# Annual Environmental Monitoring Report, 2002

**New York District**
**Formerly Utilized Sites Remedial Action Program**
**Maywood Superfund Site**

**Prepared by:**
**Stone & Webster, Inc.**
**100 West Hunter Ave.**
**Maywood, New Jersey 07607**

**for:**
**US Army Corps of Engineers - Kansas City District**
**Formerly Utilized Sites Remedial Action Program**
**Contract No. DACW41-99-D-9001**

US Army Corps of Engineers®

August 2003, Revision 0

# ANNUAL ENVIRONMENTAL MONITORING REPORT, 2002

## FUSRAP MAYWOOD SUPERFUND SITE
## MAYWOOD, LODI, AND ROCHELLE PARK, NEW JERSEY

**SITE-SPECIFIC ENVIRONMENTAL RESTORATION**
**CONTRACT No. DACW41-99-D-9001**
TASK ORDER 0002
WAD 01, WBS 07

*Submitted to:*


Department of the Army
U.S. Army Engineer District, Kansas City
Corps of Engineers
700 Federal Building
Kansas City, Missouri 64106

Department of the Army
U.S. Army Engineer District, New York
Corps of Engineers
FUSRAP Project Office
26 Federal Plaza
New York, New York 10007


*Submitted by:*


Stone & Webster, Inc.
100 West Hunter Avenue
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Reviewed / Approved by: ______________________ Date: __________
Andy Mills
Project Manager

Reviewed / Approved by: ______________________ Date: __________
Kevin F. Donnelly, P.E.
Project Environmental Engineer

Reviewed / Approved by: ______________________ Date: __________
Alan F. Brown, P.E.
Construction Quality System Manager

Reviewed / Approved by: ______________________ Date: __________
Barbara Reider
Certified Health Physicist

Reviewed / Prepared by: ______________________ Date: __________
Maurice Hanashy
Task Engineer

# RECORD OF REVISIONS

| Revision No. | Description of Revision | Date |
|---|---|---|
| Draft Rev. A | Draft release for internal project review | March 2003 |
| Draft Rev. B | Draft release for USACE review and comments | April 2003 |
| Draft Final Rev. C | Draft Final release for USACE review and comment | June 2003 |
| Final Rev. 0 | | August 2003 |

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AEC | Atomic Energy Commission |
| AL | Action Level |
| ANL | Argonne National Laboratory |
| ASTM | American Society for Testing and Materials |
| BEE | Baseline Ecological Evaluation |
| BNI | Bechtel National, Incorporated |
| Bq | Becquerel |
| CAA | Clean Air Act |
| CAP88-PC | Clean Air Act Assessment Package 1988 – Personal Computer |
| CDQMP | Chemical Data Quality Management Plan |
| CFR | Code of Federal Regulations |
| cm | centimeter |
| DCE | dichloroethene |
| DOE | U.S. Department of Energy |
| DTW | Depth to Water |
| Eh | oxidation / reduction potential |
| EML | Environmental Measurements Laboratory |
| EMP | Environmental Monitoring Program |
| EPA | U.S. Environmental Protection Agency |
| fl oz | Fluid Ounce |
| FMSS | FUSRAP Maywood Superfund Site |
| ft | feet |
| ft/ft | feet/feet |
| FUSRAP | Formerly Utilized Sites Remedial Action Program |
| g | gram |
| gal | gallon |
| GW | Groundwater |
| GWQC | Groundwater Quality Criteria |
| GWQS | Groundwater Quality Standard |
| GWRI | Groundwater Remedial Investigation |
| ha | hectare |
| HEPA | High Efficiency Particulate Air |
| ICRP | International Commission on Radiological Protection |
| IG | Instruction Guides |
| in. | inches |
| kg | kilogram |
| km | kilometers |
| L | liters |
| lb | pound |
| LEL | Lowest Effect Level |
| LNAPL | Light, non-aqueous phase Liquid |
| m | meters |
| $m^3$ | cubic meters |
| mg/L | milligrams per liter |
| mi | miles |
| MCL | Maximum Contaminant Level |

| | |
|---|---|
| MCW | Maywood Chemical Works |
| MDA | Minimum Detectable Activity |
| MISS | Maywood Interim Storage Site |
| mL | milliliter |
| mSv | millisievert |
| mrem | millirem |
| mrem/yr | millirem per year |
| MSL | Mean Sea Level |
| µg | micrograms |
| N/A | Not Applicable |
| NJ | New Jersey |
| NJAC | New Jersey Administrative Code |
| NJDEP | New Jersey Department of Environmental Protection |
| NE | Not Established |
| NESHAP | Nation Emission Standards for Hazardous Air Pollutants |
| NGVD | National Geodetic Vertical Datum |
| NRC | Nuclear Regulatory Commission |
| oz | ounces |
| PCE | tetrachloroethene |
| pCi | picocurie |
| pCi/g | picocuries per gram |
| pCi/L | picocuries per liter |
| ppm | parts per million |
| PQL | Practical Quantitation Limit |
| Ra | radium |
| Ra-226 | radium-226 |
| Ra-228 | radium-228 |
| RCRA | Resource Conservation and Recovery Act |
| Rn | radon |
| Rn-220 | radon-220 |
| Rn-222 | radon-222 |
| SCC | Soil Cleanup Criteria |
| SEL | Severe Effects Level |
| SDWA | Safe Drinking Water Act |
| SD | Sediment |
| SI | Systeme Internationale |
| SMCL | Secondary Maximum Contaminant Level |
| SOP | Standard Operation Procedure |
| SOR | sum-of-ratios |
| SQL | Sample Quantitation Limit |
| SW | Surface Water |
| TBD | To Be Determined |
| TCE | trichloroethene |
| TCRA | Time Critical Removal Action |
| TDS | total dissolved solids |
| TETLD | Tissue-equivalent Thermo-luminescent Dosimeter |
| Th | thorium |
| Th-228 | thorium-228 |
| Th-230 | thorium-230 |
| Th-232 | thorium-232 |
| TOC | Top of Inner Casing |
| TOR | Top of Riser |

| | |
|---|---|
| U | uranium |
| U-238 | uranium-238 |
| $U_{(tot)}$ | total uranium |
| USACE | U. S. Army Corps of Engineers |
| VOC | Volatile Organic Compound |
| VP | Vicinity Property |
| WL | Working Level |
| $yd^3$ | cubic yard |

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# EXECUTIVE SUMMARY

This report presents and interprets analytical results and measurements obtained from the 2002 Environmental Monitoring Program (EMP) for the Maywood Interim Storage Site (MISS) located in Bergen County, New Jersey (NJ), under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The FY 1998 Energy and Water Appropriations Bill, signed into law on October 13, 1997, transferred management of FUSRAP from the U.S. Department of Energy (DOE) to the U.S. Army Corps of Engineers (USACE). Consistent with USACE policy, the U.S. Nuclear Regulatory Commission (NRC) and U.S. Environmental Protection Agency (EPA) criteria for radionuclides have been used to evaluate analytical results. DOE criteria for radionuclides have been retained when the criteria are either agreed to by the EPA, are site-specific, or are not available from the EPA or NRC.

In the early history of the site, from 1916 to 1959, Maywood Chemical Works (MCW) extracted radioactive thorium (Th) from monazite sand resulting in contamination of the property with low levels of Th and lower levels of uranium (U) and radium (Ra). The EMP for the site includes sampling of air, water, and streambed sediment to aid in the evaluation of potential hazards to the off-site population presented by these materials. This report compares the results taken in the year 2002 for external gamma radiation measurements, radon (Rn) gas measurements, and samples of environmental media to the historical background conditions and to regulatory and other criteria.

Federal and State regulations and other criteria are used to evaluate concentrations of radioactive constituents and doses at the site (DOE 1997a and 1997b). The calculated dose to the hypothetically maximally exposed individual from direct gamma radiation at the MISS in 2002, based on the measured Tissue-equivalent Thermo-luminescent Dosimeter (TETLD) results, is 7.75 millirems per year (mrem/yr). This is well below the NRC standard of 100 mrem/yr. Measured radon-222 (Rn-222) concentrations for 2002 ranged from non-detect to 0.5 picocuries per liter (pCi/L), which is well below the 4 pCi/L EPA action level. Radon-220 (Rn-220) concentrations ranged from non-detect to a maximum of 2.91 pCi/L, which is also below the EPA action level.

The airborne particulate dose to the hypothetically maximally exposed individual in the year 2002 was 0.00048 mrem/year, which is well below the 10 mrem/year standard specified in the Code of Federal Regulations Title 40, Part 61 (40CFR61), Subpart H. No radiological parameter exceeded relevant criteria, except as discussed in the following:

- The measured concentration of various radionuclides in sediment samples collected in Lodi Brook exceeded the DOE / EPA soil cleanup criteria at three locations (SWSD006, SWSD007, and SWSD009). The maximum concentration of radium-226 (Ra-226) (6.58 pCi/L) was found at location SWSD007. The maximum concentrations of radium-228 (Ra-228) were found at locations SWSD006 (17.70 picocuries per gram [pCi/g]), SWSD007 (20.0 pCi/g), and SWSD009 (19.20 pCi/g). The maximum concentrations of thorium-232 (Th-232) were found at locations SWSD006 (15.20 pCi/g), SWSD007 (17.6 pCi/g), and SWSD009 (15.70 pCi/g). In the absence of regulatory criteria for sediment, the limits established by the DOE / EPA agreement are used to evaluate concentrations of radioactive constituents in shallow streambed sediment. Further downstream at SWSD010, SWSD012, SWSD013, and SWSD015 along Lodi Brook, detected concentrations of all analyzed radionuclides were below the soil cleanup criteria. The concentrations of all analyzed radionuclides were below the soil cleanup criteria for sediment samples collected in Westerly Brook in 2002. Results for 2002 are within the historical range for these radionuclides and confirm the presence of radiological contamination in the streambed sediment of the eastern tributary of Lodi Brook and downstream locations along Lodi Brook.

- Conservative Federal and State drinking water standards for radiological contaminants were used as criteria to evaluate monitoring results for surface water. No surface water samples collected in 2002 from Lodi Brook or Westerly Brook exceeded any radiological criteria.
- The same conservative Federal and State drinking water Standards for radiological contaminants (as outlined in Section 2.2, **Table 2-2**, Summary of Radiological Criteria Used Water and Sediment) were used as criteria to evaluate monitoring results for groundwater. There was no exceedance for the Ra criteria for groundwater samples collected in 2002. There was one exceedance of the U criteria with a measured U concentration of 70.92 pCi/L (103.71 µg/L) for monitoring well MISS05A. There were eight exceedances of the gross alpha criteria with the highest measured concentration of 127.00 pCi/L for monitoring well MISS05A. All other gross alpha exceedances ranged from 15.94 to 45.99 pCi/L. There were also six exceedances of the gross beta with the highest measured concentration of 336.00 pCi/L for monitoring well MISS05B. Results for 2002 are within the historical range for Ra, Th, and U (gross alpha and gross beta have been monitored only in the past 2 years).

The Federal and State standards for chemical contamination in soil and water were conservatively used as criteria to evaluate monitoring results for streambed sediments, surface water, and groundwater. Some metals exceeded the NJ soil cleanup criteria in sediment samples. Some metals exceeded Federal and State standards in surface water. Some metals and volatile organic compounds (VOCs) in groundwater samples exceeded the Federal and State standards:

- The concentrations of arsenic in sediment from Lodi Brook (SWSD006, SWSD007) were above the State soil cleanup criteria. The elevated concentrations of arsenic were the only two locations along Lodi Brook where the sediment concentration of any metal exceeded the State soil cleanup criteria. There were no exceedances of the State proposed soil cleanup criteria in Westerly Brook. There were exceedances of the Severe Effects Level (SEL) for chromium, copper, and lead in Lodi Brook at locations SWSD006 and SWSD007. An exceedance of the SEL for lead was also found at SWSD015. There were also several exceedances of the Lowest Effects Level (LEL) for cadmium, lead, copper, zinc, chromium, and nickel in both Lodi Brook and Westerly Brook. Elevated concentrations of metals are expected given the generally industrialized nature of the area surrounding the site. Off-site contributors of these metals are likely. Concentrations of heavy metals at upstream and downstream environmental monitoring locations have frequently exceeded the NJ soil cleanup criteria. The somewhat sporadic nature of the fluctuations in metal concentrations implies that contaminants present in local areas are dispersed during heavy runoff.
- Federal Safe Drinking Water Act (SDWA) maximum contaminant levels (MCLs) and NJ Groundwater Quality Standards for Class IIA aquifers were used as conservative criteria to evaluate monitoring results for chemical contaminants in surface water. Metals that exceeded both the Federal and State standards in Lodi Brook and Westerly Brook include iron, manganese, and thallium. Arsenic and lead exceeded Federal and State standards in Westerly Brook at SWSD004.
- Arsenic exceeded the SDWA MCLs and NJ Groundwater Quality Standards for Class IIA aquifers in many wells. Arsenic was detected in both on-site and off-site wells. Although groundwater at the MISS is not used as a public drinking water supply, State groundwater quality limits and Federal drinking water standards were used as a conservative basis of comparison for chemical concentrations in groundwater.
- The detection of VOCs in groundwater in 2002 is consistent with historical results. The detected VOCs in groundwater at the MISS are tetrachloroethene (PCE) and its degradation products: trichloroethene (TCE) and dichloroethenes (DCEs). VOCs are present in both on-site (primarily in bedrock) and off-site (shallow and bedrock) groundwater. The presence of VOCs in

downgradient monitoring wells B38W14D, B38W14S, B38W15D, and MISS01B is due to either groundwater movement or infiltration from Westerly Brook to these wells.

The results described in this Executive Summary are comparable to results reported in previous years. No significant changes were observed. The source analytical data, historical results, and water level measurements can be found in Appendices A, B, and C, respectively.

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# 1.0 INTRODUCTION

The MISS is located in Bergen County, NJ, approximately 12 mi (20 km) northwest of New York City and 13 mi (21 km) northeast of Newark, NJ (Appendix D, **Figure D-1**). The FUSRAP Maywood Superfund Site (FMSS) includes the 11.7-acre (4.7-hectare [ha]) federally-owned MISS and over 85 vicinity properties (VPs) in Maywood, Lodi, and Rochelle Park. The MISS is bordered to the west by NJ Route 17, to the north by the New York Susquehanna and Western Railway line and to the south and east by commercial and industrial properties.

The MCW site was constructed in 1895. During the years 1916 to 1959, MCW extracted radioactive Th and rare earth metals from monazite sand for production of mantles for gas lanterns. The waste materials generated during this process contained Th-232 and associated decay products, with lesser amounts of radionuclides in the U-238 decay series. Slurry containing waste from these operations was pumped into two earthen-diked retention ponds west of the plant. Some process waste sands were combined with tea and coca leaves from other MCW operations, and then removed from the site and used as mulch and fill material on nearby properties. Additional waste was transported off-site by the Lodi Brook, which ran southward along the facility property line and into the Borough of Lodi. Thorium residues in the brook settled onto adjacent properties where buildings and residences were subsequently built. In 1959, the MCW facility was sold to the Stepan Company.

In 1961, the Atomic Energy Commission (AEC) issued a radioactive material license to the Stepan Company for radioactive material storage and remediation of the facility. Between 1966 and 1968, contaminated material was removed from the property west of NJ Route 17 and buried in three pits on the Stepan Company site.

In 1983, the EPA added the Maywood site to the National Priorities List, and the following year cleanup of radioactive contamination at the Maywood Site was assigned to the DOE by Congress. To expedite remediation of the Maywood site and its VPs, the DOE purchased a 11.7-acre (4.7-ha) portion of the Stepan Company property for use as an interim storage facility for radiologically-contaminated materials (DOE 1992). This property was referred to as the MISS. On October 13, 1997, the FY 1998 Energy and Water Appropriations Bill transferred management of FUSRAP from the DOE to the USACE. The USACE became a successor to the DOE as of March 17, 1999. FUSRAP activities presently continue with the USACE.

In keeping with the remedial activities and objectives of FUSRAP, an ongoing environmental monitoring program has been conducted over the years at the MISS. This program has been designed to ensure the following objectives:

- To ensure that the public and the environment are adequately protected from radiological and chemical contamination present at the MISS.
- To verify compliance with the applicable Federal, State, and local environmental laws.
- To characterize and define trends in the physical and chemical condition of the environmental media.
- To identify and quantify new or existing environmental quality problems.

These monitoring activities include the monitoring of all credible transport pathways; the selection of suitable monitoring locations; and the location of appropriate sampling methods, techniques, and analyses.

This report has been prepared to satisfy all applicable monitoring requirements and to address the above objectives. A detailed description of the measured parameters, evaluation criteria, sampling locations, monitoring methodology, interpretation of results, and conclusions is presented in this report.

## 1.1 MEASURED PARAMETERS

The key elements of the 2002 EMP program at the MISS were:

- Continuous Monitoring
  - Measurement of external gamma radiation.
  - Measurement of Rn gas concentrations in air (from Rn-220 and Rn-222).
  - Measurement of Rn flux for soil stockpile at MISS – as required.
- Quarterly Monitoring
  - Groundwater level measurements of 35 monitoring wells.
- Annual Monitoring
  - Sampling and analysis of streambed sediment for radioactive constituents and metals.
- Annual Sampling
  - Sampling and analysis of surface water for radioactive constituents and metals.
  - Sampling and analysis of groundwater for radioactive constituents, metals, and VOCs.

## 1.2 CALCULATED ELEMENTS

As part of the environmental monitoring program, calculations were performed to determine the dose to the hypothetically maximally exposed individual (off-site) from external gamma radiation at the MISS as well as airborne particulate dose to the hypothetical maximally exposed individual (off-site) from airborne particulates generated from activities associated with the MISS. In addition, the cumulative dose to the hypothetical maximally exposed individual from external gamma radiation at MISS as well as airborne particulates generated by activities associated with MISS was calculated.

The following briefly describes the methodology for performing the above calculations and the results. More detailed discussions of these calculations and the results with regard to regulatory compliance issues are provided in Sections 5.0, 6.0, and Appendix E.

- External gamma radiation dose rates are measured continuously at various locations at MISS using TETLDs. When the readings are corrected for shelter / absorption and background concentration, and normalized to exactly 1 year's exposure, these detectors provide a measurement of the annual external gamma radiation at that location.
- The corrected readings from the TETLDs are used to calculate the external gamma radiation dose to a hypothetical maximally exposed individual conservatively assumed to be located 50 feet (ft) from the side of the property with the highest radiation readings. This is a conservative approach since the nearest receptor is located over 200 ft from the monitoring location with the highest radiation readings.
- The computer program used to model potential off-site exposure from airborne emissions is the Clean Air Act Assessment Package - 1988 Personal Computer program (CAP88-PC), Version 2.0. Airborne emissions contributing to off-site exposure can occur from areas where the radioactively contaminated soil is exposed to the elements and from operations that generate airborne emissions.

- The CAP88-PC, Version 2.0 model determines the hypothetical maximally exposed individual based on the radionuclide emissions, local meteorological data, and other factors. The model can calculate the effective dose equivalent for any receptor of interest (e.g., residences, schools, workers).
- Although the emission of Rn gas is not considered in this analysis, the daughters of Rn gas generated by the decay of Rn-226 in dust off-site are accounted for by the model in the computation of the effective dose equivalents for the various internal and external exposure pathways.

## 1.3 UNIT CONVERSIONS

**Tables 1-1** and **1-2** list the units of measurement and appropriate abbreviations used in this document. Conventional units for radioactivity are used because the regulatory guidelines are generally provided in these terms; Système Internationale (SI) units of measurement are used in the discussion of all other parameters. Unit conversions are provided in the text for water level information only.

**Table 1-1**
**Units of Measurement and Conversion Factors - Radioactivity**

| Parameter | Conventional Units | SI Units | Conversion Factor |
|---|---|---|---|
| Dose | millirem (mrem) | milliSievert (mSv) | 1 mrem = 0.01 mSv |
| Activity | picocurie (pCi) | Becquerel (Bq) | 1 pCi = 0.037 Bq |

**Table 1-2**
**Units of Measurement and Conversion Factors - Mass, Length, Area, and Volume**

| Parameter | SI Units | English Units | Conversion Factor |
|---|---|---|---|
| Mass | gram (g) | ounce (oz) | 1 g = 0.035 oz |
| | kilogram (kg) | pound (lb) | 1 kg = 2.2046 lb |
| Length | centimeter (cm) | inch (in.) | 1 cm = 0.394 in. |
| | meter (m) | foot (ft) | 1 m = 3.281 ft |
| | kilometer (km) | mile (mi) | 1 km = 0.621 mi |
| Area | hectare (ha) | Acre | 1 ha = 2.47 acres |
| Volume | milliliter (mL) | fluid ounce (fl oz) | 1 mL = 0.0338 fl oz |
| | liter (L) | gallon (gal) | 1 L = 0.264 gal |
| | cubic meter ($m^3$) | cubic yard ($yd^3$) | 1 $m^3$ = 1.307 $yd^3$ |

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# 2.0 EVALUATION CRITERIA

Regulatory and other criteria used to evaluate the results of the 2002 EMP program at the MISS are summarized as follows, categorized by media and parameters.

## 2.1 EXTERNAL GAMMA RADIATION AND AIR (RADON GAS AND AIRBORNE PARTICULATES)

Criteria for evaluating calculated maximum doses from external gamma radiation and inhalation of radioactive particulates, and measured concentrations of Rn gas are as follows:

- **10CFR20**
  Dose limits for members of the public from NRC licensed activities are presented in this NRC standard. While the Maywood FUSRAP project is not licensed by the NRC, the project is contractually required to meet the requirements of 10CFR20. The primary dose limit is expressed as a total effective dose equivalent. The limit of 100 mrem/yr total effective dose equivalent above background from all sources for a period of a year is specified in this standard. External gamma radiation dose and the calculated doses from all releases are included in the calculation of the total effective dose equivalent. The 100 mrem/yr total effective dose equivalent above background specified in this standard includes all pathways.

- **40CFR192**
  The applicable limit for Rn in air is provided in this standard as 0.02 Working Levels (WLs), including background. A working level is any combination of short-lived Rn decay products in 1 L of air that will result in the ultimate emission of 1.3 x $10^5$ MeV of potential alpha energy. The WL of 0.02 is applied to buildings only, where ventilation and other effective methods could be provided to maintain this limit. EPA guidance documents related to Rn in homes refer to an Action Level (AL) of 4 pCi/L. Rn concentrations that exceed the AL of 4 pCi/L require mitigation (EPA 1992b).

- **NJAC 7:28-12**
  The applicable limit for Rn-222 is 3.0 pCi/L (111 Bq/$m^3$). This guideline was established by NJDEP as the standard for the remediation of real property contaminated by radioactive materials.

- **40CFR61, Subparts H & Q**
  Section 112 of the Clean Air Act authorized EPA to promulgate the National Emission Standards for Hazardous Air Pollutants (NESHAP), which is applicable at the MISS under Subpart H (i.e., for non-Rn, radioactive constituents) and Subpart Q (for Rn emissions). Compliance with Subpart H is verified by applying the EPA-approved CAP88-PC, Version 2.0 (DOE 1997c). Until the storage pile was removed in 1996, compliance with Subpart Q was verified by semi-annual monitoring for Rn-222 flux. Rn flux monitoring was resumed in 2000 for the storage pile created as a result of a Time Critical Removal Action (TCRA) for the swale, remediation and restoration of the Ballod property, and operation of the pilot facility. Rn flux monitoring was performed during the year 2002 in the fabric structure that is used to store the soil stockpiles at MISS for only a short period of time.

**Table 2-1**
**Summary of Radiological Criteria Used**
**External Gamma Radiation and Air**

| Parameter | NRC Standard | EPA Standard or Guideline | NJDEP Guidline |
|---|---|---|---|
| Rn-222 | 10 pCi/L[h] | 4 pCi/L [a] | 3.0 pCi/L |
| Rn-220 | 20 pCi/L[h] | --[b] | |
| Rn Flux | --- | 20 pCi/$m^2$/s [g] | |
| Radionuclide Emissions (airborne particulates and radioactive gases) | 10 mrem/yr[c] | 10 mrem/yr[d] | |
| Total Effective Dose Equivalent (total contribution from all sources [e]) | 100 mrem/yr[f] | --- | |

Notes:
[a] EPA standard from 40 CFR 192.
[b] Provisions applicable to Rn-222 shall apply to Rn-220 (40CFR192.41, provisions).
[c] NRC standard from 10CFR20.1101(d) for particulate and Rn-220 emissions only; excludes Rn-222.
[d] EPA standard from 40CFR61, Subpart H, for particulate emissions only; excludes Rn-222 and Rn-220.
[e] Contributing sources at the MISS consist of external gamma radiation exposure, radionuclide emissions listed above, and ingested radionuclides in water and soil / sediment.
[f] NRC standard from 10CFR20.1301(a); background is excluded in the calculation of dose.
[g] EPA standard 40CFR61, Subpart Q.
[h] NRC 10CFR20 Appendix B assuming no Rn daughters are present.

## 2.2 SEDIMENT, SURFACE WATER, AND GROUNDWATER - RADIOLOGICAL CONSTITUENTS

Criteria for evaluating the measured concentrations of radionuclides in sediment, surface water, and groundwater at the MISS are:

- **Soil Cleanup Criteria for the Maywood Site**
  The criteria for radionuclides in soil were agreed to by the DOE and EPA in 1994 (DOE 1994a). At Phase I properties, the radiological soil cleanup criteria for Ra and Th are 5 pCi/g above-background regardless of depth. The EMP does not include analysis of on-site soils; however, because there are no standards for sediment, the soil cleanup criteria are used as a basis for evaluating the analytical results for sediment. The MISS site-specific soil cleanup criterion for total uranium ($U_{(tot)}$), developed at Argonne National Laboratory (ANL) for the DOE, is 100 pCi/g above background (DOE 1994b). For mixtures of radionuclides, the data are evaluated by the sum-of-ratios (SOR) method. By this method, the above-background concentration of each of the radioisotopes (Ra-226 or thorium-230 [Th-230], whichever is greater; Th-232 or Ra-228, whichever is greater; and $U_{(tot)}$) is divided by its respective criterion values, and the ratios are summed. If the result is greater than 1, the mixture of radionuclides fails the SOR test and is thereby considered to exceed the soil guidelines. This SOR calculation is used for the purpose of this report and is a conservative approach.

- **40CFR141**
  The regulations in 40CFR141 set maximum permissible levels of organic, inorganic, radiological, and microbial contaminants in drinking water by specifying the MCL for each. MCLs have been promulgated for $U_{(tot)}$, combined concentrations of Ra-226 and Ra-228, and gross alpha. Although groundwater at the MISS is not a public drinking water supply, the MCLs for drinking water are considered relevant and appropriate and are used as a conservative basis for evaluating analytical results. NJ drinking water regulations (NJ Administrative Code [NJAC] 7:10) incorporate, by reference, all the Federal drinking water standards unless a more stringent State

standard for a hazardous contaminant has been promulgated. NJ has adopted all the MCLs, and they have added a maximum contaminant level for gross beta of 50 pCi/L. MCLs for drinking water were also used to conservatively evaluate surface water. Sampling was performed for specific radiological contaminants known to exist at the MISS (gross alpha, gross beta, Ra-226 and Ra-228, Th-230 and Th-232, and $U_{(tot)}$). For $U_{(tot)}$, comparisons will be made to the Federal / State MCL (NJAC 7:9-6) of 30 µg/L.

**Table 2-2**
**Summary of Radiological Criteria Used for Water and Sediment**

| Parameter | NJ Groundwater Quality Standards | EPA Drinking Water Standard | Sediment Criteria |
|---|---|---|---|
| Gross Alpha | 15 pCi/L | 15 pCi/L | --- |
| Gross Beta | | 50 pCi/L[d] | --- |
| Ra-226 | 5 pCi/L[a] | 5 pCi/L[a] | 5 pCi/g[b] |
| Ra-228 | 5 pCi/L[a] | 5 pCi/L[a] | 5 pCi/g[b] |
| Th-230 | | --- | 5 pCi/g[b] |
| Th-232 | | --- | 5 pCi/g[b] |
| $U_{(tot)}$ | 30 µg/L[e] | 30 µg/L | 100 pCi/g[c] |

Notes:
[a] Current SDWA, MCL for the combined concentration of Ra-226 and Ra-228 in drinking water.
[b] Soil cleanup criteria established by DOE and EPA are used as a basis for evaluating analytical results for sediment.
[c] Site-specific soil cleanup criteria developed by ANL for DOE.
[d] If the gross beta particle activity exceeds 50 pCi/L, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated (40CFR141.26). Naturally occurring potassium-40 [K-40] beta particle activity may be excluded from the calculation of gross beta activity per Federal register Vol. 65 No. 236.
[e] The NJ Department of Environmental Protection (NJDEP) has established a MCL for $U_{(tot)}$ in drinking water of 30 µg/L. The reported U-238 concentration in pCi/L was divided by the specific activity of U-238 (0.3365 pCi/µg) to obtain the $U_{(tot)}$ in µg/L and then compared to the equivalent NJDEP MCL for $U_{(tot)}$ in drinking water of 30 µg/L.

## 2.3 SEDIMENT - CHEMICAL PARAMETERS

Criteria for evaluating the detected concentrations of chemical parameters in sediment at the MISS are as follows:

- **NJ Proposed Cleanup Standards for Contaminated Sites**
  These standards are currently being provided as guidance by the NJ Department of Environmental Protection (NJDEP). Because there are no standards for sediment, the NJDEP proposed cleanup standards for residential and nonresidential properties that were used as a conservative basis for evaluating results of analyses for metals in sediment (NJDEP 1992).
- **Sediment Screening Values for use in the Baseline Ecological Evaluation (BEE) (NJDEP 1998)**
  To aid in the identification of contaminants of potential ecological concern, site-related sediment data are compared to established screening level criteria in the Baseline Ecological Evaluation (BEE). An exceedance above the Lowest Effect Level (LEL) in the BEE indicates a potential risk (not cleanup) to the benthic community and a need for further investigation.

## 2.4 GROUNDWATER AND SURFACE WATER - CHEMICAL PARAMETERS

Although the groundwater at the MISS is not used as a public drinking water supply, Federal standards for contaminated soils on drinking water and State groundwater standards are used in this document as a conservative basis for comparison of chemical analytical results.

- **40CFR141**
  As noted above, the SDWA is the primary Federal law applicable to the operation of a public water system and the development of drinking water quality standards. The regulations establish MCLs for organic, inorganic, and microbial contaminants in drinking water. In some cases, secondary maximum contaminant levels (SMCLs), which are not Federally enforceable (40CFR143), are provided as guidelines for the various states. MCLs for drinking water were used to conservatively evaluate groundwater and surface water monitoring results.

- **NJ Groundwater Quality Criteria - Class IIA**
  Groundwater in NJ is classified according to its hydrogeological characteristics and uses. The primary designated use for Class IIA groundwater is as a potable water supply, although Class IIA uses also include agricultural and industrial water. The NJ groundwater quality standards (NJAC7:9-6) specify the groundwater quality criteria (GWQC) for various constituents and the corresponding practical quantitation limits (PQLs) for Class II groundwater.

# 3.0 SAMPLING LOCATIONS AND RATIONALE

Contamination at the MISS is present in the former retention ponds, on the ground surface, and in on-site structures. Exposure to members of the public by this radioactively-contaminated material at the MISS is unlikely because of site access restrictions (e.g., fences) and engineering controls (e.g., pile covers). Potential pathways include direct exposure to external gamma radiation, inhalation of Rn or radioactively-contaminated particulates in air, and contact with or ingestion of contaminated streambed sediments, surface water, or groundwater. The EMP at the MISS has been developed in order to evaluate and monitor these potential exposure routes through periodic sampling and analysis for radioactive and chemical constituents. In Appendix D, **Figures D-2**, **D-3A**, and **D-3B** show the EMP sampling locations at the MISS and vicinity properties, and indicate the type of media sampled at each location. In Appendix A, **Table A-1** summarizes the 2002 monitoring program at the MISS for external gamma radiation, Rn gas, surface water, sediment, and groundwater.

Measurements of external gamma radiation are taken along fence line locations surrounding the MISS in order to assess potential exposure levels to the public and site workers (Appendix D, **Figure D-2**).

Atmospheric monitoring of Rn gas is conducted on-site, both in known areas of contamination and at fence line locations (Appendix D, **Figure D-2**).

Surface water and sediment sampling includes the analysis for radioactive constituents and metals along Westerly Brook and Lodi Brook (Appendix D, **Figures D-3A** and **D-3B**). Sampling locations along Lodi and Westerly Brook are used to assess both upstream and downstream conditions. Because Lodi Brook receives drainage from areas of known contamination, sampling is also conducted along the eastern and western tributaries of this stream.

Water level measurements and groundwater samples from monitoring wells enable the assessment of groundwater flow patterns and are used to evaluate groundwater quality upgradient and downgradient of the site, in the source area and at the MISS / Stepan Company boundary (Appendix D, **Figure D-2**). Groundwater in both the surficial unconsolidated sediments and bedrock is monitored at the MISS.

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# 4.0 MONITORING METHODOLOGY

Under the MISS EMP conducted in 2002, standard analytical methods approved and published by EPA and the American Society for Testing and Materials (ASTM) were used for chemical (i.e., all non-radiological) analyses. The laboratories conducting the radiological analyses adhere to EPA-approved methods and procedures developed by the Environmental Measurements Laboratory (EML) and ASTM. All laboratories analyzing FUSRAP chemical samples are certified by NJDEP. A detailed listing of the specific procedures and the data quality objectives for the monitoring conducted in the 2002 program is provided in the FMSS Chemical Data Quality Management Plan (CDQMP) (USACE 2002).

Environmental monitoring activities at the MISS in 2002 were conducted in accordance with the CDQMP and Standard Operating Procedures (SOPs) listed in the following table. The monitoring activities are based on guidelines provided in *RCRA Ground Water Monitoring: Draft Technical Guidance* (EPA 1992a); *Test Methods for Evaluating Solid Waste, Physical / Chemical Methods,* SW-846 (EPA 1997); and *A Compendium of Superfund Field Operations Methods* (EPA 1987). Groundwater samples were collected using the USEPA Region II memo dated March 20, 1988, titled *Final USEPA Region II Low Stress (Low Flow) Groundwater Sampling Standard Operating Procedure* (EPA 1988).

**Table 4-1**
**FUSRAP Instruction Guides Used for Environmental Monitoring Activities**

| SOP Number | SOP Title |
|---|---|
| SOP 410-2 | Groundwater Level Measurements (Stone & Webster 2003) |
| SOP 506-3 | Decontamination (Stone & Webster 2003) |
| SOP 302-2 | Surface Water Sampling (Stone & Webster 2003) |
| SOP 301-2 | Sediment sampling (Stone & Webster 2003) |
| 191-IG-029 | Radon / Thoron and TETLD Exchange (BNI 1993) |
| SOP 304-2 | Purging and Sampling Monitoring Wells (Stone & Webster 2003) |

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# 5.0 ANALYTICAL DATA AND INTERPRETATION OF RESULTS

This section presents the data and interpretation of results for the 2002 EMP at the MISS. Data for 2002 are presented in Appendix A, **Tables A-2** through **A-13**.

The most precise analytical method for analysis of $U_{(tot)}$ yields results in values expressed as µg/L and µg/g for water and sediment samples, respectively. To allow direct comparison of results to relevant standards and the DOE / EPA soil cleanup criteria, the data must be converted to pCi/L and pCi/g units, as appropriate. The NJDEP has established a MCL for $U_{(tot)}$ in drinking water of 30 µg/L. Regulatory compliance was determined by comparing the measured valued for $U_{(tot)}$ to the MCL of 30 µg/L. The reported U-238 concentration in pCi/L was divided by the specific activity of U-238 (0.3365 pCi/µg) to obtain the $U_{(tot)}$ in µg/L and then compared to the equivalent NJDEP MCL for $U_{(tot)}$ in drinking water of 30 µg/L. The historic data for sediment and groundwater are presented in Appendix B, **Tables B-1** through **B-4**.

## 5.1 EXTERNAL GAMMA RADIATION

External gamma radiation dose rates are measured using TETLDs in place at the MISS continuously throughout the year. Locations of TETLDs are shown on Appendix D, **Figure D-2**. Each TETLD measures a cumulative dose over the period of exposure (approximately 1 year). When corrected for shelter / absorption and background, and normalized to exactly 1 year's exposure, these detectors provide a measurement of the annual external gamma radiation dose at that location. TETLD results for the 2002 external gamma radiation dose (i.e., both raw and corrected data) are summarized in Appendix A, **Table A-2**.

The corrected data are used to calculate the external gamma radiation dose to a hypothetical maximally exposed individual conservatively assumed to be located 50 ft from the fenceline. Identification of this hypothetical individual is a function of the fenceline dose, the distance of the individual from the fenceline, and the amount of time that the individual spends at the specific location. The data from the side of the site displaying the highest radiation readings (i.e., location 21) are averaged, and the external gamma dose rate at the distance to individuals at the nearest commercial / industrial facility or residence is then determined. The calculated dose to the hypothetical maximally exposed individual from direct gamma radiation at the MISS in 2002 was 7.75 mrem/yr (Calc 610041-0107-004) (see Appendix F). The calculated dose to the hypothetical maximally exposed individual from direct gamma radiation at the MISS in 2001 and 2000 was 6.72 and 7.15 mrem/yr, respectively.

## 5.2 RADON-220 (RN-220) AND RADON-222 (RN-222)

Results of the 2002 monitoring for Rn gas (Rn-220 and Rn-222) are presented in Appendix A, **Table A-3**; detector locations are shown on Appendix D, **Figure D-2**. At each location, two types of detectors are exposed. One detector type, the RadTrack®, allows both isotopes of Rn to enter. The other detector type, the RadTrack®-modified, contains a membrane that specifically excludes Rn-220. Rn-222 results are reported as received from the laboratory (i.e., the data are obtained directly from the RadTrack®-modified detectors). Rn-220 concentrations are calculated using the RadTrack® and RadTrack®-modified data.

