - S.E. REGION

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To: Henry Bell

From: James Baker
Date: March 3, 1992
Subject: PAH Risks

The revisions you requested for the PAH related risk calculations have been completed. To minimize the editing time, necessary proofing of changes or deletions and to keep the cost to a minimum EAT has provided the complete list of analytes in both soil and ground water. The necessary PAH data has been extracted and presented in Tables 1 and 2. The recommendations of the February 10, 1992 memorandum from USEPA-Region IV have been substituted for the previous risk evaluation numbers derived from IRIS (1991) and HEAST (1991). The exposure intake assumptions were revised and the following exposure intake tables produced:

a. Carcinogenic intakes
   1. Adult worker (Dermal, Oral Ingestion and Inhalation).
   2. Lifetime resident (Dermal, Oral Ingestion and Inhalation).
b. Non-carcinogenic intakes
   1. Adult worker (Dermal, Oral Ingestion of soil and groundwater, and Inhalation-groundwater).
   2. Adult resident (Dermal, Oral Ingestion of soil and groundwater, and Inhalation-groundwater).
   3. Child resident (Dermal, Oral Ingestion of soil and groundwater, and Inhalation-groundwater).

A hazard index was calculated for exposure scenario and for each chemical, carcinogen and non-carcinogen. The hazard index for the carcinogens were assumed to be equivalent to the most toxic non-naphthalene PAH or pyrene.

As a result of the chemical specific changes, the revised absorption, and skin adherence factors, there were moderate reductions in calculated carcinogenic and non-carcinogenic risks. The tabular exposure pathway intake concentrations, carcinogenic risks, and non-carcinogenic risks were provided to you earlier. As an additional aid for your review I have added the PAH risks from the previous version of risk information (ESE, 1991) with that of the revised risks in Tables 1 & 2.

**Table 1.** Summary results of the total carcinogenic risk related to PAH contamination of study areas 900 and 1200.

| EXPOSURE SCENARIO | TOTAL RISK | | | |
|---|---|---|---|---|
| | Previous 0900 | Revised 0900 | Previous 1200 | Revised 1200 |
| Adult worker | | $6.4 \times 10^{-7}$ | | $2.6 \times 10^{-7}$ |
| Lifetime Resident | $2.6 \times 10^{-5}$ | $5.5 \times 10^{-6}$ | $1.7 \times 10^{-5}$ | $2.4 \times 10^{-6}$ |

**Table 2.** Summary results of Hazard Indices related to PAH contamination in study areas 900 and 1200.

| Exposure Scenario | Total Hazard Indices related to Liver Toxicity attributable to PAHs. | | | |
|---|---|---|---|---|
| | Previous 0900 | Revised 0900 | Previous 1200 | Revised 1200 |
| Adult Worker | $4.7 \times 10^{-4}$ | $6.6 \times 10^{-5}$ | $2.8 \times 10^{-4}$ | $3.9 \times 10^{-5}$ |
| Lifetime Resident | | $2.2 \times 10^{-4}$ | | $1.3 \times 10^{-4}$ |
| Child Resident | | $1.5 \times 10^{-3}$ | | $8.9 \times 10^{-4}$ |

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UNCERTAINTY

The most significant site specific contributors to uncertainty associated with the calculated risks are the small number of sampling location for semi-volatile organic chemical analyses and the minimum number of samples which have analytical results at greater than the detection limits for each analyte. Initially, ninety six soil borings were planne in the soils investigation for the Hadnot Point Industrial Area. Of those only seven sample were processed for the determination of semi-volatile organic compounds, including the PAHs. Of those only one sample soil boring 6 (SB-6) resulted in the unqualified detection of phenanthrene, fluoranthene, and pyrene at concentrations above the detection limits. Each PAHs identified are classified as non-carcinogens. The resulting exposure intake values for the remaining non-carcinogens and each carcinogen are based upon the use of an estimated soil concentration equivalent to one half of the detection limits. The method detection limits is the primary factor used to project site risks.

The data quality objectives section and a discussion of a conceptual site model do not appear in the RI investigation reports. The number and location of sampling points for all analytes, the number of sampling points selected for semi-volatile organic chemical analyses, and the selection process for sample depth selection do not appear to be in support of a specifically defined statistical procedure as recommended in either Guidance for Data Useability in Risk Assessment (EPA, 1989), Methods for Evaluating the Attainment of Cleanup Standards, (EPA, 1990) or an appropriate statistical reference such as Gilbert (1987).

Additionally, metals analyses (inorganic chemicals) were determined in the same 9 samples as the semi-volatile organic compounds. Many additional samples for metals were analyses using the TCLP extraction procedures. The purpose of the TCLP extraction method is to define the occurrence of a hazardous waste. This procedure is not useful for most RI/FS activities and risk assessment purposes. The sample selection methods and the selection a sub-set of samples to represent soil contamination contribute little to the site assessment process. Specifically, the sample collection procedures have introduced additional uncertainty into the risk assessment procedures. The most specific site question that has not been addressed which appears to be related to a potential surface source is the explaination of high values of lead and naphthalene in groundwater. Exposure to lead and naphthalene as a result of the consumption of groundwater accounts for the greatest risks at Zone 900 and 1200. Additional comments will follow.

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## REFERENCES

US EPA, Methods for Evaluating the Attainment of Cleanup Standards, Vol. 1: Soils and Solid Media, EPA 230/02-89-042, Feb. 1989.

US EPA, Guidance for Data Useability in Risk Assessment, Interim Final, Office of Emergency and Remedial Response Directive 9285.7-05, EPA/540/G-90/008, October, 1990.

Gilbert, R.O., Statistical Methods for Environmental Pollution Monitoring, Van Nostrand Reinhold Company, New York, 1987.

Zone 0900; Current; Adult Worker

| ANALYTE (WOEs: Dermal Oral Inhalation) | | PATHWAY | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|
| | | Dermal | | Oral | | | |
| | | MEDIUM | | MEDIUM | | | |
| | | Soil | TOTAL | Ground-water | Soil | TOTAL | |
| Benz(a)anthracene | (B2 B2 B2 ) | 8.5E-09 | 8.5E-09 | | 2.8E-08 | 2.8E-08 | 3.7E-08 |
| Benzene | (A A A ) | | | 2.0E-07 | | 2.0E-07 | 2.0E-07 |
| Benzo(a)pyrene | (B2 B2 B2 ) | 7.3E-08 | 7.3E-08 | | 2.4E-07 | 2.4E-07 | 3.2E-07 |
| Benzo(b)fluoranthene | (B2 B2 B2 ) | 7.6E-09 | 7.6E-09 | | 2.5E-08 | 2.5E-08 | 3.3E-08 |
| Benzo(k)fluoranthene | (B2 B2 B2 ) | 6.4E-09 | 6.4E-09 | | 2.1E-08 | 2.1E-08 | 2.8E-08 |
| Chrysene | (B2 B2 B2 ) | 7.9E-10 | 7.9E-10 | | 2.6E-09 | 2.6E-09 | 3.4E-09 |
| Indeno(1,2,3-cd)pyrene | (B2 B2 B2 ) | 4.0E-09 | 4.0E-09 | | 1.3E-08 | 1.3E-08 | 1.7E-08 |
| TOTAL | | 1.0E-07 | 1.0E-07 | 2.0E-07 | 3.3E-07 | 5.4E-07 | 6.4E-07 |

Zone 0900; Future; Lifetime Residential

| ANALYTE (WOEs: Dermal Oral Inhalation) | | PATHWAY | | | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| | | Dermal | | Inhalation | | Oral | | | |
| | | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | | Soil | TOTAL | Ground-water | TOTAL | Ground-water | Soil | TOTAL | |
| Benz(a)anthracene | (B2 B2 B2 ) | 5.1E-08 | 5.1E-08 | | | | 2.9E-07 | 2.9E-07 | 3.4E-07 |
| Benzene | (A A A ) | | | 6.8E-07 | 6.8E-07 | 6.8E-07 | | 6.8E-07 | 1.4E-06 |
| Benzo(a)pyrene | (B2 B2 B2 ) | 4.3E-07 | 4.3E-07 | | | | 2.5E-06 | 2.5E-06 | 2.9E-06 |
| Benzo(b)fluoranthene | (B2 B2 B2 ) | 4.5E-08 | 4.5E-08 | | | | 2.6E-07 | 2.6E-07 | 3.0E-07 |
| Benzo(k)fluoranthene | (B2 B2 B2 ) | 3.8E-08 | 3.8E-08 | | | | 2.2E-07 | 2.2E-07 | 2.5E-07 |
| Chrysene | (B2 B2 B2 ) | 4.7E-09 | 4.7E-09 | | | | 2.7E-08 | 2.7E-08 | 3.2E-08 |
| Indeno(1,2,3-cd)pyrene | (B2 B2 B2 ) | 2.4E-08 | 2.4E-08 | | | | 1.3E-07 | 1.3E-07 | 1.6E-07 |
| TOTAL | | 6.0E-07 | 6.0E-07 | 6.8E-07 | 6.8E-07 | 6.8E-07 | 3.4E-06 | 4.1E-06 | 5.4E-06 |

Zone 1200; Current; Adult Worker

| ANALYTE (WOEs: Dermal Oral Inhalation) | | PATHWAY | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|
| | | Dermal | | Oral | | |
| | | MEDIUM Soil | TOTAL | MEDIUM Soil | TOTAL | |
| Benz(a)anthracene | (B2 B2 B2 ) | 4.3E-09 | 4.3E-09 | 1.4E-08 | 1.4E-08 | 1.8E-08 |
| Benzo(a)pyrene | (B2 B2 B2 ) | 4.3E-08 | 4.3E-08 | 1.4E-07 | 1.4E-07 | 1.8E-07 |
| Benzo(b)fluoranthene | (B2 B2 B2 ) | 4.3E-09 | 4.3E-09 | 1.4E-08 | 1.4E-08 | 1.8E-08 |
| Benzo(k)fluoranthene | (B2 B2 B2 ) | 4.6E-09 | 4.6E-09 | 1.5E-08 | 1.5E-08 | 2.0E-08 |
| Chrysene | (B2 B2 B2 ) | 8.2E-10 | 8.2E-10 | 2.7E-09 | 2.7E-09 | 3.6E-09 |
| Indeno(1,2,3-cd)pyrene | (B2 B2 B2 ) | 2.5E-09 | 2.5E-09 | 8.3E-09 | 8.3E-09 | 1.1E-08 |
| TOTAL | | 5.9E-08 | 5.9E-08 | 2.0E-07 | 2.0E-07 | 2.6E-07 |

Zone 1200; Future; Lifetime Residential

| ANALYTE (WOEs: Dermal Oral Inhalation) | | PATHWAY | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|
| | | Dermal | | Oral | | |
| | | MEDIUM Soil | TOTAL | MEDIUM Soil | TOTAL | |
| Benz(a)anthracene | (B2 B2 B2 ) | 2.5E-08 | 2.5E-08 | 1.4E-07 | 1.4E-07 | 1.7E-07 |
| Benzo(a)pyrene | (B2 B2 B2 ) | 2.5E-07 | 2.5E-07 | 1.4E-06 | 1.4E-06 | 1.7E-06 |
| Benzo(b)fluoranthene | (B2 B2 B2 ) | 2.5E-08 | 2.5E-08 | 1.4E-07 | 1.4E-07 | 1.7E-07 |
| Benzo(k)fluoranthene | (B2 B2 B2 ) | 2.7E-08 | 2.7E-08 | 1.5E-07 | 1.5E-07 | 1.8E-07 |
| Chrysene | (B2 B2 B2 ) | 4.9E-09 | 4.9E-09 | 2.8E-08 | 2.8E-08 | 3.3E-08 |
| Indeno(1,2,3-cd)pyrene | (B2 B2 B2 ) | 1.5E-08 | 1.5E-08 | 8.5E-08 | 8.5E-08 | 1.0E-07 |
| TOTAL | | 3.5E-07 | 3.5E-07 | 2.0E-06 | 2.0E-06 | 2.4E-06 |

Zone 1200; Current; Adult Worker

| ANALYTE (WOEs: Dermal Oral Inhalation) | | PATHWAY | | | | Grand Total |
|---|---|---|---|---|---|---|
| | | Dermal | | Oral | | |
| | | MEDIUM Soil | Total | MEDIUM Soil | Total | |
| Benz(a)anthracene | (B2 B2 B2 ) | 7.4E-09 | 7.4E-09 | 2.4E-08 | 2.4E-08 | 3.2E-08 |
| Benzo(a)pyrene | (B2 B2 B2 ) | 7.4E-09 | 7.4E-09 | 2.4E-08 | 2.4E-08 | 3.2E-08 |
| Benzo(b)fluoranthene | (B2 B2 B2 ) | 7.4E-09 | 7.4E-09 | 2.4E-08 | 2.4E-08 | 3.2E-08 |
| Benzo(k)fluoranthene | (B2 B2 B2 ) | 7.9E-09 | 7.9E-09 | 2.6E-08 | 2.6E-08 | 3.4E-08 |
| Chrysene | (B2 B2 B2 ) | 1.4E-08 | 1.4E-08 | 4.7E-08 | 4.7E-08 | 6.1E-08 |
| Indeno(1,2,3-cd)pyrene | (B2 B2 B2 ) | 4.3E-09 | 4.3E-09 | 1.4E-08 | 1.4E-08 | 1.9E-08 |