Rn-222 concentrations for 2002 ranged from non-detect to 0.5 pCi/L, below the NJDEP remedial action requirements (NJAC 7:28-12) of 3.0 pCi/L and EPA AL of 4 pCi/L. Rn-220 concentrations ranged from non-detect to a maximum of 2.91 pCi/L (location 24) and 2.87 (location 31). The maximum concentration of Rn-222 and Rn-220 combined is 3.17 pCi/L (location 31).

As with most low concentrations of gases in an open, unconfined area, the Rn emitted from this area dissipates quickly and does not significantly affect the general population, which is located off-site. The closest residential inhabitants live to the northeast. Locations 32 and 33 (Appendix D, **Figure D-2**) were installed in 1996 in order to examine Rn gas concentrations in this area. Rn-220 results at these two locations were well below the EPA AL and were significantly lower than the concentrations detected on-site.

## 5.3 AIRBORNE PARTICULATE DOSE

To determine the annual effective dose from airborne emissions of radioactive particulates generated during the year 2002 at the MISS and adjacent properties, multiple potential sources were considered (see Appendix E):

- In situ wind erosion at the MISS.
- Five soil load-outs at the MISS.
- Cluster No. 1 removal action.
- Cluster No. 4 removal action.
- Excavation for the proposed radiochemistry laboratory foundation at the MISS.
- Stepan Company and Sears railspurs slope cutbacks at the MISS.
- Installation of a new sewer line from the Stepan Company property to the proposed radiochemistry laboratory foundation at the MISS.

The particulate release rates from the preceding multiple potential sources were calculated using the methodology contained in the “Industrial Wind Erosion” section of EPA’s AP-42 (EPA 1995). The emissions of particulate matter from the exhaust system for the soil sample preparation laboratory was determined based on the number of soil samples prepared, the average quantity of particulate emissions resulting from the grinding of the samples, and the removal efficiency of the High Efficiency Particulate Air (HEPA) filter.

The radionuclide emission rates were based on the particulate release rates and the average radionuclide source concentrations obtained from soil measurements for each of the above operations. Specifically, the source concentrations for the isotopes U-238, Ra-226, and Th-232 were based on the average values obtained from the measurements of these radionuclides in surface soil samples for the in situ soil (DOE 1987), and average values measured in soil samples for the five soil load-outs, Cluster No. 1 removal action, Cluster No. 4 removal action, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspur slope cutbacks, and installation of the new sewer line. Unknown radionuclide source concentrations were based on the known source concentrations assuming secular equilibrium in the decay chains (Shlein 1992).

Although the emission of Rn gas is not considered in this analysis, the daughters of Rn generated by the decay of Rn-226 in dust off-site is accounted for by the model in the computation of the effective dose equivalents for the various internal and external exposure pathways. The radionuclide emissions for the year from each of the above sources were entered into the CAP88-PC, Version 2.0 to perform the following two calculations:

1. Estimation of the hypothetical doses from airborne radioactive particulates at downwind distances corresponding to individuals located at the nearest residences and nearest commercial / industrial facilities as measured from the centers of the above sources. Analyses were performed separately

for the five soil load-outs, the Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspur slope cutbacks, and installation of the new sewer line given the differences in receptor locations most affected by each of these areas. The in situ wind erosion and the exhaust hood emissions were found to be negligible, and thus were not included in the modeling analyses. Where individual receptors are affected by more than one emission source, doses caused by those sources were added. The hypothetical doses were based on the CAP88-PC, Version 2.0 default assumption that the receptor occupies the location 100% of the time (i.e., 24 hours per day, 7 days per week, 52 weeks per year). The occupancy factor of 100%, although conservative, is considered to be appropriate for a resident. To estimate the dose to an employee working normal hours, an occupancy factor of 27% (i.e., 9 hours per day, 5 days per week, 52 weeks per year) was applied to the CAP88-PC, Version 2.0 result. The hypothetical individual receiving the highest of these calculated doses was then identified as the individual maximally-exposed to the airborne particulate dose. Since this dose is based in part on wind direction and not simply the distance from the site, this hypothetical maximally–exposed individual may not be the same as the person identified in the dose calculation for external gamma radiation (Section 5.1).

2. The hypothetical collective dose from airborne radioactive particulates for the population within 50 mi (80 km) of the site was estimated using a population file (generated from county population densities) to determine the number of people in graduated, concentric grid sections radiating outward to 50 mi (80 km) from the center of the site.

The CAP88-PC, Version 2.0 model determines the maximally exposed individual based on the radionuclide emissions, local meteorological data, and other factors. The model can calculate the effective dose equivalent for any receptor of interest (e.g., residences, schools, workers).

The CAP88-PC, Version 2.0 program computes radionuclide concentrations in air, rates of deposition on ground surfaces, concentrations in food, and intake rates to people from ingestion of food produced in the assessment area. By coupling the output of the atmospheric transport models with terrestrial food chain models from the U.S. Nuclear Regulatory Commission Regulatory Guide 1.109 ("Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFRPart 50, Appendix I"), the program estimates the radionuclide concentrations in produce, leafy vegetables, milk, and meat consumed by humans. The population distribution array used in the computer model was calculated from known land surrounding the site and the year 2000 census figures. The program calculates the effective dose equivalent by combining the inhalation and ingestion intake rates and the air and ground surface concentrations with dose conversion factors, using the weighting factors in "Recommendations of the International Commission on Radiological Protection" (International Commission on Radiological Protection [ICRP] 1977). CAP88-PC, Version 2.0 calculates dose to the gonads, breast, lungs, red marrow, thyroid, and endosteum in addition to the 50-year effective dose equivalent. Doses can be tabulated as a function of radionuclide, pathway, location, and organ as shown in the calculation presented in Appendix E.

The hypothetical maximally-exposed individual in 2002 was a resident with 100% occupancy time located approximately 344 ft (105 m) west-southwest of the MISS. The 2002 airborne particulate dose to that individual, considering all site contributions throughout the year, was 0.00048 mrem/yr, which is well below the 10 mrem/yr standard specified in 40CFR61, Subpart H. The second calculation indicates that the hypothetical airborne particulate collective dose to the population in 2002, within 50 mi (80 km) of the site, was 0.003 person-rem/yr.

## 5.4 SURFACE WATER AND SEDIMENT

Surface water courses and drainage near the MISS include Westerly and Lodi Brooks (Appendix D, **Figures D-3A** and **D-3B**). Westerly Brook flows through a culvert after it enters the northwestern corner of the MISS. The subsurface culvert redirects Westerly Brook to the west, south, and then to the west again, along the northern and western property boundaries. After leaving the MISS, the culvert remains below grade for approximately 335 m before it terminates. At this point, Westerly Brook reemerges and resumes its westward course. Ultimately, Westerly Brook discharges into the Saddle River. Lodi Brook begins on the property located at 149-151 Maywood Avenue in a low marshy area that collects runoff from the 149-151 Maywood Avenue and Stepan Company properties; from there it flows southward under NJ Route 17 remaining underground most of its course. Exceptions to this are small sections on both sides of Interstate 80 and a small section along NJ Route 17. From this area, the Lodi Brook flows approximately 1.8 miles downstream of the confluence of Westerly Brook and the Saddle River before joining the Saddle River.

### 5.4.1 Surface Water

Sampling locations in 2002 (Appendix D, **Figures D-3A** and **D-3B**) included SWSD004, SWSD003, SWSD002, and SWSD001 (downstream of the site along Westerly Brook); SWSD009 (upstream location where Lodi Brook begins on the property located at 149-151 Maywood Avenue); SWSD006 and SWSD007 (on the eastern tributary of Lodi Brook); and SWSD005 (at the confluence of the eastern and western tributaries of Lodi Brook); SWSD010, SWSD011, SWSD012, SWSD013, and SWSD014 (downstream of the site along Lodi Brook). Location SWSD008 was not sampled due to stagnant water. The western branch of Lodi Brook drains portions of the MISS, Stepan Company, and 149-151 Maywood Avenue properties. Location SWSD015, which is not shown on the Appendix D **Figures D-3A** or **D-3B**, was also sampled (where Lodi Brook meets the Saddle River). Background sampling was conducted in Westerly Brook, upstream (north) of the site, at SWSD003.

Surface water samples in 2002 were collected and analyzed for metals and radioactive constituents. According to the 1992 Environmental Surveillance Report submitted by BNI, the radiological results for surface water samples were at background levels for the previous 5 years (1986-1991). Thus, surface water sampling for radionuclides and metals (except for lithium) was discontinued at that time. However, because the surface water samples collected during the Groundwater Remedial Investigation (GWRI) in 1999 indicated the presence of contamination in both Lodi and Westerly Brook, the surface water sampling was resumed (USACE 1999). In addition, it is a prudent and protective practice to sample surface water during the ongoing remedial activities that started in 1999. All samples were analyzed for gross alpha, gross beta, Ra, Th, U, and metals.

#### Radioactive Constituents

Surface water samples collected in 2002 at Westerly Brook (SWSD001, SWSD002, SWSD003, and SWSD004) and Lodi Brook (SWSD005, SWSD006, SWSD007, SWSD009, SWSD010, SWSD011, SWSD012, SWSD013, SWSD014, and SWSD015) did not exhibit elevated concentrations of the analyzed radionuclides (Appendix D, **Figures D-3A** and **D-3B**). Results for these locations were below the Federal and State drinking water standards and the results are comparable to background measurements at SWSD003 (Appendix A, **Table A-4**).

#### Metals

Federal drinking water and NJ groundwater standards are used for evaluating metal concentrations in surface water. Although surface water is not used as a source of potable water, Federal and State drinking water standards are used as a conservative basis for evaluation of the results. These regulatory standards are provided in Appendix A, **Table A-5** along with detected concentrations of metals in surface water.

Monitoring results revealed elevated concentrations in surface water for iron and manganese above the Federal and State Criteria. Most locations sampled (on Lodi Brook or Westerly Brook) had an exceedance for at least one of these metals and several locations had exceedances of the two metals.

The Federal and State Criteria for arsenic and lead were exceeded in Westerly Brook at SWSD004 (117 µg/L for arsenic and 21.2 µg/L for lead). Arsenic exceeded the State criterion at SWSD002 (11.0 µg/L). Lead exceeded the State criteria at SWSD010 (10.6 µg/L). The Federal and State Criteria for aluminum were also exceeded in Westerly Brook with a concentration of 693.0 µg/L at SWSD004 and in Lodi Brook with a maximum concentration of 525 µg/L at SWSD010.

### 5.4.2 Sediment

The sediment sampling program was extended in 2001 to include more sample locations downstream of both Westerly and Lodi Brook to identify the pattern of contaminant migration downstream from MISS. As shown on Appendix D, **Figures D-3A** and **D-3B**, sediment samples were collected at one upstream location (SWSD003) and two downstream locations (SWSD001, SWSD002) in Westerly Brook, and one upstream location and five downstream locations in Lodi Brook. A sediment sample at SWSD008 (aboveground location) could not be collected due to stagnant water; at the underground locations (SWSD011, SWSD014, and SWSD004), sediment samples could not be collected due to significant flow.

#### Radioactive Constituents

- Consistent with historical results, the sediment samples collected in Westerly Brook (SWSD001, SWSD002) were below the soil cleanup criteria and comparable to background measurements at SWSD003 (see Appendix A, **Table A-6A**).
- Upstream, at location SWSD009 where Lodi Brook begins on the property located at 149-151 Maywood Avenue, results of sample analyses exceeded the soil cleanup criteria for Ra-228 (19.20 pCi/g) and Th-232 (15.70 pCi/g). SWSD009 is a recent monitoring location and thus, no long-term historical comparisons can be made.
- In the eastern tributary of Lodi Brook (see Appendix D, **Figure D-3A**), the measured concentrations of Ra-228 (17.70 pCi/g), Th-228 (16.30 pCi/g), and Th-232 (15.20 pCi/g) at SWSD006 exceeded the soil cleanup criteria. At SWSD007, the measured concentrations of Ra-226 (6.58 pCi/g), Ra-228 (20.0 pCi/g), and Th-232 (17.60 pCi/g) also exceeded the soil cleanup criteria. In 2001, exceedances of the soil cleanup criteria for various measured radionuclides occurred at SWSD007.
- Downstream, at location SWSD005, results of sample analyses were above background, but below the soil cleanup criteria for the all measured radionuclides. There have been occasional exceedances over the years of the soil cleanup criteria for Ra-228 and Th-232. In 2001, the measured concentrations of various radionuclides exceeded the soil cleanup criteria at SWSD005.
- Further downstream at SWSD010, SWSD012, SWSD013, and SWSD015 (Appendix D, **Figures D-3A** and **D-3B**) in Lodi Brook, detected concentrations of all analyzed radionuclides were below the soil cleanup criteria. The detected concentrations of Ra-228 at SWSD013 (2.15 pCi/g) and Th-232 (1.96 pCi/g) at SWSD010 were above background, but below the soil cleanup criteria of 5 pCi/g. In 2001, the detected concentrations of all analyzed radionuclides at SWSD010 and SWSD015 were also below the soil cleanup criteria.

Results for 2002 confirm the presence of localized contamination in the streambed sediment of the upstream location where Lodi Brook originate and downstream at the eastern tributary of Lodi Brook. Variation of sediment concentrations from one year to another is typical and due to factors, such as local disturbances during and prior to sampling, and the time since the last rainfall event.

### Metals

Metals concentrations in sediment are compared to the proposed NJ Soil Cleanup Criteria (SCC), and to the Sediment Screening Values in the BEE (NJDEP 1998).

The NJ residential, and less stringent nonresidential, soil cleanup standards provide a basis for evaluating metal concentrations in sediment for the mixed land use area around MISS (NJDEP 1992). These standards, as appropriate for the zoning of a given sampling location, are provided in Appendix A, **Table A-6B** along with the detected concentrations of metals in sediment. Sampling locations SWSD003 (background), SWSD005, SWSD006, SWSD007, SWSD009, SWSD010, and SWSD015 are in areas zoned as light industrial (nonresidential), while sampling locations SWSD001, SWSD002, SWSD012, and SWSD013 are in areas zoned for residential use.

Only the concentrations of arsenic at location SWSD006 and SWSD007 exceeded the NJ Soil Cleanup Criteria. There were no exceedances of the soil cleanup criteria in Westerly Brook. The sampling results for each 2002 sampling location are summarized as follows:

- Consistent with the past several years, no metal concentrations exceeded the soil cleanup criteria at SWSD003, the upstream (background) monitoring location along Westerly Brook in an area zoned for nonresidential use.
- No metal concentrations exceeded the soil cleanup criteria at SWSD002 and SWSD001, the downstream monitoring locations along Westerly Brook in an area zoned for residential use. At SWSD002, these results are consistent with the past several years. In 2001, the detected concentrations of metals at SWSD001 were also below the soil cleanup criteria.
- At SWSD006, upstream of SWSD007, in the eastern tributary of Lodi Brook, the measured concentration of arsenic (29.3 mg/kg) exceeded the corresponding soil cleanup criteria. The concentrations of all other metals were below their respective residential or nonresidential soil cleanup criteria.
- At SWSD007, in the eastern tributary of Lodi Brook, the measured concentration arsenic (22.4 mg/kg) exceeded the corresponding soil cleanup criteria of 20 mg/kg. The concentrations of all other metals were below their respective residential or nonresidential soil cleanup criteria. Although SWSD007 is an upstream location in an area zoned for nonresidential use, two downstream locations are located in an area zoned for residential use; therefore, it is prudent to evaluate upstream data against residential cleanup standards as well as nonresidential standards. In 2001, the measured arsenic concentration at SWS007 was significantly elevated compared to background, but below the soil cleanup criteria.
- At SWSD009, the upstream location where Lodi Brook begins on the property located at 149-151 Maywood Avenue, the measured concentrations of the various metals were below their respective soil cleanup criteria. Lead (209 mg/kg) was elevated compared to background level, but well below the soil cleanup criteria of 600 mg/kg. SWSD009 is a recent monitoring location and thus, no long-term historical comparisons can be made.
- At SWSD005, at the confluence of the eastern and western tributaries of Lodi Brook, no metal concentrations exceeded the residential or nonresidential soil cleanup criteria. These results are consistent with the past several years.

- At SWSD010, SWSD12, SWSD013, downstream locations along Lodi Brook, no metal concentrations exceeded either the residential or nonresidential soil cleanup criteria. In 2001, the measured metal concentrations at SWSD010 also did not exceed either the residential or nonresidential soil cleanup criteria
- At SWSD015, a downstream location at the confluence of Lodi Brook and Saddle River, no metal concentrations exceeded the residential or nonresidential soil cleanup criteria. In 2001, the measured metal concentrations also did not exceed either the residential or nonresidential soil cleanup criteria.

### Sediment Screening Values in the BEE

To aid in the identification of contaminants of potential ecological concern, site-related metal concentrations in sediment are compared to the LEL and SEL concentrations listed in the screening level criteria presented in the "Guidance for Sediment Quality Evaluations" (NJDEP 1998). Note that LEL and SEL values are only established for seven metals.

Various metal concentrations exceeded the LEL used in the BEE at every sampling location. There were exceedances for copper, lead, and zinc in Westerly Brook and lead, arsenic, copper, zinc, chromium, and nickel in Lodi Brook. However, metal concentrations exceeded SEL concentrations at only two locations, SWSD006 and SWSD007 (Appendix D, **Figure D-3A** and **D-3B**).

- At SWSD003, the nonresidential upstream location along Westerly Brook, copper, lead, and zinc exceeded the LEL with concentrations of 59.5, 66.6, and 220 mg/kg, respectively.
- At SWSD002 and SWSD001, the residential downstream locations along Westerly Brook, copper and lead exceeded the LEL. Nickel and zinc exceeded the LEL at SWSD002. None of the metals exceeded SEL.
- At SWSD009, upstream of Lodi Brook, all metals exceeded the LEL. None of the metals exceeded the SEL.
- At SWSD006 and SWSD007, chromium, copper, and lead exceeded the SEL with maximum concentrations at SWSD006 for chromium (268 mg/kg), copper (490 mg/kg), and lead (490 mg/kg).
- At SWSD005, at the confluence of the eastern and western tributaries of Lodi Brook, only copper exceeded the LEL with concentrations of 24.7 mg/kg.
- At SWSD010, SWSD012, and SWSD013, downstream locations along Lodi Brook, the metal concentrations of chromium, copper, lead, and zinc exceeded the LEL. At SWSD015, the metal concentrations of cadmium, chromium, copper, lead, and zinc exceeded the LEL. However, none of the metal concentrations at these locations exceeded the SEL.

## 5.5 GROUNDWATER

The locations of groundwater monitoring wells at the MISS are shown on Appendix D, **Figure D-2**. Background information, descriptions of activities performed under the groundwater monitoring program, and monitoring results are discussed below.

### 5.5.1 Groundwater Quality

#### Natural System

Groundwater in the Maywood area flows in both the bedrock and the overlying unconsolidated sediments. Bedrock is composed of fractured sandstone and shale belonging to the Passaic Formation. Unconsolidated sediments are composed of interbedded sand and clay of glacial origin. Although there is no continuous confining layer present across the Maywood Site, the Remedial Investigation report for the Maywood Site, indicated that the unconsolidated overburden deposits may be divided into three units that interfinger with the underlying and overlying unit (DOE 1992). The lower lithostratigraphic unit is characterized as consisting of stratified, moderately well sorted to well sorted fine grained sands and silts, with varying amounts of organic material. The middle lithostratigraphic unit consists of layers of clayey silt and silty clay with clayey to clean sand. The upper lithostratigraphic unit consists of undifferentiated deposits of sand, silt, and gravel. These deposits are poorly to moderately sorted.

Bulk groundwater flow is predominantly horizontal; however, hydraulic head elevations obtained within the FMSS indicate that there is a downward component of groundwater flow within the MISS / Stepan property, and an apparent upward component of groundwater flow near groundwater discharge points such as the Saddle River and Lodi Brook. This information is further presented in the following sections.

#### Water Level Measurements

Water level measurements are obtained quarterly from 35 monitoring wells (Appendix D, **Figure D-2**). Of these 35 monitoring wells, 15 are completed in unconsolidated overburden deposits, while 20 are completed in bedrock. During the synoptic gauging year 2002, four rounds of water levels were obtained as part of the Environmental Monitoring Program (EMP). The four synoptic gauging rounds were performed in March, May, August, and November 2002. Water Level Record Sheets for the four synoptic water level gauging rounds are provided in Appendix C. Water levels fluctuate in response to short and long term seasonal changes in precipitation and evapo-transpiration. In the unconsolidated deposits, groundwater levels measured during the four gauging rounds varied as follows:

**Table 5-1**
**Minimum and Maximum Water Level Elevations in Overburden Monitoring Wells**
**Synoptic Gauging Year 2002**

| Parameter | Measurement Date | | | |
|---|---|---|---|---|
| | 3/7/02 | 5/7/02 | 8/26/02 | 11/20/02 |
| Minimum GW Elevation (ft NGVD)* | 38.59 | 39.34 | 38.39 | 42.95 |
| Maximum GW Elevation (ft NGVD)* | 50.53 | 52.27 | 49.07 | 53.52 |
| Well Depicting Minimum (GW Elevation)** | B38W14S | B38W14S | B38W14S | B38W15S |
| Well Depicting Maximum (GW Elevation)** | MISS-2A | MISS-2A | MISS-2A | MISS-3A |

Notes: * NGVD – National Geodetic Vertical Datum – 1929
** GW – Groundwater Elevation

In Appendix A, **Table A-7** presents the surveyed elevation of the top of inner casing (TOC), depth to water below TOC, and groundwater elevations for the 15 monitoring wells gauged and completed in the unconsolidated deposits. As depicted in **Table 5-1**, wells B38W14S and MISS-3A/MISS-2A showed the minimum and maximum water level elevations measured during the course of the year 2002 synoptic gauging program. Water levels measured in B38W14S fluctuated by 0.95 ft throughout the four gauging rounds, whereas well MISS-3A varied by 6.50 ft and MISS-2A varied by 3.6 feet. The maximum and minimum groundwater elevations occurred during the months of November and August 2002, respectively. It should be noted that water levels could not be obtained from B38W14S in November 2002, therefore, the fluctuations noted in this well (0.95 ft) were based on three, rather than four, synoptic gauging rounds.

In the bedrock aquifer, groundwater levels measured during the four gauging rounds ranged as given in **Table 5-2**:

**Table 5-2**
**Minimum and Maximum Water Level Elevations in Bedrock Monitoring Wells**
**Synoptic Gauging Year 2002**

| Parameter | Measurement Date | | | |
|---|---|---|---|---|
| | March 7 | May 7 | August 26 | November 20 |
| Minimum GW Elevation (ft NGVD) | 40.14 | 40.09 | 38.54 | 43.26 |
| Maximum GW Elevation (ft NGVD) | 58.99 | 62.22 | 55.14 | 64.12 |
| Well Depicting Minimum GW Elevation | B38W14D | B38W14D | B38W14D | B38W15D |
| Well Depicting Maximum GW Elevation | B38W02D | B38W02D | B38W02D | B38W02D |

Notes: * NGVD – National Geodetic Vertical Datum – 1929
** GW – Groundwater Elevation

In Appendix A, **Table A-8** presents the surveyed elevation of the top of riser (TOR) / TOC, depth to water below TOR / TOC, and groundwater elevations for the 20 bedrock monitoring wells. As depicted in Appendix A, **Table A-8**, well B38W14D and B38W02D showed the minimum and maximum water level fluctuations that occurred through out the course of the year 2002 synoptic gauging program. Well B38W14D varied by 1.60 ft, whereas, well B38W02D varied by 8.98 ft. For monitoring well B38W14D, the maximum and minimum groundwater elevations occurred during the months of March 2002 and August 2002, respectively. It should be noted that access to well B38W14D could not be obtained in November 2002. Therefore, fluctuation data for this well is based on three synoptic gauging rounds. Furthermore, for B38W02D, the maximum and minimum groundwater elevations occurred during the months of November and August 2002, respectively.

### Groundwater Flow System

Water table contour maps for the unconsolidated deposits and bedrock potentiometric surface maps are presented on Appendix D, **Figures D-4** through **D-7**. **Figures D-4** and **D-5** present the groundwater flow for wells completed in the overburden soils; **Figures D-6** and **D-7** present the potentiometric surface maps for the wells completed in bedrock. Lateral groundwater flow at the MISS is strongly controlled by the morphology of the bedrock surface. The bedrock slopes westward across the site, flattens, and then rises to a subtle ridge along the Saddle River (DOE 1992). Horizontal hydraulic gradients reflect this configuration and flatten off-site, to the west. A figure depicting the contours of the bedrock surface excerpted from the Remedial Investigation Report, are presented on Appendix D, **Figure D-8** (BNI 1992). Bedrock highs exist in the northeast portion of the FMSS within the Stepan Company property and locally within the MISS. These bedrock highs form a local groundwater divide and control the direction of groundwater flow in the overburden and bedrock aquifers.

During the year 2002 synoptic gauging rounds, the horizontal hydraulic gradient varied spatially but typically ranged from approximately 0.007 to 0.01 ft/ft off-site and 0.007 to 0.02 ft/ft within the MISS / Stepan Company property. The hydraulic gradient in the vicinity of Former Retention Ponds A and B does not appear to be as the steep as the gradient in proximity to Former Retention Pond C. The direction of groundwater flow in the overburden aquifer is predominantly to the west-southwest towards the Saddle River, with a component of groundwater flow towards the northwest, refer to Appendix D, **Figures D-4** and **D-5**.

The direction of groundwater flow in bedrock is shown on Appendix D, **Figures D-6** and **D-7**. As depicted in these figures, groundwater flow is dictated by the presence of a groundwater high. This roughly coincides with a bedrock high located in the northeast corner of the site in the vicinity of the Stepan Company property, as shown on Appendix D, **Figure D-8**. In Appendix D, **Figures D-6** and **D-7** depict the groundwater divide, with groundwater flowing predominantly to the west-southwest, with a component of groundwater flow to the northwest. In the bedrock aquifer, the horizontal hydraulic gradients ranged between 0.005 ft/ft off-site to 0.010 ft/ft within the MISS / Stepan Company property during the year 2002 synoptic gauging program. The shallower gradient was present in vicinity of Former Retention Ponds A and B, with a steeper gradient on the Stepan Company property. Off-site, the hydraulic gradient is more subtle and ranged between 0.002 and 0.003 ft/ft.

Based on the synoptic gauging rounds, information regarding the vertical component of groundwater flow may be inferred. As depicted in Appendix A, **Table A-9**, 13 well clusters were used to determine if a horizontal or vertical gradient (either upward or downward) exists between overburden and bedrock wells. Of the nine well clusters located within the MISS / Stepan Company property, the overburden well depicted a greater hydraulic head than the wells completed in bedrock at five well clusters. Downward gradients were consistently measured in well clusters MISS-2A/2B, MISS-5A/5B, MISS-7A/7B, B38W19S/19D, B38W25S/25D during the four synoptic gauging rounds. In well clusters MISS-3A/3B and MISS-4A/4B, the water levels obtained in May 2002, showed a strong upward gradient, whereas the other three gauging rounds depicted a strong downward gradient. In well MISS-1AA/1B, head measurements were neither consistently upward nor downward. Lastly, water levels obtained from B38W24S/24D were principally upward, with the exception of the August 2002 gauging round, which depicted a downward component of flow. The data presented in Appendix A, **Table A-9** principally indicates that the MISS / Stepan Company property represents a recharge area for the unconsolidated / overburden aquifer. As noted there are exceptions to this statement. At the wells that showed upward gradients during various times of the year, bedrock may be recharging the overburden aquifer, or the bedrock aquifer may be under confined conditions.

Water levels measured in off-site monitoring wells in 2002 principally indicate that for well clusters B38W12A/12B, B38W14S/14D, and B38W15S/15D, the hydraulic heads in the bedrock aquifer were higher than the heads in the overburden aquifer, indicating flow from the bedrock aquifer to the overburden aquifer. These wells are located in proximity to a drainage swale / Lodi Brook (B38W12A/12B) and the Saddle River (B38W14S/14D and B38W15S/15D), where an upward gradient may be expected. The other off-site well cluster, B38W17A/17B, predominantly displayed a horizontal component of groundwater flow. This well appears to be located transitionally between a recharge and discharge area.

### Field Parameters

In Appendix A, **Table A-10** presents a summary of field parameters measured during annual sampling activities at the MISS. Field parameters include temperature, pH, oxidation / reduction potential (Eh), turbidity, specific conductance, and dissolved oxygen. These parameters are monitored during the purging of the wells to determine when to commence sample collection. Field procedures require these parameters to reach a stable condition prior to sampling. Measurements are taken systematically during the purging procedure and are recorded in field logbooks. In Appendix A, **Table A-10** represents the stabilized values.

### Water Quality Parameters

Groundwater quality at the MISS has been evaluated historically for the standard parameters carbonate, bicarbonate, chloride, nitrate, sulfate, and total dissolved solids (TDS). Analyses for these parameters were discontinued after 1996.

## 5.5.2 Groundwater - Radiological Constituents

Groundwater samples collected from monitoring wells both on-site and off-site (Appendix D, **Figure D-2**) between July and August 2002 were analyzed for radioactive constituents. Eleven (11) shallow wells and 12 deep wells are included in the monitoring plan to be sampled for radionuclides, metals, and VOCs. The location of these wells, with respect to the MISS, is given below.

**Table 5-3**
**Locations of Wells with Respect to the MISS**

| Well Type | Location |
|---|---|
| Upgradient Wells | B38W-01S, 02D |
| On-site Wells | MISS-1AA, 1B, 2A, 2B, 5A, 5B, 6A, 7B<br>B38W-19S, 19D, 18D, 24S, 24D, 25S, 25D |
| Downgradient Wells | B38W-14S, 14D, 15S, 15D, 17A, 17B |

Although groundwater at the site is not used as a source of potable water, Federal and State drinking water standards are used as a conservative basis for evaluation of the results. Results are provided in Appendix A, **Table A-11** and discussed below.

- Gross alpha concentrations exceeded the Federal and State drinking water standards in seven on-site wells (MISS02A, MISS05A, MISS05B, B38W18D, MISS07B, B38W19S, and B38W25S) and one down-gradient well (B38W15S). The concentrations of gross alpha in these wells ranged from a minimum of 15.94 pCi/L at well B38W15S to a maximum of 127.08 pCi/L at MISS05A. As per the Federal Standards, the U results were subtracted from gross alpha results. In 2001, gross alpha concentrations were also exceeded in five wells with a maximum concentration of 42.00 pCi/L at B38W18D; the five wells were on-site wells.
- Gross beta results exceeded the Federal and State standards in two down-gradient wells (B38W15S, B38W17B) and four on-site wells (B38W25S, B38W19D, MISS05A, and MISS05B). The concentrations in these six wells ranged from a minimum of 72.0 pCi/L at B38W25S to a maximum of 336.0 pCi/L at MISS05B. In 2001, gross beta concentrations were exceeded in six wells with a maximum concentration of 355.75 pCi/L at B38W19D; three of these wells were on-site and three wells were down-gradient.

- Consistent with historical results, Ra-226 was detected in most groundwater samples, but at concentrations that are less than the Federal and State drinking water standard for combined Ra (Ra-226 and Ra-228) of 5 pCi/L. The measured concentrations ranged from non-detected to a maximum of 1.34 pCi/L at B38W14D. In 2001, the maximum Ra-226 concentration occurred at MISS02A with a value of 1.55 pCi/L.
- Consistent with historical results, Ra-228 was detected in most groundwater samples, but at concentrations that are less than the Federal and State drinking water standards for combined Ra. The reported concentrations of Ra-228 ranged from non-detected to a maximum of 4.02 pCi/L at MISS05A. The concentration at MISS05A was elevated, but below the Federal and State drinking water standard for combined Ra of 5 pCi/L. In 2001, the maximum Ra-228 concentration was detected at B38W24S with a value of 4.68 pCi/L.
- Consistent with general historical results, the combined concentrations of Ra-226 and Ra-228 were significantly less than the Federal and State drinking water standard of 5 pCi/L (for combined Ra-226 and Ra-228). The maximum combined Ra concentration was detected at MISS05A (4.38 pCi/L). Although the SWDA does not apply because groundwater at the MISS is not used as a source of drinking water, the combined Ra-226 and Ra-228 concentrations were compared to the SWDA Ra standard to evaluate groundwater quality. In 2001, the Ra concentrations at B38W24S (4.97 pCi/L) and B38W18D (4.94 pCi/L) were close enough to the standard limit of 5 pCi/L.
- Consistent with historical results, the detected concentrations of Th-228 at the various sampling locations were not elevated. The maximum concentration of Th-228 (0.58 pCi/L) occurred at B38W18D. In 2001, the maximum Th-228 concentration also occurred at B38W18D with a measured value of 1.71 pCi/L.
- Consistent with historical results, Th-230 was detected in almost all of the groundwater samples with low concentrations. The maximum concentration of Th-230 (1.4 pCi/L) occurred at B38W14D. In 2001, Th-230 was also detected in most of the groundwater samples with a maximum concentration of 2.59 pCi/L at B38W17A.
- Consistent with historical results, the detected concentrations of Th-232 at the various sampling locations were low. The maximum concentration of Th-232 (0.68 pCi/L) was detected at B38W18D. In 2001, the maximum Th-232 concentration also occurred at B38W18D with a measured concentration of 0.91 pCi/L.
- The combined concentrations of Th-228, Th-230, and Th-232 were low at all of the monitoring locations. The maximum combined concentrations of Th-228, Th-230, and Th-232 occurred at B38W18D with a value of 1.99 pCi/L. In 2001, the maximum combined concentration of Th-228, Th-230, and Th-232 occurred at B38W17A with a value of 3.40 pCi/L.
- Consistent with historical results, the $U_{(tot)}$ concentrations in groundwater were much less than the SDWA standards with one exception. The maximum $U_{(tot)}$ concentration occurred at MISS05A with a value of 70.92 pCi/L (103.71 µg/L). Although less than the concentrations measured during the period 1996-2000, the $U_{(tot)}$ concentration at MISS05A is still well above the Federal and State drinking water standard of 30 µg/L. MISS05A is an overburden monitoring well located on-site near a former retention pond and areas of contaminated soil. Monitoring well B38W18D (bedrock well) located near Building 76 contained 3.02 pCi/L of $U_{(tot)}$ compared to 2.65 pCi/L in 2001. The maximum concentration of $U_{(tot)}$ detected off-site was 6.39 pCi/L at monitoring well B38W15D, located southwest (down-gradient) of the site. In 2001, the maximum concentration of $U_{(tot)}$ detected off-site was also found at B38W15D with a concentration of 8.20 pCi/L.

### 5.5.3 Groundwater - Metals

Although groundwater at the MISS is not used as a source for public drinking water, the SDWA MCLs and the NJ Groundwater Quality Standards for Class IIA aquifers were used as a basis for comparison for metal analytical data at the MISS. Metals detected in groundwater are reported in Appendix A, **Table A-12**.

Common metals that occur in abundance at the background locations (B38W01S and B38W02D) and in most of the monitoring wells include iron and manganese. These metals often exceed NJ Groundwater Quality Standards for Class IIA aquifers. Results for other metals are discussed below.

In 2002, arsenic concentrations in groundwater exceeded the SDWA MCL (50 µg/L) in three on-site wells MISS02A (2110 µg/L), B38W19D (71.0 µg/L), and MISS07B (56.5 µg/L). Four other wells; MISS05B (20.2 µg/L), B38W15D (13.9 µg/L), B38W18D (8.7 µg/L), and B38W24D (8.4 µg/L) exceeded the State water quality limit (0.02 µg/L) with a practical quantitation limit (PQL) of 8 µg/L. These wells have historically exhibited comparable concentrations for the metal. Although the measured concentrations from the other wells exceeded the more stringent State groundwater quality criteria, all but those discussed above were less than the PQL, which is published by the State as that concentration that can reasonably be quantified by standard analytical methods. In such cases, where the PQL is higher than the groundwater quality criterion, the NJ regulations do not consider a discharge to be causing a contravention of that constituent standard as long as the concentration of the constituent in the affected groundwater is less than the relevant PQL (NJAC 7:9-6.9). Therefore, only at wells mentioned above, was the State limit exceeded.

- Antimony was not detected in any of the monitoring wells during the year 2002. In 2001, antimony was not detected in any of the monitoring wells. All other detected concentrations in 2001 were less than the Federal drinking water limit and the State PQL (20 µg/L), which is higher than the GWQC of 2 µg/L. Historically, there have been occasional exceedances of the Federal drinking water limit for antimony at various monitoring wells (B38W17A, MISS05A, MISS06A, and MISS07B).
- Consistent with the past several years, the maximum beryllium concentration reported was at well B38W01S (1.6 µg/L) in 2002. All reported beryllium concentrations (wells B38W24D and B38W24S) were less than the Federal limit of 4 µg/L as was the case for the past several years. The reported beryllium concentrations ranged from a low of 1.0 to a maximum of 1.6 µg/L which exceeds the State GWQC (0.008 µg/L); however, all results were well below the PQL (20 µg/L) and therefore do not constitute a “contravention of that constituent standard” according to State regulations. In 2001, the maximum beryllium concentration occurred at B38W01S with a value of 2.2 µg/L.
- Cadmium was not detected in any of the monitoring wells. In 2001, the maximum cadmium concentration occurred at off-site well B38W14D with a value of 4.7 µg/L.
- Chromium was detected in many of the wells with concentrations generally below the Federal and State limits of 100 µg/L. The only exceedance above the Federal and State Standards of 100 µg/L was detected at B38W17A (102 µg/L). In 2001, chromium was found in most of the wells; however, no exceedance of the SWDA standard occurred. Historically, the highest chromium concentrations have occurred most frequently at B38W17A.
- Lead was not detected in any of the monitoring wells. In 2001, lead was only detected in one well at B38W15S with a concentration of 5.0 µg/L. Historically, there have been occasional exceedances of the Federal drinking water limit for lead at various wells (B38W14S, B38W15D, B38W17A, and MISS06A).