Zone 1200; Future; Lifetime Residential

| ANALYTE (WOEs: Dermal Oral Inhalation) | | PATHWAY | | | | Grand Total |
|---|---|---|---|---|---|---|
| | | Dermal | | Oral | | |
| | | MEDIUM Soil | Total | MEDIUM Soil | Total | |
| Benz(a)anthracene | (B2 B2 B2 ) | 4.4E-08 | 4.4E-08 | 2.5E-07 | 2.5E-07 | 2.9E-07 |
| Benzo(a)pyrene | (B2 B2 B2 ) | 4.4E-08 | 4.4E-08 | 2.5E-07 | 2.5E-07 | 2.9E-07 |
| Benzo(b)fluoranthene | (B2 B2 B2 ) | 4.4E-08 | 4.4E-08 | 2.5E-07 | 2.5E-07 | 2.9E-07 |
| Benzo(k)fluoranthene | (B2 B2 B2 ) | 4.7E-08 | 4.7E-08 | 2.7E-07 | 2.7E-07 | 3.1E-07 |
| Chrysene | (B2 B2 B2 ) | 8.4E-08 | 8.4E-08 | 4.8E-07 | 4.8E-07 | 5.7E-07 |
| Indeno(1,2,3-cd)pyrene | (B2 B2 B2 ) | 2.6E-08 | 2.6E-08 | 1.5E-07 | 1.5E-07 | 1.7E-07 |

Zone 0900; Current; Adult Worker

| ANALYTE (WOEs: Dermal Oral Inhalation) | | PATHWAY | | | | | Grand Total |
|---|---|---|---|---|---|---|---|
| | | Dermal | | Oral | | | |
| | | MEDIUM | | MEDIUM | | | |
| | | Soil | Total | Ground-water | Soil | Total | |
| Benz(a)anthracene | (B2 B2 B2 ) | 1.5E-08 | 1.5E-08 | | 4.9E-08 | 4.9E-08 | 6.4E-08 |
| Benzene | (A A A ) | | | 7.0E-06 | | 7.0E-06 | 7.0E-06 |
| Benzo(a)pyrene | (B2 B2 B2 ) | 1.3E-08 | 1.3E-08 | | 4.2E-08 | 4.2E-08 | 5.5E-08 |
| Benzo(b)fluoranthene | (B2 B2 B2 ) | 1.3E-08 | 1.3E-08 | | 4.4E-08 | 4.4E-08 | 5.7E-08 |
| Benzo(k)fluoranthene | (B2 B2 B2 ) | 1.1E-08 | 1.1E-08 | | 3.7E-08 | 3.7E-08 | 4.8E-08 |
| Chrysene | (B2 B2 B2 ) | 1.4E-08 | 1.4E-08 | | 4.5E-08 | 4.5E-08 | 5.9E-08 |
| Indeno(1,2,3-cd)pyrene | (B2 B2 B2 ) | 6.8E-09 | 6.8E-09 | | 2.3E-08 | 2.3E-08 | 3.0E-08 |

Zone 0900; Future; Lifetime Residential

| ANALYTE (WOEs: Dermal Oral Inhalation) | | PATHWAY | | | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Dermal | | Inhalation | | Oral | | | |
| | | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | | Soil | Total | Ground-water | Total | Ground-water | Soil | Total | |
| Benz(a)anthracene | (B2 B2 B2 ) | 8.7E-08 | 8.7E-08 | | | | 5.0E-07 | 5.0E-07 | 5.9E-07 |
| Benzene | (A A A ) | | | 2.3E-05 | 2.3E-05 | 2.3E-05 | | 2.3E-05 | 4.7E-05 |
| Benzo(a)pyrene | (B2 B2 B2 ) | 7.5E-08 | 7.5E-08 | | | | 4.3E-07 | 4.3E-07 | 5.0E-07 |
| Benzo(b)fluoranthene | (B2 B2 B2 ) | 7.8E-08 | 7.8E-08 | | | | 4.5E-07 | 4.5E-07 | 5.2E-07 |
| Benzo(k)fluoranthene | (B2 B2 B2 ) | 6.6E-08 | 6.6E-08 | | | | 3.7E-07 | 3.7E-07 | 4.4E-07 |
| Chrysene | (B2 B2 B2 ) | 8.1E-08 | 8.1E-08 | | | | 4.6E-07 | 4.6E-07 | 5.4E-07 |
| Indeno(1,2,3-cd)pyrene | (B2 B2 B2 ) | 4.1E-08 | 4.1E-08 | | | | 2.3E-07 | 2.3E-07 | 2.7E-07 |

Zone 0900; Current; Adult Worker

| ANALYTE | PATHWAY | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|
| | Dermal | | Oral | | | |
| | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | Soil | TOTAL | |
| Acenaphthene | 1.0E-07 | 1.0E-07 | 1.6E-04 | 3.4E-07 | 1.6E-04 | 1.6E-04 |
| Anthracene | 8.8E-08 | 8.8E-08 | | 2.9E-07 | 2.9E-07 | 3.8E-07 |
| Benz(a)anthracene | 1.4E-06 | 1.4E-06 | | 4.6E-06 | 4.6E-06 | 5.9E-06 |
| Benzene | | | | | | |
| Benzo(a)pyrene | 1.2E-06 | 1.2E-06 | | 3.9E-06 | 3.9E-06 | 5.1E-06 |
| Benzo(b)fluoranthene | 1.2E-06 | 1.2E-06 | | 4.1E-06 | 4.1E-06 | 5.3E-06 |
| Benzo(ghi)perylene | 5.4E-07 | 5.4E-07 | | 1.8E-06 | 1.8E-06 | 2.3E-06 |
| Benzo(k)fluoranthene | 1.0E-06 | 1.0E-06 | | 3.4E-06 | 3.4E-06 | 4.5E-06 |
| Chrysene | 1.3E-06 | 1.3E-06 | | 4.2E-06 | 4.2E-06 | 5.5E-06 |
| Dichloroethenes, 1,2-, total | | | 1.2E-02 | | 1.2E-02 | 1.2E-02 |
| Fluoranthene | 2.5E-06 | 2.5E-06 | | 8.4E-06 | 8.4E-06 | 1.1E-05 |
| Fluorene | 1.8E-07 | 1.8E-07 | | 5.9E-07 | 5.9E-07 | 7.6E-07 |
| Indeno(1,2,3-cd)pyrene | 6.4E-07 | 6.4E-07 | | 2.1E-06 | 2.1E-06 | 2.8E-06 |
| Lead | 1.7E-03 | 1.7E-03 | 2.6E-01 | 5.6E-03 | 2.7E-01 | 2.7E-01 |
| Methylnaphthalene, 2- | | | 2.9E-03 | | 2.9E-03 | 2.9E-03 |
| Naphthalene | | | 6.6E-01 | | 6.6E-01 | 6.6E-01 |
| Phenanthrene | 2.5E-06 | 2.5E-06 | | 8.2E-06 | 8.2E-06 | 1.1E-05 |
| Pyrene | 2.6E-06 | 2.6E-06 | | 8.6E-06 | 8.6E-06 | 1.1E-05 |
| TOTAL | 1.7E-03 | 1.7E-03 | 9.4E-01 | 5.6E-03 | 9.5E-01 | 9.5E-01 |