- Lithium is a metal present at the site as a result of MCW site processing activities. However, no State or Federal limits have been set. Samples are analyzed for this parameter to establish a database of information on its distribution. Lithium was detected in many wells with maximum concentrations at MISS02A (8,950 µg/L) and MISS02B (8,160 µg/L). In 2001, lithium was detected in all 23 sampled wells at concentrations ranging from 30.5 µg/L (B3814S) to 11,900 µg/L (MISS02B). Historically, lithium concentrations have consistently been highest at MISS02B.
- Consistent with historical results, the highest concentration of nickel was detected in well B38W17A at a value of 102 µg/L. This concentration is the only exceedance above the State water quality limit of 100 µg/L. In 2001, the only exceedance of the State water quality limit for nickel also occurred at monitoring well B38W17A with a value of 114 µg/L. During the last 10 years, nickel concentrations at B38W17A have consistently been the highest ranging from a low of 56.3 µg/L in June 2001 to a high of 824 µg/L in July 1993.

### 5.5.4 Groundwater - Organic Compounds

Groundwater samples were also analyzed for VOCs. The pattern of groundwater contamination with VOCs in 2002 (Appendix A, **Table A-13**) is consistent with historical results (Appendix B, **Table B-4**).

The prevalent organic constituents in groundwater at the MISS are PCE and its degradation products: TCE, DCEs, and vinyl chloride. As seen historically at off-site wells B38W14D, B38W14S, and B38W15D, some or all of these compounds were detected in concentrations that exceeded the State groundwater quality standards for Class IIA waters and Federal drinking water limits. The denser compounds were all detected in higher concentrations in the deep wells.

- Historically PCE, TCE, and DCEs were also identified in on-site deep wells MISS01B and MISS07B, but not in their shallow counterparts.
- Benzene was not detected in shallow wells. In the deep wells, benzene was identified in some wells at estimated concentrations between 0.5 and 0.7 µg/L with an exceptionally high concentration of 680 µg/L found at well MISS05B. In 2001, benzene was also identified in many deep wells at concentrations between 0.2 to 0.6 µg/L. A very high concentration of 330 µg/L also occurred at well MISS05B during 2001.

# 6.0 CONCLUSIONS

## 6.1 EXTERNAL GAMMA RADIATION

The 2002 monitors for gamma radiation (TETLDs) were collected at 14 site locations and 1 off-site background location (Appendix D, **Figure D-2**). Site results, corrected for background, exposure duration, and attenuation, ranged from a minimum equal to background (locations 32 and 33) to a maximum of 713.2 mrem/yr (above background) at location 21 (Appendix A, **Table A-2**). At 4 of the 14 locations, measured external gamma radiation exceeded the 100 mrem annual dose limit specified by the DOE and the NRC.

At Stepan property locations 30 and 31, south of the lawn, external gamma results were 51.5 and 94.6 mrem/yr, respectively. North of the lawn at locations 32 and 33, results were lower than background. These four locations are closest to potential receptors, and when time and distance are factored any doses would likely be less than regulatory limits. The doses measured at these locations represent the potential dose a person could receive if they spent the entire year at that location. This scenario is highly implausible; any received doses would be considerably lower than these measured results because the potential receptors would spend much less time at these locations.

The calculated dose from direct gamma exposure at the MISS to a hypothetical maximally-exposed individual assumed to be located 50 ft from the fenceline at location 21 was 7.75 mrem/yr (Calc. 610041-0107-004) (see Appendix F). This is a conservative approach since the nearest receptor is located approximately 200 ft from location 21. The results obtained from the gamma radiation monitors are consistent with historical data and all locations will continue to be monitored during 2003.

## 6.2 RADON-220 (RN-220) AND RADON-222 (RN-222)

Cumulative Rn measurements were collected at 14 site locations and 1 off-site background location (Appendix D, **Figure D-2** and Appendix A, **Table A-3**). Measured Rn-222 concentrations ranged from non-detect to 0.5 pCi/L and therefore were well below the NJDEP remedial action requirements of 3.0 and 4 pCi/L action level identified by the EPA (EPA 1992b).

Rn-220 concentrations ranged from non-detect to a maximum of 2.91 pCi/L (location 24). This value is the highest of 15 values. The next highest values are 2.87 and 2.28 pCi/L. Results of Rn monitoring are consistent with last year results and all locations will continue to be monitored during 2003.

## 6.3 AIRBORNE PARTICULATE DOSE

The airborne particulate dose to the hypothetical maximally exposed individual in 2002 was a resident with 100% occupancy located approximately 105 m west-southwest of the MISS. The 2002 airborne particulate dose to that individual, considering all site contributions throughout the year, was 0.00048 mrem/yr. This is well below the 10 mrem/yr standard specified in 40CFR61, Subpart H. The hypothetical airborne particulate collective dose to the population within 50 mi (80 km) of the site was 0.003 person-rem/yr.

## 6.4 CUMULATIVE DOSE FROM EXTERNAL GAMMA RADIATION AND AIRBORNE PARTICULATE

The location of the maximally exposed individual from direct gamma radiation and the location of the maximally exposed individual from airborne particulates are different. The calculated maximally exposed individual from direct gamma radiation emitted at MISS in 2002 occurred 50 ft from location 21, which is located on the southern perimeter of the site. The calculated cumulative dose from the external gamma radiation at the above location was 7.75 mrem/yr (see Section 5.1).

The location of the maximally exposed individual as determined by the dispersion modeling performed for the Annual NESHAP Compliance Report – Year 2002 occurred at a residence located approximately 344 ft (105 m) west-southwest of the MISS (see Appendix E). The calculated annual effective dose to the maximally exposed individual was 0.00048 mrem/yr. The maximum annual effective dose is almost entirely the result of the internal doses received from the inhalation of dust particles with a small contribution from the ingestion of plant borne dust.

In light of the above, the calculated cumulative dose from external gamma radiation and airborne particulates to a hypothetical maximally exposed individual is essentially the external gamma radiation dose. The calculated cumulative dose from external gamma radiation and airborne particulates of 7.75 mrem/yr for the year 2002 is well below the NRC standard of 100 mrem/yr (from all sources, excluding Rn).

## 6.5 SURFACE WATER

Surface water samples in 2002 were collected and analyzed for radioactive constituents and metals (Appendix A, **Tables A-4** and **A-5**, respectively). Radionuclide concentrations in surface water samples collected in 2002 were below the Federal and State Standards. The maximum concentration for combined Ra-226 and Ra-228 was 1.54 pCi/L (SWSD006). All other radioactive constituents were below the Federal and State standards. Historically, surface water has not exhibited above-background concentrations of radionuclides during past environmental sampling rounds. The measured concentrations of iron and manganese exceeded the State criteria at almost every location. The Federal and State criteria for arsenic and lead were exceeded in Westerly Brook at SWSD004 (117 µg/L for arsenic and 21.2 µg/L for lead). The State criterion of 8 µg/L for arsenic was exceeded in SWSD002 (11 µg/L); and the State criterion for lead of 5 µg/L was exceeded in SWSD007 (5.5 µg/L), SWSD009 (6.1 µg/L), and SWSD010 (10.6 µg/L). The Federal (secondary standard) and State criteria for aluminum of 200 µg/L were also exceeded in Westerly Brook at SWSD004 with a concentration of 693 µg/L and in Lodi Brook at SWSD010 with a concentration of 525 µg/L. Surface water will continue to be monitored during 2003.

## 6.6 SEDIMENT

Because there are no standards for sediment, the soil cleanup criteria as stated in Section 2.2 are used as a basis for evaluating the analytical results. In 2002, radionuclide concentrations in sediment samples collected in Westerly Brook were within the background concentration and below the State soil cleanup criteria. However, the measured concentrations collected upstream along Lodi Brook exceeded the DOE / EPA soil cleanup criteria at four locations. At SWSD009, the measured concentrations of Ra-228 (19.20 pCi/g) and Th-232 (15.70 pCi/g) exceeded the cleanup criteria. At SWSD006 (in the eastern tributary of Lodi Brook), the radionuclides concentrations of Ra-228 (17.70 pCi/g), Th-228 (16.30 pCi/g), and Th-232 (15.20 pCi/g) exceeded the State cleanup criteria. At SWSD007, Ra-226 (6.58 pCi/g), Ra-228 (20.0 pCi/g), and Th-232 (17.6 pCi/g) exceeded the State cleanup criteria. At SWSD005 (at the confluence of the eastern and western tributaries of Lodi Brook), the measured concentrations of various radionuclides were above background, but below the soil cleanup criteria. Further downstream at SWSD010, SWSD012, SWSD013, and SWSD015, detected concentrations of all radionuclides were above background but below the soil cleanup criteria. Results for 2002 confirm the presence of localized radiological contamination in the streambed sediment of the eastern tributary of Lodi Brook. Various metal concentrations in sediment samples collected in Westerly Brook and Lodi Brook also exceeded the

LEL. Some metal concentrations exceeded the SEL at two locations, SWSD006 and SWSD007 (Appendix A, **Table A-6B**). Sediment will continue to be monitored for radionuclides and metals during 2003.

## 6.7 GROUNDWATER

Concentrations of gross alpha and gross beta in groundwater exceeded the Federal and State drinking water in many wells. Concentrations of all other radionuclides sampled in groundwater in 2002 (Ra-226, Ra-228, Th-230, Th-232, and $U_{(tot)}$) were well below (except for well MISS05A) the Federal and State drinking water standards. The concentration of $U_{(tot)}$ at location MISS05A was 70.92 pCi/L (103.71 µg/L) which exceeded the Federal and State drinking water standards. The concentration of Ra-228 was elevated but below the Federal and State criteria in wells MISS05A and B38W19S with concentrations of 4.02 and 2.33 pCi/L, respectively. Consistent with historical results, the highest concentration of $U_{(tot)}$ was detected in well MISS05A.

Although groundwater at the MISS is not a source of drinking water, Federal and State drinking water standards are used for evaluating groundwater data. Ra concentrations (except well MISS05A) in groundwater were well below the SDWA MCL of 5 pCi/L for combined Ra-226 and Ra-228.

The presence of arsenic at concentrations above Federal SDWA drinking water standards was identified in three on-site wells; MISS02A (2110 µg/L), B38W19D (71.0 µg/L), and MISS07B (56.5 µg/L). Four other wells – MISS05B (20.2 µg/L), B38W15D (13.9 µg/L), B38W18D (8.7 µg/L), and B38W24D (8.4 µg/L) – exceeded the State water practical quantitation limit of 8 µg/L. All detected concentrations of beryllium were less than the State PQL and Federal limit. Cadmium was not detected in any of the wells. Chromium was detected in most wells, but all detected concentrations (except well B38W17B) were below the Federal and State limits. Lead was not detected in any of the wells. Nickel was present below the State standards in many wells, except for well B38W17A (102 µg/L).

PCE and its degradation products were present in monitoring wells both on-site and off-site at concentrations exceeding NJ Groundwater Quality standards for Class IIA aquifers and SDWA MCLs. Results for VOCs are within the historical range; no significant increases or decreases in contaminant concentrations were observed.

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# APPENDIX A
# ANALYTICAL DATA FOR THE YEAR 2002

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# APPENDIX A ANALYTICAL DATA FOR THE YEAR 2002

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**Table A-1**
**2002 Environmental Monitoring Program Summary**
**for**
**External Gamma Radiation and Radon Gas**
**Maywood Interim Storage Site - 2002**

| Air Monitoring | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Measured Parameter | Station Identification | Number of Analyses or Measurements | | | | | | | | | | | | | | | | | | | | | | | | Total Analyses per Year |
| | | No. of Sample Locations | | | | Sample Duplicate | | | | Ship Blank | | | | Contingency Sample | | | | Matrix Spike | | | | Matrix Spike Duplicate | | | | |
| | | CY Quarter | | | | CY Quarter | | | | CY Quarter | | | | CY Quarter | | | | CY Quarter | | | | CY Quarter | | | | |
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | |
| LABORATORY MEASUREMENTS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| External gamma radiation (TETLDs) | 4, 5, 10, 12, 19, 20, 21, 22, 23, 24, 25, 30, 31, 32, 33 | 15 | | 15 | | | | | | 1 | | 1 | | 16 | | 16 | | | | | | | | | | 64 |
| Radon-222/Radon-220 | | 15 | | 15 | | 1 | | 1 | | | | | | | | | | | | | | | | | | 32 |
| Radon-222 | | 15 | | 15 | | 1 | | 1 | | | | | | | | | | | | | | | | | | 32 |

**Table A-1 (cont)**
**2002 Environmental Monitoring Program Summary**
**for**
**Groundwater**
**Maywood Interim Storage Site - 2002**

| Measured Parameter | Station Identification | Number of Analyses or Measurements: No. of Sample Locations, CY Quarter 1 | 2 | 3 | 4 | Rinsate Blank, CY Quarter 1 | 2 | 3 | 4 | Trip Blank, CY Quarter 1 | 2 | 3 | 4 | Sample Duplicate, CY Quarter 1 | 2 | 3 | 4 | Matrix Spike, CY Quarter 1 | 2 | 3 | 4 | Matrix Spike Duplicate, CY Quarter 1 | 2 | 3 | 4 | Total Analyses per Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FIELD MEASUREMENTS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Chemical/Physical** | MISS01AA, MISS01B, MISS02A, | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | MISS02B, MISS05A, MISS05B, | | 23 | | | | | | | | | | | | | | | | | | | | | | | 23 |
| Eh[a] | MISS06A, MISS07B, MISS07A, | | 23 | | | | | | | | | | | | | | | | | | | | | | | 23 |
| Turbidity | B38W02D, B38W14S, B38W14D, | | 23 | | | | | | | | | | | | | | | | | | | | | | | 23 |
| Temperature | B38W15S, B38W15D, B38W17A, | | 23 | | | | | | | | | | | | | | | | | | | | | | | 23 |
| Specific conductivity | B38W17B, B38W18D, B38W19S, | | 23 | | | | | | | | | | | | | | | | | | | | | | | 23 |
| pH | B38W19D, B38W24S, B38W24D, | | 23 | | | | | | | | | | | | | | | | | | | | | | | 23 |
| | B38W25S, B38W25D, B38W01S | | | | | | | | | | | | | | | | | | | | | | | | | |
| LABORATORY MEASURMENTS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Radiological** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total uranium | | | 23 | | | | 14 | | | | | | | | 3 | | | | | | | | | | | 40 |
| Thorium-230/232 | MISS01AA, MISS01B, MISS02A, | | 23 | | | | 14 | | | | | | | | 3 | | | | | | | | | | | 40 |
| Radium-226/228 | MISS02B, MISS05A, MISS05B, | | 23 | | | | 14 | | | | | | | | 3 | | | | | | | | | | | 40 |
| Gross Alpha | MISS06A, MISS07B, MISS07A, | | 23 | | | | 14 | | | | | | | | 3 | | | | | | | | | | | 40 |
| Gross Beta | B38W02D, B38W14S, B38W14D, | | 23 | | | | 14 | | | | | | | | 3 | | | | | | | | | | | 40 |
| **Chemical** | B38W15S, B38W15D, B38W17A, | | | | | | | | | | | | | | | | | | | | | | | | | |
| TAL Metals[b] | B38W17B, B38W18D, B38W19S, | | 23 | | | | 14 | | | | 14 | | | | 3 | | | | 3 | | | | 3 | | | 60 |
| | B38W19D, B38W24S, B38W24D, | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B38W25S, B38W25D, B38W01S | | | | | | | | | | | | | | | | | | | | | | | | | |
| Volatile organic compounds[b] | | | 23 | | | | 14 | | | | 14 | | | | 3 | | | | 3 | | | | 3 | | | 60 |

**Table A-1 (cont)**
**2002 Environmental Monitoring Program Summary**
**for**
**Surface Water and Sediment**
**Maywood Interim Storage Site - 2002**

| Surface Water and Sediment Monitoring | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Number of Analyses or Measurements | | | | | | | | | | | | | | | | | | | | | | | | |
| Measured Parameter | Station Identification | Samples | | | | Rinsate Blank | | | | Trip Blank | | | | Sample Duplicate | | | | Matrix Spike | | | | Matrix Spike Duplicate | | | | Total Analyses per Year |
| | | CY Quarter | | | | CY Quarter | | | | CY Quarter | | | | CY Quarter | | | | CY Quarter | | | | CY Quarter | | | | |
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | |
| FIELD MEASUREMENTS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Chemical/Physical** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissolved oxygen | SWSD-001, SWSD-002, | | 14 | | | | | | | | | | | | | | | | | | | | | | | 14 |
| Eh[a] | SWSD-003, SWSD-004, | | 14 | | | | | | | | | | | | | | | | | | | | | | | 14 |
| Turbidity | SWSD-005, SWSD-006, | | 14 | | | | | | | | | | | | | | | | | | | | | | | 14 |
| Temperature | SWSD-007, SWSD-009, | | 14 | | | | | | | | | | | | | | | | | | | | | | | 14 |
| Specific conductivity | SWSD-010, SWSD-011, | | 14 | | | | | | | | | | | | | | | | | | | | | | | 14 |
| pH | SWSD-012, SWSD-013, | | 14 | | | | | | | | | | | | | | | | | | | | | | | 14 |
| | SWSD-014, SWSD-015. | | | | | | | | | | | | | | | | | | | | | | | | | |
| LABORATORY MEASURMENTS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SEDIMENT** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Radiological** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Iso/Total uranium | SWSD-001, SWSD-002, | | 11 | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 15 |
| Thorium-228/230/232 | SWSD-003, SWSD-005, | | 11 | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 15 |
| Radium-226/228 | SWSD-006, SWSD-007, | | 11 | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 15 |
| **Chemical** | SWSD-009, SWSD-010, | | | | | | | | | | | | | | | | | | | | | | | | | |
| **MET-TAL** | SWSD-012, SWSD-013, | | 11 | | | | 2 | | | | | | | | 2 | | | | 1 | | | | 1 | | | 17 |
| | SWSD-015. | | | | | | | | | | | | | | | | | | | | | | | | | |
| **SURFACE WATER** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Radiological** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Iso/Total uranium | SWSD-001, SWSD-002, | | 14 | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 18 |
| Thorium-228/230/232 | SWSD-003, SWSD-004, | | 14 | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 18 |
| Radium-226/228 | SWSD-005, SWSD-006, | | 14 | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 18 |
| Gross Alpha | SWSD-007, SWSD-009, | | 14 | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 18 |
| Gross Beta | SWSD-010, SWSD-011, | | 14 | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 18 |
| **Chemical** | SWSD-012, SWSD-013, | | | | | | | | | | | | | | | | | | | | | | | | | |
| MET-TAL | SWSD-014, SWSD-015. | | 14 | | | | 2 | | | | | | | | 2 | | | | 1 | | | | 1 | | | 20 |

[a] Oxidation/reduction potential (Eh).

[b] See Table 14 for a comprehensive list of metals.

## Table A-2
## 2002 External Gamma Radiation Dose Rates
## Maywood Interim Storage Site - 2002

| 1/24/2002 to 8/07/2002 TETLD[a] | | | 1/24/2002 to 2/3/03 TETLD[a] | | |
|---|---|---|---|---|---|
| **Monitoring Location [b]** | **Readings** (mrem) | **Corrected [c]** (mrem/yr) | **Monitoring Location [b]** | **Readings** (mrem) | **Corrected [c]** (mrem/yr) |
| MISS Perimeter | | | | | |
| 4 | 93.6 | 98.0 | 4 | 152.0 | 80.1 |
| | 85.4 | 81.5 | | 154.6 | 82.9 |
| 5 | 89.8 | 90.3 | 5 | 166.6 | 95.4 |
| | 94.8 | 100.4 | | 164.6 | 93.3 |
| 10 | 142.2 | 195.8 | 10 | 248.4 | 181.0 |
| | 138.0 | 187.3 | | 254.8 | 187.7 |
| 12 | 75.2 | 61.0 | 12 | 128.2 | 55.2 |
| | 73.4 | 57.3 | | 142.8 | 70.5 |
| 20 | 50.6 | 11.5 | 20 | 107.4 | 33.5 |
| | 60.6 | 31.6 | | 105.0 | 31.0 |
| 21 | 378.6 | 671.5 | 21 | 723.6 | 678.2 |
| | 379.8 | 673.9 | | 757.0 | 713.2 |
| 22 | 99.6 | 110.1 | 22 | 164.0 | 92.7 |
| | 103.2 | 117.3 | | 161.2 | 89.8 |
| 23 | 103.5 | 117.9 | 23 | * | |
| | 103.5 | 117.9 | | * | |
| 24 | 199.4 | 310.9 | 24 | 363.4 | 301.3 |
| | 203.0 | 318.1 | | 360.8 | 298.6 |
| 25 | 365.0 | 644.1 | 25 | 666.8 | 618.8 |
| | 383.2 | 680.7 | | 690.2 | 643.3 |
| 30 | 73.6 | 57.7 | 30 | 124.6 | 51.5 |
| | 73.8 | 58.2 | | 120.4 | 47.1 |
| 31 | 89.4 | 89.5 | 31 | 154.2 | 82.5 |
| | 87.6 | 85.9 | | 165.8 | 94.6 |
| 32 | 39.4 | - 11.1 | 32 | 72.8 | -2.7 |
| | 39.6 | - 10.7 | | 73.8 | -1.7 |
| 33 | 45.2 | 0.6 | 33 | 78.8 | 3.6 |
| | 44.6 | -0.6 | | * | |
| Background | 43.6 | avg. bkg | | 78.0 | avg. bkg |
| 19 | 46.2 | 90.3 | 19 | 72.8 | 78.9 |

[a] TETLD = Tissue-equivalent thermoluminescent dosimeter. There are two TETLDs per station.

[b] Monitoring locations are shown on Figure D-2.

[c] All TETLD readings are corrected for shelter/absorption factor (s/a = 1.075) and are normalized to exactly one year's exposure. Average corrected background is then subtracted from all other corrected readin

* TETLD was lost or damaged in Processing. Unable to report a reading.

# Table A-3
## 2002 Radon Gas Concentrations
## Maywood Interim Storage Site - 2002

| Monitoring Location[a] | | Average Daily Concentration (pCi/L) 01/24/2002 to 07/07/2002 | | Average Daily Concentration (pCi/L) 07/07/2002 to 2/3/2003 | |
|---|---|---|---|---|---|
| | | Radon-220[b] | Radon-222[c] | Radon-220[b] | Radon-222[c] |
| MISS perimeter | 4 | 1.81 | 0.50 | 2.28 | 0.2* |
| | 5 | 1.56 | 0.2* | 0.81 | 0.2* |
| | 10 | 0.53 | 0.20 | 0.46 | 0.2* |
| | 12 | 1.17 | 0.2* | 1.14 | 0.2* |
| | 20 | 0.55 | 0.20 | 0.18 | 0.2* |
| | 21 | 1.83 | 0.30 | 1.19 | 0.2* |
| Duplicate[d] | 21 | 1.90 | 0.2* | 2.08 | 0.2* |
| | 22 | 0.16 | 0.40 | 0.21 | 0.2* |
| | 23 | 1.19 | 0.40 | 1.20 | 0.2* |
| | 24 | 2.48 | 0.2* | 2.91 | 0.2* |
| | 25 | 0.28 | 0.40 | 0.64 | 0.2* |
| | 30 | 1.41 | 0.2* | 0.42 | 0.2* |
| | 31 | 2.87 | 0.30 | 2.05 | 0.2* |
| | 32 | 0.34 | 0.2* | 0.07 | 0.2* |
| | 33 | 0.17 | 0.2* | 0.12 | 0.2* |
| Background | 19 | 0.15 | 0.2* | 0.03 | 0.2* |

( * ) Indicates detection limit is reported. Actual result is less than this value.

[a] Monitoring locations are shown on Figure 2.

[b] Radon-220 gas concentrations are calculated according to the method outlined in FUSRAP committed calculation 191-CV-028, Rev. 1, using data from RadTrack® and RadTack®-modified detectors.

[c] The EPA Action Level for radon-222 is 4.0 pCi/L and assumes that radon 220 is present and in equilibrium, 40 CFR 192 (October 1999).

[d] A quality control duplicate is collected at the same time and location, and is analyzed by the same method in order to evaluate precision in sampling and analysis.

**Table A-4**
**2002 Surface Water Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Locatione | Date Collected | Analyte | Result[a] (pCi/L) | Result[f] (µg/L) | Error | Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Samples collected in Westerly Brook:** | | | | | | | | | |
| SWSD001 | 7/23/02 | Gross Alpha | 11.90 | | 4.9 | J | 5.60 | 15 | |
| | 7/23/02 | Gross Beta | 14.10 | | 3.7 | | 4.80 | 50 | |
| | 7/23/02 | Radium-226 | -0.01 | | 0.12 | U | 0.23 | 5[g] | |
| | 7/23/02 | Radium-228 | 0.42 | | 0.46 | UJ | 0.75 | 5[g] | |
| | 7/23/02 | Thorium-228 | 0.01 | | 0.11 | U | 0.30 | | |
| | 7/23/02 | Thorium-230 | 1.02 | | 0.44 | J | 0.32 | | |
| | 7/23/02 | Thorium-232 | 0.00 | | 0.075 | U | 0.25 | | |
| | | Total Thorium | 1.03 | | | | | | |
| | 7/23/02 | Uranium-234 | 0.64 | | 0.36 | J | 0.21 | | |
| | 7/23/02 | Uranium-235 | 0.00 | | 0 | U | 0.10 | | |
| | 7/23/02 | Uranium-238 | 0.34 | | 0.25 | J | 0.12 | | |
| | | Total Uranium | 0.98 | 1.01 | | | | | 30 |
| SWSD002 | 7/22/02 | Gross Alpha | 6.90 | | 4.9 | R | 7.10 | 15 | |
| | 7/22/02 | Gross Beta | 22.30 | | 5.2 | | 6.50 | 50 | |
| | 7/22/02 | Radium-226 | 0.18 | | 0.2 | UJ | 0.32 | 5[g] | |
| | 7/22/02 | Radium-228 | 1.10 | | 0.59 | | 0.90 | 5[g] | |
| | 7/22/02 | Thorium-228 | 0.08 | | 0.099 | UJ | 0.13 | | |
| | 7/22/02 | Thorium-230 | 0.49 | | 0.25 | J | 0.07 | | |
| | 7/22/02 | Thorium-232 | -0.01 | | 0.016 | U | 0.15 | | |
| | | Total Thorium | 0.56 | | | | | | |
| | 7/22/02 | Uranium-234 | 0.56 | | 0.29 | J | 0.08 | | |
| | 7/22/02 | Uranium-235 | -0.02 | | 0.022 | U | 0.22 | | |
| | 7/22/02 | Uranium-238 | 0.42 | | 0.25 | J | 0.18 | | |
| | | Total Uranium | 0.97 | 1.25 | | | | | 30 |
| SWSD002 | 7/22/02 | Gross Alpha | 8.70 | | 5 | R | 6.70 | 15 | |
| Duplicate | 7/22/02 | Gross Beta | 21.00 | | 4.9 | | 6.10 | 50 | |
| | 7/22/02 | Radium-226 | 0.19 | | 0.18 | UJ | 0.29 | 5[g] | |
| | 7/22/02 | Radium-228 | 0.58 | | 0.41 | UJ | 0.65 | 5[g] | |
| | 7/22/02 | Thorium-228 | 0.02 | | 0.12 | U | 0.31 | | |
| | 7/22/02 | Thorium-230 | 0.52 | | 0.27 | J | 0.22 | | |
| | 7/22/02 | Thorium-232 | -0.01 | | 0.011 | U | 0.13 | | |
| | | Total Thorium | 0.53 | | | | | | |
| | 7/22/02 | Uranium-234 | 0.63 | | 0.34 | J | 0.11 | | |
| | 7/22/02 | Uranium-235 | 0.00 | | 0 | U | 0.10 | | |
| | 7/22/02 | Uranium-238 | 0.35 | | 0.25 | J | 0.19 | | |
| | | Total Uranium | 0.98 | 1.04 | | | | | 30 |
| SWSD003 | 7/22/02 | Gross Alpha | 4.30 | | 3.1 | R | 4.40 | 15 | |
| | 7/22/02 | Gross Beta | 4.00 | | 2.5 | J | 4.00 | 50 | |
| | 7/22/02 | Radium-226 | 0.13 | | 0.17 | UJ | 0.27 | 5[g] | |
| | 7/22/02 | Radium-228 | 0.01 | | 0.38 | U | 0.65 | 5[g] | |
| | 7/22/02 | Thorium-228 | 0.35 | | 0.24 | J | 0.27 | | |
| | 7/22/02 | Thorium-230 | 0.58 | | 0.3 | J | 0.16 | | |
| | 7/22/02 | Thorium-232 | 0.07 | | 0.093 | UJ | 0.09 | | |
| | | Total Thorium | 1.00 | | | | | | |
| | 7/22/02 | Uranium-234 | 0.36 | | 0.23 | J | 0.22 | | |
| | 7/22/02 | Uranium-235 | 0.04 | | 0.079 | UJ | 0.11 | | |
| | 7/22/02 | Uranium-238 | 0.16 | | 0.14 | J | 0.09 | | |
| | | Total Uranium | 0.56 | 0.48 | | | | | 30 |

**Table A-4**
**2002 Surface Water Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Locatione | Date Collected | Analyte | Result[a] (pCi/L) | Result[f] (µg/L) | Error | Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| SWSD004 | 7/22/02 | Gross Alpha | 4.00 | | 3.9 | R | 6.10 | 15 | |
| | 7/22/02 | Gross Beta | 25.40 | | 4.7 | | 4.90 | 50 | |
| | 7/22/02 | Radium-226 | 0.18 | | 0.19 | UJ | 0.30 | 5[g] | |
| | 7/22/02 | Radium-228 | 0.54 | | 0.44 | UJ | 0.71 | 5[g] | |
| | 7/22/02 | Thorium-228 | 0.11 | | 0.14 | U | 0.24 | | |
| | 7/22/02 | Thorium-230 | 0.32 | | 0.21 | J | 0.25 | | |
| | 7/22/02 | Thorium-232 | 0.03 | | 0.079 | U | 0.20 | | |
| | | Total Thorium | 0.46 | | | | | | |
| | 7/22/02 | Uranium-234 | 0.60 | | 0.28 | J | 0.15 | | |
| | 7/22/02 | Uranium-235 | 0.06 | | 0.094 | U | 0.16 | | |
| | 7/22/02 | Uranium-238 | 0.18 | | 0.14 | J | 0.13 | | |
| | | Total Uranium | 0.84 | 0.53 | | | | | 30 |
| **Samples collected in Lodi Brook:** | | | | | | | | | |
| SWSD005 | 7/22/02 | Gross Alpha | 4.70 | | 3.4 | R | 4.90 | 15 | |
| | 7/22/02 | Gross Beta | 5.40 | | 2.5 | | 3.80 | 50 | |
| | 7/22/02 | Radium-226 | 0.09 | | 0.14 | U | 0.25 | 5[g] | |
| | 7/22/02 | Radium-228 | -0.01 | | 0.39 | U | 0.67 | 5[g] | |
| | 7/22/02 | Thorium-228 | 0.14 | | 0.19 | U | 0.35 | | |
| | 7/22/02 | Thorium-230 | 0.43 | | 0.27 | J | 0.17 | | |
| | 7/22/02 | Thorium-232 | -0.01 | | 0.014 | U | 0.17 | | |
| | | Total Thorium | 0.56 | | | | | | |
| | 7/22/02 | Uranium-234 | 0.09 | | 0.12 | UJ | 0.19 | | |
| | 7/22/02 | Uranium-235 | -0.01 | | 0.017 | U | 0.20 | | |
| | 7/22/02 | Uranium-238 | 0.34 | | 0.23 | J | 0.09 | | |
| | | Total Uranium | 0.42 | 1.01 | | | | | 30 |
| SWSD006 | 7/23/02 | Gross Alpha | 6.30 | | 3.2 | J | 4.30 | 15 | |
| | 7/23/02 | Gross Beta | 3.60 | | 2 | J | 3.10 | 50 | |
| | 7/23/02 | Radium-226 | 0.38 | | 0.19 | J | 0.26 | 5[g] | |
| | 7/23/02 | Radium-228 | 1.16 | | 0.66 | | 1.00 | 5[g] | |
| | 7/23/02 | Thorium-228 | 0.31 | | 0.2 | J | 0.23 | | |
| | 7/23/02 | Thorium-230 | 0.41 | | 0.21 | J | 0.06 | | |
| | 7/23/02 | Thorium-232 | 0.17 | | 0.14 | UJ | 0.18 | | |
| | | Total Thorium | 0.89 | | | | | | |
| | 7/23/02 | Uranium-234 | 0.24 | | 0.19 | J | 0.18 | | |
| | 7/23/02 | Uranium-235 | 0.04 | | 0.079 | UJ | 0.11 | | |
| | 7/23/02 | Uranium-238 | 0.22 | | 0.17 | J | 0.09 | | |
| | | Total Uranium | 0.50 | 0.65 | | | | | 30 |
| SWSD007 | 7/23/02 | Gross Alpha | 9.60 | | 3.7 | | 4.30 | 15 | |
| | 7/23/02 | Gross Beta | 6.50 | | 2.4 | | 3.40 | 50 | |
| | 7/23/02 | Radium-226 | 0.32 | | 0.15 | J | 0.22 | 5[g] | |
| | 7/23/02 | Radium-228 | 1.21 | | 0.46 | | 0.66 | 5[g] | |
| | 7/23/02 | Thorium-228 | 0.12 | | 0.11 | J | 0.12 | | |
| | 7/23/02 | Thorium-230 | 0.51 | | 0.25 | J | 0.12 | | |
| | 7/23/02 | Thorium-232 | 0.06 | | 0.086 | U | 0.14 | | |
| | | Total Thorium | 0.69 | | | | | | |
| | 7/23/02 | Uranium-234 | 0.22 | | 0.19 | J | 0.10 | | |
| | 7/23/02 | Uranium-235 | 0.00 | | 0 | U | 0.10 | | |
| | 7/23/02 | Uranium-238 | 0.37 | | 0.24 | J | 0.10 | | |
| | | Total Uranium | 0.59 | 1.10 | | | | | 30 |

**Table A-4**
**2002 Surface Water Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Locatione | Date Collected | Analyte | Result[a] (pCi/L) | Result[f] (µg/L) | Error | Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| SWSD009 | 7/23/02 | Gross Alpha | 7.10 | | 3.1 | J | 3.80 | 15 | |
| | 7/23/02 | Gross Beta | 5.50 | | 2.1 | J | 3.00 | 50 | |
| | 7/23/02 | Radium-226 | 0.02 | | 0.14 | U | 0.26 | 5[g] | |
| | 7/23/02 | Radium-228 | 0.07 | | 0.45 | U | 0.77 | 5[g] | |
| | 7/23/02 | Thorium-228 | 0.13 | | 0.12 | UJ | 0.16 | | |
| | 7/23/02 | Thorium-230 | 0.58 | | 0.27 | R | 0.15 | | |
| | 7/23/02 | Thorium-232 | 0.08 | | 0.098 | UJ | 0.15 | | |
| | | Total Thorium | 0.79 | | | | | | |
| | 7/23/02 | Uranium-234 | 0.00 | | 0 | U | 0.10 | | |
| | 7/23/02 | Uranium-235 | -0.01 | | 0.018 | U | 0.22 | | |
| | 7/23/02 | Uranium-238 | 0.18 | | 0.17 | J | 0.18 | | |
| | | Total Uranium | 0.17 | 0.53 | | | | | 30 |
| SWSD009 | 7/23/02 | Gross Alpha | 6.80 | | 3.1 | J | 3.60 | 15 | |
| | 7/23/02 | Gross Beta | 6.00 | | 2.2 | J | 3.20 | 50 | |
| | 7/23/02 | Radium-226 | 0.25 | | 0.14 | J | 0.23 | 5[g] | |
| | 7/23/02 | Radium-228 | 1.26 | | 0.59 | | 0.88 | 5[g] | |
| | 7/23/02 | Thorium-228 | 0.19 | | 0.16 | UJ | 0.20 | | |
| | 7/23/02 | Thorium-230 | 1.08 | | 0.42 | J | 0.14 | | |
| | 7/23/02 | Thorium-232 | 0.21 | | 0.16 | J | 0.08 | | |
| | | Total Thorium | 1.48 | | | | | | |
| | 7/23/02 | Uranium-234 | 0.12 | | 0.16 | UJ | 0.25 | | |
| | 7/23/02 | Uranium-235 | 0.00 | | 0 | U | 0.10 | | |
| | 7/23/02 | Uranium-238 | 0.31 | | 0.24 | J | 0.12 | | |
| | | Total Uranium | 0.43 | 0.92 | | | | | 30 |
| SWSD010 | 7/23/02 | Gross Alpha | 9.10 | | 5 | J | 6.80 | 15 | |
| | 7/23/02 | Gross Beta | 9.90 | | 3.5 | J | 5.10 | 50 | |
| | 7/23/02 | Radium-226 | -0.06 | | 0.13 | U | 0.26 | 5[g] | |
| | 7/23/02 | Radium-228 | 0.76 | | 0.5 | UJ | 0.79 | 5[g] | |
| | 7/23/02 | Thorium-228 | 0.11 | | 0.16 | U | 0.27 | | |
| | 7/23/02 | Thorium-230 | 0.27 | | 0.18 | J | 0.16 | | |
| | 7/23/02 | Thorium-232 | 0.06 | | 0.079 | UJ | 0.08 | | |
| | | Total Thorium | 0.44 | | | | | | |
| | 7/23/02 | Uranium-234 | 0.41 | | 0.29 | J | 0.12 | | |
| | 7/23/02 | Uranium-235 | -0.02 | | 0.033 | U | 0.32 | | |
| | 7/23/02 | Uranium-238 | 0.04 | | 0.094 | U | 0.22 | | |
| | | Total Uranium | 0.42 | 0.11 | | | | | 30 |
| SWSD011 | 7/22/02 | Gross Alpha | 3.30 | | 3.3 | R | 5.30 | 15 | |
| | 7/22/02 | Gross Beta | 5.70 | | 2.5 | | 3.70 | 50 | |
| | 7/22/02 | Radium-226 | 0.08 | | 0.22 | U | 0.38 | 5[g] | |
| | 7/22/02 | Radium-228 | 0.36 | | 0.4 | U | 0.66 | 5[g] | |
| | 7/22/02 | Thorium-228 | 0.18 | | 0.18 | UJ | 0.27 | | |
| | 7/22/02 | Thorium-230 | 0.27 | | 0.2 | J | 0.20 | | |
| | 7/22/02 | Thorium-232 | -0.01 | | 0.013 | U | 0.15 | | |
| | | Total Thorium | 0.44 | | | | | | |
| | 7/22/02 | Uranium-234 | 0.24 | | 0.2 | J | 0.23 | | |
| | 7/22/02 | Uranium-235 | 0.03 | | 0.086 | U | 0.20 | | |
| | 7/22/02 | Uranium-238 | 0.22 | | 0.19 | J | 0.21 | | |
| | | Total Uranium | 0.49 | 0.65 | | | | | 30 |

**Table A-4**
**2002 Surface Water Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Locatione | Date Collected | Analyte | Result[a] (pCi/L) | Result[f] (µg/L) | Error | Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| SWSD012 | 7/22/02 | Gross Alpha | 2.20 | | 2.9 | R | 4.70 | 15 | |
| | 7/22/02 | Gross Beta | 6.60 | | 2.9 | | 4.30 | 50 | |
| | 7/22/02 | Radium-226 | 0.05 | | 0.15 | U | 0.26 | 5[g] | |
| | 7/22/02 | Radium-228 | 0.29 | | 0.45 | U | 0.74 | 5[g] | |
| | 7/22/02 | Thorium-228 | 0.09 | | 0.13 | U | 0.25 | | |
| | 7/22/02 | Thorium-230 | 0.19 | | 0.15 | J | 0.16 | | |
| | 7/22/02 | Thorium-232 | -0.02 | | 0.02 | U | 0.17 | | |
| | | Total Thorium | 0.26 | | | | | | |
| | 7/22/02 | Uranium-234 | 0.34 | | 0.2 | J | 0.07 | | |
| | 7/22/02 | Uranium-235 | 0.00 | | 0 | U | 0.09 | | |
| | 7/22/02 | Uranium-238 | 0.33 | | 0.2 | J | 0.12 | | |
| | | Total Uranium | 0.67 | 0.98 | | | | | 30 |
| SWSD013 | 7/22/02 | Gross Alpha | 3.30 | | 3.3 | R | 5.30 | 15 | |
| | 7/22/02 | Gross Beta | 5.60 | | 2.5 | | 3.80 | 50 | |
| | 7/22/02 | Radium-226 | 0.17 | | 0.19 | U | 0.31 | 5[g] | |
| | 7/22/02 | Radium-228 | 0.30 | | 0.39 | U | 0.65 | 5[g] | |
| | 7/22/02 | Thorium-228 | 0.14 | | 0.21 | U | 0.40 | | |
| | 7/22/02 | Thorium-230 | 0.29 | | 0.23 | UJ | 0.29 | | |
| | 7/22/02 | Thorium-232 | 0.03 | | 0.075 | U | 0.18 | | |
| | | Total Thorium | 0.46 | | | | | | |
| | 7/22/02 | Uranium-234 | 0.37 | | 0.25 | J | 0.20 | | |
| | 7/22/02 | Uranium-235 | 0.04 | | 0.088 | UJ | 0.12 | | |
| | 7/22/02 | Uranium-238 | 0.39 | | 0.25 | J | 0.10 | | |
| | | Total Uranium | 0.80 | 1.16 | | | | | 30 |
| SWSD014 | 7/23/02 | Gross Alpha | 8.10 | | 4.1 | J | 5.30 | 15 | |
| | 7/23/02 | Gross Beta | 9.80 | | 3.1 | J | 4.20 | 50 | |
| | 7/23/02 | Radium-226 | 0.00 | | 0 | U | 0.20 | 5[g] | |
| | 7/23/02 | Radium-228 | 0.00 | | 0.5 | U | 0.85 | 5[g] | |
| | 7/23/02 | Thorium-228 | 0.13 | | 0.14 | UJ | 0.22 | | |
| | 7/23/02 | Thorium-230 | 0.30 | | 0.2 | J | 0.19 | | |
| | 7/23/02 | Thorium-232 | 0.02 | | 0.055 | U | 0.13 | | |
| | | Total Thorium | 0.45 | | | | | | |
| | 7/23/02 | Uranium-234 | 1.05 | | 0.38 | | 0.06 | | |
| | 7/23/02 | Uranium-235 | 0.00 | | 0 | U | 0.08 | | |
| | 7/23/02 | Uranium-238 | 0.28 | | 0.17 | J | 0.11 | | |
| | | Total Uranium | 1.33 | 0.83 | | | | | 30 |
| SWSD015 | 7/23/02 | Gross Alpha | 5.40 | | 3.8 | UJ | 5.50 | 15 | |
| | 7/23/02 | Gross Beta | 9.10 | | 3 | J | 4.20 | 50 | |
| | 7/23/02 | Radium-226 | 0.08 | | 0.11 | U | 0.27 | 5[g] | |
| | 7/23/02 | Radium-228 | 0.86 | | 0.46 | J | 0.70 | 5[g] | |
| | 7/23/02 | Thorium-228 | 0.01 | | 0.077 | U | 0.21 | | |
| | 7/23/02 | Thorium-230 | 0.60 | | 0.28 | J | 0.17 | | |
| | 7/23/02 | Thorium-232 | -0.01 | | 0.014 | U | 0.14 | | |
| | | Total Thorium | 0.60 | | | | | | |
| | 7/23/02 | Uranium-234 | 0.71 | | 0.34 | J | 0.21 | | |
| | 7/23/02 | Uranium-235 | -0.01 | | 0.015 | U | 0.18 | | |
| | 7/23/02 | Uranium-238 | 0.47 | | 0.26 | J | 0.19 | | |
| | | Total Uranium | 1.17 | 1.40 | | | | | 30 |

**Table A-4**
**2002 Surface Water Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Locatione | Date Collected | Analyte | Result[a] (pCi/L) | Result[f] (µg/L) | Error | Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|

[a]Results reported with ± radiological error equal to 2 sigma (95% confidence level),
[b]USACE data qualifier flags based on the CDQMP-QAPP.
U = The analyte was not detected.
J = Reported as an estimated value.
R= Rejected by validation.
[c] Minimum Detectable Activity (MDA)
[d] SDWA standards (40CFR141), New Jersey Groundwater Standards (NJAC 7:9-6).
[e]Location SWSD008 was not sampled due to stagnant water.
[f]The NJDEP has established a MCL for total uranium in drinking water of 30 ug/L.
The reported U-238 in pCi/L was divided by the specific activity of U-238
(0.3365 pCi/ug) to obtain the total uranium in ug/L and then compared to NJDEP MCL of 30 ug/L.
[g] 5 pCi/L is the New Jersey and Federal standard for the combined concentration of Radium-226 and Radium-228 in in drinking water.

## Table A-5
## 2002 Surface Water Analytical Results - Metals
## Maywood Interim Storage Site - 2002

| Sampling Location[e] | Date Collected | Analyte[a] | Resulta (µg/L) | Data Qualifier[b] S&W | Reporting Limits (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| **Samples collected in Westerly Brook:** | | | | | | | |
| SWSD001 | 7/23/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/23/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/23/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/23/02 | Barium, Total | 115 | | 5 | 2000 | 2000 |
| | 7/23/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/23/02 | Boron, Total | 167 | U | 60 | | |
| | 7/23/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/23/02 | Calcium, Total | 59700 | | 300 | | |
| | 7/23/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/23/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/23/02 | Copper, Total | 10.5 | U | 10 | 1300 | 1000 |
| | 7/23/02 | Iron, Total | 231 | | 200 | 300 | 300 |
| | 7/23/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/23/02 | Lithium, Total | 7 | J | 50.0 | | |
| | 7/23/02 | Magnesium, Total | 17300 | | 100 | | |
| | 7/23/02 | Manganese, Total | 158 | | 15 | 50 | 50 |
| | 7/23/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/23/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/23/02 | Potassium, Total | 11100 | | 400 | | |
| | 7/23/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/23/02 | Silver, Total | 1.4 | U | 6 | 1007 | |
| | 7/23/02 | Sodium, Total | 65100 | | 400 | | |
| | 7/23/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/23/02 | Vanadium, Total | 1.7 | J | 6 | | |
| | 7/23/02 | Zinc, Total | 22.2 | U | 50 | 500 | 5000 |
| SWSD002 | 7/22/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/22/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/22/02 | Arsenic, Total | 11 | J | 40 | 50 | 0.02/8 |
| | 7/22/02 | Barium, Total | 117 | | 5 | 2000 | 2000 |
| | 7/22/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/22/02 | Boron, Total | 143 | J | 60 | | |
| | 7/22/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/22/02 | Calcium, Total | 92600 | | 300 | | |
| | 7/22/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/22/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/22/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/22/02 | Iron, Total | 711 | | 200 | 300 | 300 |
| | 7/22/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/22/02 | Magnesium, Total | 13300 | | 100 | | |
| | 7/22/02 | Manganese, Total | 448 | | 15 | 50 | 50 |
| | 7/22/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/22/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/22/02 | Potassium, Total | 34200 | J | 400 | | |
| | 7/22/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/22/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/22/02 | Sodium, Total | 62100 | J | 400 | | |
| | 7/22/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/22/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/22/02 | Zinc, Total | 16.9 | J | 50 | 500 | 5000 |

**Table A-5**
**2002 Surface Water Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location[e] | Date Collected | Analyte[a] | Resulta (µg/L) | Data Qualifier[b] S&W | Reporting Limits (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| SWSD002 | 7/22/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| Duplicate | 7/22/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/22/02 | Arsenic, Total | 11 | J | 40 | 50 | 0.02/8 |
| | 7/22/02 | Barium, Total | 114 | | 5 | 2000 | 2000 |
| | 7/22/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/22/02 | Boron, Total | 141 | J | 60 | | |
| | 7/22/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/22/02 | Calcium, Total | 90600 | | 300 | | |
| | 7/22/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/22/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/22/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/22/02 | Iron, Total | 669 | | 200 | 300 | 300 |
| | 7/22/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/22/02 | Magnesium, Total | 13000 | | 100 | | |
| | 7/22/02 | Manganese, Total | 438 | | 15 | 50 | 50 |
| | 7/22/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/22/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/22/02 | Potassium, Total | 33200 | J | 400 | | |
| | 7/22/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/22/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/22/02 | Sodium, Total | 60900 | J | 400 | | |
| | 7/22/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/22/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/22/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |
| SWSD003 | 7/22/02 | Aluminum, Total | 89.9 | J | 500 | 200 | 200 |
| | 7/22/02 | Antimony, Total | 11 | J | 20 | 6 | 2/20 |
| | 7/22/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/22/02 | Barium, Total | 140 | | 5 | 2000 | 2000 |
| | 7/22/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/22/02 | Boron, Total | 52.7 | J | 60 | | |
| | 7/22/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/22/02 | Calcium, Total | 64000 | | 300 | | |
| | 7/22/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/22/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/22/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/22/02 | Iron, Total | 509 | | 200 | 300 | 300 |
| | 7/22/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/22/02 | Magnesium, Total | 7880 | | 100 | | |
| | 7/22/02 | Manganese, Total | 123 | | 15 | 50 | 50 |
| | 7/22/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/22/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/22/02 | Potassium, Total | 4470 | J | 400 | | |
| | 7/22/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/22/02 | Silver, Total | 2.7 | R | 6 | 1007 | |
| | 7/22/02 | Sodium, Total | 38800 | J | 400 | | |
| | 7/22/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/22/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/22/02 | Zinc, Total | 20.2 | J | 50 | 500 | 5000 |

**Table A-5**
**2002 Surface Water Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location[e] | Date Collected | Analyte[a] | Resulta (µg/L) | Data Qualifier[b] S&W | Reporting Limits (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| SWSD004 | 7/22/02 | Aluminum, Total | 693 | | 500 | 200 | 200 |
| | 7/22/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/22/02 | Arsenic, Total | 117 | | 40 | 50 | 0.02/8 |
| | 7/22/02 | Barium, Total | 292 | | 5 | 2000 | 2000 |
| | 7/22/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/22/02 | Boron, Total | 161 | J | 60 | | |
| | 7/22/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/22/02 | Calcium, Total | 95600 | | 300 | | |
| | 7/22/02 | Chromium, Total | 3 | J | 10 | 100 | 100 |
| | 7/22/02 | Cobalt, Total | 2 | J | 10 | | |
| | 7/22/02 | Copper, Total | 22.2 | | 10 | 1300 | 1000 |
| | 7/22/02 | Iron, Total | 16400 | | 200 | 300 | 300 |
| | 7/22/02 | Lead, Total | 21.2 | | 10 | 15 | 5 |
| | 7/22/02 | Magnesium, Total | 12200 | | 100 | | |
| | 7/22/02 | Manganese, Total | 3010 | | 15 | 50 | 50 |
| | 7/22/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/22/02 | Nickel, Total | 6.1 | J | 10 | | 100 |
| | 7/22/02 | Potassium, Total | 40100 | J | 400 | | |
| | 7/22/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/22/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/22/02 | Sodium, Total | 67000 | J | 400 | | |
| | 7/22/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/22/02 | Vanadium, Total | 9.9 | | 6 | | |
| | 7/22/02 | Zinc, Total | 203 | | 50 | 500 | 5000 |
| **Samples collected in Lodi Brook:** | | | | | | | |
| SWSD005 | 7/22/02 | Aluminum, Total | 135 | J | 500 | 200 | 200 |
| | 7/22/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/22/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/22/02 | Barium, Total | 87.8 | | 5 | 2000 | 2000 |
| | 7/22/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/22/02 | Boron, Total | 107 | J | 60 | | |
| | 7/22/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/22/02 | Calcium, Total | 48100 | | 300 | | |
| | 7/22/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/22/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/22/02 | Copper, Total | 7.4 | J | 10 | 1300 | 1000 |
| | 7/22/02 | Iron, Total | 208 | | 200 | 300 | 300 |
| | 7/22/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/22/02 | Magnesium, Total | 13100 | | 100 | | |
| | 7/22/02 | Manganese, Total | 114 | | 15 | 50 | 50 |
| | 7/22/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/22/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/22/02 | Potassium, Total | 8240 | J | 400 | | |
| | 7/22/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/22/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/22/02 | Sodium, Total | 48200 | J | 400 | | |
| | 7/22/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/22/02 | Vanadium, Total | 1.6 | J | 6 | | |
| | 7/22/02 | Zinc, Total | 20.7 | J | 50 | 500 | 5000 |

**Table A-5**
**2002 Surface Water Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location[e] | Date Collected | Analyte[a] | Resulta (µg/L) | Data Qualifier[b] S&W | Reporting Limits (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| SWSD006 | 7/23/02 | Aluminum, Total | 316 | J | 500 | 200 | 200 |
| | 7/23/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/23/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/23/02 | Barium, Total | 60.1 | | 5 | 2000 | 2000 |
| | 7/23/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/23/02 | Boron, Total | 658 | J | 60 | | |
| | 7/23/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/23/02 | Calcium, Total | 48700 | | 300 | | |
| | 7/23/02 | Chromium, Total | 3.2 | J | 10 | 100 | 100 |
| | 7/23/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/23/02 | Copper, Total | 1.5 | J | 10 | 1300 | 1000 |
| | 7/23/02 | Iron, Total | 620 | | 200 | 300 | 300 |
| | 7/23/02 | Lead, Total | 4.9 | J | 10 | 15 | 5 |
| | 7/23/02 | Magnesium, Total | 6820 | | 100 | | |
| | 7/23/02 | Manganese, Total | 300 | | 15 | 50 | 50 |
| | 7/23/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/23/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/23/02 | Potassium, Total | 3380 | J | 400 | | |
| | 7/23/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/23/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/23/02 | Sodium, Total | 41700 | J | 400 | | |
| | 7/23/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/23/02 | Vanadium, Total | 4.3 | J | 6 | | |
| | 7/23/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |
| SWSD007 | 7/23/02 | Aluminum, Total | 289 | J | 500 | 200 | 200 |
| | 7/23/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/23/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/23/02 | Barium, Total | 59.9 | | 5 | 2000 | 2000 |
| | 7/23/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/23/02 | Boron, Total | 574 | J | 60 | | |
| | 7/23/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/23/02 | Calcium, Total | 49400 | | 300 | | |
| | 7/23/02 | Chromium, Total | 3 | J | 10 | 100 | 100 |
| | 7/23/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/23/02 | Copper, Total | 2 | J | 10 | 1300 | 1000 |
| | 7/23/02 | Iron, Total | 632 | | 200 | 300 | 300 |
| | 7/23/02 | Lead, Total | 5.5 | J | 10 | 15 | 5 |
| | 7/23/02 | Magnesium, Total | 6860 | | 100 | | |
| | 7/23/02 | Manganese, Total | 279 | | 15 | 50 | 50 |
| | 7/23/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/23/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/23/02 | Potassium, Total | 3300 | J | 400 | | |
| | 7/23/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/23/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/23/02 | Sodium, Total | 41900 | J | 400 | | |
| | 7/23/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/23/02 | Vanadium, Total | 4.3 | J | 6 | | |
| | 7/23/02 | Zinc, Total | 24.6 | J | 50 | 500 | 5000 |

**Table A-5**
**2002 Surface Water Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location[e] | Date Collected | Analyte[a] | Resulta (µg/L) | Data Qualifier[b] S&W | Reporting Limits (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| SWSD009 | 7/23/02 | Aluminum, Total | 239 | J | 500 | 200 | 200 |
| | 7/23/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/23/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/23/02 | Barium, Total | 64.6 | | 5 | 2000 | 2000 |
| | 7/23/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/23/02 | Boron, Total | 53.4 | J | 60 | | |
| | 7/23/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/23/02 | Calcium, Total | 48000 | | 300 | | |
| | 7/23/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/23/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/23/02 | Copper, Total | 2.1 | J | 10 | 1300 | 1000 |
| | 7/23/02 | Iron, Total | 715 | | 200 | 300 | 300 |
| | 7/23/02 | Lead, Total | 6.1 | J | 10 | 15 | 5 |
| | 7/23/02 | Magnesium, Total | 6890 | | 100 | | |
| | 7/23/02 | Manganese, Total | 361 | | 15 | 50 | 50 |
| | 7/23/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/23/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/23/02 | Potassium, Total | 2980 | J | 400 | | |
| | 7/23/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/23/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/23/02 | Sodium, Total | 40900 | J | 400 | | |
| | 7/23/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/23/02 | Vanadium, Total | 3.4 | J | 6 | | |
| | 7/23/02 | Zinc, Total | 17.2 | J | 50 | 500 | 5000 |
| SWSD010 | 7/23/02 | Aluminum, Total | 525 | | 500 | 200 | 200 |
| | 7/23/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/23/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/23/02 | Barium, Total | 115 | | 5 | 2000 | 2000 |
| | 7/23/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/23/02 | Boron, Total | 115 | U | 60 | | |
| | 7/23/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/23/02 | Calcium, Total | 54300 | | 300 | | |
| | 7/23/02 | Chromium, Total | 4.2 | | 10 | 100 | 100 |
| | 7/23/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/23/02 | Copper, Total | 16.9 | | 10 | 1300 | 1000 |
| | 7/23/02 | Iron, Total | 1230 | | 200 | 300 | 300 |
| | 7/23/02 | Lead, Total | 10.6 | | 10 | 15 | 5 |
| | 7/23/02 | Lithium, Total | 19.1 | J | 50.0 | | |
| | 7/23/02 | Lithium, Total | 100 | | | | |
| | 7/23/02 | Magnesium, Total | 14400 | | 100 | | |
| | 7/23/02 | Manganese, Total | 243 | | 15 | 50 | 50 |
| | 7/23/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/23/02 | Nickel, Total | 4 | | 10 | | 100 |
| | 7/23/02 | Potassium, Total | 8150 | | 400 | | |
| | 7/23/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/23/02 | Silver, Total | 1.4 | U | 6 | 1007 | |
| | 7/23/02 | Sodium, Total | 53700 | | 400 | | |
| | 7/23/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/23/02 | Vanadium, Total | 2.8 | | 6 | | |
| | 7/23/02 | Zinc, Total | 57.5 | U | 50 | 500 | 5000 |

**Table A-5**
**2002 Surface Water Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location[e] | Date Collected | Analyte[a] | Resulta (µg/L) | Data Qualifier[b] S&W | Reporting Limits (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| SWSD011 | 7/22/02 | Aluminum, Total | 107 | J | 500 | 200 | 200 |
| | 7/22/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/22/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/22/02 | Barium, Total | 82.5 | | 5 | 2000 | 2000 |
| | 7/22/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/22/02 | Boron, Total | 104 | J | 60 | | |
| | 7/22/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/22/02 | Calcium, Total | 49900 | | 300 | | |
| | 7/22/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/22/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/22/02 | Copper, Total | 7.6 | J | 10 | 1300 | 1000 |
| | 7/22/02 | Iron, Total | 195 | J | 200 | 300 | 300 |
| | 7/22/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/22/02 | Magnesium, Total | 13000 | | 100 | | |
| | 7/22/02 | Manganese, Total | 90.6 | | 15 | 50 | 50 |
| | 7/22/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/22/02 | Nickel, Total | 2.1 | J | 10 | | 100 |
| | 7/22/02 | Potassium, Total | 7990 | J | 400 | | |
| | 7/22/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/22/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/22/02 | Sodium, Total | 50200 | J | 400 | | |
| | 7/22/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/22/02 | Vanadium, Total | 1.7 | J | 6 | | |
| | 7/22/02 | Zinc, Total | 28.2 | J | 50 | 500 | 5000 |
| SWSD012 | 7/22/02 | Aluminum, Total | 86.6 | J | 500 | 200 | 200 |
| | 7/22/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/22/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/22/02 | Barium, Total | 80.6 | | 5 | 2000 | 2000 |
| | 7/22/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/22/02 | Boron, Total | 104 | J | 60 | | |
| | 7/22/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/22/02 | Calcium, Total | 49600 | | 300 | | |
| | 7/22/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/22/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/22/02 | Copper, Total | 7.1 | J | 10 | 1300 | 1000 |
| | 7/22/02 | Iron, Total | 150 | J | 200 | 300 | 300 |
| | 7/22/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/22/02 | Magnesium, Total | 12900 | | 100 | | |
| | 7/22/02 | Manganese, Total | 67 | | 15 | 50 | 50 |
| | 7/22/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/22/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/22/02 | Potassium, Total | 7720 | J | 400 | | |
| | 7/22/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/22/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/22/02 | Sodium, Total | 49600 | J | 400 | | |
| | 7/22/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/22/02 | Vanadium, Total | 1.6 | J | 6 | | |
| | 7/22/02 | Zinc, Total | 22.3 | J | 50 | 500 | 5000 |

**Table A-5**
**2002 Surface Water Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location[e] | Date Collected | Analyte[a] | Resulta (µg/L) | Data Qualifier[b] S&W | Reporting Limits (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| SWSD013 | 7/22/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/22/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/22/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/22/02 | Barium, Total | 79.9 | | 5 | 2000 | 2000 |
| | 7/22/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/22/02 | Boron, Total | 101 | J | 60 | | |
| | 7/22/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/22/02 | Calcium, Total | 50000 | | 300 | | |
| | 7/22/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/22/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/22/02 | Copper, Total | 7.1 | J | 10 | 1300 | 1000 |
| | 7/22/02 | Iron, Total | 122 | J | 200 | 300 | 300 |
| | 7/22/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/22/02 | Magnesium, Total | 13200 | | 100 | | |
| | 7/22/02 | Manganese, Total | 44.6 | | 15 | 50 | 50 |
| | 7/22/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/22/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/22/02 | Potassium, Total | 7570 | J | 400 | | |
| | 7/22/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/22/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/22/02 | Sodium, Total | 48500 | J | 400 | | |
| | 7/22/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/22/02 | Vanadium, Total | 1.7 | J | 6 | | |
| | 7/22/02 | Zinc, Total | 17.2 | J | 50 | 500 | 5000 |
| SWSD014 | 7/23/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/23/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/23/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/23/02 | Barium, Total | 90.5 | | 5 | 2000 | 2000 |
| | 7/23/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/23/02 | Boron, Total | 114 | U | 60 | | |
| | 7/23/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/23/02 | Calcium, Total | 55800 | | 300 | | |
| | 7/23/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/23/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/23/02 | Copper, Total | 8.8 | U | 10 | 1300 | 1000 |
| | 7/23/02 | Iron, Total | 151 | J | 200 | 300 | 300 |
| | 7/23/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/23/02 | Lithium, Total | 31.6 | J | 50.0 | | |
| | 7/23/02 | Magnesium, Total | 14700 | | 100 | | |
| | 7/23/02 | Manganese, Total | 35.8 | | 15 | 50 | 50 |
| | 7/23/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/23/02 | Nickel, Total | 2.2 | J | 10 | | 100 |
| | 7/23/02 | Potassium, Total | 7700 | | 400 | | |
| | 7/23/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/23/02 | Silver, Total | 1.4 | U | 6 | 1007 | |
| | 7/23/02 | Sodium, Total | 55500 | | 400 | | |
| | 7/23/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/23/02 | Vanadium, Total | 1.7 | J | 6 | | |
| | 7/23/02 | Zinc, Total | 25.8 | U | 50 | 500 | 5000 |

**Table A-5**
**2002 Surface Water Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location[e] | Date Collected | Analyte[a] | Resulta (µg/L) | Data Qualifier[b] S&W | Reporting Limits (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| SWSD015 | 7/23/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/23/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/23/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/23/02 | Barium, Total | 93.7 | | 5 | 2000 | 2000 |
| | 7/23/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/23/02 | Boron, Total | 113 | U | 60 | | |
| | 7/23/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/23/02 | Calcium, Total | 58000 | | 300 | | |
| | 7/23/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/23/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/23/02 | Copper, Total | 9.5 | U | 10 | 1300 | 1000 |
| | 7/23/02 | Iron, Total | 225 | | 200 | 300 | 300 |
| | 7/23/02 | Lead, Total | 3.4 | U | 10 | 15 | 5 |
| | 7/23/02 | Lithium, Total | 28.3 | J | 50.0 | | |
| | 7/23/02 | Magnesium, Total | 14300 | | 100 | | |
| | 7/23/02 | Manganese, Total | 33.3 | | 15 | 50 | 50 |
| | 7/23/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/23/02 | Nickel, Total | 2.3 | J | 10 | | 100 |
| | 7/23/02 | Potassium, Total | 7850 | | 400 | | |
| | 7/23/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/23/02 | Silver, Total | 1.4 | U | 6 | 1007 | |
| | 7/23/02 | Sodium, Total | 54600 | | 400 | | |
| | 7/23/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5 |
| | 7/23/02 | Vanadium, Total | 2 | J | 6 | | |
| | 7/23/02 | Zinc, Total | 17.8 | U | 50 | 500 | 5000 |

[a]All analytes were reported, detected and undetected.

[b] USACE qualifier flags based on the CDQMP-QAPP: J = Reported as an estimated value, U= analyte was not detected.

[c] Federal SDWA MCLs, 40 CFR 141. Regulations pertain to drinking water quality and are listed for comparison purposes only. Not established (NE).

[d] New Jersey Class IIA Groundwater Quality Standards NJAC 7:9-6. Analytes. The New jersey limit is the higher of the GWQC and the PQL.

[e]Location SWSD008 was not sampled due to stagnant water.

[f]Monitoring well SWSD003 is the background location for surface water locations.

**Table A-6A**
**2002 Sediment Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Locationf | Date Collected | Analyte | Result[a] (pCi/g) | Error | Qualifier[b] | MDA[c] (pCi/g) | Cleanup Criteria[d] (pCi/g) |
|---|---|---|---|---|---|---|---|
| **Samples collected in Westerly Brook:** | | | | | | | |
| SWSD001 | 7/23/02 | Radium-226 | 0.55 | 0.21 | J | 0.22 | 5 |
| | 7/23/02 | Radium-228 | 0.33 | 0.46 | U | 0.76 | 5 |
| | 7/23/02 | Thorium-228 | 0.55 | 0.2 | R | 0.12 | |
| | 7/23/02 | Thorium-230 | 0.98 | 0.29 | R | 0.08 | 5 |
| | 7/23/02 | Thorium-232 | 0.39 | 0.16 | J | 0.07 | 5 |
| | 7/23/02 | Uranium-234 | 0.49 | 0.22 | J | 0.12 | |
| | 7/23/02 | Uranium-235 | 0.02 | 0.052 | U | 0.12 | |
| | 7/23/02 | Uranium-238 | 0.33 | 0.17 | J | 0.06 | |
| | | Total Uranium | 0.84 | | | | 100 |
| SWSD002 | 7/22/02 | Radium-226 | 0.18 | 0.17 | U | 0.31 | 5 |
| | 7/22/02 | Radium-228 | 0.61 | 0.39 | J | 0.61 | 5 |
| | 7/22/02 | Thorium-228 | 0.33 | 0.14 | J | 0.10 | |
| | 7/22/02 | Thorium-230 | 0.34 | 0.13 | J | 0.07 | 5 |
| | 7/22/02 | Thorium-232 | 0.12 | 0.074 | J | 0.06 | 5 |
| | 7/22/02 | Uranium-234 | 0.23 | 0.11 | J | 0.03 | |
| | 7/22/02 | Uranium-235 | 0.02 | 0.043 | U | 0.08 | |
| | 7/22/02 | Uranium-238 | 0.20 | 0.11 | J | 0.07 | |
| | | Total Uranium | 0.45 | | | | 100 |
| SWSD002 | 7/22/02 | Radium-226 | 0.12 | 0.17 | U | 0.28 | 5 |
| Duplicate[e] | 7/22/02 | Radium-228 | 0.41 | 0.45 | UJ | 0.73 | 5 |
| | 7/22/02 | Thorium-228 | 0.62 | 0.18 | J | 0.07 | |
| | 7/22/02 | Thorium-230 | 0.35 | 0.12 | J | 0.02 | 5 |
| | 7/22/02 | Thorium-232 | 0.35 | 0.12 | J | 0.03 | 5 |
| | 7/22/02 | Uranium-234 | 0.27 | 0.13 | J | 0.04 | |
| | 7/22/02 | Uranium-235 | 0.08 | 0.0065 | U | 0.08 | |
| | 7/22/02 | Uranium-238 | 0.28 | 0.14 | J | 0.06 | |
| | | Total Uranium | 0.63 | | | | 100 |
| SWSD003 | 7/22/02 | Radium-226 | 0.51 | 0.23 | J | 0.29 | 5 |
| | 7/22/02 | Radium-228 | 0.57 | 0.5 | UJ | 0.80 | 5 |
| | 7/22/02 | Thorium-228 | 0.55 | 0.21 | J | 0.14 | |
| | 7/22/02 | Thorium-230 | 0.84 | 0.27 | J | 0.08 | 5 |
| | 7/22/02 | Thorium-232 | 0.61 | 0.22 | J | 0.04 | 5 |
| | 7/22/02 | Uranium-234 | 0.33 | 0.16 | J | 0.10 | |
| | 7/22/02 | Uranium-235 | 0.02 | 0.038 | U | 0.09 | |
| | 7/22/02 | Uranium-238 | 0.27 | 0.14 | J | 0.09 | |
| | | Total Uranium | 0.62 | | | | 100 |

**Table A-6A**
**2002 Sediment Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Locationf | Date Collected | Analyte | Result[a] (pCi/g) | Error | Qualifier[b] | MDA[c] (pCi/g) | Cleanup Criteria[d] (pCi/g) |
|---|---|---|---|---|---|---|---|
| **Samples collected in Lodi Brook:** | | | | | | | |
| SWSD005 | 7/11/02 | Radium-226 | 0.64 | 0.24 | J | 0.29 | 5 |
| | 7/11/02 | Radium-228 | 1.64 | 0.9 | | 1.4 | 5 |
| | 7/11/02 | Thorium-228 | 1.29 | 0.36 | | 0.1 | |
| | 7/11/02 | Thorium-230 | 0.6 | 0.21 | R | 0.07 | 5 |
| | 7/11/02 | Thorium-232 | 1.16 | 0.33 | | 0.06 | 5 |
| | 7/11/02 | Uranium-234 | 0.3 | 0.13 | J | 0.08 | |
| | 7/11/02 | Uranium-235 | 0 | 0.0057 | U | 0.07 | |
| | 7/11/02 | Uranium-238 | 0.35 | 0.14 | J | 0.07 | |
| | | Total Uranium | 0.65 | | | | 100 |
| SWSD006 | 7/23/02 | Radium-226 | 3.51 | 0.54 | | 0.30 | 5 |
| | 7/23/02 | Radium-228 | 17.70 | 2 | | 0.70 | 5 |
| | 7/23/02 | Thorium-228 | 16.30 | 3.4 | | 0.20 | |
| | 7/23/02 | Thorium-230 | 2.96 | 0.72 | | 0.10 | 5 |
| | 7/23/02 | Thorium-232 | 15.20 | 3.2 | | 0.06 | 5 |
| | 7/23/02 | Uranium-234 | 7.30 | 1.7 | | 0.06 | |
| | 7/23/02 | Uranium-235 | 0.15 | 0.13 | J | 0.07 | |
| | 7/23/02 | Uranium-238 | 7.10 | 1.6 | | 0.06 | |
| | | Total Uranium | 14.55 | | | | 100 |
| SWSD007 | 7/11/02 | Radium-226 | 6.58 | 0.87 | | 0.24 | 5 |
| | 7/11/02 | Radium-228 | 20 | 2.3 | | 1 | 5 |
| | 7/11/02 | Thorium-228 | 17.6 | 3.7 | R | 0.1 | |
| | 7/11/02 | Thorium-230 | 3.23 | 0.77 | R | 0.06 | 5 |
| | 7/11/02 | Thorium-232 | 17.6 | 3.7 | | 0.06 | 5 |
| | 7/11/02 | Uranium-234 | 3.48 | 0.83 | | 0.04 | |
| | 7/11/02 | Uranium-235 | 0.21 | 0.13 | | 0.05 | |
| | 7/11/02 | Uranium-238 | 3.97 | 0.93 | | 0.04 | |
| | | Total Uranium | 7.66 | | | | 100 |
| SWSD009 | 7/23/02 | Radium-226 | 1.16 | 0.27 | | 0.26 | 5 |
| | 7/23/02 | Radium-228 | 5.48 | 0.82 | | 0.71 | 5 |
| | 7/23/02 | Thorium-228 | 6.20 | 1.4 | R | 0.20 | |
| | 7/23/02 | Thorium-230 | 1.15 | 0.35 | R | 0.07 | 5 |
| | 7/23/02 | Thorium-232 | 5.50 | 1.2 | | 0.07 | 5 |
| | 7/23/02 | Uranium-234 | 2.08 | 0.59 | | 0.05 | |
| | 7/23/02 | Uranium-235 | 0.12 | 0.11 | J | 0.12 | |
| | 7/23/02 | Uranium-238 | 1.60 | 0.48 | | 0.10 | |
| | | Total Uranium | 3.80 | | | | 100 |

## Table A-6A
## 2002 Sediment Analytical Results - Radioactive Constituents
## Maywood Interim Storage Site - 2002

| Sampling Locationf | Date Collected | Analyte | Result[a] (pCi/g) | Error | Qualifier[b] | MDA[c] (pCi/g) | Cleanup Criteria[d] (pCi/g) |
|---|---|---|---|---|---|---|---|
| SWSD009 | 7/23/02 | Radium-226 | 3.95 | 0.56 | | 0.28 | 5 |
| Duplicate | 7/23/02 | Radium-228 | 19.20 | 2.2 | | 0.70 | 5 |
| | 7/23/02 | Thorium-228 | 17.70 | 3.7 | R | 0.20 | |
| | 7/23/02 | Thorium-230 | 2.64 | 0.64 | R | 0.08 | 5 |
| | 7/23/02 | Thorium-232 | 15.70 | 3.2 | | 0.06 | 5 |
| | 7/23/02 | Uranium-234 | 8.60 | 1.8 | | 0.04 | |
| | 7/23/02 | Uranium-235 | 0.25 | 0.15 | J | 0.11 | |
| | 7/23/02 | Uranium-238 | 6.30 | 1.4 | | 0.09 | |
| | | Total Uranium | 15.15 | | | | 100 |
| SWSD010 | 7/11/02 | Radium-226 | 0.88 | 0.27 | J | 0.27 | 5 |
| | 7/11/02 | Radium-228 | 1.46 | 0.57 | | 0.84 | 5 |
| | 7/11/02 | Thorium-228 | 1.66 | 0.4 | | 0.07 | |
| | 7/11/02 | Thorium-230 | 0.55 | 0.16 | J | 0.04 | 5 |
| | 7/11/02 | Thorium-232 | 1.96 | 0.45 | | 0.04 | 5 |
| | 7/11/02 | Uranium-234 | 0.49 | 0.15 | J | 0.02 | |
| | 7/11/02 | Uranium-235 | 0.03 | 0.03 | UJ | 0.02 | |
| | 7/11/02 | Uranium-238 | 0.39 | 0.13 | J | 0.03 | |
| | | Total Uranium | 0.91 | | | | 100 |
| SWSD012 | 7/22/02 | Radium-226 | 0.63 | 0.22 | J | 0.26 | 5 |
| | 7/22/02 | Radium-228 | 1.57 | 0.52 | | 0.74 | 5 |
| | 7/22/02 | Thorium-228 | 1.12 | 0.33 | | 0.14 | |
| | 7/22/02 | Thorium-230 | 0.79 | 0.26 | J | 0.09 | 5 |
| | 7/22/02 | Thorium-232 | 0.84 | 0.26 | J | 0.07 | 5 |
| | 7/22/02 | Uranium-234 | 0.44 | 0.18 | J | 0.04 | |
| | 7/22/02 | Uranium-235 | 0.02 | 0.034 | UJ | 0.05 | |
| | 7/22/02 | Uranium-238 | 0.20 | 0.11 | J | 0.07 | |
| | | Total Uranium | 0.66 | | | | 100 |
| SWSD013 | 7/22/02 | Radium-226 | 0.37 | 0.16 | J | 0.26 | 5 |
| | 7/22/02 | Radium-228 | 2.15 | 0.52 | | 0.65 | 5 |
| | 7/22/02 | Thorium-228 | 0.80 | 0.22 | J | 0.07 | |
| | 7/22/02 | Thorium-230 | 0.64 | 0.18 | J | 0.04 | 5 |
| | 7/22/02 | Thorium-232 | 0.66 | 0.19 | J | 0.04 | 5 |
| | 7/22/02 | Uranium-234 | 0.51 | 0.18 | J | 0.03 | |
| | 7/22/02 | Uranium-235 | 0.02 | 0.037 | U | 0.07 | |
| | 7/22/02 | Uranium-238 | 0.39 | 0.15 | J | 0.05 | |
| | | Total Uranium | 0.92 | | | | 100 |

**Table A-6A**
**2002 Sediment Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Locationf | Date Collected | Analyte | Result[a] (pCi/g) | Error | Qualifier[b] | MDA[c] (pCi/g) | Cleanup Criteria[d] (pCi/g) |
|---|---|---|---|---|---|---|---|
| SWSD015 | 7/23/02 | Radium-226 | 0.37 | 0.19 | J | 0.30 | 5 |
| | 7/23/02 | Radium-228 | 0.99 | 0.52 | J | 0.79 | 5 |
| | 7/23/02 | Thorium-228 | 1.22 | 0.39 | | 0.12 | |
| | 7/23/02 | Thorium-230 | 0.84 | 0.29 | R | 0.04 | 5 |
| | 7/23/02 | Thorium-232 | 2.05 | 0.57 | R | 0.08 | 5 |
| | 7/23/02 | Uranium-234 | 0.45 | 0.2 | J | 0.12 | |
| | 7/23/02 | Uranium-235 | 0.00 | 0.0089 | U | 0.11 | |
| | 7/23/02 | Uranium-238 | 0.38 | 0.18 | J | 0.11 | |
| | | Total Uranium | 0.83 | | | | 100 |

[a]Results reported with ± radiological error equal at 2 sigma (95% confidence level),
[b] USACE data qualifier flags based on the CDQMP-QAPP;
U = The analyte was not detected.
J = Reported as an estimated value.
[c]Minimum Detectable Activity (MDA)
[d] Soil cleanup criteria established by DOE and EPA are used as the basis fot evaluating analytical results for sediment.
[e] A quality control duplicate is collected at the same time and location and is analyzed by the same method in order to evaluate precision in sampling and analysis.
[f] Sediment samples could not be collected at locations SWSD008, SWSD011 and SWSD014 in Lodi Brook and SWSD004 in Westerly Brook due to significant flow.