Zone 0900; Future; Adult Residential

| ANALYTE | PATHWAY | | | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | TOTAL | Ground-water | Soil | TOTAL | |
| Acenaphthene | 5.1E-07 | 5.1E-07 | | | 4.6E-04 | 9.6E-07 | 4.6E-04 | 4.6E-04 |
| Anthracene | 4.4E-07 | 4.4E-07 | | | | 8.2E-07 | 8.2E-07 | 1.3E-06 |
| Benz(a)anthracene | 6.8E-06 | 6.8E-06 | | | | 1.3E-05 | 1.3E-05 | 2.0E-05 |
| Benzene | | | | | | | | |
| Benzo(a)pyrene | 5.8E-06 | 5.8E-06 | | | | 1.1E-05 | 1.1E-05 | 1.7E-05 |
| Benzo(b)fluoranthene | 6.1E-06 | 6.1E-06 | | | | 1.1E-05 | 1.1E-05 | 1.7E-05 |
| Benzo(ghi)perylene | 2.7E-06 | 2.7E-06 | | | | 5.0E-06 | 5.0E-06 | 7.7E-06 |
| Benzo(k)fluoranthene | 5.1E-06 | 5.1E-06 | | | | 9.6E-06 | 9.6E-06 | 1.5E-05 |
| Chrysene | 6.3E-06 | 6.3E-06 | | | | 1.2E-05 | 1.2E-05 | 1.8E-05 |
| Dichloroethenes, 1,2-, total | | | | | 3.3E-02 | | 3.3E-02 | 3.3E-02 |
| Fluoranthene | 1.3E-05 | 1.3E-05 | | | | 2.4E-05 | 2.4E-05 | 3.6E-05 |
| Fluorene | 8.7E-07 | 8.7E-07 | | | | 1.6E-06 | 1.6E-06 | 2.5E-06 |
| Indeno(1,2,3-cd)pyrene | 3.2E-06 | 3.2E-06 | | | | 5.9E-06 | 5.9E-06 | 9.1E-06 |
| Lead | 8.3E-03 | 8.3E-03 | | | 7.4E-01 | 1.6E-02 | 7.6E-01 | 7.6E-01 |
| Methylnaphthalene, 2- | | | | | 8.2E-03 | | 8.2E-03 | 8.2E-03 |
| Naphthalene | | | | | 1.8E+00 | | 1.8E+00 | 1.8E+00 |
| Phenanthrene | 1.2E-05 | 1.2E-05 | | | | 2.3E-05 | 2.3E-05 | 3.5E-05 |
| Pyrene | 1.3E-05 | 1.3E-05 | | | | 2.4E-05 | 2.4E-05 | 3.7E-05 |
| TOTAL | 8.4E-03 | 8.4E-03 | | | 2.6E+00 | 1.6E-02 | 2.6E+00 | 2.7E+00 |

Zone 0900; Future; Child Residential

| ANALYTE | PATHWAY | | | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | TOTAL | Ground-water | Soil | TOTAL | |
| Acenaphthene | 1.1E-06 | 1.1E-06 | | | 8.3E-04 | 8.9E-06 | 8.4E-04 | 8.4E-04 |
| Anthracene | 9.5E-07 | 9.5E-07 | | | | 7.7E-06 | 7.7E-06 | 8.6E-06 |
| Benz(a)anthracene | 1.5E-05 | 1.5E-05 | | | | 1.2E-04 | 1.2E-04 | 1.3E-04 |
| Benzene | | | | | | | | |
| Benzo(a)pyrene | 1.3E-05 | 1.3E-05 | | | | 1.0E-04 | 1.0E-04 | 1.1E-04 |
| Benzo(b)fluoranthene | 1.3E-05 | 1.3E-05 | | | | 1.1E-04 | 1.1E-04 | 1.2E-04 |
| Benzo(ghi)perylene | 5.8E-06 | 5.8E-06 | | | | 4.7E-05 | 4.7E-05 | 5.3E-05 |
| Benzo(k)fluoranthene | 1.1E-05 | 1.1E-05 | | | | 8.9E-05 | 8.9E-05 | 1.0E-04 |
| Chrysene | 1.4E-05 | 1.4E-05 | | | | 1.1E-04 | 1.1E-04 | 1.2E-04 |
| Dichloroethenes, 1,2-, total | | | | | 6.0E-02 | | 6.0E-02 | 6.0E-02 |
| Fluoranthene | 2.7E-05 | 2.7E-05 | | | | 2.2E-04 | 2.2E-04 | 2.5E-04 |
| Fluorene | 1.9E-06 | 1.9E-06 | | | | 1.5E-05 | 1.5E-05 | 1.7E-05 |
| Indeno(1,2,3-cd)pyrene | 6.9E-06 | 6.9E-06 | | | | 5.5E-05 | 5.5E-05 | 6.2E-05 |
| Lead | 1.8E-02 | 1.8E-02 | | | 1.3E+00 | 1.5E-01 | 1.5E+00 | 1.5E+00 |
| Methylnaphthalene, 2- | | | | | 1.5E-02 | | 1.5E-02 | 1.5E-02 |
| Naphthalene | | | | | 3.4E+00 | | 3.4E+00 | 3.4E+00 |
| Phenanthrene | 2.6E-05 | 2.6E-05 | | | | 2.1E-04 | 2.1E-04 | 2.4E-04 |
| Pyrene | 2.8E-05 | 2.8E-05 | | | | 2.3E-04 | 2.3E-04 | 2.5E-04 |
| TOTAL | 1.8E-02 | 1.8E-02 | | | 4.8E+00 | 1.5E-01 | 4.9E+00 | 5.0E+00 |

Zone 1200; Current; Adult Worker

| ANALYTE | PATHWAY | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|
| | Dermal | | Oral | | | |
| | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | Soil | TOTAL | |
| Acenaphthene | 1.8E-07 | 1.8E-07 | 8.2E-04 | 5.9E-07 | 8.2E-04 | 8.2E-04 |
| Anthracene | 7.4E-09 | 7.4E-09 | | 2.4E-08 | 2.4E-08 | 3.2E-08 |
| Benz(a)anthracene | 6.9E-07 | 6.9E-07 | | 2.3E-06 | 2.3E-06 | 3.0E-06 |
| Benzo(a)pyrene | 6.9E-07 | 6.9E-07 | | 2.3E-06 | 2.3E-06 | 3.0E-06 |
| Benzo(b)fluoranthene | 6.9E-07 | 6.9E-07 | | 2.3E-06 | 2.3E-06 | 3.0E-06 |
| Benzo(ghi)perylene | 3.5E-07 | 3.5E-07 | | 1.2E-06 | 1.2E-06 | 1.5E-06 |
| Benzo(k)fluoranthene | 7.4E-07 | 7.4E-07 | | 2.4E-06 | 2.4E-06 | 3.2E-06 |
| Chrysene | 1.3E-06 | 1.3E-06 | | 4.4E-06 | 4.4E-06 | 5.7E-06 |
| Dichloroethenes, 1,2-, total | | | 9.8E-04 | | 9.8E-04 | 9.8E-04 |
| Fluoranthene | 1.4E-06 | 1.4E-06 | | 4.5E-06 | 4.5E-06 | 5.9E-06 |
| Fluorene | 2.3E-07 | 2.3E-07 | | 7.7E-07 | 7.7E-07 | 1.0E-06 |
| Indeno(1,2,3-cd)pyrene | 4.0E-07 | 4.0E-07 | | 1.3E-06 | 1.3E-06 | 1.7E-06 |
| Lead | 2.5E-03 | 2.5E-03 | 1.7E-01 | 8.3E-03 | 1.8E-01 | 1.8E-01 |
| Methylnaphthalene, 2- | | | 6.5E-04 | | 6.5E-04 | 6.5E-04 |
| Naphthalene | | | 1.4E-01 | | 1.4E-01 | 1.4E-01 |
| Phenanthrene | 1.0E-06 | 1.0E-06 | | 3.4E-06 | 3.4E-06 | 4.5E-06 |
| Pyrene | 1.4E-06 | 1.4E-06 | | 4.7E-06 | 4.7E-06 | 6.2E-06 |
| TOTAL | 2.5E-03 | 2.5E-03 | 3.1E-01 | 8.3E-03 | 3.2E-01 | 3.2E-01 |