## Table A-6B
## 2002 Sediment Analytical Results - Metals
## Maywood Interim Storage Site - 2002

| Sampling Location | Date Collected | Detected Analyte | Results[a] (mg/kg) | Data Qualifier[b] | Reporting Limits (mg/kg) | State Proposed Criteria[c] (mg/kg) | Lowest Effects Level (LEL) (mg/kg) | Severe Effects Level (SEL) (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| **Samples collected in Westerly Brook:** | | | | | | | | |
| SWSD001 (residential) | 7/23/02 | Aluminum, Total | 2870 | | 271 | NE | | |
| | 7/23/02 | Antimony, Total | 1.3 | U | 12.3 | 14 | | |
| | 7/23/02 | Arsenic, Total | 4.3 | | 8.4 | 20 | 6 | 33 |
| | 7/23/02 | Barium, Total | 60.2 | | 2.1 | 700 | | |
| | 7/23/02 | Beryllium, Total | 0.52 | U | 2.1 | 1 | | |
| | 7/23/02 | Boron, Total | 2550 | | 63 | NE | | |
| | 7/23/02 | Cadmium, Total | 1 | U | 3.1 | 1 | 0.6 | 10 |
| | 7/23/02 | Calcium, Total | 6900 | | 89.2 | NE | | |
| | 7/23/02 | Chromium, Total | 24.8 | | 3.1 | NE | 26 | 110 |
| | 7/23/02 | Cobalt, Total | 2.9 | | 2.1 | NE | | |
| | 7/23/02 | Copper, Total | 23.8 | | 5.2 | 600 | 16 | 110 |
| | 7/23/02 | Iron, Total | 9180 | | 152 | NE | | |
| | 7/23/02 | Lead, Total | 44.2 | | 9.4 | 400 | 31 | 250 |
| | 7/23/02 | Lithium, Total | 5 | | 6.2 | NE | | |
| | 7/23/02 | Magnesium, Total | 4030 | | 36.7 | NE | | |
| | 7/23/02 | Manganese, Total | 203 | | 2.6 | NE | | |
| | 7/23/02 | Mercury, Total | 0.1 | R | 2.3 | 14 | | |
| | 7/23/02 | Nickel, Total | 8.7 | | 5.2 | 250 | 16 | 75 |
| | 7/23/02 | Potassium, Total | 362 | | 210 | NE | | |
| | 7/23/02 | Selenium, Total | 1.7 | U | 16.8 | 63 | | |
| | 7/23/02 | Silver, Total | 0.31 | U | 3.1 | 110 | | |
| | 7/23/02 | Sodium, Total | 162 | | 98.7 | NE | | |
| | 7/23/02 | Thallium, Total | 3.1 | U | 23.1 | 2 | | |
| | 7/23/02 | Vanadium, Total | 12.9 | | 4.2 | 370 | | |
| | 7/23/02 | Zinc, Total | 104 | | 21 | 1500 | 120 | 820 |
| SWSD002 (residential) | 7/22/02 | Aluminum, Total | 4210 | | 271 | NE | | |
| | 7/22/02 | Antimony, Total | 1.3 | U | 12.3 | 14 | | |
| | 7/22/02 | Arsenic, Total | 5.7 | J | 8.4 | 20 | 6 | 33 |
| | 7/22/02 | Barium, Total | 37.5 | | 2.1 | 700 | | |
| | 7/22/02 | Beryllium, Total | 0.53 | U | 2.1 | 1 | | |
| | 7/22/02 | Boron, Total | 4110 | | 63.1 | NE | | |
| | 7/22/02 | Cadmium, Total | 1.1 | U | 3.2 | 1 | 0.6 | 10 |
| | 7/22/02 | Calcium, Total | 4580 | | 89.4 | NE | | |
| | 7/22/02 | Chromium, Total | 9.6 | | 3.2 | NE | 26 | 110 |
| | 7/22/02 | Cobalt, Total | 5 | | 2.1 | NE | | |
| | 7/22/02 | Copper, Total | 40.4 | J | 5.3 | 600 | 16 | 110 |
| | 7/22/02 | Iron, Total | 13700 | | 152 | NE | | |
| | 7/22/02 | Lead, Total | 54.8 | | 9.5 | 400 | 31 | 250 |
| | 7/22/02 | Magnesium, Total | 2880 | | 36.8 | NE | | |
| | 7/22/02 | Manganese, Total | 184 | | 2.6 | NE | | |
| | 7/22/02 | Mercury, Total | 0.12 | U | 2.6 | 14 | | |
| | 7/22/02 | Nickel, Total | 19.3 | | 5.3 | 250 | 16 | 75 |
| | 7/22/02 | Potassium, Total | 483 | | 210 | NE | | |
| | 7/22/02 | Selenium, Total | 1.7 | U | 16.8 | 63 | | |
| | 7/22/02 | Silver, Total | 0.32 | U | 3.2 | 110 | | |
| | 7/22/02 | Sodium, Total | 220 | | 98.8 | NE | | |
| | 7/22/02 | Thallium, Total | 3.2 | U | 23.1 | 2 | | |
| | 7/22/02 | Vanadium, Total | 14.3 | | 4.2 | 370 | | |
| | 7/22/02 | Zinc, Total | 228 | J | 21 | 1500 | 120 | 820 |

**Table A-6B**
**2002 Sediment Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Detected Analyte | Results[a] (mg/kg) | Data Qualifier[b] | Reporting Limits (mg/kg) | State Proposed Criteria[c] (mg/kg) | Lowest Effects Level (LEL) (mg/kg) | Severe Effects Level (SEL) (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| SWSD002 | 7/22/02 | Aluminum, Total | 3760 | | 238 | NE | | |
| Duplicate[d] | 7/22/02 | Antimony, Total | 1.1 | U | 10.8 | 14 | | |
| | 7/22/02 | Arsenic, Total | 7.4 | | 7.4 | 20 | 6 | 33 |
| | 7/22/02 | Barium, Total | 30.9 | | 1.8 | 700 | | |
| | 7/22/02 | Beryllium, Total | 0.46 | U | 1.8 | 1 | | |
| | 7/22/02 | Boron, Total | 10200 | | 55.3 | NE | | |
| | 7/22/02 | Cadmium, Total | 0.92 | U | 2.8 | 1 | 0.6 | 10 |
| | 7/22/02 | Calcium, Total | 2970 | | 78.4 | NE | | |
| | 7/22/02 | Chromium, Total | 11.5 | | 2.8 | NE | 26 | 110 |
| | 7/22/02 | Cobalt, Total | 4.2 | | 1.8 | NE | | |
| | 7/22/02 | Copper, Total | 33.6 | J | 4.6 | 600 | 16 | 110 |
| | 7/22/02 | Iron, Total | 10100 | | 134 | NE | | |
| | 7/22/02 | Lead, Total | 59.3 | | 8.3 | 400 | 31 | 250 |
| | 7/22/02 | Magnesium, Total | 2000 | | 32.3 | NE | | |
| | 7/22/02 | Manganese, Total | 159 | | 2.3 | NE | | |
| | 7/22/02 | Mercury, Total | 0.11 | U | 2.5 | 14 | | |
| | 7/22/02 | Nickel, Total | 16.3 | | 4.6 | 250 | 16 | 75 |
| | 7/22/02 | Potassium, Total | 410 | | 184 | NE | | |
| | 7/22/02 | Selenium, Total | 1.5 | U | 14.7 | 63 | | |
| | 7/22/02 | Silver, Total | 0.28 | U | 2.8 | 110 | | |
| | 7/22/02 | Sodium, Total | 183 | | 86.6 | NE | | |
| | 7/22/02 | Thallium, Total | 2.8 | U | 20.3 | 2 | | |
| | 7/22/02 | Vanadium, Total | 11.6 | | 3.7 | 370 | | |
| | 7/22/02 | Zinc, Total | 176 | J | 18.4 | 1500 | 120 | 820 |
| SWSD003 | 7/22/02 | Aluminum, Total | 3220 | | 271 | NE | | |
| (nonresidential) | 7/22/02 | Antimony, Total | 1.3 | U | 12.3 | 340 | | |
| | 7/22/02 | Arsenic, Total | 3.5 | J | 8.4 | 20 | 6 | 33 |
| | 7/22/02 | Barium, Total | 48.1 | | 2.1 | 47000 | | |
| | 7/22/02 | Beryllium, Total | 0.52 | U | 2.1 | 1 | | |
| | 7/22/02 | Boron, Total | 6870 | | 62.9 | NE | | |
| | 7/22/02 | Cadmium, Total | 1 | U | 3.1 | 100 | 0.6 | 10 |
| | 7/22/02 | Calcium, Total | 3220 | | 89.1 | NE | | |
| | 7/22/02 | Chromium, Total | 11.5 | | 3.1 | NE | 26 | 110 |
| | 7/22/02 | Cobalt, Total | 4.7 | | 2.1 | NE | | |
| | 7/22/02 | Copper, Total | 59.5 | J | 5.2 | 600 | 16 | 110 |
| | 7/22/02 | Iron, Total | 9940 | | 152 | NE | | |
| | 7/22/02 | Lead, Total | 66.6 | | 9.4 | 600 | 31 | 250 |
| | 7/22/02 | Magnesium, Total | 2000 | | 36.7 | NE | | |
| | 7/22/02 | Manganese, Total | 94.6 | | 2.6 | NE | | |
| | 7/22/02 | Mercury, Total | 0.11 | U | 2.4 | 270 | | |
| | 7/22/02 | Nickel, Total | 12.5 | | 5.2 | 2400 | 16 | 75 |
| | 7/22/02 | Potassium, Total | 367 | | 210 | NE | | |
| | 7/22/02 | Selenium, Total | 1.7 | U | 16.8 | 3100 | | |
| | 7/22/02 | Silver, Total | 0.31 | U | 3.1 | 4100 | | |
| | 7/22/02 | Sodium, Total | 185 | | 98.6 | NE | | |
| | 7/22/02 | Thallium, Total | 3.1 | U | 23.1 | 2 | | |
| | 7/22/02 | Vanadium, Total | 12.4 | | 4.2 | 7100 | | |
| | 7/22/02 | Zinc, Total | 220 | J | 21 | 1500 | 120 | 820 |

**Table A-6B**
**2002 Sediment Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Detected Analyte | Results[a] (mg/kg) | Data Qualifier[b] | Reporting Limits (mg/kg) | State Proposed Criteria[c] (mg/kg) | Lowest Effects Level (LEL) (mg/kg) | Severe Effects Level (SEL) (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| **Samples collected in Lodi Brook:** | | | | | | | | |
| SWSD005 | 7/11/02 | Aluminum, Total | 2190 | | 254 | NE | | |
| (nonresidential) | 7/11/02 | Antimony, Total | 1.2 | UJ | 11.5 | 340 | | |
| | 7/11/02 | Arsenic, Total | 2 | | 7.9 | 20 | 6 | 33 |
| | 7/11/02 | Barium, Total | 43.7 | | 2 | 47000 | | |
| | 7/11/02 | Beryllium, Total | 0.49 | U | 2 | 1 | | |
| | 7/11/02 | Boron, Total | 2.7 | R | 11.8 | NE | | |
| | 7/11/02 | Cadmium, Total | 0.98 | R | 3 | 100 | 0.6 | 10 |
| | 7/11/02 | Calcium, Total | 4230 | J | 83.7 | NE | | |
| | 7/11/02 | Chromium, Total | 23 | J | 3 | NE | 26 | 110 |
| | 7/11/02 | Cobalt, Total | 2.5 | | 2 | NE | | |
| | 7/11/02 | Copper, Total | 24.7 | J | 4.9 | 600 | 16 | 110 |
| | 7/11/02 | Iron, Total | 10400 | | 143 | NE | | |
| | 7/11/02 | Lead, Total | 13.7 | | 8.9 | 600 | 31 | 250 |
| | 7/11/02 | Lithium, Total | 8.9 | | 6.6 | NE | | |
| | 7/11/02 | Magnesium, Total | 2040 | J | 34.5 | NE | | |
| | 7/11/02 | Manganese, Total | 355 | J | 2.5 | NE | | |
| | 7/11/02 | Mercury, Total | 0.11 | U | 2.5 | 270 | | |
| | 7/11/02 | Nickel, Total | 15 | | 4.9 | 2400 | 16 | 75 |
| | 7/11/02 | Potassium, Total | 225 | | 197 | NE | | |
| | 7/11/02 | Selenium, Total | 1.6 | UJ | 15.8 | 3100 | | |
| | 7/11/02 | Silver, Total | 0.3 | U | 3 | 4100 | | |
| | 7/11/02 | Sodium, Total | 154 | | 92.6 | NE | | |
| | 7/11/02 | Thallium, Total | 3 | U | 21.7 | 2 | | |
| | 7/11/02 | Vanadium, Total | 10.8 | | 3.9 | 7100 | | |
| | 7/11/02 | Zinc, Total | 80.4 | J | 19.7 | 1500 | 120 | 820 |
| SWSD006 | 7/23/02 | Aluminum, Total | 15200 | | 722 | NE | | |
| (nonresidential) | 7/23/02 | Antimony, Total | 3.4 | U | 32.7 | 340 | | |
| | 7/23/02 | Arsenic, Total | 29.3 | | 22.4 | 20 | 6 | 33 |
| | 7/23/02 | Barium, Total | 512 | | 5.6 | 47000 | | |
| | 7/23/02 | Beryllium, Total | 1.4 | U | 5.6 | 1 | | |
| | 7/23/02 | Boron, Total | 13500 | | 168 | NE | | |
| | 7/23/02 | Cadmium, Total | 3.5 | J | 8.4 | 100 | 0.6 | 10 |
| | 7/23/02 | Calcium, Total | 15300 | | 238 | NE | | |
| | 7/23/02 | Chromium, Total | 268 | | 8.4 | NE | 26 | 110 |
| | 7/23/02 | Cobalt, Total | 9.2 | | 5.6 | NE | | |
| | 7/23/02 | Copper, Total | 168 | J | 14 | 600 | 16 | 110 |
| | 7/23/02 | Iron, Total | 22600 | | 406 | NE | | |
| | 7/23/02 | Lead, Total | 490 | | 25.2 | 600 | 31 | 250 |
| | 7/23/02 | Magnesium, Total | 3720 | | 97.9 | NE | | |
| | 7/23/02 | Manganese, Total | 385 | | 7 | NE | | |
| | 7/23/02 | Mercury, Total | 0.91 | J | 5.7 | 270 | | |
| | 7/23/02 | Nickel, Total | 32.4 | | 14 | 2400 | 16 | 75 |
| | 7/23/02 | Potassium, Total | 1280 | | 559 | NE | | |
| | 7/23/02 | Selenium, Total | 4.5 | U | 44.8 | 3100 | | |
| | 7/23/02 | Silver, Total | 0.84 | U | 8.4 | 4100 | | |
| | 7/23/02 | Sodium, Total | 902 | | 263 | NE | | |
| | 7/23/02 | Thallium, Total | 8.4 | U | 61.5 | 2 | | |
| | 7/23/02 | Vanadium, Total | 60.5 | | 11.2 | 7100 | | |
| | 7/23/02 | Zinc, Total | 805 | J | 55.9 | 1500 | 120 | 820 |

**Table A-6B**
**2002 Sediment Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Detected Analyte | Results[a] (mg/kg) | Data Qualifier[b] | Reporting Limits (mg/kg) | State Proposed Criteria[c] (mg/kg) | Lowest Effects Level (LEL) (mg/kg) | Severe Effects Level (SEL) (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| SWSD007 (nonresidential) | 7/11/02 | Aluminum, Total | 11300 | | 783 | NE | | |
| | 7/11/02 | Antimony, Total | 3.6 | UJ | 35.5 | 340 | | |
| | 7/11/02 | Arsenic, Total | 22.4 | | 24.3 | 20 | 6 | 33 |
| | 7/11/02 | Barium, Total | 433 | | 6.1 | 47000 | | |
| | 7/11/02 | Beryllium, Total | 1.5 | U | 6.1 | 1 | | |
| | 7/11/02 | Boron, Total | 13.2 | R | 36.4 | NE | | |
| | 7/11/02 | Cadmium, Total | 3 | R | 9.1 | 100 | 0.6 | 10 |
| | 7/11/02 | Calcium, Total | 14000 | J | 258 | NE | | |
| | 7/11/02 | Chromium, Total | 185 | J | 9.1 | NE | 26 | 110 |
| | 7/11/02 | Cobalt, Total | 7.7 | | 6.1 | NE | | |
| | 7/11/02 | Copper, Total | 132 | J | 15.2 | 600 | 16 | 110 |
| | 7/11/02 | Iron, Total | 19800 | | 440 | NE | | |
| | 7/11/02 | Lead, Total | 362 | | 27.3 | 600 | 31 | 250 |
| | 7/11/02 | Lithium, Total | 68.1 | J | 17.1 | NE | | |
| | 7/11/02 | Magnesium, Total | 2840 | J | 106 | NE | | |
| | 7/11/02 | Manganese, Total | 540 | J | 7.6 | NE | | |
| | 7/11/02 | Mercury, Total | 0.91 | U | 6.6 | 270 | | |
| | 7/11/02 | Nickel, Total | 25.5 | | 15.2 | 2400 | 16 | 75 |
| | 7/11/02 | Potassium, Total | 886 | | 607 | NE | | |
| | 7/11/02 | Selenium, Total | 4.9 | UJ | 48.6 | 3100 | | |
| | 7/11/02 | Silver, Total | 0.91 | U | 9.1 | 4100 | | |
| | 7/11/02 | Sodium, Total | 875 | | 285 | NE | | |
| | 7/11/02 | Thallium, Total | 9.1 | U | 66.8 | 2 | | |
| | 7/11/02 | Vanadium, Total | 44.3 | | 12.1 | 7100 | | |
| | 7/11/02 | Zinc, Total | 621 | J | 60.7 | 1500 | 120 | 820 |
| SWSD009 (nonresidential) | 7/23/02 | Aluminum, Total | 7100 | | 339 | NE | | |
| | 7/23/02 | Antimony, Total | 1.6 | U | 15.4 | 340 | | |
| | 7/23/02 | Arsenic, Total | 7.2 | J | 10.5 | 20 | 6 | 33 |
| | 7/23/02 | Barium, Total | 67.2 | | 2.6 | 47000 | | |
| | 7/23/02 | Beryllium, Total | 0.66 | U | 2.6 | 1 | | |
| | 7/23/02 | Boron, Total | 9390 | | 78.9 | NE | | |
| | 7/23/02 | Cadmium, Total | 1.3 | U | 3.9 | 100 | 0.6 | 10 |
| | 7/23/02 | Calcium, Total | 6960 | | 112 | NE | | |
| | 7/23/02 | Chromium, Total | 58.8 | | 3.9 | NE | 26 | 110 |
| | 7/23/02 | Cobalt, Total | 6.5 | | 2.6 | NE | | |
| | 7/23/02 | Copper, Total | 50.4 | J | 6.6 | 600 | 16 | 110 |
| | 7/23/02 | Iron, Total | 14500 | | 191 | NE | | |
| | 7/23/02 | Lead, Total | 209 | | 11.8 | 600 | 31 | 250 |
| | 7/23/02 | Magnesium, Total | 3510 | | 46 | NE | | |
| | 7/23/02 | Manganese, Total | 202 | | 3.3 | NE | | |
| | 7/23/02 | Mercury, Total | 0.34 | J | 3 | 270 | | |
| | 7/23/02 | Nickel, Total | 17.5 | | 6.6 | 2400 | 16 | 75 |
| | 7/23/02 | Potassium, Total | 638 | | 263 | NE | | |
| | 7/23/02 | Selenium, Total | 2.1 | U | 21 | 3100 | | |
| | 7/23/02 | Silver, Total | 0.39 | U | 3.9 | 4100 | | |
| | 7/23/02 | Sodium, Total | 510 | | 124 | NE | | |
| | 7/23/02 | Thallium, Total | 3.9 | U | 28.9 | 2 | | |
| | 7/23/02 | Vanadium, Total | 30.9 | | 5.3 | 7100 | | |
| | 7/23/02 | Zinc, Total | 212 | J | 26.3 | 1500 | 120 | 820 |

**Table A-6B**
**2002 Sediment Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Detected Analyte | Results[a] (mg/kg) | Data Qualifier[b] | Reporting Limits (mg/kg) | State Proposed Criteria[c] (mg/kg) | Lowest Effects Level (LEL) (mg/kg) | Severe Effects Level (SEL) (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| SWSD010 (nonresidential) | 7/11/02 | Aluminum, Total | 5240 | | 215 | NE | | |
| | 7/11/02 | Antimony, Total | 1 | UJ | 9.8 | 340 | | |
| | 7/11/02 | Arsenic, Total | 3.5 | | 6.7 | 20 | 6 | 33 |
| | 7/11/02 | Barium, Total | 89.3 | | 1.7 | 47000 | | |
| | 7/11/02 | Beryllium, Total | 0.42 | U | 1.7 | 1 | | |
| | 7/11/02 | Boron, Total | 12.1 | R | 10 | NE | | |
| | 7/11/02 | Cadmium, Total | 0.84 | R | 2.5 | 100 | 0.6 | 10 |
| | 7/11/02 | Calcium, Total | 9760 | J | 71 | NE | | |
| | 7/11/02 | Chromium, Total | 52.5 | J | 2.5 | NE | 26 | 110 |
| | 7/11/02 | Cobalt, Total | 5.5 | | 1.7 | NE | | |
| | 7/11/02 | Copper, Total | 40.2 | J | 4.2 | 600 | 16 | 110 |
| | 7/11/02 | Iron, Total | 15700 | | 121 | NE | | |
| | 7/11/02 | Lead, Total | 87.7 | | 7.5 | 600 | 31 | 250 |
| | 7/11/02 | Lithium, Total | 8.2 | | 7.3 | NE | | |
| | 7/11/02 | Magnesium, Total | 5460 | J | 29.2 | NE | | |
| | 7/11/02 | Manganese, Total | 576 | J | 2.1 | NE | | |
| | 7/11/02 | Mercury, Total | 0.095 | U | 2.1 | 270 | | |
| | 7/11/02 | Nickel, Total | 14.3 | | 4.2 | 2400 | 16 | 75 |
| | 7/11/02 | Potassium, Total | 603 | | 167 | NE | | |
| | 7/11/02 | Selenium, Total | 1.3 | UJ | 13.4 | 3100 | | |
| | 7/11/02 | Silver, Total | 0.25 | U | 2.5 | 4100 | | |
| | 7/11/02 | Sodium, Total | 308 | | 78.5 | NE | | |
| | 7/11/02 | Thallium, Total | 2.5 | U | 18.4 | 2 | | |
| | 7/11/02 | Vanadium, Total | 20.2 | | 3.3 | 7100 | | |
| | 7/11/02 | Zinc, Total | 165 | J | 16.7 | 1500 | 120 | 820 |
| SWSD012 (residential) | 7/22/02 | Aluminum, Total | 4930 | | 309 | NE | | |
| | 7/22/02 | Antimony, Total | 1.4 | U | 14 | 14 | | |
| | 7/22/02 | Arsenic, Total | 2.7 | J | 9.6 | 20 | 6 | 33 |
| | 7/22/02 | Barium, Total | 110 | | 2.4 | 700 | | |
| | 7/22/02 | Beryllium, Total | 0.6 | U | 2.4 | 1 | | |
| | 7/22/02 | Boron, Total | 6260 | | 71.9 | NE | | |
| | 7/22/02 | Cadmium, Total | 1.2 | U | 3.6 | 1 | 0.6 | 10 |
| | 7/22/02 | Calcium, Total | 9830 | | 102 | NE | | |
| | 7/22/02 | Chromium, Total | 29.8 | | 3.6 | NE | 26 | 110 |
| | 7/22/02 | Cobalt, Total | 5.5 | | 2.4 | NE | | |
| | 7/22/02 | Copper, Total | 39.5 | J | 6 | 600 | 16 | 110 |
| | 7/22/02 | Iron, Total | 26700 | | 174 | NE | | |
| | 7/22/02 | Lead, Total | 180 | | 10.8 | 400 | 31 | 250 |
| | 7/22/02 | Magnesium, Total | 4730 | | 41.9 | NE | | |
| | 7/22/02 | Manganese, Total | 523 | | 3 | NE | | |
| | 7/22/02 | Mercury, Total | 0.095 | U | 2.1 | 14 | | |
| | 7/22/02 | Nickel, Total | 16.1 | | 6 | 250 | 16 | 75 |
| | 7/22/02 | Potassium, Total | 479 | | 240 | NE | | |
| | 7/22/02 | Selenium, Total | 1.9 | U | 19.2 | 63 | | |
| | 7/22/02 | Silver, Total | 0.36 | U | 3.6 | 110 | | |
| | 7/22/02 | Sodium, Total | 459 | | 113 | NE | | |
| | 7/22/02 | Thallium, Total | 3.6 | U | 26.3 | 2 | | |
| | 7/22/02 | Vanadium, Total | 18.7 | | 4.8 | 370 | | |
| | 7/22/02 | Zinc, Total | 157 | J | 24 | 1500 | 120 | 820 |

**Table A-6B**
**2002 Sediment Analytical Results - Metals**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Detected Analyte | Results[a] (mg/kg) | Data Qualifier[b] | Reporting Limits (mg/kg) | State Proposed Criteria[c] (mg/kg) | Lowest Effects Level (LEL) (mg/kg) | Severe Effects Level (SEL) (mg/kg) |
|---|---|---|---|---|---|---|---|---|
| SWSD013 (residential) | 7/22/02 | Aluminum, Total | 4660 | | 263 | NE | | |
| | 7/22/02 | Antimony, Total | 1.2 | U | 11.9 | 14 | | |
| | 7/22/02 | Arsenic, Total | 2.6 | J | 8.2 | 20 | 6 | 33 |
| | 7/22/02 | Barium, Total | 133 | | 2 | 700 | | |
| | 7/22/02 | Beryllium, Total | 0.51 | U | 2 | 1 | | |
| | 7/22/02 | Boron, Total | 8170 | | 61.2 | NE | | |
| | 7/22/02 | Cadmium, Total | 1 | U | 3.1 | 1 | 0.6 | 10 |
| | 7/22/02 | Calcium, Total | 9300 | | 86.7 | NE | | |
| | 7/22/02 | Chromium, Total | 55.7 | | 3.1 | NE | 26 | 110 |
| | 7/22/02 | Cobalt, Total | 4.8 | | 2 | NE | | |
| | 7/22/02 | Copper, Total | 82.8 | J | 5.1 | 600 | 16 | 110 |
| | 7/22/02 | Iron, Total | 19300 | | 148 | NE | | |
| | 7/22/02 | Lead, Total | 214 | | 9.2 | 400 | 31 | 250 |
| | 7/22/02 | Magnesium, Total | 3950 | | 35.7 | NE | | |
| | 7/22/02 | Manganese, Total | 467 | | 2.5 | NE | | |
| | 7/22/02 | Mercury, Total | 0.11 | U | 2.4 | 14 | | |
| | 7/22/02 | Nickel, Total | 13.5 | | 5.1 | 250 | 16 | 75 |
| | 7/22/02 | Potassium, Total | 503 | | 204 | NE | | |
| | 7/22/02 | Selenium, Total | 1.6 | U | 16.3 | 63 | | |
| | 7/22/02 | Silver, Total | 0.31 | U | 3.1 | 110 | | |
| | 7/22/02 | Sodium, Total | 272 | | 95.8 | NE | | |
| | 7/22/02 | Thallium, Total | 3.1 | U | 22.4 | 2 | | |
| | 7/22/02 | Vanadium, Total | 20.4 | | 4.1 | 370 | | |
| | 7/22/02 | Zinc, Total | 239 | J | 20.4 | 1500 | 120 | 820 |
| SWSD015 (nonresidential) | 7/23/02 | Aluminum, Total | 6230 | | 275 | NE | | |
| | 7/23/02 | Antimony, Total | 1.3 | U | 12.5 | 340 | | |
| | 7/23/02 | Arsenic, Total | 3.6 | | 8.5 | 20 | 6 | 33 |
| | 7/23/02 | Barium, Total | 92.6 | | 2.1 | 47000 | | |
| | 7/23/02 | Beryllium, Total | 0.53 | U | 2.1 | 1 | | |
| | 7/23/02 | Boron, Total | 16200 | | 64 | NE | | |
| | 7/23/02 | Cadmium, Total | 1.1 | U | 3.2 | 100 | 0.6 | 10 |
| | 7/23/02 | Calcium, Total | 7130 | | 90.7 | NE | | |
| | 7/23/02 | Chromium, Total | 84.8 | | 3.2 | NE | 26 | 110 |
| | 7/23/02 | Cobalt, Total | 4.2 | | 2.1 | NE | | |
| | 7/23/02 | Copper, Total | 63.1 | | 5.3 | 600 | 16 | 110 |
| | 7/23/02 | Iron, Total | 16300 | | 155 | NE | | |
| | 7/23/02 | Lead, Total | 250 | | 9.6 | 600 | 31 | 250 |
| | 7/23/02 | Lithium, Total | 6.8 | | 6.9 | NE | | |
| | 7/23/02 | Magnesium, Total | 2920 | | 37.3 | NE | | |
| | 7/23/02 | Manganese, Total | 367 | | 2.7 | NE | | |
| | 7/23/02 | Mercury, Total | 0.1 | R | 2.2 | 270 | | |
| | 7/23/02 | Nickel, Total | 13.9 | | 5.3 | 2400 | 16 | 75 |
| | 7/23/02 | Potassium, Total | 499 | | 213 | NE | | |
| | 7/23/02 | Selenium, Total | 1.7 | U | 17.1 | 3100 | | |
| | 7/23/02 | Silver, Total | 0.32 | U | 3.2 | 4100 | | |
| | 7/23/02 | Sodium, Total | 256 | | 100 | NE | | |
| | 7/23/02 | Thallium, Total | 3.2 | U | 23.5 | 2 | | |
| | 7/23/02 | Vanadium, Total | 20.6 | | 4.3 | 7100 | | |
| | 7/23/02 | Zinc, Total | 242 | | 21.3 | 1500 | 120 | 820 |

[a] All analytes were reported, detected and undetected.
[b] USACE qualifier flags based on the CDQMP-QAPP: J = Reported as an estimated value, U= analyte was not detected.
[c] New Jersey Proposed Cleanup Standards for Contaminated Sites: Residential and Non-residential Soil Cleanup Standards (N.J.A.C. 7:26). Residential or non-residential limits are presented, depending upon the zoning of the sampling location.
[d] A quality control duplicate is collected at the same time and location, and is analyzed by the same method in order to evaluate precision in sampling and analysis.
[e] Sediment samples could not be collected at locations SWSD008, SWSD011, SWSD012 and SWSD014 in Lodi Brook and SWSD004 in Westerly Brook due to significant flow.
NE= Not established.