Zone 1200; Future; Adult Residential

| ANALYTE | PATHWAY | | | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | TOTAL | Ground-water | Soil | TOTAL | |
| Acenaphthene | 8.7E-07 | 8.7E-07 | | | 2.3E-03 | 1.6E-06 | 2.3E-03 | 2.3E-03 |
| Anthracene | 3.6E-08 | 3.6E-08 | | | | 6.8E-08 | 6.8E-08 | 1.0E-07 |
| Benz(a)anthracene | 3.4E-06 | 3.4E-06 | | | | 6.4E-06 | 6.4E-06 | 9.8E-06 |
| Benzo(a)pyrene | 3.4E-06 | 3.4E-06 | | | | 6.4E-06 | 6.4E-06 | 9.8E-06 |
| Benzo(b)fluoranthene | 3.4E-06 | 3.4E-06 | | | | 6.4E-06 | 6.4E-06 | 9.8E-06 |
| Benzo(ghi)perylene | 1.7E-06 | 1.7E-06 | | | | 3.3E-06 | 3.3E-06 | 5.0E-06 |
| Benzo(k)fluoranthene | 3.6E-06 | 3.6E-06 | | | | 6.8E-06 | 6.8E-06 | 1.0E-05 |
| Chrysene | 6.6E-06 | 6.6E-06 | | | | 1.2E-05 | 1.2E-05 | 1.9E-05 |
| Dichloroethenes, 1,2-, total | | | | | 2.7E-03 | | 2.7E-03 | 2.7E-03 |
| Fluoranthene | 6.7E-06 | 6.7E-06 | | | | 1.3E-05 | 1.3E-05 | 1.9E-05 |
| Fluorene | 1.1E-06 | 1.1E-06 | | | | 2.2E-06 | 2.2E-06 | 3.3E-06 |
| Indeno(1,2,3-cd)pyrene | 2.0E-06 | 2.0E-06 | | | | 3.7E-06 | 3.7E-06 | 5.7E-06 |
| Lead | 1.2E-02 | 1.2E-02 | | | 4.9E-01 | 2.3E-02 | 5.1E-01 | 5.2E-01 |
| Methylnaphthalene, 2- | | | | | 1.8E-03 | | 1.8E-03 | 1.8E-03 |
| Naphthalene | | | | | 3.8E-01 | | 3.8E-01 | 3.8E-01 |
| Phenanthrene | 5.1E-06 | 5.1E-06 | | | | 9.6E-06 | 9.6E-06 | 1.5E-05 |
| Pyrene | 7.0E-06 | 7.0E-06 | | | | 1.3E-05 | 1.3E-05 | 2.0E-05 |
| TOTAL | 1.2E-02 | 1.2E-02 | | | 8.8E-01 | 2.3E-02 | 9.0E-01 | 9.1E-01 |

Zone 1200; Future; Child Residential

| ANALYTE | PATHWAY | | | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | TOTAL | Ground-water | Soil | TOTAL | |
| Acenaphthene | 1.9E-06 | 1.9E-06 | | | 4.2E-03 | 1.5E-05 | 4.2E-03 | 4.2E-03 |
| Anthracene | 7.9E-08 | 7.9E-08 | | | | 6.4E-07 | 6.4E-07 | 7.2E-07 |
| Benz(a)anthracene | 7.4E-06 | 7.4E-06 | | | | 6.0E-05 | 6.0E-05 | 6.7E-05 |
| Benzo(a)pyrene | 7.4E-06 | 7.4E-06 | | | | 6.0E-05 | 6.0E-05 | 6.7E-05 |
| Benzo(b)fluoranthene | 7.4E-06 | 7.4E-06 | | | | 6.0E-05 | 6.0E-05 | 6.7E-05 |
| Benzo(ghi)perylene | 3.8E-06 | 3.8E-06 | | | | 3.1E-05 | 3.1E-05 | 3.4E-05 |
| Benzo(k)fluoranthene | 7.9E-06 | 7.9E-06 | | | | 6.4E-05 | 6.4E-05 | 7.2E-05 |
| Chrysene | 1.4E-05 | 1.4E-05 | | | | 1.2E-04 | 1.2E-04 | 1.3E-04 |
| Dichloroethenes, 1,2-, total | | | | | 5.0E-03 | | 5.0E-03 | 5.0E-03 |
| Fluoranthene | 1.5E-05 | 1.5E-05 | | | | 1.2E-04 | 1.2E-04 | 1.3E-04 |
| Fluorene | 2.5E-06 | 2.5E-06 | | | | 2.0E-05 | 2.0E-05 | 2.3E-05 |
| Indeno(1,2,3-cd)pyrene | 4.3E-06 | 4.3E-06 | | | | 3.5E-05 | 3.5E-05 | 3.9E-05 |
| Lead | 2.7E-02 | 2.7E-02 | | | 8.9E-01 | 2.2E-01 | 1.1E+00 | 1.1E+00 |
| Methylnaphthalene, 2- | | | | | 3.3E-03 | | 3.3E-03 | 3.3E-03 |
| Naphthalene | | | | | 7.0E-01 | | 7.0E-01 | 7.0E-01 |
| Phenanthrene | 1.1E-05 | 1.1E-05 | | | | 8.9E-05 | 8.9E-05 | 1.0E-04 |
| Pyrene | 1.5E-05 | 1.5E-05 | | | | 1.2E-04 | 1.2E-04 | 1.4E-04 |
| TOTAL | 2.7E-02 | 2.7E-02 | | | 1.6E+00 | 2.2E-01 | 1.8E+00 | 1.8E+00 |

Zone 1600; Current; Adult Worker

| ANALYTE | PATHWAY | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|
| | Dermal | | Oral | | | |
| | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | Soil | TOTAL | |
| Dichloroethenes, 1,2-, total | | | 1.1E-02 | | 1.1E-02 | 1.1E-02 |
| Lead | 1.1E-03 | 1.1E-03 | 5.3E-01 | 3.6E-03 | 5.3E-01 | 5.3E-01 |
| Methylnaphthalene, 2- | 1.5E-06 | 1.5E-06 | | 4.9E-06 | 4.9E-06 | 6.4E-06 |
| Naphthalene | 8.1E-06 | 8.1E-06 | | 2.7E-05 | 2.7E-05 | 3.5E-05 |
| TOTAL | 1.1E-03 | 1.1E-03 | 5.4E-01 | 3.6E-03 | 5.4E-01 | 5.5E-01 |

Zone 1600; Future; Adult Residential

| ANALYTE | PATHWAY | | | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | TOTAL | Ground-water | Soil | TOTAL | |
| Dichloroethenes, 1,2-, total | | | | | 3.0E-02 | | 3.0E-02 | 3.0E-02 |
| Lead | 5.3E-03 | 5.3E-03 | | | 1.5E+00 | 1.0E-02 | 1.5E+00 | 1.5E+00 |
| Methylnaphthalene, 2- | 7.3E-06 | 7.3E-06 | | | | 1.4E-05 | 1.4E-05 | 2.1E-05 |
| Naphthalene | 4.0E-05 | 4.0E-05 | | | | 7.5E-05 | 7.5E-05 | 1.2E-04 |
| TOTAL | 5.4E-03 | 5.4E-03 | | | 1.5E+00 | 1.0E-02 | 1.5E+00 | 1.5E+00 |

Zone 1600; Future; Child Residential

| ANALYTE | PATHWAY | | | | | | | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | TOTAL | Ground-water | TOTAL | Ground-water | Soil | TOTAL | |
| Dichloroethenes, 1,2-, total | | | | | 5.5E-02 | | 5.5E-02 | 5.5E-02 |
| Lead | 1.2E-02 | 1.2E-02 | | | 2.7E+00 | 9.4E-02 | 2.8E+00 | 2.8E+00 |
| Methylnaphthalene, 2- | 1.6E-05 | 1.6E-05 | | | | 1.3E-04 | 1.3E-04 | 1.4E-04 |
| Naphthalene | 8.7E-05 | 8.7E-05 | | | | 7.0E-04 | 7.0E-04 | 7.9E-04 |
| TOTAL | 1.2E-02 | 1.2E-02 | | | 2.8E+00 | 9.4E-02 | 2.9E+00 | 2.9E+00 |

Zone 0900; Current; Adult Worker

| ANALYTE | PATHWAY | | | | | Grand Total |
|---|---|---|---|---|---|---|
| | Dermal | | Oral | | | |
| | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Soil | Total | |
| Acenaphthene | 6.2E-09 | 6.2E-09 | 9.8E-06 | 2.1E-08 | 9.8E-06 | 9.8E-06 |
| Anthracene | 2.7E-08 | 2.7E-08 | | 8.8E-08 | 8.8E-08 | 1.1E-07 |
| Benz(a)anthracene | 4.1E-08 | 4.1E-08 | | 1.4E-07 | 1.4E-07 | 1.8E-07 |
| Benzene | | | 2.0E-05 | | 2.0E-05 | 2.0E-05 |
| Benzo(a)pyrene | 3.5E-08 | 3.5E-08 | | 1.2E-07 | 1.2E-07 | 1.5E-07 |
| Benzo(b)fluoranthene | 3.7E-08 | 3.7E-08 | | 1.2E-07 | 1.2E-07 | 1.6E-07 |
| Benzo(ghi)perylene | 1.6E-08 | 1.6E-08 | | 5.4E-08 | 5.4E-08 | 7.0E-08 |
| Benzo(k)fluoranthene | 3.1E-08 | 3.1E-08 | | 1.0E-07 | 1.0E-07 | 1.3E-07 |
| Chrysene | 3.8E-08 | 3.8E-08 | | 1.3E-07 | 1.3E-07 | 1.7E-07 |
| Dichloroethenes, 1,2-, total | | | 1.2E-04 | | 1.2E-04 | 1.2E-04 |
| Fluoranthene | 1.0E-07 | 1.0E-07 | | 3.4E-07 | 3.4E-07 | 4.4E-07 |
| Fluorene | 7.1E-09 | 7.1E-09 | | 2.3E-08 | 2.3E-08 | 3.1E-08 |
| Indeno(1,2,3-cd)pyrene | 1.9E-08 | 1.9E-08 | | 6.4E-08 | 6.4E-08 | 8.3E-08 |
| Lead | 8.4E-07 | 8.4E-07 | 1.3E-04 | 2.8E-06 | 1.3E-04 | 1.4E-04 |
| Methylnaphthalene, 2- | | | 8.8E-05 | | 8.8E-05 | 8.8E-05 |
| Naphthalene | | | 2.6E-03 | | 2.6E-03 | 2.6E-03 |
| Phenanthrene | 7.4E-08 | 7.4E-08 | | 2.4E-07 | 2.4E-07 | 3.2E-07 |
| Pyrene | 7.8E-08 | 7.8E-08 | | 2.6E-07 | 2.6E-07 | 3.4E-07 |

Zone 0900; Future; Adult Residential

| ANALYTE | PATHWAY | | | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Total | Ground-water | Soil | Total | |
| Acenaphthene | 3.1E-08 | 3.1E-08 | | | 2.7E-05 | 5.8E-08 | 2.7E-05 | 2.7E-05 |
| Anthracene | 1.3E-07 | 1.3E-07 | | | | 2.5E-07 | 2.5E-07 | 3.8E-07 |
| Benz(a)anthracene | 2.0E-07 | 2.0E-07 | | | | 3.8E-07 | 3.8E-07 | 5.9E-07 |
| Benzene | | | 5.5E-05 | 5.5E-05 | 5.5E-05 | | 5.5E-05 | 1.1E-04 |
| Benzo(a)pyrene | 1.7E-07 | 1.7E-07 | | | | 3.3E-07 | 3.3E-07 | 5.0E-07 |
| Benzo(b)fluoranthene | 1.8E-07 | 1.8E-07 | | | | 3.4E-07 | 3.4E-07 | 5.2E-07 |
| Benzo(ghi)perylene | 8.0E-08 | 8.0E-08 | | | | 1.5E-07 | 1.5E-07 | 2.3E-07 |
| Benzo(k)fluoranthene | 1.5E-07 | 1.5E-07 | | | | 2.9E-07 | 2.9E-07 | 4.4E-07 |
| Chrysene | 1.9E-07 | 1.9E-07 | | | | 3.6E-07 | 3.6E-07 | 5.5E-07 |
| Dichloroethenes, 1,2-, total | | | 3.3E-04 | 3.3E-04 | 3.3E-04 | | 3.3E-04 | 6.6E-04 |
| Fluoranthene | 5.0E-07 | 5.0E-07 | | | | 9.5E-07 | 9.5E-07 | 1.4E-06 |
| Fluorene | 3.5E-08 | 3.5E-08 | | | | 6.6E-08 | 6.6E-08 | 1.0E-07 |
| Indeno(1,2,3-cd)pyrene | 9.5E-08 | 9.5E-08 | | | | 1.8E-07 | 1.8E-07 | 2.7E-07 |
| Lead | 4.1E-06 | 4.1E-06 | | | 3.7E-04 | 7.8E-06 | 3.8E-04 | 3.8E-04 |
| Methylnaphthalene, 2- | | | | | 2.5E-04 | | 2.5E-04 | 2.5E-04 |
| Naphthalene | | | | | 7.4E-03 | | 7.4E-03 | 7.4E-03 |
| Phenanthrene | 3.6E-07 | 3.6E-07 | | | | 6.8E-07 | 6.8E-07 | 1.0E-06 |
| Pyrene | 3.9E-07 | 3.9E-07 | | | | 7.3E-07 | 7.3E-07 | 1.1E-06 |