**Table A-7**
**Depth to Groundwater and Groundwater Elevation**
**for Overburden Monitoring Wells**
**Maywood Interim Storage Site - 2002**

| Well | Surveyed Easting | Surveyed Northing | Top of Inner Casing (TOC), ft NGVD | Water Level, ft TOC | GW Elv. Ft. NGVD | Fluctuation, ft. | Measurement Date |
|---|---|---|---|---|---|---|---|
| B38W01S | 2164807.07 | 752837.37 | 56.57 | 5.55 | 51.02 | 2.75 | 11/20/02 |
| B38W01S | 2164807.07 | 752837.37 | 56.57 | 8.3 | 48.27 | | 8/26/02 |
| B38W01S | 2164807.07 | 752837.37 | 56.57 | 6.1 | 50.47 | | 5/7/02 |
| B38W01S | 2164807.07 | 752837.37 | 56.57 | 7.3 | 49.27 | | 3/7/02 |
| B38W12A | 2165389.47 | 750774.64 | 49.96 | 5.9 | 44.06 | 2.10 | 11/20/02 |
| B38W12A | 2165389.47 | 750774.64 | 49.96 | 8 | 41.96 | | 8/26/02 |
| B38W12A | 2165389.47 | 750774.64 | 49.96 | 5.94 | 44.02 | | 5/7/02 |
| B38W12A | 2165389.47 | 750774.64 | 49.96 | 7.9 | 42.06 | | 3/7/02 |
| B38W14S | 2163384.82 | 752600.98 | 43.89 | NS | NS | 0.95 | 11/20/02 |
| B38W14S | 2163384.82 | 752600.98 | 43.89 | 5.5 | 38.39 | | 8/26/02 |
| B38W14S | 2163384.82 | 752600.98 | 43.89 | 4.55 | 39.34 | | 5/7/02 |
| B38W14S | 2163384.82 | 752600.98 | 43.89 | 5.3 | 38.59 | | 3/7/02 |
| B38W15S | 2163472.30 | 752364.90 | 46.75 | 3.8 | 42.95 | 3.95 | 11/20/02 |
| B38W15S | 2163472.30 | 752364.90 | 46.75 | 7.75 | 39.00 | | 8/26/02 |
| B38W15S | 2163472.30 | 752364.90 | 46.75 | 5.35 | 41.40 | | 5/7/02 |
| B38W15S | 2163472.30 | 752364.90 | 46.75 | 6.46 | 40.29 | | 3/7/02 |
| B38W17A | 2163922.90 | 752019.80 | 53.24 | 7.35 | 45.89 | 3.40 | 11/20/02 |
| B38W17A | 2163922.90 | 752019.80 | 53.24 | 10.75 | 42.49 | | 8/26/02 |
| B38W17A | 2163922.90 | 752019.80 | 53.24 | 8.36 | 44.88 | | 5/7/02 |
| B38W17A | 2163922.90 | 752019.80 | 53.24 | 10.25 | 42.99 | | 3/7/02 |
| B38W19S | 2164049.13 | 752513.62 | 59.91 | 13.97 | 45.94 | 3.08 | 11/20/02 |
| B38W19S | 2164049.13 | 752513.62 | 59.91 | 17.05 | 42.86 | | 8/26/02 |
| B38W19S | 2164049.13 | 752513.62 | 59.91 | 15.14 | 44.77 | | 5/7/02 |
| B38W19S | 2164049.13 | 752513.62 | 59.91 | 16.8 | 43.11 | | 3/7/02 |

**Table A-7**
**Depth to Groundwater and Groundwater Elevation**
**for Overburden Monitoring Wells**
**Maywood Interim Storage Site - 2002**

| Well | Surveyed Easting | Surveyed Northing | Top of Inner Casing (TOC), ft NGVD | Water Level, ft TOC | GW Elv. Ft. NGVD | Fluctuation, ft. | Measurement Date |
|---|---|---|---|---|---|---|---|
| B38W24S | 2164291.43 | 752193.57 | 55.04 | 7.45 | 47.59 | 3.55 | 11/20/02 |
| B38W24S | 2164291.43 | 752193.57 | 55.04 | 11 | 44.04 | | 8/26/02 |
| B38W24S | 2164291.43 | 752193.57 | 55.04 | 8.77 | 46.27 | | 5/7/02 |
| B38W24S | 2164291.43 | 752193.57 | 55.04 | 10.79 | 44.25 | | 3/7/02 |
| B38W25S | 2164346.85 | 752513.00 | 57.50 | 4.9 | 52.60 | 4.50 | 11/20/02 |
| B38W25S | 2164346.85 | 752513.00 | 57.50 | 9.4 | 48.10 | | 8/26/02 |
| B38W25S | 2164346.85 | 752513.00 | 57.50 | 6.25 | 51.25 | | 5/7/02 |
| B38W25S | 2164346.85 | 752513.00 | 57.50 | 9.11 | 48.39 | | 3/7/02 |
| MISS01AA | 2164101.98 | 752963.64 | 62.70 | 13.9 | 48.80 | 4.40 | 11/20/02 |
| MISS01AA | 2164101.98 | 752963.64 | 62.70 | 18.3 | 44.40 | | 8/26/02 |
| MISS01AA | 2164101.98 | 752963.64 | 62.70 | 14.77 | 47.93 | | 5/7/02 |
| MISS01AA | 2164101.98 | 752963.64 | 62.70 | 18.02 | 44.68 | | 3/7/02 |
| MISS02A | 2164706.13 | 752788.00 | 61.47 | 8.8 | 52.67 | 3.60 | 11/20/02 |
| MISS02A | 2164706.13 | 752788.00 | 61.47 | 12.4 | 49.07 | | 8/26/02 |
| MISS02A | 2164706.13 | 752788.00 | 61.47 | 9.2 | 52.27 | | 5/7/02 |
| MISS02A | 2164706.13 | 752788.00 | 61.47 | 10.94 | 50.53 | | 3/7/02 |
| MISS03A | 2164437.77 | 752302.00 | 58.52 | 5 | 53.52 | 6.50 | 11/20/02 |
| MISS03A | 2164437.77 | 752302.00 | 58.52 | 11.5 | 47.02 | | 8/26/02 |
| MISS03A | 2164437.77 | 752302.00 | 58.52 | 11.5 | 47.02 | | 5/7/02 |
| MISS03A | 2164437.77 | 752302.00 | 58.52 | 10.91 | 47.61 | | 3/7/02 |
| MISS04A | 2164349.46 | 752109.73 | 57.17 | 5.9 | 51.27 | 5.90 | 11/20/02 |
| MISS04A | 2164349.46 | 752109.73 | 57.17 | 11.8 | 45.37 | | 8/26/02 |
| MISS04A | 2164349.46 | 752109.73 | 57.17 | 10.21 | 46.96 | | 5/7/02 |
| MISS04A | 2164349.46 | 752109.73 | 57.17 | 8.4 | 48.77 | | 3/7/02 |
| MISS05A | 2164044.20 | 752360.40 | 58.65 | 10.8 | 47.85 | 4.20 | 11/20/02 |
| MISS05A | 2164044.20 | 752360.40 | 58.65 | 15 | 43.65 | | 8/26/02 |
| MISS05A | 2164044.20 | 752360.40 | 58.65 | 12.26 | 46.39 | | 5/7/02 |
| MISS05A | 2164044.20 | 752360.40 | 58.65 | 14.98 | 43.67 | | 3/7/02 |

## Table A-7
## Depth to Groundwater and Groundwater Elevation
## for Overburden Monitoring Wells
## Maywood Interim Storage Site - 2002

| Well | Surveyed Easting | Surveyed Northing | Top of Inner Casing (TOC), ft NGVD | Water Level, ft TOC | GW Elv. Ft. NGVD | Fluctuation, ft. | Measurement Date |
|---|---|---|---|---|---|---|---|
| MISS06A | 2164224.78 | 752645.21 | 58.26 | 8.87 | 49.39 | 3.78 | 11/20/02 |
| MISS06A | 2164224.78 | 752645.21 | 58.26 | 12.65 | 45.61 | | 8/26/02 |
| MISS06A | 2164224.78 | 752645.21 | 58.26 | 9.8 | 48.46 | | 5/7/02 |
| MISS06A | 2164224.78 | 752645.21 | 58.26 | 12.18 | 46.08 | | 3/7/02 |
| MISS07A | 2164053.10 | 752657.57 | 55.60 | 6.8 | 48.80 | 2.40 | 11/20/02 |
| MISS07A | 2164053.10 | 752657.57 | 55.60 | 9.2 | 46.40 | | 8/26/02 |
| MISS07A | 2164053.10 | 752657.57 | 55.60 | 8.25 | 47.35 | | 5/7/02 |
| MISS07A | 2164053.10 | 752657.57 | 55.60 | 8.4 | 47.20 | | 3/7/02 |

**Notes**
Elv. - Elevation
NS - Not Sampled
NGVD - National Geodetic Vertical Datum of 1929
ft - Feet
TOC - Top of Casing

**Table A-8**

**Depth to Groundwater and Groundwater Elevation for Bedrock Monitoring Wells - 2002**

**Maywood Interim Storage Site - 2002**

| Well | Surveyed Easting | Surveyed Northing | Top of Casing, ft NGVD | Water Level, ft TOC | GW Elv. NGVD | Fluctuation (ft) | Measurement Date |
|---|---|---|---|---|---|---|---|
| B38W02D | 2165243.12 | 752558.09 | 78.04 | 13.92 | 64.12 | 8.98 | 11/20/02 |
| B38W02D | 2165243.12 | 752558.09 | 78.04 | 22.9 | 55.14 | | 8/26/02 |
| B38W02D | 2165243.12 | 752558.09 | 78.04 | 15.82 | 62.22 | | 5/7/02 |
| B38W02D | 2165243.12 | 752558.09 | 78.04 | 19.05 | 58.99 | | 3/7/02 |
| B38W03B | 2164513.81 | 752253.19 | 58.27 | 8.1 | 50.17 | 3.75 | 11/20/02 |
| B38W03B | 2164513.81 | 752253.19 | 58.27 | 11.85 | 46.42 | | 8/26/02 |
| B38W03B | 2164513.81 | 752253.19 | 58.27 | 9.31 | 48.96 | | 5/7/02 |
| B38W03B | 2164513.81 | 752253.19 | 58.27 | 11.48 | 46.79 | | 3/7/02 |
| B38W04B | 2164950.28 | 752093.58 | 65.64 | 9.5 | 56.14 | 2.64 | 11/20/02 |
| B38W04B | 2164950.28 | 752093.58 | 65.64 | 12.8 | 52.84 | | 8/26/02 |
| B38W04B | 2164950.28 | 752093.58 | 65.64 | 10.98 | 54.66 | | 5/7/02 |
| B38W04B | 2164950.28 | 752093.58 | 65.64 | 13.62 | 52.02 | | 3/7/02 |
| B38W05B | 2165366.54 | 752175.88 | 70.98 | 10.3 | 60.68 | 7.55 | 11/20/02 |
| B38W05B | 2165366.54 | 752175.88 | 70.98 | 16.2 | 54.78 | | 8/26/02 |
| B38W05B | 2165366.54 | 752175.88 | 70.98 | 12.43 | 58.55 | | 5/7/02 |
| B38W05B | 2165366.54 | 752175.88 | 70.98 | 17.85 | 53.13 | | 3/7/02 |
| B38W06B | 2164670.62 | 752016.56 | 58.62 | NS | NS | NA | 5/7/02 |
| B38W06B | 2164670.62 | 752016.56 | 58.62 | 11.19 | 47.43 | | 3/7/02 |
| B38W07B | 2164168.21 | 751974.70 | 54.98 | 6.94 | 48.04 | 4.13 | 11/20/02 |
| B38W07B | 2164168.21 | 751974.70 | 54.98 | 11.07 | 43.91 | | 8/26/02 |
| B38W07B | 2164168.21 | 751974.70 | 54.98 | 8.37 | 46.61 | | 5/7/02 |
| B38W07B | 2164168.21 | 751974.70 | 54.98 | 10.45 | 44.53 | | 3/7/02 |
| B38W12B | 2165393.54 | 750766.32 | 49.64 | 4.4 | 45.24 | 3.20 | 11/20/02 |
| B38W12B | 2165393.54 | 750766.32 | 49.64 | 7.6 | 42.04 | | 8/26/02 |
| B38W12B | 2165393.54 | 750766.32 | 49.64 | 5.45 | 44.19 | | 5/7/02 |
| B38W12B | 2165393.54 | 750766.32 | 49.64 | 7.42 | 42.22 | | 3/7/02 |

## Table A-8
## Depth to Groundwater and Groundwater Elevation for Bedrock Monitoring Wells - 2002
## Maywood Interim Storage Site - 2002

| Well | Surveyed Easting | Surveyed Northing | Top of Casing, ft NGVD | Water Level, ft TOC | GW Elv. NGVD | Fluctuation (ft) | Measurement Date |
|---|---|---|---|---|---|---|---|
| B38W14D | 2163391.63 | 752597.24 | 43.79 | NS | NS | 1.60 | 11/20/02 |
| B38W14D | 2163391.63 | 752597.24 | 43.79 | 5.25 | 38.54 | | 8/26/02 |
| B38W14D | 2163391.63 | 752597.24 | 43.79 | 3.7 | 40.09 | | 5/7/02 |
| B38W14D | 2163391.63 | 752597.24 | 43.79 | 3.65 | 40.14 | | 3/7/02 |
| B38W15D | 2163475.63 | 752368.54 | 47.04 | 3.78 | 43.26 | 2.22 | 11/20/02 |
| B38W15D | 2163475.63 | 752368.54 | 47.04 | 6 | 41.04 | | 8/26/02 |
| B38W15D | 2163475.63 | 752368.54 | 47.04 | 4.39 | 42.65 | | 5/7/02 |
| B38W15D | 2163475.63 | 752368.54 | 47.04 | 5.9 | 41.14 | | 3/7/02 |
| B38W17B | 2163927.32 | 752021.78 | 53.28 | 7.53 | 45.75 | 3.17 | 11/20/02 |
| B38W17B | 2163927.32 | 752021.78 | 53.28 | 10.7 | 42.58 | | 8/26/02 |
| B38W17B | 2163927.32 | 752021.78 | 53.28 | 8.47 | 44.81 | | 5/7/02 |
| B38W17B | 2163927.32 | 752021.78 | 53.28 | 10.3 | 42.98 | | 3/7/02 |
| B38W18D | 2164783.97 | 752505.39 | 57.85 | 4.1 | 53.75 | 5.59 | 11/20/02 |
| B38W18D | 2164783.97 | 752505.39 | 57.85 | 6.2 | 51.65 | | 8/26/02 |
| B38W18D | 2164783.97 | 752505.39 | 57.85 | 3.8 | 54.05 | | 5/7/02 |
| B38W18D | 2164783.97 | 752505.39 | 57.85 | 9.39 | 48.46 | | 3/7/02 |
| B38W19D | 2164045.10 | 752522.83 | 59.98 | 14.5 | 45.48 | 2.74 | 11/20/02 |
| B38W19D | 2164045.10 | 752522.83 | 59.98 | 17.24 | 42.74 | | 8/26/02 |
| B38W19D | 2164045.10 | 752522.83 | 59.98 | 15.35 | 44.63 | | 5/7/02 |
| B38W19D | 2164045.10 | 752522.83 | 59.98 | 16.94 | 43.04 | | 3/7/02 |
| B38W24D | 2164291.33 | 752193.57 | 54.91 | 6.8 | 48.11 | 4.65 | 11/20/02 |
| B38W24D | 2164291.33 | 752193.57 | 54.91 | 11.45 | 43.46 | | 8/26/02 |
| B38W24D | 2164291.33 | 752193.57 | 54.91 | 8.3 | 46.61 | | 5/7/02 |
| B38W24D | 2164291.33 | 752193.57 | 54.91 | 10.36 | 44.55 | | 3/7/02 |

## Table A-8
## Depth to Groundwater and Groundwater Elevation for Bedrock Monitoring Wells - 2002
## Maywood Interim Storage Site - 2002

| Well | Surveyed Easting | Surveyed Northing | Top of Casing, ft NGVD | Water Level, ft TOC | GW Elv. NGVD | Fluctuation (ft) | Measurement Date |
|---|---|---|---|---|---|---|---|
| B38W25D | 2164346.85 | 752513.00 | 57.66 | 5.4 | 52.26 | 4.30 | 11/20/02 |
| B38W25D | 2164346.85 | 752513.00 | 57.66 | 9.7 | 47.96 | | 8/26/02 |
| B38W25D | 2164346.85 | 752513.00 | 57.66 | 6.57 | 51.09 | | 5/7/02 |
| B38W25D | 2164346.85 | 752513.00 | 57.66 | 9.5 | 48.16 | | 3/7/02 |
| MISS01B | 2164092.32 | 752964.86 | 61.98 | 15.7 | 46.28 | 1.66 | 11/20/02 |
| MISS01B | 2164092.32 | 752964.86 | 61.98 | 17.15 | 44.83 | | 8/26/02 |
| MISS01B | 2164092.32 | 752964.86 | 61.98 | 15.49 | 46.49 | | 5/7/02 |
| MISS01B | 2164092.32 | 752964.86 | 61.98 | 16.9 | 45.08 | | 3/7/02 |
| MISS02B | 2164709.45 | 752771.91 | 61.38 | 10.5 | 50.88 | 3.00 | 11/20/02 |
| MISS02B | 2164709.45 | 752771.91 | 61.38 | 13.5 | 47.88 | | 8/26/02 |
| MISS02B | 2164709.45 | 752771.91 | 61.38 | 11.1 | 50.28 | | 5/7/02 |
| MISS02B | 2164709.45 | 752771.91 | 61.38 | 12.2 | 49.18 | | 3/7/02 |
| MISS03B | 2164451.46 | 752296.78 | 57.66 | 8.9 | 48.76 | 3.40 | 11/20/02 |
| MISS03B | 2164451.46 | 752296.78 | 57.66 | 12.3 | 45.36 | | 8/26/02 |
| MISS03B | 2164451.46 | 752296.78 | 57.66 | 9.2 | 48.46 | | 5/7/02 |
| MISS03B | 2164451.46 | 752296.78 | 57.66 | 11.39 | 46.27 | | 3/7/02 |
| MISS04B | 2164353.55 | 752096.08 | 56.42 | 9.3 | 47.12 | 5.55 | 11/20/02 |
| MISS04B | 2164353.55 | 752096.08 | 56.42 | 13.2 | 43.22 | | 8/26/02 |
| MISS04B | 2164353.55 | 752096.08 | 56.42 | 7.65 | 48.77 | | 5/7/02 |
| MISS04B | 2164353.55 | 752096.08 | 56.42 | 11.92 | 44.50 | | 3/7/02 |
| MISS05B | 2164044.40 | 752371.68 | 59.76 | 14.14 | 45.62 | 2.93 | 11/20/02 |
| MISS05B | 2164044.40 | 752371.68 | 59.76 | 17.07 | 42.69 | | 8/26/02 |
| MISS05B | 2164044.40 | 752371.68 | 59.76 | 15 | 44.76 | | 5/7/02 |
| MISS05B | 2164044.40 | 752371.68 | 59.76 | 16.74 | 43.02 | | 3/7/02 |

## Table A-8
## Depth to Groundwater and Groundwater Elevation for Bedrock Monitoring Wells - 2002
## Maywood Interim Storage Site - 2002

| Well | Surveyed Easting | Surveyed Northing | Top of Casing, ft NGVD | Water Level, ft TOC | GW Elv. NGVD | Fluctuation (ft) | Measurement Date |
|---|---|---|---|---|---|---|---|
| MISS07B | 2164048.77 | 752652.98 | 55.77 | 9.55 | 46.22 | 2.55 | 11/20/02 |
| MISS07B | 2164048.77 | 752652.98 | 55.77 | 12.1 | 43.67 | | 8/26/02 |
| MISS07B | 2164048.77 | 752652.98 | 55.77 | 10.32 | 45.45 | | 5/7/02 |
| MISS07B | 2164048.77 | 752652.98 | 55.77 | 11.84 | 43.93 | | 3/7/02 |

**Notes**
Elv. - Elevation
NS - Not Sampled
NA - Not Applicable
NGVD - National Geodetic Vertical Datum of 1929
ft - Feet
TOC - Top of Casing

## Table A-9
## Vertical Gradient Calculations for Monitoring Well Clusters
## Maywood Interim Storage Site - 2002

| Well | Well Type | GW Elv. NGVD - 3/7/02 | GW Elv. NGVD - 5/7/02 | GW Elv. NGVD - 8/26/02 | GW Elv. NGVD - 11/20/02 |
|---|---|---|---|---|---|
| B38W12B | Bedrock | 42.22 | 44.19 | 42.04 | 45.24 |
| B38W12A | Overburden | 42.06 | 44.02 | 41.96 | 44.06 |
| Hydraulic Head Difference (ft) | | 0.16 | 0.17 | 0.08 | 1.18 |
| Gradient Direction | | Upward | Upward | Upward | Upward |
| B38W14D | Bedrock | 40.14 | 40.09 | 38.54 | NS |
| B38W14S | Overburden | 38.59 | 39.34 | 38.39 | NS |
| Hydraulic Head Difference (ft) | | 1.55 | 0.75 | 0.15 | NS |
| Gradient Direction | | Upward | Upward | Upward | NS |
| B38W15D | Bedrock | 41.14 | 42.65 | 41.04 | 43.26 |
| B38W15S | Overburden | 40.29 | 41.40 | 39.00 | 42.95 |
| Hydraulic Head Difference (ft) | | 0.85 | 1.25 | 2.04 | 0.31 |
| Gradient Direction | | Upward | Upward | Upward | Upward |
| B38W17B | Bedrock | 42.98 | 44.81 | 42.58 | 45.75 |
| B38W17A | Overburden | 42.99 | 44.88 | 42.49 | 45.89 |
| Hydraulic Head Difference (ft) | | -0.01 | -0.07 | 0.09 | -0.14 |
| Gradient Direction | | Downward | Downdward | Upward | Downdward |
| B38W19D | Bedrock | 43.04 | 44.63 | 42.74 | 45.48 |
| B38W19S | Overburden | 43.11 | 44.77 | 42.86 | 45.94 |
| Hydraulic Head Difference (ft) | | -0.07 | -0.14 | -0.12 | -0.46 |
| Gradient Direction | | Downward | Downward | Downward | Downward |
| B38W24D | Bedrock | 44.55 | 46.61 | 43.46 | 48.11 |
| B38W24S | Overburden | 44.25 | 46.27 | 44.04 | 47.59 |
| Hydraulic Head Difference (ft) | | 0.30 | 0.34 | -0.58 | 0.52 |
| Gradient Direction | | Upward | Upward | Downward | Upward |
| B38W25D | Bedrock | 48.16 | 51.09 | 47.96 | 52.26 |
| B38W25S | Overburden | 48.39 | 51.25 | 48.10 | 52.60 |
| Hydraulic Head Difference (ft) | | -0.23 | -0.16 | -0.14 | -0.34 |
| Gradient Direction | | Downward | Downward | Downward | Downward |
| MISS01B | Bedrock | 45.08 | 46.49 | 44.83 | 46.28 |
| MISS01AA | Overburden | 44.68 | 47.93 | 44.40 | 48.80 |
| Hydraulic Head Difference (ft) | | 0.40 | -1.44 | 0.43 | -2.52 |
| Gradient Direction | | Upward | Downward | Upward | Downward |
| MISS02B | Bedrock | 49.18 | 50.28 | 47.88 | 50.88 |
| MISS02A | Overburden | 50.53 | 52.27 | 49.07 | 52.67 |
| Hydraulic Head Difference (ft) | | -1.35 | -1.99 | -1.19 | -1.79 |
| Gradient Direction | | Downward | Downward | Downward | Downward |

## Table A-9
## Vertical Gradient Calculations for Monitoring Well Clusters
## Maywood Interim Storage Site - 2002

| Well | Well Type | GW Elv. NGVD - 3/7/02 | GW Elv. NGVD - 5/7/02 | GW Elv. NGVD - 8/26/02 | GW Elv. NGVD - 11/20/02 |
|---|---|---|---|---|---|
| MISS03B | Bedrock | 46.27 | 48.46 | 45.36 | 48.76 |
| MISS03A | Overburden | 47.61 | 47.02 | 47.02 | 53.52 |
| Hydraulic Head Difference (ft) | | -1.34 | 1.44 | -1.66 | -4.76 |
| | Gradient Direction | Downward | Upward | Downward | Downward |
| MISS04B | Bedrock | 44.50 | 48.77 | 43.22 | 47.12 |
| MISS04A | Overburden | 48.77 | 46.96 | 45.37 | 51.27 |
| Hydraulic Head Difference (ft) | | -4.27 | 1.81 | -2.15 | -4.15 |
| | Gradient Direction | Downward | Upward | Downward | Downward |
| MISS05B | Bedrock | 43.02 | 44.76 | 42.69 | 45.62 |
| MISS05A | Overburden | 43.67 | 46.39 | 43.65 | 47.85 |
| Hydraulic Head Difference (ft) | | -0.65 | -1.63 | -0.96 | -2.23 |
| | Gradient Direction | Downward | Downward | Downward | Downward |
| MISS07B | Bedrock | 43.93 | 45.45 | 43.67 | 46.22 |
| MISS07A | Overburden | 47.20 | 47.35 | 46.40 | 48.80 |
| Hydraulic Head Difference (ft) | | -3.27 | -1.90 | -2.73 | -2.58 |
| | Gradient Direction | Downward | Downward | Downward | Downward |

**Notes**
Elv. - Elevation
NS - Not Sampled
NGVD - National Geodetic Vertical Datum of 1929
ft - Feet
TOC - Top of Casing
Negative Hydraulic Head Difference depicts a downward vertical gradient
Positive Hydraulic Head difference depicts an upward vertical gradient

**Table A-10**
**2002 Field Parameter Summary**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date | Temp (C) | Spec. Cond.[a] (mS/cm) | pH | Eh (mV)[b] | DO mg/l | Turbidity (NTU)[c] | Discharge (mL/min)[e] |
|---|---|---|---|---|---|---|---|---|
| GROUNDWATER | | | | | | | | |
| MISS01AA | 07/11/02 | 14.57 | 2538 | 6.82 | 292.30 | 1.13 | 0.60 | 180 |
| MISS01B | 07/18/02 | 20.68 | 682 | 7.28 | 136 | 2.24 | 87.7 | 200 |
| MISS02A | 07/08/02 | 24.80 | 5334 | 6.61 | -75 | 8.88 | 5.4 | 300 |
| MISS02B | 07/08/02 | 16.10 | 4889 | 6.64 | -20.1 | 11.67 | 8.8 | 420 |
| MISS05A | 07/31/02 | 22.50 | 3416 | 6.31 | 155.3 | 5.60 | 1.5 | 90 |
| MISS05B | 07/31/02 | 16.83 | 13102 | 6.20 | -81.80 | 1.11 | 33.00 | 200 |
| MISS06A | 07/10/02 | 20.73 | 1010 | 6.73 | 198 | 13.31 | -0.7 | 320 |
| MISS07B | 07/11/02 | 17.70 | 7785 | 6.91 | -40.9 | 0.26 | 29.1 | 210 |
| B38W01S | 07/17/02 | 17.00 | 2151 | 6.51 | -124 | 1.60 | -0.1 | 240 |
| B38W02D | 07/17/02 | 15.40 | 534 | 6.7 | 113.9 | 0.3 | 2.6 | 200 |
| B38W14S | 07/24/02 | 19.19 | 998 | 6.95 | 131.8 | 1.73 | -1.6 | 300 |
| B38W14D | 07/24/02 | 18.01 | 1228 | 6.9 | -19.4 | 0.31 | 4.9 | 240 |
| B38W15S | 07/16/02 | 16.67 | 2494 | 7.17 | -16 | 0.37 | -1.4 | 270 |
| B38W15D | 07/16/02 | 16.87 | 2317 | 7.30 | 151 | 0.47 | -1.3 | 220 |
| B38W17A | 07/02/02 | 17.05 | 603 | 7.1 | 160 | 8.61 | 8.0 | 200 |
| B38W17B | 07/30/02 | 17.24 | 2796 | 6.87 | -82.8 | 0.22 | -0.3 | 370 |
| B38W18D | 07/18/02 | 20.21 | 737 | 5.83 | 331.6 | 0.47 | 10.2 | 280 |
| B38W19S | 07/09/02 | 17.57 | 2736.00 | 6.99 | 45 | 13.79 | 0.0 | 200 |
| B38W19D | 07/09/02 | 17.02 | 3749 | 6.3 | 1.3 | 12.9 | 0.0 | 240 |
| B38W24S | 07/15/02 | 23.79 | 589 | 5.63 | 71.6 | 0.41 | 8.8 | 240 |
| B38W24D | 07/15/02 | 19.64 | 717 | 5.96 | -15.4 | 0.28 | 2.2 | 320 |
| B38W25S | 07/10/02 | 17.58 | 1601 | 6.43 | -64.4 | 11.34 | 0.5 | 300 |
| B38W25D | 07/10/02 | 16.91 | 1160 | 6.33 | -15.8 | 15.5 | -1.2 | 340 |

## Table A-10
## 2002 Field Parameter Summary
## Maywood Interim Storage Site - 2002

| Sampling Location | Date | Temp (C) | Spec. Cond.[a] (mS/cm) | pH | Eh (mV)[b] | DO mg/l | Turbidity (NTU)[c] | Discharge (mL/min)[e] |
|---|---|---|---|---|---|---|---|---|
| SURFACE WATER | | | | | | | | |
| SWSD001 | 07/23/02 | 25.28 | 959 | 7.6 | 282.3 | 7.29 | 1.9 | --[f] |
| SWSD002 | 07/22/02 | 21.29 | 1122 | 7.53 | 173.5 | 8.8 | 2.5 | --[f] |
| SWSD003 | 07/22/02 | 24.56 | 781 | 6.96 | 69.1 | 6.78 | 8 | --[f] |
| SWSD004 | 07/22/02 | 22.29 | 1163 | 7.41 | 43.8 | 7.25 | 10.1 | --[f] |
| SWSD005 | 07/22/02 | 27.38 | 753 | 7.81 | 200.7 | 8.31 | 3.8 | --[f] |
| SWSD006 | 07/23/02 | 25.39 | 630 | 7.38 | 271.1 | 6.13 | 3.9 | --[f] |
| SWSD007 | 07/23/02 | 24.57 | 633 | 7.32 | 283.6 | 6.86 | 8.5 | --[f] |
| SWSD009 | 07/23/02 | 24.4 | 617 | 6.92 | 293.6 | 4.18 | 3.4 | --[f] |
| SWSD010 | 07/23/02 | 28.92 | 843 | 7.57 | 280.6 | 6.21 | 1.2 | --[f] |
| SWSD011 | 07/22/02 | 27.93 | 757 | 7.51 | 260.5 | 7.42 | 0.0 | --[f] |
| SWSD012 | 07/22/02 | 27.43 | 762 | 7.73 | 290 | 8.05 | 0.1 | --[f] |
| SWSD013 | 07/22/02 | 26.6 | 755 | 7.39 | 306.4 | 7.7 | 1.2 | --[f] |
| SWSD014 | 07/23/02 | 28.64 | 849 | 7.85 | 283 | 7.07 | 0.9 | --[f] |
| SWSD015 | 07/12/02 | 27.8 | 842 | 7.79 | 288 | 7.11 | 0.00 | --[f] |

[a] Specific conductance, measured in milliSiemens/centimeter (mS/cm).
[b] Oxidation/reduction potential (Eh), measured in milliVolts (mV).
[c] Nephelometric turbidity units.
[d] Well is dry.
[e] Milliliters per Minute (mL/min).
[f] Parameter not applicable.

**Table A-11**
**2002 Groundwater Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Analyte | Result[a] (pCi/L) | Result[a] (µg/L) | Error (pCi/L) | Data Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| **Monitoring wells completed in unconsolidated sediment:** | | | | | | | | | |
| B38W01S | 7/17/02 | Gross Alpha | 10.63 | | ± 11 | R | 17.00 | 15 | |
| | 7/17/02 | Gross Beta | 39.00 | | ± 10 | | 13.00 | 50 | |
| | 7/17/02 | Radium-226 | 0.17 | | ± 0.18 | UJ | 0.29 | 5 (h) | |
| | 7/17/02 | Radium-228 | 0.52 | | ± 0.54 | UJ | 0.87 | 5 (h) | |
| | 7/17/02 | Thorium-228 | 0.06 | | ± 0.15 | U | 0.32 | | |
| | 7/17/02 | Thorium-230 | 0.19 | | ± 0.15 | J | 0.07 | | |
| | 7/17/02 | Thorium-232 | 0.19 | | ± 0.022 | U | 0.19 | | |
| | 7/17/02 | Total Thorium | 0.44 | | | | | | |
| | 7/17/02 | Uranium-234 | 0.12 | | ± 0.12 | J | 0.08 | | |
| | 7/17/02 | Uranium-235 | 0.20 | | ± 0.02 | U | 0.20 | | |
| | 7/17/02 | Uranium-238 | 0.05 | | ± 0.083 | U | 0.14 | | |
| | 7/17/02 | Total Uranium | 0.37 | 0.15 | | | | | 30 |
| B38W14S | 7/24/02 | Gross Alpha | 5.36 | | ± 5 | UJ | 7.2 | 15 | |
| | 7/24/02 | Gross Beta | 8.4 | | ± 4.6 | | 7.1 | 50 | |
| | 7/24/02 | Radium-226 | 1.04 | | ± 0.3 | J | 0.3 | 5 (h) | |
| | 7/24/02 | Radium-228 | 0.18 | | ± 0.47 | U | 0.78 | 5 (h) | |
| | 7/24/02 | Thorium-228 | 0.03 | | ± 0.084 | U | 0.2 | | |
| | 7/24/02 | Thorium-230 | 0.65 | | ± 0.3 | J | 0.19 | | |
| | 7/24/02 | Thorium-232 | -0.01 | | ± 0.011 | U | 0.13 | | |
| | | Total Thorium | 0.67 | | | | | | |
| | 7/24/02 | Uranium-234 | 1.08 | | ± 0.4 | | 0.07 | | |
| | 7/24/02 | Uranium-235 | 0.02 | | ± 0.068 | U | 0.18 | | |
| | 7/24/02 | Uranium-238 | 0.44 | | ± 0.23 | J | 0.15 | | |
| | | Total Uranium | 1.54 | 1.31 | | | | | 30 |
| B38W15S | 7/16/02 | Gross Alpha | 15.94 | | ± 9.7 | | 9.60 | 15 | |
| | 7/16/02 | Gross Beta | 160.00 | | ± 19 | | 9.00 | 50 | |
| | 7/16/02 | Radium-226 | 0.20 | | ± 0.12 | U | 0.28 | 5 (h) | |
| | 7/16/02 | Radium-228 | 1.55 | | ± 0.83 | | 1.30 | 5 (h) | |
| | 7/16/02 | Thorium-228 | 0.04 | | ± 0.11 | U | 0.26 | | |
| | 7/16/02 | Thorium-230 | 0.24 | | ± 0.19 | J | 0.09 | | |
| | 7/16/02 | Thorium-232 | 0.17 | | ± 0.014 | U | 0.17 | | |
| | 7/16/02 | Total Thorium | 0.45 | | | | | | |
| | 7/16/02 | Uranium-234 | 0.63 | | ± 0.29 | J | 0.19 | | |
| | 7/16/02 | Uranium-235 | 0.03 | | ± 0.068 | J | 0.16 | | |
| | 7/16/02 | Uranium-238 | 0.20 | | ± 0.16 | J | 0.17 | | |
| | 7/16/02 | Total Uranium | 0.86 | 0.59 | | | | | 30 |
| B38W17A | 7/2/02 | Gross Alpha | 2.34 | | ± 2.5 | UJ | 3.70 | 15 | |
| | 7/2/02 | Gross Beta | 22.80 | | ± 3.5 | | 3.00 | 50 | |
| | 7/2/02 | Radium-226 | 0.14 | | ± 0.14 | UJ | 0.21 | 5 (h) | |
| | 7/2/02 | Radium-228 | 0.46 | | ± 0.41 | UJ | 0.65 | 5 (h) | |
| | 7/2/02 | Thorium-228 | 0.20 | | ± 0.14 | J | 0.11 | | |
| | 7/2/02 | Thorium-230 | 0.56 | | ± 0.25 | J | 0.15 | | |
| | 7/2/02 | Thorium-232 | 0.15 | | ± 0.018 | U | 0.15 | | |
| | 7/2/02 | Total Thorium | 0.91 | | | | | | |
| | 7/2/02 | Uranium-234 | 0.28 | | ± 0.21 | J | 0.20 | | |
| | 7/2/02 | Uranium-235 | 0.05 | | ± 0.09 | UJ | 0.12 | | |
| | 7/2/02 | Uranium-238 | 0.33 | | ± 0.23 | J | 0.10 | | |
| | 7/2/02 | Total Uranium | 0.66 | 0.98 | | | | | 30 |

**Table A-11**
**2002 Groundwater Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Analyte | Result[a] (pCi/L) | Result[a] (µg/L) | Error (pCi/L) | Data Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| B38W19S | 7/9/02 | Gross Alpha | 29.76 | | ± 17 | J | 20.00 | 15 | |
| | 7/9/02 | Gross Beta | 44.00 | | ± 12 | | 17.00 | 50 | |
| | 7/9/02 | Radium-226 | 0.32 | | ± 0.15 | J | 0.31 | 5 (h) | |
| | 7/9/02 | Radium-228 | 2.33 | | ± 0.66 | | 0.88 | 5 (h) | |
| | 7/9/02 | Thorium-228 | 0.19 | | ± 0.17 | UJ | 0.23 | | |
| | 7/9/02 | Thorium-230 | 0.10 | | ± 0.12 | UJ | 0.16 | | |
| | 7/9/02 | Thorium-232 | 0.00 | | ± 0 | U | 0.08 | | |
| | 7/9/02 | Total Thorium | 0.29 | | | | | | |
| | 7/9/02 | Uranium-234 | 0.19 | | ± 0.35 | UJ | 0.71 | | |
| | 7/9/02 | Uranium-235 | 0.67 | | ± 0.61 | UJ | 0.67 | | |
| | 7/9/02 | Uranium-238 | 0.38 | | ± 0.39 | J | 0.26 | | |
| | 7/9/02 | Total Uranium | 1.24 | 1.13 | | | | | 30 |
| B38W24S | 7/15/02 | Gross Alpha | 2.65 | | ± 1.8 | J | 2.50 | 15 | |
| | 7/15/02 | Gross Beta | 10.80 | | ± 2.2 | | 2.50 | 50 | |
| | 7/15/02 | Radium-226 | 0.15 | | ± 0.2 | UJ | 0.32 | 5 (h) | |
| | 7/15/02 | Radium-228 | 0.56 | | ± 0.94 | U | 1.60 | 5 (h) | |
| | 7/15/02 | Thorium-228 | 0.01 | | ± 0.11 | U | 0.29 | | |
| | 7/15/02 | Thorium-230 | 0.21 | | ± 0.14 | J | 0.06 | | |
| | 7/15/02 | Thorium-232 | 0.01 | | 0.013 | U | 0.13 | | |
| | 7/15/02 | Total Thorium | 0.23 | | ± 0.084 | UJ | 0.08 | | |
| | 7/15/02 | Uranium-234 | 0.00 | | ± 0 | U | 0.10 | | |
| | 7/15/02 | Uranium-235 | 0.05 | | ± 0.084 | U | 0.14 | | |
| | 7/15/02 | Uranium-238 | 0.05 | | ± 0.084 | U | 0.14 | | |
| | 7/15/02 | Total Uranium | 0.10 | 0.15 | | | | | 30 |
| B38W25S | 7/10/02 | Gross Alpha | 18.10 | | ± 9.2 | R | 12.00 | 15 | |
| | 7/10/02 | Gross Beta | 72.00 | | ± 11 | | 10.00 | 50 | |
| | 7/10/02 | Radium-226 | 0.45 | | ± 0.19 | J | 0.25 | 5 (h) | |
| | 7/10/02 | Radium-228 | 1.13 | | ± 0.5 | | 0.74 | 5 (h) | |
| | 7/10/02 | Thorium-228 | 0.24 | | ± 0.16 | J | 0.12 | | |
| | 7/10/02 | Thorium-230 | 0.59 | | ± 0.27 | J | 0.17 | | |
| | 7/10/02 | Thorium-232 | 0.03 | | ± 0.071 | U | 0.17 | | |
| | 7/10/02 | Total Thorium | 0.86 | | | | | | |
| | 7/10/02 | Uranium-234 | 0.35 | | ± 0.23 | J | 0.22 | | |
| | 7/10/02 | Uranium-235 | 0.02 | | ± 0.076 | U | 0.21 | | |
| | 7/10/02 | Uranium-238 | 0.23 | | ± 0.17 | J | 0.08 | | |
| | 7/10/02 | Total Uranium | 0.60 | 0.68 | | | | | 30 |
| MISS01AA | 7/11/02 | Gross Alpha | 10.55 | | ± 10 | J | 17.00 | 15 | |
| | 7/11/02 | Gross Beta | 7.50 | | ± 7.3 | U | 12.00 | 50 | |
| | 7/11/02 | Radium-226 | 0.16 | | ± 0.13 | UJ | 0.20 | 5 (h) | |
| | 7/11/02 | Radium-228 | 0.55 | | ± 0.49 | UJ | 0.78 | 5 (h) | |
| | 7/11/02 | Thorium-228 | 0.07 | | ± 0.085 | UJ | 0.11 | | |
| | 7/11/02 | Thorium-230 | 0.55 | | ± 0.26 | J | 0.16 | | |
| | 7/11/02 | Thorium-232 | 0.01 | | ± 0.051 | U | 0.16 | | |
| | 7/11/02 | Total Thorium | 0.62 | | | | | | |
| | 7/11/02 | Uranium-234 | 0.20 | | ± 0.15 | J | 0.07 | | |
| | 7/11/02 | Uranium-235 | 0.01 | | ± 0.012 | U | 0.15 | | |
| | 7/11/02 | Uranium-238 | 0.24 | | ± 0.17 | J | 0.14 | | |
| | 7/11/02 | Total Uranium | 0.45 | 0.71 | | | | | 30 |