Zone 0900; Future; Child Residential

| ANALYTE | PATHWAY | | | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Total | Ground-water | Soil | Total | |
| Acenaphthene | 6.7E-08 | 6.7E-08 | | | 5.0E-05 | 5.4E-07 | 5.0E-05 | 5.0E-05 |
| Anthracene | 2.9E-07 | 2.9E-07 | | | | 2.3E-06 | 2.3E-06 | 2.6E-06 |
| Benz(a)anthracene | 4.4E-07 | 4.4E-07 | | | | 3.6E-06 | 3.6E-06 | 4.0E-06 |
| Benzene | | | 1.0E-04 | 1.0E-04 | 1.0E-04 | | 1.0E-04 | 2.0E-04 |
| Benzo(a)pyrene | 3.8E-07 | 3.8E-07 | | | | 3.1E-06 | 3.1E-06 | 3.4E-06 |
| Benzo(b)fluoranthene | 4.0E-07 | 4.0E-07 | | | | 3.2E-06 | 3.2E-06 | 3.6E-06 |
| Benzo(ghi)perylene | 1.7E-07 | 1.7E-07 | | | | 1.4E-06 | 1.4E-06 | 1.6E-06 |
| Benzo(k)fluoranthene | 3.3E-07 | 3.3E-07 | | | | 2.7E-06 | 2.7E-06 | 3.0E-06 |
| Chrysene | 4.1E-07 | 4.1E-07 | | | | 3.3E-06 | 3.3E-06 | 3.7E-06 |
| Dichloroethenes, 1,2-, total | | | 6.0E-04 | 6.0E-04 | 6.0E-04 | | 6.0E-04 | 1.2E-03 |
| Fluoranthene | 1.1E-06 | 1.1E-06 | | | | 8.8E-06 | 8.8E-06 | 9.9E-06 |
| Fluorene | 7.6E-08 | 7.6E-08 | | | | 6.1E-07 | 6.1E-07 | 6.9E-07 |
| Indeno(1,2,3-cd)pyrene | 2.1E-07 | 2.1E-07 | | | | 1.7E-06 | 1.7E-06 | 1.9E-06 |
| Lead | 9.0E-06 | 9.0E-06 | | | 6.7E-04 | 7.3E-05 | 7.5E-04 | 7.5E-04 |
| Methylnaphthalene, 2- | | | | | 4.5E-04 | | 4.5E-04 | 4.5E-04 |
| Naphthalene | | | | | 1.3E-02 | | 1.3E-02 | 1.3E-02 |
| Phenanthrene | 7.9E-07 | 7.9E-07 | | | | 6.4E-06 | 6.4E-06 | 7.2E-06 |
| Pyrene | 8.4E-07 | 8.4E-07 | | | | 6.8E-06 | 6.8E-06 | 7.6E-06 |

Zone 1200; Current; Adult Worker

| ANALYTE | PATHWAY | | | | | Grand Total |
|---|---|---|---|---|---|---|
| | Dermal | | Oral | | | |
| | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Soil | Total | |
| Acenaphthene | 1.1E-08 | 1.1E-08 | 4.9E-05 | 3.5E-08 | 4.9E-05 | 4.9E-05 |
| Anthracene | 2.2E-09 | 2.2E-09 | | 7.3E-09 | 7.3E-09 | 9.5E-09 |
| Benz(a)anthracene | 2.1E-08 | 2.1E-08 | | 6.8E-08 | 6.8E-08 | 8.9E-08 |
| Benzo(a)pyrene | 2.1E-08 | 2.1E-08 | | 6.8E-08 | 6.8E-08 | 8.9E-08 |
| Benzo(b)fluoranthene | 2.1E-08 | 2.1E-08 | | 6.8E-08 | 6.8E-08 | 8.9E-08 |
| Benzo(ghi)perylene | 1.1E-08 | 1.1E-08 | | 3.5E-08 | 3.5E-08 | 4.6E-08 |
| Benzo(k)fluoranthene | 2.2E-08 | 2.2E-08 | | 7.3E-08 | 7.3E-08 | 9.5E-08 |
| Chrysene | 4.0E-08 | 4.0E-08 | | 1.3E-07 | 1.3E-07 | 1.7E-07 |
| Dichloroethenes, 1,2-, total | | | 9.8E-06 | | 9.8E-06 | 9.8E-06 |
| Fluoranthene | 5.5E-08 | 5.5E-08 | | 1.8E-07 | 1.8E-07 | 2.4E-07 |
| Fluorene | 9.3E-09 | 9.3E-09 | | 3.1E-08 | 3.1E-08 | 4.0E-08 |
| Indeno(1,2,3-cd)pyrene | 1.2E-08 | 1.2E-08 | | 4.0E-08 | 4.0E-08 | 5.2E-08 |
| Lead | 1.2E-06 | 1.2E-06 | 8.7E-05 | 4.1E-06 | 9.1E-05 | 9.2E-05 |
| Methylnaphthalene, 2- | | | 2.0E-05 | | 2.0E-05 | 2.0E-05 |
| Naphthalene | | | 5.5E-04 | | 5.5E-04 | 5.5E-04 |
| Phenanthrene | 3.1E-08 | 3.1E-08 | | 1.0E-07 | 1.0E-07 | 1.3E-07 |
| Pyrene | 4.3E-08 | 4.3E-08 | | 1.4E-07 | 1.4E-07 | 1.8E-07 |

Zone 1200; Future; Adult Residential

| ANALYTE | PATHWAY | | | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Total | Ground-water | Soil | Total | |
| Acenaphthene | 5.2E-08 | 5.2E-08 | | | 1.4E-04 | 9.9E-08 | 1.4E-04 | 1.4E-04 |
| Anthracene | 1.1E-08 | 1.1E-08 | | | | 2.1E-08 | 2.1E-08 | 3.1E-08 |
| Benz(a)anthracene | 1.0E-07 | 1.0E-07 | | | | 1.9E-07 | 1.9E-07 | 2.9E-07 |
| Benzo(a)pyrene | 1.0E-07 | 1.0E-07 | | | | 1.9E-07 | 1.9E-07 | 2.9E-07 |
| Benzo(b)fluoranthene | 1.0E-07 | 1.0E-07 | | | | 1.9E-07 | 1.9E-07 | 2.9E-07 |
| Benzo(ghi)perylene | 5.2E-08 | 5.2E-08 | | | | 9.9E-08 | 9.9E-08 | 1.5E-07 |
| Benzo(k)fluoranthene | 1.1E-07 | 1.1E-07 | | | | 2.1E-07 | 2.1E-07 | 3.1E-07 |
| Chrysene | 2.0E-07 | 2.0E-07 | | | | 3.7E-07 | 3.7E-07 | 5.7E-07 |
| Dichloroethenes, 1,2-, total | | | 2.7E-05 | 2.7E-05 | 2.7E-05 | | 2.7E-05 | 5.5E-05 |
| Fluoranthene | 2.7E-07 | 2.7E-07 | | | | 5.1E-07 | 5.1E-07 | 7.8E-07 |
| Fluorene | 4.6E-08 | 4.6E-08 | | | | 8.6E-08 | 8.6E-08 | 1.3E-07 |
| Indeno(1,2,3-cd)pyrene | 6.0E-08 | 6.0E-08 | | | | 1.1E-07 | 1.1E-07 | 1.7E-07 |
| Lead | 6.2E-06 | 6.2E-06 | | | 2.4E-04 | 1.2E-05 | 2.6E-04 | 2.6E-04 |
| Methylnaphthalene, 2- | | | | | 5.5E-05 | | 5.5E-05 | 5.5E-05 |
| Naphthalene | | | | | 1.5E-03 | | 1.5E-03 | 1.5E-03 |
| Phenanthrene | 1.5E-07 | 1.5E-07 | | | | 2.9E-07 | 2.9E-07 | 4.4E-07 |
| Pyrene | 2.1E-07 | 2.1E-07 | | | | 4.0E-07 | 4.0E-07 | 6.1E-07 |

Zone 1200; Future; Child Residential

| ANALYTE | PATHWAY | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Total | Ground-water | Soil | Total | Grand Total |
| Acenaphthene | 1.1E-07 | 1.1E-07 | | | 2.5E-04 | 9.2E-07 | 2.5E-04 | 2.5E-04 |
| Anthracene | 2.4E-08 | 2.4E-08 | | | | 1.9E-07 | 1.9E-07 | 2.2E-07 |
| Benz(a)anthracene | 2.2E-07 | 2.2E-07 | | | | 1.8E-06 | 1.8E-06 | 2.0E-06 |
| Benzo(a)pyrene | 2.2E-07 | 2.2E-07 | | | | 1.8E-06 | 1.8E-06 | 2.0E-06 |
| Benzo(b)fluoranthene | 2.2E-07 | 2.2E-07 | | | | 1.8E-06 | 1.8E-06 | 2.0E-06 |
| Benzo(ghi)perylene | 1.1E-07 | 1.1E-07 | | | | 9.2E-07 | 9.2E-07 | 1.0E-06 |
| Benzo(k)fluoranthene | 2.4E-07 | 2.4E-07 | | | | 1.9E-06 | 1.9E-06 | 2.2E-06 |
| Chrysene | 4.3E-07 | 4.3E-07 | | | | 3.5E-06 | 3.5E-06 | 3.9E-06 |
| Dichloroethenes, 1,2-, total | | | 5.0E-05 | 5.0E-05 | 5.0E-05 | | 5.0E-05 | 1.0E-04 |
| Fluoranthene | 5.9E-07 | 5.9E-07 | | | | 4.7E-06 | 4.7E-06 | 5.3E-06 |
| Fluorene | 1.0E-07 | 1.0E-07 | | | | 8.1E-07 | 8.1E-07 | 9.1E-07 |
| Indeno(1,2,3-cd)pyrene | 1.3E-07 | 1.3E-07 | | | | 1.0E-06 | 1.0E-06 | 1.2E-06 |
| Lead | 1.3E-05 | 1.3E-05 | | | 4.4E-04 | 1.1E-04 | 5.5E-04 | 5.7E-04 |
| Methylnaphthalene, 2- | | | | | 1.0E-04 | | 1.0E-04 | 1.0E-04 |
| Naphthalene | | | | | 2.8E-03 | | 2.8E-03 | 2.8E-03 |
| Phenanthrene | 3.3E-07 | 3.3E-07 | | | | 2.7E-06 | 2.7E-06 | 3.0E-06 |
| Pyrene | 4.6E-07 | 4.6E-07 | | | | 3.7E-06 | 3.7E-06 | 4.2E-06 |

Zone 1600; Current; Adult Worker

| ANALYTE | PATHWAY | | | | | Grand Total |
|---|---|---|---|---|---|---|
| | Dermal | | Oral | | | |
| | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Soil | Total | |
| Dichloroethenes, 1,2-, total | | | 1.1E-04 | | 1.1E-04 | 1.1E-04 |
| Lead | 5.4E-07 | 5.4E-07 | 2.7E-04 | 1.8E-06 | 2.7E-04 | 2.7E-04 |
| Methylnaphthalene, 2- | 4.4E-08 | 4.4E-08 | | 1.5E-07 | 1.5E-07 | 1.9E-07 |
| Naphthalene | 3.2E-08 | 3.2E-08 | | 1.1E-07 | 1.1E-07 | 1.4E-07 |

Zone 1600; Future; Adult Residential

| ANALYTE | PATHWAY | | | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Total | Ground-water | Soil | Total | |
| Dichloroethenes, 1,2-, total | | | 3.0E-04 | 3.0E-04 | 3.0E-04 | | 3.0E-04 | 6.0E-04 |
| Lead | 2.7E-06 | 2.7E-06 | | | 7.4E-04 | 5.0E-06 | 7.5E-04 | 7.5E-04 |
| Methylnaphthalene, 2- | 2.2E-07 | 2.2E-07 | | | | 4.1E-07 | 4.1E-07 | 6.3E-07 |
| Naphthalene | 1.6E-07 | 1.6E-07 | | | | 3.0E-07 | 3.0E-07 | 4.6E-07 |

Zone 1600; Future; Child Residential

| ANALYTE | PATHWAY | | | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|
| | Dermal | | Inhalation | | Oral | | | |
| | MEDIUM | | MEDIUM | | MEDIUM | | | |
| | Soil | Total | Ground-water | Total | Ground-water | Soil | Total | |
| Dichloroethenes, 1,2-, total | | | 5.5E-04 | 5.5E-04 | 5.5E-04 | | 5.5E-04 | 1.1E-03 |
| Lead | 5.8E-06 | 5.8E-06 | | | 1.4E-03 | 4.7E-05 | 1.4E-03 | 1.4E-03 |
| Methylnaphthalene, 2- | 4.8E-07 | 4.8E-07 | | | | 3.8E-06 | 3.8E-06 | 4.3E-06 |
| Naphthalene | 3.5E-07 | 3.5E-07 | | | | 2.8E-06 | 2.8E-06 | 3.2E-06 |