**Table A-11**
**2002 Groundwater Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Analyte | Result[a] (pCi/L) | Result[a] (µg/L) | Error (pCi/L) | Data Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MISS02A | 7/8/02 | Gross Alpha | 45.99 | | ± 26 | UJ | 36.00 | 15 | |
| | 7/8/02 | Gross Beta | 21.00 | | ± 21 | U | 26.00 | 50 | |
| | 7/8/02 | Radium-226 | 0.15 | | ± 0.17 | UJ | 0.27 | 5 (h) | |
| | 7/8/02 | Radium-228 | 0.26 | | ± 0.49 | U | 0.81 | 5 (h) | |
| | 7/8/02 | Thorium-228 | 0.08 | | ± 0.11 | U | 0.19 | | |
| | 7/8/02 | Thorium-230 | 0.14 | | ± 0.16 | U | 0.30 | | |
| | 7/8/02 | Thorium-232 | 0.01 | | ± 0.058 | U | 0.21 | | |
| | 7/8/02 | Total Thorium | 0.23 | | | | | | |
| | 7/8/02 | Uranium-234 | 0.42 | | ± 0.23 | J | 0.14 | | |
| | 7/8/02 | Uranium-235 | 0.03 | | ± 0.064 | U | 0.15 | | |
| | 7/8/02 | Uranium-238 | 0.56 | | ± 0.27 | J | 0.19 | | |
| | 7/8/02 | Total Uranium | 1.01 | 1.66 | | | | | 30 |
| MISS05A | 8/1/02 | Gross Alpha | 127.08 | | ± 36 | J | 19 | 15 | |
| | 8/1/02 | Gross Beta | 93 | | ± 17 | | 18 | 50 | |
| | 8/1/02 | Radium-226 | 0.36 | | ± 0.15 | J | 0.23 | 5 (h) | |
| | 8/1/02 | Radium-228 | 4.02 | | ± 0.75 | | 0.8 | 5 (h) | |
| | 8/1/02 | Thorium-228 | 0.14 | | ± 0.14 | UJ | 0.23 | | |
| | 8/1/02 | Thorium-230 | 0.57 | | ± 0.25 | J | 0.11 | | |
| | 8/1/02 | Thorium-232 | 0.08 | | ± 0.09 | UJ | 0.12 | | |
| | | Total Thorium | 0.79 | | | | | | |
| | 8/1/02 | Uranium-234 | 33.8 | | ± 7.2 | | 0.2 | | |
| | 8/1/02 | Uranium-235 | 2.22 | | ± 0.79 | | 0.23 | | |
| | 8/1/02 | Uranium-238 | 34.9 | | ± 7.4 | | 0.2 | | |
| | | Total Uranium | 70.92 | 103.71 | | | | | 30 |
| MISS06A | 7/10/02 | Gross Alpha | 10.30 | | ± 5.9 | R | 7.70 | 15 | |
| | 7/10/02 | Gross Beta | 13.40 | | ± 3.9 | | 5.40 | 50 | |
| | 7/10/02 | Radium-226 | 0.25 | | ± 0.14 | J | 0.25 | 5 (h) | |
| | 7/10/02 | Radium-228 | 0.96 | | ± 0.52 | J | 0.80 | 5 (h) | |
| | 7/10/02 | Thorium-228 | 0.06 | | ± 0.086 | UJ | 0.16 | | |
| | 7/10/02 | Thorium-230 | 0.53 | | ± 0.2 | J | 0.11 | | |
| | 7/10/02 | Thorium-232 | 0.10 | | ± 0.077 | J | 0.07 | | |
| | 7/10/02 | Total Thorium | 0.69 | | | | | | |
| | 7/10/02 | Uranium-234 | 1.37 | | ± 0.44 | | 0.14 | | |
| | 7/10/02 | Uranium-235 | 0.01 | | ± 0.016 | U | 0.15 | | |
| | 7/10/02 | Uranium-238 | 1.02 | | ± 0.36 | | 0.12 | | |
| | 7/10/02 | Total Uranium | 2.40 | 3.03 | | | | | 30 |
| **Monitoring wells completed in bedrock:** | | | | | | | | | |
| B38W02D | 7/17/02 | Gross Alpha | 4.81 | | ± 3.9 | R | 5.70 | 15 | |
| | 7/17/02 | Gross Beta | 3.20 | | ± 2.9 | UJ | 4.70 | 50 | |
| | 7/17/02 | Radium-226 | 0.26 | | ± 0.23 | UJ | 0.35 | 5 (h) | |
| | 7/17/02 | Radium-228 | 0.63 | | ± 0.47 | UJ | 0.74 | 5 (h) | |
| | 7/17/02 | Thorium-228 | 0.13 | | ± 0.12 | J | 0.12 | | |
| | 7/17/02 | Thorium-230 | 0.46 | | ± 0.24 | J | 0.07 | | |
| | 7/17/02 | Thorium-232 | 0.01 | | ± 0.015 | U | 0.14 | | |
| | 7/17/02 | Total Thorium | 0.60 | | | | | | |
| | 7/17/02 | Uranium-234 | 0.24 | | ± 0.2 | J | 0.11 | | |
| | 7/17/02 | Uranium-235 | 0.00 | | ± 0 | U | 0.10 | | |
| | 7/17/02 | Uranium-238 | 0.15 | | ± 0.16 | UJ | 0.19 | | |
| | 7/17/02 | Total Uranium | 0.39 | 0.45 | | | | | 30 |

**Table A-11**
**2002 Groundwater Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Analyte | Result[a] (pCi/L) | Result[a] (µg/L) | Error (pCi/L) | Data Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| B38W14D | 7/24/02 | Gross Alpha | 0.2 | | ± 3 | U | 5.5 | 15 | |
| | 7/24/02 | Gross Beta | 0.9 | | ± 3 | U | 5.1 | 50 | |
| | 7/24/02 | Radium-226 | 1.34 | | ± 0.44 | J | 0.47 | 5 (h) | |
| | 7/24/02 | Radium-228 | 0.9 | | ± 1.1 | U | 1.8 | 5 (h) | |
| | 7/24/02 | Thorium-228 | 0.06 | | ± 0.11 | U | 0.2 | | |
| | 7/24/02 | Thorium-230 | 1.4 | | ± 0.5 | J | 0.18 | | |
| | 7/24/02 | Thorium-232 | 0.04 | | ± 0.085 | U | 0.18 | | |
| | 7/24/02 | Total Thorium | 1.50 | | | | | | |
| | 7/24/02 | Uranium-234 | 0.82 | | ± 0.35 | J | 0.14 | | |
| | 7/24/02 | Uranium-235 | 0.01 | | ± 0.014 | U | 0.17 | | |
| | 7/24/02 | Uranium-238 | 0.34 | | ± 0.21 | J | 0.14 | | |
| | 7/24/02 | Total Uranium | 1.17 | 1.01 | | | | | 30 |
| B38W15D | 7/16/02 | Gross Alpha | 3.31 | | ± 7.2 | UJ | 10.00 | 15 | |
| | 7/16/02 | Gross Beta | 46.60 | | ± 8.2 | | 8.30 | 50 | |
| | 7/16/02 | Radium-226 | 0.08 | | ± 0.16 | U | 0.28 | 5 (h) | |
| | 7/16/02 | Radium-228 | 0.88 | | ± 0.67 | U | 1.10 | 5 (h) | |
| | 7/16/02 | Thorium-228 | 0.01 | | ± 0.15 | U | 0.40 | | |
| | 7/16/02 | Thorium-230 | 0.36 | | ± 0.26 | J | 0.33 | | |
| | 7/16/02 | Thorium-232 | 0.00 | | ± 0.074 | U | 0.25 | | |
| | 7/16/02 | Total Thorium | 0.37 | | | | | | |
| | 7/16/02 | Uranium-234 | 3.90 | | ± 1.1 | | 0.09 | | |
| | 7/16/02 | Uranium-235 | 0.02 | | ± 0.022 | U | 0.22 | | |
| | 7/16/02 | Uranium-238 | 2.47 | | ± 0.75 | | 0.18 | | |
| | 7/16/02 | Total Uranium | 6.39 | 7.34 | | | | | 30 |
| B38W17B | 7/2/02 | Gross Alpha | 8.15 | | ± 8.1 | UJ | 13.00 | 15 | |
| | 7/2/02 | Gross Beta | 95.00 | | ± 13 | | 9.00 | 50 | |
| | 7/2/02 | Radium-226 | 0.36 | | ± 0.13 | J | 0.21 | 5 (h) | |
| | 7/2/02 | Radium-228 | 1.03 | | ± 0.46 | | 0.69 | 5 (h) | |
| | 7/2/02 | Thorium-228 | 0.23 | | ± 0.16 | J | 0.20 | | |
| | 7/2/02 | Thorium-230 | 0.41 | | ± 0.21 | J | 0.11 | | |
| | 7/2/02 | Thorium-232 | 0.01 | | ± 0.046 | U | 0.12 | | |
| | 7/2/02 | Total Thorium | 0.65 | | | | | | |
| | 7/2/02 | Uranium-234 | 0.21 | | ± 0.17 | J | 0.15 | | |
| | 7/2/02 | Uranium-235 | 0.02 | | ± 0.079 | U | 0.22 | | |
| | 7/2/02 | Uranium-238 | 0.12 | | ± 0.13 | UJ | 0.15 | | |
| | 7/2/02 | Total Uranium | 0.35 | 0.36 | | | | | 30 |
| B38W24D | 7/15/02 | Gross Alpha | 2.19 | | ± 2.5 | | 3.50 | 15 | |
| | 7/15/02 | Gross Beta | 10.30 | | ± 2.6 | | 3.40 | 50 | |
| | 7/15/02 | Radium-226 | 0.04 | | ± 0.18 | U | 0.33 | 5 (h) | |
| | 7/15/02 | Radium-228 | 0.75 | | ± 0.65 | J | 1.10 | 5 (h) | |
| | 7/15/02 | Thorium-228 | 0.07 | | ± 0.091 | UJ | 0.12 | | |
| | 7/15/02 | Thorium-230 | 0.27 | | ± 0.17 | J | 0.07 | | |
| | 7/15/02 | Thorium-232 | 0.04 | | ± 0.072 | U | 0.14 | | |
| | 7/15/02 | Total Thorium | 0.38 | | | | | | |
| | 7/15/02 | Uranium-234 | 0.33 | | ± 0.25 | J | 0.24 | | |
| | 7/15/02 | Uranium-235 | 0.79 | | ± 0.44 | J | 0.25 | | |
| | 7/15/02 | Uranium-238 | 0.39 | | ± 0.27 | J | 0.12 | | |
| | 7/15/02 | Total Uranium | 1.51 | 1.16 | | | | | 30 |

## Table A-11
## 2002 Groundwater Analytical Results - Radioactive Constituents
## Maywood Interim Storage Site - 2002

| Sampling Location | Date Collected | Analyte | Result[a] (pCi/L) | Result[a] (µg/L) | Error (pCi/L) | Data Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| B38W25D | 7/10/02 | Gross Alpha | 7.76 | | ± 5.5 | R | 8.10 | 15 | |
| | 7/10/02 | Gross Beta | 46.70 | | ± 7.4 | | 7.10 | 50 | |
| | 7/10/02 | Radium-226 | 0.35 | | ± 0.16 | J | 0.27 | 5 (h) | |
| | 7/10/02 | Radium-228 | 1.19 | | ± 0.46 | | 0.68 | 5 (h) | |
| | 7/10/02 | Thorium-228 | 0.21 | | ± 0.16 | J | 0.20 | | |
| | 7/10/02 | Thorium-230 | 0.44 | | ± 0.22 | J | 0.11 | | |
| | 7/10/02 | Thorium-232 | 0.01 | | ± 0.013 | U | 0.12 | | |
| | 7/10/02 | Total Thorium | 0.66 | | | | | | |
| | 7/10/02 | Uranium-234 | 0.18 | | ± 0.16 | J | 0.15 | | |
| | 7/10/02 | Uranium-235 | 0.03 | | ± 0.078 | U | 0.18 | | |
| | 7/10/02 | Uranium-238 | 0.13 | | ± 0.14 | UJ | 0.21 | | |
| | 7/10/02 | Total Uranium | 0.34 | 0.39 | | | | | 30 |
| MISS01B | 7/18/02 | Gross Alpha | 7.07 | | ± 4.2 | | 5.10 | 15 | |
| | 7/18/02 | Gross Beta | 9.90 | | ± 4.1 | | 6.00 | 50 | |
| | 7/18/02 | Radium-226 | 0.04 | | ± 0.13 | U | 0.24 | 5 (h) | |
| | 7/18/02 | Radium-228 | 0.37 | | ± 0.45 | U | 0.74 | 5 (h) | |
| | 7/18/02 | Thorium-228 | 0.23 | | ± 0.17 | J | 0.21 | | |
| | 7/18/02 | Thorium-230 | 0.52 | | ± 0.25 | J | 0.14 | | |
| | 7/18/02 | Thorium-232 | 0.14 | | ± 0.014 | U | 0.14 | | |
| | 7/18/02 | Total Thorium | 0.89 | | | | | | |
| | 7/18/02 | Uranium-234 | 0.45 | | ± 0.26 | J | 0.20 | | |
| | 7/18/02 | Uranium-235 | 0.04 | | ± 0.074 | UJ | 0.10 | | |
| | 7/18/02 | Uranium-238 | 0.24 | | ± 0.18 | J | 0.08 | | |
| | 7/18/02 | Total Uranium | 0.73 | 0.71 | | | | | 30 |
| MISS01B Duplicate | 7/18/02 | Gross Alpha | 9.63 | | ± 5.5 | | 7.20 | 15 | |
| | 7/18/02 | Gross Beta | 9.40 | | ± 3.8 | | 5.70 | 50 | |
| | 7/18/02 | Radium-226 | 0.07 | | ± 0.21 | U | 0.37 | 5 (h) | |
| | 7/18/02 | Radium-228 | 0.40 | | ± 0.41 | UJ | 0.67 | 5 (h) | |
| | 7/18/02 | Thorium-228 | 0.05 | | ± 0.11 | U | 0.24 | | |
| | 7/18/02 | Thorium-230 | 0.55 | | ± 0.25 | J | 0.11 | | |
| | 7/18/02 | Thorium-232 | 0.01 | | ± 0.07 | U | 0.14 | | |
| | 7/18/02 | Total Thorium | 0.61 | | | | | | |
| | 7/18/02 | Uranium-234 | 0.52 | | ± 0.26 | J | 0.16 | | |
| | 7/18/02 | Uranium-235 | 0.03 | | ± 0.074 | U | 0.17 | | |
| | 7/18/02 | Uranium-238 | 0.22 | | ± 0.18 | J | 0.13 | | |
| | 7/18/02 | Total Uranium | 0.77 | 0.65 | | | | | 30 |
| MISS02B | 7/8/02 | Gross Alpha | 7.69 | | ± 17 | UJ | 29.00 | 15 | |
| | 7/8/02 | Gross Beta | 47.00 | | ± 17 | | 25.00 | 50 | |
| | 7/8/02 | Radium-226 | 0.04 | | ± 0.2 | UJ | 0.24 | 5 (h) | |
| | 7/8/02 | Radium-228 | 0.71 | | ± 0.39 | J | 0.60 | 5 (h) | |
| | 7/8/02 | Thorium-228 | 0.09 | | ± 0.13 | U | 0.26 | | |
| | 7/8/02 | Thorium-230 | 0.49 | | ± 0.25 | J | 0.19 | | |
| | 7/8/02 | Thorium-232 | 0.08 | | ± 0.091 | J | 0.07 | | |
| | 7/8/02 | Total Thorium | 0.66 | | | | | | |
| | 7/8/02 | Uranium-234 | 0.13 | | ± 0.14 | UJ | 0.16 | | |
| | 7/8/02 | Uranium-235 | 0.03 | | ± 0.084 | U | 0.20 | | |
| | 7/8/02 | Uranium-238 | 0.15 | | ± 0.15 | UJ | 0.21 | | |
| | 7/8/02 | Total Uranium | 0.31 | 0.45 | | | | | 30 |

**Table A-11**
**2002 Groundwater Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Analyte | Result[a] (pCi/L) | Result[a] (µg/L) | Error (pCi/L) | Data Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MISS05B | 7/31/02 | Gross Alpha | 33.9 | | ± 26 | R | 37 | 15 | |
| | 7/31/02 | Gross Beta | 336 | | ± 47 | | 37 | 50 | |
| | 7/31/02 | Radium-226 | 0.12 | | ± 0.089 | U | 0.19 | 5 (h) | |
| | 7/31/02 | Radium-228 | 0.98 | | ± 0.53 | J | 0.81 | 5 (h) | |
| | 7/31/02 | Thorium-228 | 0.18 | | ± 0.15 | UJ | 0.19 | | |
| | 7/31/02 | Thorium-230 | 0.78 | | ± 0.32 | J | 0.16 | | |
| | 7/31/02 | Thorium-232 | 0.04 | | ± 0.068 | U | 0.11 | | |
| | 7/31/02 | Total Thorium | 1.00 | | | | | | |
| | 7/31/02 | Uranium-234 | 0.04 | | ± 0.074 | UJ | 0.1 | | |
| | 7/31/02 | Uranium-235 | 0.05 | | ± 0.091 | UJ | 0.12 | | |
| | 7/31/02 | Uranium-238 | 0.01 | | ± 0.015 | U | 0.18 | | |
| | 7/31/02 | Total Uranium | 0.10 | 0.03 | | | | | 30 |
| B38W18D | 7/3/02 | Gross Alpha | 27.00 | | ± 7.8 | | 6.10 | 15 | |
| | 7/3/02 | Gross Beta | 15.30 | | ± 4 | | 5.10 | 50 | |
| | 7/3/02 | Radium-226 | 0.33 | | ± 0.16 | J | 0.31 | 5 (h) | |
| | 7/3/02 | Radium-228 | 1.83 | | ± 0.54 | | 0.73 | 5 (h) | |
| | 7/3/02 | Thorium-228 | 0.37 | | ± 0.21 | J | 0.19 | | |
| | 7/3/02 | Thorium-230 | 0.56 | | ± 0.26 | J | 0.07 | | |
| | 7/3/02 | Thorium-232 | 0.28 | | ± 0.18 | J | 0.14 | | |
| | 7/3/02 | Total Thorium | 1.21 | | | | | | |
| | 7/3/02 | Uranium-234 | 1.08 | | ± 0.46 | J | 0.30 | | |
| | 7/3/02 | Uranium-235 | 0.02 | | ± 0.025 | U | 0.25 | | |
| | 7/3/02 | Uranium-238 | 0.90 | | ± 0.4 | J | 0.20 | | |
| | 7/3/02 | Total Uranium | 2.00 | 2.67 | | | | | 30 |
| B38W18D Duplicate | 7/3/02 | Gross Alpha | 42.98 | | ± 11 | | 8.00 | 15 | |
| | 7/3/02 | Gross Beta | 20.70 | | ± 4.7 | | 5.60 | 50 | |
| | 7/3/02 | Radium-226 | 0.86 | | ± 0.27 | J | 0.33 | 5 (h) | |
| | 7/3/02 | Radium-228 | 1.57 | | ± 0.56 | | 0.81 | 5 (h) | |
| | 7/3/02 | Thorium-228 | 0.58 | | ± 0.27 | J | 0.17 | | |
| | 7/3/02 | Thorium-230 | 0.73 | | ± 0.3 | J | 0.07 | | |
| | 7/3/02 | Thorium-232 | 0.68 | | ± 0.29 | J | 0.07 | | |
| | 7/3/02 | Total Thorium | 1.99 | | | | | | |
| | 7/3/02 | Uranium-234 | 1.36 | | ± 0.52 | J | 0.20 | | |
| | 7/3/02 | Uranium-235 | 0.05 | | ± 0.09 | UJ | 0.12 | | |
| | 7/3/02 | Uranium-238 | 1.61 | | ± 0.58 | | 0.20 | | |
| | 7/3/02 | Total Uranium | 3.02 | 4.78 | | | | | 30 |
| B38W19D | 7/9/02 | Gross Alpha | 6.00 | | ± 11 | U | 19.00 | 15 | |
| | 7/9/02 | Gross Beta | 270.00 | | ± 32 | | 15.00 | 50 | |
| | 7/9/02 | Radium-226 | 0.53 | | ± 0.21 | J | 0.27 | 5 (h) | |
| | 7/9/02 | Radium-228 | 0.89 | | ± 0.49 | J | 0.76 | 5 (h) | |
| | 7/9/02 | Thorium-228 | 0.23 | | ± 0.22 | UJ | 0.30 | | |
| | 7/9/02 | Thorium-230 | 1.15 | | ± 0.49 | J | 0.22 | | |
| | 7/9/02 | Thorium-232 | 0.00 | | ± 0 | U | 0.10 | | |
| | 7/9/02 | Total Thorium | 1.38 | | | | | | |
| | 7/9/02 | Uranium-234 | 0.27 | | ± 0.24 | UJ | 0.33 | | |
| | 7/9/02 | Uranium-235 | 0.09 | | ± 0.16 | U | 0.31 | | |
| | 7/9/02 | Uranium-238 | 0.23 | | ± 0.22 | UJ | 0.30 | | |
| | 7/9/02 | Total Uranium | 0.59 | 0.68 | | | | | 30 |

**Table A-11**
**2002 Groundwater Analytical Results - Radioactive Constituents**
**Maywood Interim Storage Site - 2002**

| Sampling Location | Date Collected | Analyte | Result[a] (pCi/L) | Result[a] (µg/L) | Error (pCi/L) | Data Qualifier[b] | MDA[c] (pCi/L) | State/Federal[d] Standards (pCi/L) | State/Federal[d] Standards (µg/L) |
|---|---|---|---|---|---|---|---|---|---|
| MISS07B | 7/11/02 | Gross Alpha | 18.04 | | ± 28 | U | 46.00 | 15 | |
| | 7/11/02 | Gross Beta | 37.00 | | ± 22 | | 34.00 | 50 | |
| | 7/11/02 | Radium-226 | 0.04 | | ± 0.088 | U | 0.15 | 5 (h) | |
| | 7/11/02 | Radium-228 | 0.15 | | ± 0.45 | U | 0.75 | 5 (h) | |
| | 7/11/02 | Thorium-228 | 0.04 | | ± 0.11 | U | 0.26 | | |
| | 7/11/02 | Thorium-230 | 0.48 | | ± 0.26 | J | 0.08 | | |
| | 7/11/02 | Thorium-232 | 0.01 | | ± 0.017 | U | 0.17 | | |
| | 7/11/02 | Total Thorium | 0.53 | | | | | | |
| | 7/11/02 | Uranium-234 | 3.88 | | ± 0.97 | | 0.13 | | |
| | 7/11/02 | Uranium-235 | 0.11 | | ± 0.12 | J | 0.08 | | |
| | 7/11/02 | Uranium-238 | 1.97 | | ± 0.58 | | 0.13 | | |
| | 7/11/02 | Total Uranium | 5.96 | 5.85 | | | | | 30 |
| MISS07B Duplicate | 7/11/02 | Gross Alpha | 20.43 | | ± 25 | UJ | 39.00 | 15 | |
| | 7/11/02 | Gross Beta | 49.00 | | ± 22 | | 34.00 | 50 | |
| | 7/11/02 | Radium-226 | 0.10 | | ± 0.1 | UJ | 0.16 | 5 (h) | |
| | 7/11/02 | Radium-228 | 0.16 | | ± 0.39 | U | 0.66 | 5 (h) | |
| | 7/11/02 | Thorium-228 | 0.15 | | ± 0.18 | U | 0.33 | | |
| | 7/11/02 | Thorium-230 | 0.45 | | ± 0.25 | J | 0.17 | | |
| | 7/11/02 | Thorium-232 | 0.13 | | ± 0.011 | U | 0.13 | | |
| | 7/11/02 | Total Thorium | 0.73 | | | | | | |
| | 7/11/02 | Uranium-234 | 4.90 | | ± 1.4 | | 0.10 | | |
| | 7/11/02 | Uranium-235 | 0.05 | | ± 0.11 | UJ | 0.14 | | |
| | 7/11/02 | Uranium-238 | 2.62 | | ± 0.86 | | 0.20 | | |
| | 7/11/02 | Total Uranium | 7.57 | 7.79 | | | | | 30 |

U = The analyte was not detected.
UJ = Analyte was not detected; estimated value reported. The result is below the MDA or less than the associated error term.
J= Reported as an estimated value. R= Rejected by validation.
[a] Results reported with (±) radiological error quoted at 2 sigma (95 percent confidence level).
[b] USACE data qualifier flags based on the CDQMP-QAPP;
[c] Minimum Detectable Activity (MDA).
[d] Federal and State SDWA standards.
[e] Monitoring wells B38W01S and B38W02D are the background locations for wells that are completed in overburden and bedrock wells respectively.
[f] A quality control duplicate is collected at the same time and location, and is analyzed by the same method in order to evaluate precision in sampling and analysis.
[g] The federal MCL of 50 pCi/L was used as standard to evaluate measured gross beta.
[h] 5 pCi/L is the New Jersey and Federal standard for the combined concentration of Radium-226 and Radium-228 in in drinking water.
[i] The NJDEP has established a MCL for total uranium in drinking water of 30 mg/L.
The reported U-238 in pCi/L was divided by the specific activity of U-238 (0.3365 pCi/mg) to obtain the total uranium in mg/L and then compared to NJDEP MCL of 30 mg/L.

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| **Monitoring wells completed in unconsolidated sediment:** | | | | | | | |
| B38W01S | 7/17/02 | Aluminum, Total | 127 | J | 500 | 200 | 200 |
| | 7/17/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/17/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/17/02 | Barium, Total | 12.6 | | 5 | 2000 | 2000 |
| | 7/17/02 | Beryllium, Total | 1.6 | J | 5 | 4 | 0.008/20 |
| | 7/17/02 | Boron, Total | 239 | J | 60 | | |
| | 7/17/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/17/02 | Calcium, Total | 308000 | | 300 | | |
| | 7/17/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/17/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/17/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/17/02 | Iron, Total | 22400 | | 200 | 300 | 300 |
| | 7/17/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/17/02 | Lithium, Total | 1210 | | 50 | | |
| | 7/17/02 | Magnesium, Total | 27800 | | 100 | | |
| | 7/17/02 | Manganese, Total | 2250 | | 15 | 50 | 50 |
| | 7/17/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/17/02 | Nickel, Total | 1.9 | U | 10 | | 100 |
| | 7/17/02 | Potassium, Total | 57200 | | 400 | | |
| | 7/17/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/17/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/17/02 | Sodium, Total | 37600 | | 400 | | |
| | 7/17/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/17/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/17/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |
| B38W14S | 7/24/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/24/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/24/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/24/02 | Barium, Total | 92.9 | | 5 | 2000 | 2000 |
| | 7/24/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/24/02 | Boron, Total | 82.1 | J | 60 | | |
| | 7/24/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/24/02 | Calcium, Total | 98400 | | 300 | | |
| | 7/24/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/24/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/24/02 | Copper, Total | 8.8 | U | 10 | 1300 | 1000 |
| | 7/24/02 | Iron, Total | 172 | | 200 | 300 | 300 |
| | 7/24/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/24/02 | Lithium, Total | 22.9 | J | 50.0 | | |
| | 7/24/02 | Magnesium, Total | 26900 | | 100 | | |
| | 7/24/02 | Manganese, Total | 115 | | 15 | 50 | 50 |
| | 7/24/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/24/02 | Nickel, Total | 11.2 | | 10 | | 100 |
| | 7/24/02 | Potassium, Total | 7190 | | 400 | | |
| | 7/24/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/24/02 | Silver, Total | 1.4 | U | 6 | 1007 | |
| | 7/24/02 | Sodium, Total | 25900 | | 400 | | |
| | 7/24/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/24/02 | Vanadium, Total | 2.1 | J | 6 | | |
| | 7/24/02 | Zinc, Total | 24.8 | U | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W15S | 7/16/02 | Aluminum, Total | 102 | J | 500 | 200 | 200 |
| | 7/16/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/16/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/16/02 | Barium, Total | 35.1 | | 5 | 2000 | 2000 |
| | 7/16/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/16/02 | Boron, Total | 713 | | 60 | | |
| | 7/16/02 | Cadmium, Total | 3.4 | J | 10 | 5 | 4 |
| | 7/16/02 | Calcium, Total | 82200 | | 300 | | |
| | 7/16/02 | Chromium, Total | 2 | J | 10 | 100 | 100 |
| | 7/16/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/16/02 | Copper, Total | 16 | | 10 | 1300 | 1000 |
| | 7/16/02 | Iron, Total | 577 | | 200 | 300 | 300 |
| | 7/16/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/16/02 | Lithium, Total | 2560 | | 50 | | |
| | 7/16/02 | Magnesium, Total | 24400 | | 100 | | |
| | 7/16/02 | Manganese, Total | 2100 | | 15 | 50 | 50 |
| | 7/16/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/16/02 | Nickel, Total | 3.7 | J | 10 | | 100 |
| | 7/16/02 | Potassium, Total | 195000 | | 4000 | | |
| | 7/16/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/16/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/16/02 | Sodium, Total | 255000 | | 4000 | | |
| | 7/16/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/16/02 | Vanadium, Total | 1.6 | J | 6 | | |
| | 7/16/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |
| B38W17A | 7/2/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/2/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/2/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/2/02 | Barium, Total | 53.3 | | 5 | 2000 | 2000 |
| | 7/2/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/2/02 | Boron, Total | 63 | J | 60 | | |
| | 7/2/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/2/02 | Calcium, Total | 77700 | | 300 | | |
| | 7/2/02 | Chromium, Total | 102 | | 10 | 100 | 100 |
| | 7/2/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/2/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/2/02 | Iron, Total | 867 | | 200 | 300 | 300 |
| | 7/2/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/2/02 | Lithium | 302 | | 50 | | |
| | 7/2/02 | Magnesium, Total | 7440 | | 100 | | |
| | 7/2/02 | Manganese, Total | 314 | | 15 | 50 | 50 |
| | 7/2/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/2/02 | Nickel, Total | 102 | | 10 | | 100 |
| | 7/2/02 | Potassium, Total | 32200 | J | 400 | | |
| | 7/2/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/2/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/2/02 | Sodium, Total | 48300 | | 400 | | |
| | 7/2/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/2/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/2/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |

## Table A-12
## 2002 Groundwater Analytical Results - Metals
## Maywood Interim Storage Site

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W19S | 7/9/02 | Aluminum, Total | 416 | U | 2500 | 200 | 200 |
| | 7/9/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/9/02 | Arsenic, Total | 34.8 | U | 200 | 50 | 0.02/8 |
| | 7/9/02 | Barium, Total | 32.6 | J | 25 | 2000 | 2000 |
| | 7/9/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/9/02 | Boron, Total | 801 | | 300 | | |
| | 7/9/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/9/02 | Calcium, Total | 582000 | | 7500 | | |
| | 7/9/02 | Chromium, Total | 7.6 | U | 50 | 100 | 100 |
| | 7/9/02 | Cobalt, Total | 7.4 | U | 50 | | |
| | 7/9/02 | Copper, Total | 7.2 | U | 50 | 1300 | 1000 |
| | 7/9/02 | Iron, Total | 1070 | | 1000 | 300 | 300 |
| | 7/9/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/9/02 | Lithium, Total | 1250 | | 50.0 | | |
| | 7/9/02 | Magnesium, Total | 43400 | | 500 | | |
| | 7/9/02 | Manganese, Total | 918 | | 75 | 50 | 50 |
| | 7/9/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/9/02 | Nickel, Total | 9.6 | U | 50 | | 100 |
| | 7/9/02 | Potassium, Total | 39300 | | 10000 | | |
| | 7/9/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/9/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/9/02 | Sodium, Total | 22800 | | 2000 | | |
| | 7/9/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/9/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/9/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |
| B38W24S | 7/15/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/15/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/15/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/15/02 | Barium, Total | 34.2 | | 5 | 2000 | 2000 |
| | 7/15/02 | Beryllium, Total | 1.4 | J | 5 | 4 | 0.008/20 |
| | 7/15/02 | Boron, Total | 108 | | 60 | | |
| | 7/15/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/15/02 | Calcium, Total | 52200 | | 300 | | |
| | 7/15/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/15/02 | Cobalt, Total | 11.1 | | 10 | | |
| | 7/15/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/15/02 | Iron, Total | 30000 | | 200 | 300 | 300 |
| | 7/15/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/15/02 | Lithium, Total | 35.8 | J | 50 | | |
| | 7/15/02 | Magnesium, Total | 6810 | | 100 | | |
| | 7/15/02 | Manganese, Total | 3600 | | 15 | 50 | 50 |
| | 7/15/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/15/02 | Nickel, Total | 5.3 | J | 10 | | 100 |
| | 7/15/02 | Potassium, Total | 12700 | | 400 | | |
| | 7/15/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/15/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/15/02 | Sodium, Total | 14900 | | 400 | | |
| | 7/15/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/15/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/15/02 | Zinc, Total | 67.1 | | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W25S | 7/10/02 | Aluminum, Total | 416 | U | 2500 | 200 | 200 |
| | 7/10/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/10/02 | Arsenic, Total | 34.8 | U | 200 | 50 | 0.02/8 |
| | 7/10/02 | Barium, Total | 294 | J | 25 | 2000 | 2000 |
| | 7/10/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/10/02 | Boron, Total | 250 | U | 300 | | |
| | 7/10/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/10/02 | Calcium, Total | 187000 | | 1500 | | |
| | 7/10/02 | Chromium, Total | 7.6 | U | 50 | 100 | 100 |
| | 7/10/02 | Cobalt, Total | 18.7 | | 50 | | |
| | 7/10/02 | Copper, Total | 7.2 | U | 50 | 1300 | 1000 |
| | 7/10/02 | Iron, Total | 47100 | | 1000 | 300 | 300 |
| | 7/10/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/10/02 | Lithium, Total | 623 | | 50.0 | | |
| | 7/10/02 | Magnesium, Total | 7770 | | 500 | | |
| | 7/10/02 | Manganese, Total | 5810 | | 75 | 50 | 50 |
| | 7/10/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/10/02 | Nickel, Total | 9.6 | U | 50 | | 100 |
| | 7/10/02 | Potassium, Total | 69400 | | 2000 | | |
| | 7/10/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/10/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/10/02 | Sodium, Total | 48100 | | 2000 | | |
| | 7/10/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/10/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/10/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |
| MISS01AA | 7/11/02 | Aluminum, Total | 416 | U | 2500 | 200 | 200 |
| | 7/11/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/11/02 | Arsenic, Total | 34.8 | U | 200 | 50 | 0.02/8 |
| | 7/11/02 | Barium, Total | 6.4 | J | 25 | 2000 | 2000 |
| | 7/11/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/11/02 | Boron, Total | 260 | J | 300 | | |
| | 7/11/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/11/02 | Calcium, Total | 569000 | | 1500 | | |
| | 7/11/02 | Chromium, Total | 7.6 | U | 50 | 100 | 100 |
| | 7/11/02 | Cobalt, Total | 7.4 | U | 50 | | |
| | 7/11/02 | Copper, Total | 7.2 | U | 50 | 1300 | 1000 |
| | 7/11/02 | Iron, Total | 426 | U | 1000 | 300 | 300 |
| | 7/11/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/11/02 | Lithium, Total | 203 | | 50.0 | | |
| | 7/11/02 | Magnesium, Total | 29200 | | 500 | | |
| | 7/11/02 | Manganese, Total | 73.2 | | 75 | 50 | 50 |
| | 7/11/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/11/02 | Nickel, Total | 9.6 | U | 50 | | 100 |
| | 7/11/02 | Potassium, Total | 1180 | J | 2000 | | |
| | 7/11/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/11/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/11/02 | Sodium, Total | 4640 | | 2000 | | |
| | 7/11/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/11/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/11/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |

## Table A-12
## 2002 Groundwater Analytical Results - Metals
## Maywood Interim Storage Site

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS02A | 7/8/02 | Aluminum, Total | 505 | J | 2500 | 200 | 200 |
| | 7/8/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/8/02 | Arsenic, Total | 2110 | | 200 | 50 | 0.02/8 |
| | 7/8/02 | Barium, Total | 9.4 | J | 25 | 2000 | 2000 |
| | 7/8/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/8/02 | Boron, Total | 2080 | | 300 | | |
| | 7/8/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/8/02 | Calcium, Total | 225000 | | 1500 | | |
| | 7/8/02 | Chromium, Total | 81.1 | | 50 | 100 | 100 |
| | 7/8/02 | Cobalt, Total | 7.4 | U | 50 | | |
| | 7/8/02 | Copper, Total | 76.1 | | 50 | 1300 | 1000 |
| | 7/8/02 | Iron, Total | 4810 | | 1000 | 300 | 300 |
| | 7/8/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/8/02 | Lithium, Total | 8950 | | 50.0 | | |
| | 7/8/02 | Magnesium, Total | 14300 | | 500 | | |
| | 7/8/02 | Manganese, Total | 392 | | 75 | 50 | 50 |
| | 7/8/02 | Mercury, Total | 0.32 | J | 0.2 | 2 | 2 |
| | 7/8/02 | Nickel, Total | 24.4 | | 50 | | 100 |
| | 7/8/02 | Potassium, Total | 13800 | J | 40000 | | |
| | 7/8/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/8/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/8/02 | Sodium, Total | 978000 | | 40000 | | |
| | 7/8/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/8/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/8/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |
| MISS05A | 8/1/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 8/1/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 8/1/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 8/1/02 | Barium, Total | 16.1 | | 5 | 2000 | 2000 |
| | 8/1/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 8/1/02 | Boron, Total | 452 | | 60 | | |
| | 8/1/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 8/1/02 | Calcium, Total | 554000 | | 1500 | | |
| | 8/1/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 8/1/02 | Cobalt, Total | 3.8 | J | 10 | | |
| | 8/1/02 | Copper, Total | 3.8 | U | 10 | 1300 | 1000 |
| | 8/1/02 | Iron, Total | 706 | | 200 | 300 | 300 |
| | 8/1/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 8/1/02 | Lithium, Total | 1040 | | 50 | | |
| | 8/1/02 | Magnesium, Total | 72200 | | 100 | | |
| | 8/1/02 | Manganese, Total | 551 | | 15 | 50 | 50 |
| | 8/1/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 8/1/02 | Nickel, Total | 14.1 | | 10 | | 100 |
| | 8/1/02 | Potassium, Total | 73700 | | 2000 | | |
| | 8/1/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 8/1/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 8/1/02 | Sodium, Total | 30500 | | 400 | | |
| | 8/1/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 8/1/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 8/1/02 | Zinc, Total | 45.9 | J | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS06A | 7/10/02 | Aluminum, Total | 416 | U | 2500 | 200 | 200 |
| | 7/10/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/10/02 | Arsenic, Total | 34.8 | U | 200 | 50 | 0.02/8 |
| | 7/10/02 | Barium, Total | 33.1 | J | 25 | 2000 | 2000 |
| | 7/10/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/10/02 | Boron, Total | 250 | U | 300 | | |
| | 7/10/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/10/02 | Calcium, Total | 171000 | | 1500 | | |
| | 7/10/02 | Chromium, Total | 7.6 | U | 50 | 100 | 100 |
| | 7/10/02 | Cobalt, Total | 7.4 | U | 50 | | |
| | 7/10/02 | Copper, Total | 12.8 | J | 50 | 1300 | 1000 |
| | 7/10/02 | Iron, Total | 426 | U | 1000 | 300 | 300 |
| | 7/10/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/10/02 | Lithium, Total | 814 | | 50.0 | | |
| | 7/10/02 | Magnesium, Total | 7900 | | 500 | | |
| | 7/10/02 | Manganese, Total | 46.7 | | 75 | 50 | 50 |
| | 7/10/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/10/02 | Nickel, Total | 9.6 | U | 50 | | 100 |
| | 7/10/02 | Potassium, Total | 10800 | | 2000 | | |
| | 7/10/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/10/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/10/02 | Sodium, Total | 20500 | | 2000 | | |
| | 7/10/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/10/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/10/02 | Zinc, Total | 1780 | | 250 | 500 | 5000 |
| **Monitoring wells completed in bedrock:** | | | | | | | |
| B38W02D | 7/17/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/17/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/17/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/17/02 | Barium, Total | 431 | | 5 | 2000 | 2000 |
| | 7/17/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/17/02 | Boron, Total | 50 | UJ | 60 | | |
| | 7/17/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/17/02 | Calcium, Total | 84400 | | 300 | | |
| | 7/17/02 | Chromium, Total | 9.7 | J | 10 | 100 | 100 |
| | 7/17/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/17/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/17/02 | Iron, Total | 104 | J | 200 | 300 | 300 |
| | 7/17/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/17/02 | Lithium, Total | 16 | J | 50 | | |
| | 7/17/02 | Magnesium, Total | 4410 | | 100 | | |
| | 7/17/02 | Manganese, Total | 798 | | 15 | 50 | 50 |
| | 7/17/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/17/02 | Nickel, Total | 6.9 | J | 10 | | 100 |
| | 7/17/02 | Potassium, Total | 952 | | 400 | | |
| | 7/17/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/17/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/17/02 | Sodium, Total | 9160 | | 400 | | |
| | 7/17/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/17/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/17/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |

## Table A-12
## 2002 Groundwater Analytical Results - Metals
## Maywood Interim Storage Site

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W14D | 7/24/02 | Aluminum, Total | 291 | | 500 | 200 | 200 |
| | 7/24/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/24/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/24/02 | Barium, Total | 109 | | 5 | 2000 | 2000 |
| | 7/24/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/24/02 | Boron, Total | 76 | J | 60 | | |
| | 7/24/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/24/02 | Calcium, Total | 100000 | | 300 | | |
| | 7/24/02 | Chromium, Total | 5.5 | | 10 | 100 | 100 |
| | 7/24/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/24/02 | Copper, Total | 8.9 | U | 10 | 1300 | 1000 |
| | 7/24/02 | Iron, Total | 692 | | 200 | 300 | 300 |
| | 7/24/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/24/02 | Lithium, Total | 18.6 | J | 50.0 | | |
| | 7/24/02 | Magnesium, Total | 24100 | | 100 | | |
| | 7/24/02 | Manganese, Total | 16.1 | | 15 | 50 | 50 |
| | 7/24/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/24/02 | Nickel, Total | 5.3 | | 10 | | 100 |
| | 7/24/02 | Potassium, Total | 6350 | | 400 | | |
| | 7/24/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/24/02 | Silver, Total | 1.4 | U | 6 | 1007 | |
| | 7/24/02 | Sodium, Total | 34400 | | 400 | | |
| | 7/24/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/24/02 | Vanadium, Total | 1.7 | J | 6 | | |
| | 7/24/02 | Zinc, Total | 26.8 | U | 50 | 500 | 5000 |
| B38W15D | 7/16/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/16/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/16/02 | Arsenic, Total | 13.9 | J | 40 | 50 | 0.02/8 |
| | 7/16/02 | Barium, Total | 22.2 | | 5 | 2000 | 2000 |
| | 7/16/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/16/02 | Boron, Total | 616 | | 60 | | |
| | 7/16/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/16/02 | Calcium, Total | 80400 | | 300 | | |
| | 7/16/02 | Chromium, Total | 1.8 | J | 10 | 100 | 100 |
| | 7/16/02 | Cobalt, Total | 2.3 | J | 10 | | |
| | 7/16/02 | Copper, Total | 2.1 | J | 10 | 1300 | 1000 |
| | 7/16/02 | Iron, Total | 85.3 | U | 200 | 300 | 300 |
| | 7/16/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/16/02 | Lithium, Total | 2530 | | 50 | | |
| | 7/16/02 | Magnesium, Total | 30300 | | 100 | | |
| | 7/16/02 | Manganese, Total | 806 | | 15 | 50 | 50 |
| | 7/16/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/16/02 | Nickel, Total | 7.2 | J | 10 | | 100 |
| | 7/16/02 | Potassium, Total | 60100 | | 4000 | | |
| | 7/16/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/16/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/16/02 | Sodium, Total | 288000 | | 4000 | | |
| | 7/16/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/16/02 | Vanadium, Total | 3 | J | 6 | | |
| | 7/16/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W18D | 7/3/02 | Aluminum, Total | 83.3 | UJ | 500 | 200 | 200 |
| | 7/3/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/3/02 | Arsenic, Total | 8.7 | | 40 | 50 | 0.02/8 |
| | 7/3/02 | Barium, Total | 25.7 | | 5 | 2000 | 2000 |
| | 7/3/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/3/02 | Boron, Total | 333 | | 60 | | |
| | 7/3/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/3/02 | Calcium, Total | 185000 | | 300 | | |
| | 7/3/02 | Chromium, Total | 28.2 | | 10 | 100 | 100 |
| | 7/3/02 | Cobalt, Total | 18.7 | | 10 | | |
| | 7/3/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/3/02 | Iron, Total | 15700 | | 200 | 300 | 300 |
| | 7/3/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/3/02 | Lithium, Total | 1250 | | 50 | | |
| | 7/3/02 | Magnesium, Total | 15000 | | 100 | | |
| | 7/3/02 | Manganese, Total | 4210 | | 15 | 50 | 50 |
| | 7/3/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/3/02 | Nickel, Total | 26 | | 10 | | 100 |
| | 7/3/02 | Potassium, Total | 12200 | J | 400 | | |
| | 7/3/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/3/02 | Silver, Total | 1.4 | U | 6 | 1007 | |
| | 7/3/02 | Sodium, Total | 53600 | | 400 | | |
| | 7/3/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/3/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/3/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |
| B38W18D | 7/3/02 | Aluminum, Total | 164 | J | 500 | 200 | 200 |
| Duplicate | 7/3/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/3/02 | Arsenic, Total | 7.9 | | 40 | 50 | 0.02/8 |
| | 7/3/02 | Barium, Total | 27.8 | | 5 | 2000 | 2000 |
| | 7/3/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/3/02 | Boron, Total | 348 | | 60 | | |
| | 7/3/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/3/02 | Calcium, Total | 189000 | | 300 | | |
| | 7/3/02 | Chromium, Total | 28.6 | | 10 | 100 | 100 |
| | 7/3/02 | Cobalt, Total | 19 | | 10 | | |
| | 7/3/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/3/02 | Iron, Total | 16000 | | 200 | 300 | 300 |
| | 7/3/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/3/02 | Lithium, Total | 2770 | | 50 | | |
| | 7/3/02 | Magnesium, Total | 15300 | | 100 | | |
| | 7/3/02 | Manganese, Total | 4210 | | 15 | 50 | 50 |
| | 7/3/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/3/02 | Nickel, Total | 28.4 | | 10 | | 100 |
| | 7/3/02 | Potassium, Total | 12600 | J | 400 | | |
| | 7/3/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/3/02 | Silver, Total | 1.4 | U | 6 | 1007 | |
| | 7/3/02 | Sodium, Total | 56000 | | 400 | | |
| | 7/3/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/3/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/3/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W19D | 7/9/02 | Antimony, Total | 29.4 | U | 100 | 200 | 200 |
| | 7/9/02 | Arsenic, Total | 71 | | 200 | 6 | 2/20 |
| | 7/9/02 | Barium, Total | 34.9 | J | 25 | 50 | 0.02/8 |
| | 7/9/02 | Beryllium, Total | 5.1 | U | 25 | 2000 | 2000 |
| | 7/9/02 | Boron, Total | 1100 | | 300 | 4 | 0.008/20 |
| | 7/9/02 | Cadmium, Total | 6.4 | U | 50 | | |
| | 7/9/02 | Calcium, Total | 234000 | | 30000 | 5 | 4 |
| | 7/9/02 | Chromium, Total | 7.6 | U | 50 | | 100 |
| | 7/9/02 | Cobalt, Total | 7.4 | U | 50 | 100 | |
| | 7/9/02 | Copper, Total | 7.2 | U | 50 | | 1000 |
| | 7/9/02 | Iron, Total | 3890 | | 1000 | 1300 | 300 |
| | 7/9/02 | Lead, Total | 17 | UJ | 50 | 300 | 5/10 |
| | 7/9/02 | Lithium, Total | 4770 | | 50.0 | 15 | |
| | 7/9/02 | Magnesium, Total | 36800 | | 500 | | |
| | 7/9/02 | Manganese, Total | 2630 | | 75 | 50 | 50 |
| | 7/9/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/9/02 | Nickel, Total | 9.6 | U | 50 | | 100 |
| | 7/9/02 | Potassium, Total | 389000 | | 40000 | | |
| | 7/9/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/9/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/9/02 | Sodium, Total | 274000 | | 40000 | | |
| | 7/9/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/9/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/9/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |
| B38W24D | 7/15/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/15/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/15/02 | Arsenic, Total | 8.4 | J | 40 | 50 | 0.02/8 |
| | 7/15/02 | Barium, Total | 30.6 | | 5 | 2000 | 2000 |
| | 7/15/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/15/02 | Boron, Total | 89.7 | | 60 | | |
| | 7/15/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/15/02 | Calcium, Total | 68600 | | 300 | | |
| | 7/15/02 | Chromium, Total | 4.2 | J | 10 | 100 | 100 |
| | 7/15/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/15/02 | Copper, Total | 3.2 | J | 10 | 1300 | 1000 |
| | 7/15/02 | Iron, Total | 19400 | | 200 | 300 | 300 |
| | 7/15/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/15/02 | Lithium, Total | 50 | U | 50.0 | | |
| | 7/15/02 | Magnesium, Total | 8730 | | 100 | | |
| | 7/15/02 | Manganese, Total | 4720 | | 15 | 50 | 50 |
| | 7/15/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/15/02 | Nickel, Total | 4 | J | 10 | | 100 |
| | 7/15/02 | Potassium, Total | 15700 | | 400 | | |
| | 7/15/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/15/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/15/02 | Sodium, Total | 29500 | | 400 | | |
| | 7/15/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/15/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/15/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W25D | 7/10/02 | Aluminum, Total | 416 | U | 2500 | 200 | 200 |
| | 7/10/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/10/02 | Arsenic, Total | 34.8 | U | 200 | 50 | 0.02/8 |
| | 7/10/02 | Barium, Total | 92.2 | J | 25 | 2000 | 2000 |
| | 7/10/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/10/02 | Boron, Total | 250 | U | 300 | | |
| | 7/10/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/10/02 | Calcium, Total | 126000 | | 1500 | | |
| | 7/10/02 | Chromium, Total | 7.6 | U | 50 | 100 | 100 |
| | 7/10/02 | Cobalt, Total | 7.4 | U | 50 | | |
| | 7/10/02 | Copper, Total | 7.2 | U | 50 | 1300 | 1000 |
| | 7/10/02 | Iron, Total | 6460 | | 1000 | 300 | 300 |
| | 7/10/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/10/02 | Lithium, Total | 888 | | 50.0 | | |
| | 7/10/02 | Magnesium, Total | 6150 | | 500 | | |
| | 7/10/02 | Manganese, Total | 1600 | | 75 | 50 | 50 |
| | 7/10/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/10/02 | Nickel, Total | 9.6 | U | 50 | | 100 |
| | 7/10/02 | Potassium, Total | 58800 | | 2000 | | |
| | 7/10/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/10/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/10/02 | Sodium, Total | 33000 | | 2000 | | |
| | 7/10/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/10/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/10/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |
| B38W17B | 7/2/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/2/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/2/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/2/02 | Barium, Total | 62.9 | | 5 | 2000 | 2000 |
| | 7/2/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/2/02 | Boron, Total | 267 | | 60 | | |
| | 7/2/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/2/02 | Calcium, Total | 230000 | | 300 | | |
| | 7/2/02 | Chromium, Total | 4.4 | | 10 | 100 | 100 |
| | 7/2/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/2/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/2/02 | Iron, Total | 6840 | | 200 | 300 | 300 |
| | 7/2/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/2/02 | Lithium, Total | 1530 | | 50 | | |
| | 7/2/02 | Magnesium, Total | 18000 | | 100 | | |
| | 7/2/02 | Manganese, Total | 3010 | | 15 | 50 | 50 |
| | 7/2/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/2/02 | Nickel, Total | 4.1 | | 10 | | 100 |
| | 7/2/02 | Potassium, Total | 126000 | J | 2000 | | |
| | 7/2/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/2/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/2/02 | Sodium, Total | 118000 | | 400 | | |
| | 7/2/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/2/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/2/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS01B | 7/18/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/18/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/18/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/18/02 | Barium, Total | 61.1 | | 5 | 2000 | 2000 |
| | 7/18/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/18/02 | Boron, Total | 54.6 | J | 60 | | |
| | 7/18/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/18/02 | Calcium, Total | 59600 | | 300 | | |
| | 7/18/02 | Chromium, Total | 5.7 | J | 10 | 100 | 100 |
| | 7/18/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/18/02 | Copper, Total | 5.7 | U | 10 | 1300 | 1000 |
| | 7/18/02 | Iron, Total | 5970 | | 200 | 300 | 300 |
| | 7/18/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/18/02 | Lithium, Total | 38.6 | J | 50 | | |
| | 7/18/02 | Magnesium, Total | 12400 | | 100 | | |
| | 7/18/02 | Manganese, Total | 154 | | 15 | 50 | 50 |
| | 7/18/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/18/02 | Nickel, Total | 5.6 | J | 10 | | 100 |
| | 7/18/02 | Potassium, Total | 9410 | | 400 | | |
| | 7/18/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/18/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/18/02 | Sodium, Total | 47700 | | 400 | | |
| | 7/18/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/18/02 | Vanadium, Total | 1.3 | U | 6 | | |
| | 7/18/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |
| MISS01B | 7/18/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/18/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/18/02 | Arsenic, Total | 7 | U | 40 | 50 | 0.02/8 |
| | 7/18/02 | Barium, Total | 66.8 | | 5 | 2000 | 2000 |
| | 7/18/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/18/02 | Boron, Total | 54.8 | J | 60 | | |
| | 7/18/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/18/02 | Calcium, Total | 62900 | | 300 | | |
| | 7/18/02 | Chromium, Total | 6.4 | J | 10 | 100 | 100 |
| | 7/18/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/18/02 | Copper, Total | 5.6 | U | 10 | 1300 | 1000 |
| | 7/18/02 | Iron, Total | 13700 | | 200 | 300 | 300 |
| | 7/18/02 | Lead, Total | 3.4 | U | 10 | 15 | 5/10 |
| | 7/18/02 | Lithium, Total | 43.6 | J | 50 | | |
| | 7/18/02 | Magnesium, Total | 12900 | | 100 | | |
| | 7/18/02 | Manganese, Total | 192 | | 15 | 50 | 50 |
| | 7/18/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/18/02 | Nickel, Total | 7.3 | J | 10 | | 100 |
| | 7/18/02 | Potassium, Total | 10200 | | 400 | | |
| | 7/18/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/18/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/18/02 | Sodium, Total | 47600 | | 400 | | |
| | 7/18/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/18/02 | Vanadium, Total | 1.8 | J | 6 | | |
| | 7/18/02 | Zinc, Total | 26.9 | J | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS02B | 7/8/02 | Aluminum, Total | 416 | U | 2500 | 200 | 200 |
| | 7/8/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/8/02 | Arsenic, Total | 34.8 | U | 200 | 50 | 0.02/8 |
| | 7/8/02 | Barium, Total | 10.5 | J | 25 | 2000 | 2000 |
| | 7/8/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/8/02 | Boron, Total | 1190 | | 300 | | |
| | 7/8/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/8/02 | Calcium, Total | 255000 | | 30000 | | |
| | 7/8/02 | Chromium, Total | 7.6 | U | 50 | 100 | 100 |
| | 7/8/02 | Cobalt, Total | 7.4 | U | 50 | | |
| | 7/8/02 | Copper, Total | 7.2 | U | 50 | 1300 | 1000 |
| | 7/8/02 | Iron, Total | 11200 | | 1000 | 300 | 300 |
| | 7/8/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/8/02 | Lithium, Total | 8160 | | 50.0 | | |
| | 7/8/02 | Magnesium, Total | 35200 | | 500 | | |
| | 7/8/02 | Manganese, Total | 3380 | | 75 | 50 | 50 |
| | 7/8/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/8/02 | Nickel, Total | 9.6 | U | 50 | | 100 |
| | 7/8/02 | Potassium, Total | 66100 | | 40000 | | |
| | 7/8/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/8/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/8/02 | Sodium, Total | 745000 | | 40000 | | |
| | 7/8/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/8/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/8/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |
| MISS05B | 7/31/02 | Aluminum, Total | 83.3 | U | 500 | 200 | 200 |
| | 7/31/02 | Antimony, Total | 5.9 | U | 20 | 6 | 2/20 |
| | 7/31/02 | Arsenic, Total | 20.2 | | 40 | 50 | 0.02/8 |
| | 7/31/02 | Barium, Total | 125 | | 5 | 2000 | 2000 |
| | 7/31/02 | Beryllium, Total | 1 | U | 5 | 4 | 0.008/20 |
| | 7/31/02 | Boron, Total | 429 | | 60 | | |
| | 7/31/02 | Cadmium, Total | 1.3 | U | 10 | 5 | 4 |
| | 7/31/02 | Calcium, Total | 355000 | | 300 | | |
| | 7/31/02 | Chromium, Total | 1.5 | U | 10 | 100 | 100 |
| | 7/31/02 | Cobalt, Total | 1.5 | U | 10 | | |
| | 7/31/02 | Copper, Total | 1.4 | U | 10 | 1300 | 1000 |
| | 7/31/02 | Iron, Total | 6220 | | 200 | 300 | 300 |
| | 7/31/02 | Lead, Total | 3.4 | R | 10 | 15 | 5/10 |
| | 7/31/02 | Lithium, Total | 2330 | | 50.0 | | |
| | 7/31/02 | Magnesium, Total | 84900 | | 100 | | |
| | 7/31/02 | Manganese, Total | 3010 | | 15 | 50 | 50 |
| | 7/31/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/31/02 | Nickel, Total | 2.3 | J | 10 | | 100 |
| | 7/31/02 | Potassium, Total | 478000 | | 2000 | | |
| | 7/31/02 | Selenium, Total | 6.9 | U | 30 | 50 | 50 |
| | 7/31/02 | Silver, Total | 1.4 | R | 6 | 1007 | |
| | 7/31/02 | Sodium, Total | 384000 | | 2000 | | |
| | 7/31/02 | Thallium, Total | 16.1 | U | 40 | 2 | 0.5/10 |
| | 7/31/02 | Vanadium, Total | 2.5 | J | 6 | | |
| | 7/31/02 | Zinc, Total | 16.2 | U | 50 | 500 | 5000 |

**Table A-12**
**2002 Groundwater Analytical Results - Metals**
**Maywood Interim Storage Site**

| Sampling Location | Date Collected | Detected Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Reporting Limit (µg/L) | Related Regulations Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS07B | 7/11/02 | Aluminum, Total | 416 | U | 2500 | 200 | 200 |
| | 7/11/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/11/02 | Arsenic, Total | 54 | J | 200 | 50 | 0.02/8 |
| | 7/11/02 | Barium, Total | 15.7 | J | 25 | 2000 | 2000 |
| | 7/11/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/11/02 | Boron, Total | 2120 | | 300 | | |
| | 7/11/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/11/02 | Calcium, Total | 254000 | | 1500 | | |
| | 7/11/02 | Chromium, Total | 7.6 | U | 50 | 100 | 100 |
| | 7/11/02 | Cobalt, Total | 7.4 | U | 50 | | |
| | 7/11/02 | Copper, Total | 7.2 | U | 50 | 1300 | 1000 |
| | 7/11/02 | Iron, Total | 11200 | | 1000 | 300 | 300 |
| | 7/11/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/11/02 | Lithium, Total | 5850 | | 50.0 | | |
| | 7/11/02 | Magnesium, Total | 88900 | | 500 | | |
| | 7/11/02 | Manganese, Total | 4660 | | 75 | 50 | 50 |
| | 7/11/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/11/02 | Nickel, Total | 10.1 | J | 50 | | 100 |
| | 7/11/02 | Potassium, Total | 57600 | | 10000 | | |
| | 7/11/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/11/02 | Silver, Total | 6.8 | U | 30 | 1007 | |
| | 7/11/02 | Sodium, Total | 1290000 | | 10000 | | |
| | 7/11/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/11/02 | Vanadium, Total | 6.7 | U | 30 | | |
| | 7/11/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |
| MISS07B | 7/11/02 | Aluminum, Total | 416 | U | 2500 | 200 | 200 |
| Duplicate | 7/11/02 | Antimony, Total | 29.4 | U | 100 | 6 | 2/20 |
| | 7/11/02 | Arsenic, Total | 56.5 | J | 200 | 50 | 0.02/8 |
| | 7/11/02 | Barium, Total | 15.9 | J | 25 | 2000 | 2000 |
| | 7/11/02 | Beryllium, Total | 5.1 | U | 25 | 4 | 0.008/20 |
| | 7/11/02 | Boron, Total | 2120 | | 300 | | |
| | 7/11/02 | Cadmium, Total | 6.4 | U | 50 | 5 | 4 |
| | 7/11/02 | Calcium, Total | 209000 | | 1500 | | |
| | 7/11/02 | Chromium, Total | 7.6 | U | 50 | 100 | 100 |
| | 7/11/02 | Cobalt, Total | 7.4 | U | 50 | | |
| | 7/11/02 | Copper, Total | 7.6 | J | 50 | 1300 | 1000 |
| | 7/11/02 | Iron, Total | 13100 | | 1000 | 300 | 300 |
| | 7/11/02 | Lead, Total | 17 | UJ | 50 | 15 | 5/10 |
| | 7/11/02 | Lithium, Total | 6000 | | 50.0 | | |
| | 7/11/02 | Magnesium, Total | 88100 | | 500 | | |
| | 7/11/02 | Manganese, Total | 4610 | | 75 | 50 | 50 |
| | 7/11/02 | Mercury, Total | 0.18 | U | 0.2 | 2 | 2 |
| | 7/11/02 | Nickel, Total | 10.6 | J | 50 | | 100 |
| | 7/11/02 | Potassium, Total | 71200 | | 4000 | | |
| | 7/11/02 | Selenium, Total | 34.6 | UJ | 150 | 50 | 50 |
| | 7/11/02 | Silver, Total | 6.8 | R | 30 | 1007 | |
| | 7/11/02 | Sodium, Total | 1080000 | | 4000 | | |
| | 7/11/02 | Thallium, Total | 80.5 | U | 200 | 2 | 0.5/10 |
| | 7/11/02 | Vanadium, Total | 7 | J | 30 | | |
| | 7/11/02 | Zinc, Total | 81 | U | 250 | 500 | 5000 |

[a] All analytes were reported, detected and undetected.
[b] USACE data qualifier flags based on the CDQMP-QAPP: J = Reported as an estimated value, U= analyte was not detected.
[c] Federal SDWA MCLs, 40 CFR 141. Regulations pertain to drinking water quality and are listed for comparison purposes only. Not established (NE).
[d] New Jersey Class IIA Groundwater Quality Standards NJAC 7:9-6. Analytes for which the PQL is greater than the GWQC are noted as such: GWQC/PQL.
[e] Monitoring wells B38W01S and B38W02D are the background locations for wells completed in overburden and bedrock wells respectively.

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| **Monitoring wells completed in unconsolidated sediment:** | | | | | | | |
| B38W01S | 7/17/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/17/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/17/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/17/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/17/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/17/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/17/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/17/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/17/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/17/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/17/02 | Acetone | 2 | R | 5 | | 700 |
| | 7/17/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/17/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/17/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/17/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/17/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/17/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/17/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/17/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/17/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/17/02 | Chloromethane | 0.5 | J | 0.5 | | 30 |
| | 7/17/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/17/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/17/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/17/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/17/02 | Methylene Chloride | 0.5 | U | 0.5 | | 2 |
| | 7/17/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/17/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/17/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/17/02 | Total Xylene | 1 | U | 1 | | |
| | 7/17/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/17/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/17/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/17/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W14S | 7/24/02 | 1,1,1-Trichloroethane | 2 | U | 2 | 200 | 30 |
| | 7/24/02 | 1,1,2,2-Tetrachloroethane | 2 | U | 2 | | 2 |
| | 7/24/02 | 1,1,2-Trichloroethane | 2 | U | 2 | 3/5 | 3 |
| | 7/24/02 | 1,1-Dichloroethane | 2 | U | 2 | | 70 |
| | 7/24/02 | 1,1-Dichloroethene | 1 | J | 2 | 7 | 1 |
| | 7/24/02 | 1,2-Dichloroethane | 2 | U | 2 | 5 | 0.3 |
| | 7/24/02 | 1,2-Dichloropropane | 2 | U | 2 | 5 | 0.5 |
| | 7/24/02 | 2-Butanone | 25 | UJ | 25 | | 3 |
| | 7/24/02 | 2-Hexanone | 2 | U | 2 | | |
| | 7/24/02 | 4-Methyl-2-pentanone | 2 | U | 2 | | 400 |
| | 7/24/02 | Acetone | 25 | R | 25 | | 700 |
| | 7/24/02 | Benzene | 2 | U | 2 | 5 | 0.2 |
| | 7/24/02 | Bromodichloromethane | 2 | U | 2 | | 0.3 |
| | 7/24/02 | Bromoform | 2 | U | 2 | | 4 |
| | 7/24/02 | Bromomethane | 2 | UJ | 2 | | 10 |
| | 7/24/02 | Carbon disulfide | 2 | U | 2 | | |
| | 7/24/02 | Carbon tetrachloride | 2 | U | 2 | | 0.4 |
| | 7/24/02 | Chlorobenzene | 2 | U | 2 | 100 | 4 |
| | 7/24/02 | Chloroethane | 2 | U | 2 | | |
| | 7/24/02 | Chloroform | 2 | U | 2 | | 6 |
| | 7/24/02 | Chloromethane | 2 | U | 2 | | 30 |
| | 7/24/02 | cis-1,2-Dichloroethene | 16 | | 2 | | |
| | 7/24/02 | cis-1,3-Dichloropropene | 2 | U | 2 | | |
| | 7/24/02 | Dibromochloromethane | 2 | U | 2 | | 10 |
| | 7/24/02 | Ethylbenzene | 2 | U | 2 | 700 | 700 |
| | 7/24/02 | Methylene chloride | 2 | UJ | 2 | | 2 |
| | 7/24/02 | Styrene | 2 | U | 2 | 100 | 100 |
| | 7/24/02 | Tetrachloroethene | 83 | | 2 | 5 | 0.4 |
| | 7/24/02 | Toluene | 2 | U | 2 | 100 | 1000 |
| | 7/24/02 | Total Xylene | 5 | U | 5 | | |
| | 7/24/02 | trans-1,2-Dichloroethene | 2 | U | 2 | | |
| | 7/24/02 | trans-1,3-Dichloropropene | 2 | U | 2 | | |
| | 7/24/02 | Trichloroethene | 22 | | 2 | 5 | 1 |
| | 7/24/02 | Vinyl chloride | 2 | U | 2 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W15S | 7/16/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/16/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/16/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/16/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/16/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/16/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/16/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/16/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/16/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/16/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/16/02 | Acetone | 3 | R | 5 | | 700 |
| | 7/16/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/16/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/16/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/16/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/16/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/16/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/16/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/16/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/16/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/16/02 | Chloromethane | 0.5 | U | 0.5 | | 30 |
| | 7/16/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/16/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/16/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/16/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/16/02 | Methylene Chloride | 0.5 | U | 0.5 | | 2 |
| | 7/16/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/16/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/16/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/16/02 | Total Xylene | 1 | U | 1 | | |
| | 7/16/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/16/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/16/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/16/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (μg/L) | Data Qualifiers[b] | Limit (μg/L) | Federal[c] (μg/L) | State[d] (μg/L) |
|---|---|---|---|---|---|---|---|
| B38W17A | 7/2/02 | 1,1,1-Trichloroethane | 5 | U | 5 | 200 | 30 |
| | 7/2/02 | 1,1,2,2-Tetrachloroethane | 5 | U | 5 | | 2 |
| | 7/2/02 | 1,1,2-Trichloroethane | 5 | U | 5 | 3/5 | 3 |
| | 7/2/02 | 1,1-Dichloroethane | 5 | U | 5 | | 70 |
| | 7/2/02 | 1,1-Dichloroethene | 5 | UJ | 5 | 7 | 1 |
| | 7/2/02 | 1,2-Dichloroethane | 5 | U | 5 | 5 | 0.3 |
| | 7/2/02 | 1,2-Dichloropropane | 5 | U | 5 | 5 | 0.5 |
| | 7/2/02 | 2-Butanone | 10 | UJ | 10 | | 3 |
| | 7/2/02 | 2-Hexanone | 10 | UJ | 10 | | |
| | 7/2/02 | 4-Methyl-2-pentanone | 10 | UJ | 10 | | 400 |
| | 7/2/02 | Acetone | 10 | U | 10 | | 700 |
| | 7/2/02 | Benzene | 5 | U | 5 | 5 | 0.2 |
| | 7/2/02 | Bromodichloromethane | 5 | U | 5 | | 0.3 |
| | 7/2/02 | Bromoform | 5 | U | 5 | | 4 |
| | 7/2/02 | Bromomethane | 5 | UJ | 5 | | 10 |
| | 7/2/02 | Carbon disulfide | 5 | UJ | 5 | | |
| | 7/2/02 | Carbon tetrachloride | 5 | U | 5 | | 0.4 |
| | 7/2/02 | Chlorobenzene | 5 | U | 5 | 100 | 4 |
| | 7/2/02 | Chloroethane | 5 | U | 5 | | |
| | 7/2/02 | Chloroform | 5 | U | 5 | | 6 |
| | 7/2/02 | Chloromethane | 5 | U | 5 | | 30 |
| | 7/2/02 | cis-1,2-Dichloroethene | 5 | U | 5 | | |
| | 7/2/02 | cis-1,3-Dichloropropene | 5 | U | 5 | | |
| | 7/2/02 | Dibromochloromethane | 5 | U | 5 | | 10 |
| | 7/2/02 | Ethylbenzene | 5 | U | 5 | 700 | 700 |
| | 7/2/02 | Methylene chloride | 5 | U | 5 | | 2 |
| | 7/2/02 | Styrene | 5 | U | 5 | 100 | 100 |
| | 7/2/02 | Tetrachloroethene | 5 | U | 5 | 5 | 0.4 |
| | 7/2/02 | Toluene | 5 | U | 5 | 100 | 1000 |
| | 7/2/02 | Total Xylene | 5 | U | 5 | | |
| | 7/2/02 | trans-1,2-Dichloroethene | 5 | U | 5 | | |
| | 7/2/02 | trans-1,3-Dichloropropene | 5 | U | 5 | | |
| | 7/2/02 | Trichloroethene | 5 | U | 5 | 5 | 1 |
| | 7/2/02 | Vinyl chloride | 5 | U | 5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W19S | 7/9/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/9/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/9/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/9/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/9/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/9/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/9/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/9/02 | 2-Butanone | 5 | UJ | 5 | | 3 |
| | 7/9/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/9/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/9/02 | Acetone | 2 | R | 5 | | 700 |
| | 7/9/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/9/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/9/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/9/02 | Bromomethane | 0.5 | UJ | 0.5 | | 10 |
| | 7/9/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/9/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/9/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/9/02 | Chloroethane | 0.5 | UJ | 0.5 | | |
| | 7/9/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/9/02 | Chloromethane | 0.3 | J | 0.5 | | 30 |
| | 7/9/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/9/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/9/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/9/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/9/02 | Methylene chloride | 0.5 | UJ | 0.5 | | 2 |
| | 7/9/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/9/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/9/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/9/02 | Total Xylene | 1 | U | 1 | | |
| | 7/9/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/9/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/9/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/9/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W24S | 7/15/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/15/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/15/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/15/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/15/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/15/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/15/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/15/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/15/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/15/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/15/02 | Acetone | 5 | R | 5 | | 700 |
| | 7/15/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/15/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/15/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/15/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/15/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/15/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/15/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/15/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/15/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/15/02 | Chloromethane | 0.5 | U | 0.5 | | 30 |
| | 7/15/02 | cis-1,2-Dichloroethene | 0.3 | J | 0.5 | | |
| | 7/15/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/15/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/15/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/15/02 | Methylene Chloride | 0.5 | U | 0.5 | | 2 |
| | 7/15/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/15/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/15/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/15/02 | Total Xylene | 0.5 | J | 1 | | |
| | 7/15/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/15/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/15/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/15/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W25S | 7/10/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/10/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/10/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/10/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/10/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/10/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/10/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/10/02 | 2-Butanone | 5 | UJ | 5 | | 3 |
| | 7/10/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/10/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/10/02 | Acetone | 3 | R | 5 | | 700 |
| | 7/10/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/10/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/10/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/10/02 | Bromomethane | 0.5 | UJ | 0.5 | | 10 |
| | 7/10/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/10/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/10/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/10/02 | Chloroethane | 0.5 | UJ | 0.5 | | |
| | 7/10/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/10/02 | Chloromethane | 0.3 | J | 0.5 | | 30 |
| | 7/10/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/10/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/10/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/10/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/10/02 | Methylene chloride | 0.5 | UJ | 0.5 | | 2 |
| | 7/10/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/10/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/10/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/10/02 | Total Xylene | 1 | U | 1 | | |
| | 7/10/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/10/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/10/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/10/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS01AA | 7/11/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/11/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/11/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/11/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/11/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/11/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/11/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/11/02 | 2-Butanone | 5 | UJ | 5 | | 3 |
| | 7/11/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/11/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/11/02 | Acetone | 5 | R | 5 | | 700 |
| | 7/11/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/11/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/11/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/11/02 | Bromomethane | 0.5 | UJ | 0.5 | | 10 |
| | 7/11/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/11/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/11/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/11/02 | Chloroethane | 0.5 | UJ | 0.5 | | |
| | 7/11/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/11/02 | Chloromethane | 0.5 | U | 0.5 | | 30 |
| | 7/11/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/11/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/11/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/11/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/11/02 | Methylene chloride | 0.5 | UJ | 0.5 | | 2 |
| | 7/11/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/11/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/11/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/11/02 | Total Xylene | 1 | U | 1 | | |
| | 7/11/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/11/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/11/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/11/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS02A | 7/8/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/8/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/8/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/8/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/8/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/8/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/8/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/8/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/8/02 | 2-Hexanone | 0.5 | UJ | 0.5 | | |
| | 7/8/02 | 4-Methyl-2-pentanone | 0.5 | UJ | 0.5 | | 400 |
| | 7/8/02 | Acetone | 5 | R | 5 | | 700 |
| | 7/8/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/8/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/8/02 | Bromoform | 0.5 | UJ | 0.5 | | 4 |
| | 7/8/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/8/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/8/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/8/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/8/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/8/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/8/02 | Chloromethane | 0.5 | U | 0.5 | | 30 |
| | 7/8/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/8/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/8/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/8/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/8/02 | Methylene chloride | 0.5 | U | 0.5 | | 2 |
| | 7/8/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/8/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/8/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/8/02 | Total Xylene | 1 | U | 1 | | |
| | 7/8/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/8/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/8/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/8/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS05A | 8/1/02 | 1,1,1-Trichloroethane | 1 | U | 1 | 200 | 30 |
| | 8/1/02 | 1,1,2,2-Tetrachloroethane | 1 | U | 1 | | 2 |
| | 8/1/02 | 1,1,2-Trichloroethane | 1 | U | 1 | 3/5 | 3 |
| | 8/1/02 | 1,1-Dichloroethane | 1 | U | 1 | | 70 |
| | 8/1/02 | 1,1-Dichloroethene | 1 | U | 1 | 7 | 1 |
| | 8/1/02 | 1,2-Dichloroethane | 1 | U | 1 | 5 | 0.3 |
| | 8/1/02 | 1,2-Dichloropropane | 1 | U | 1 | 5 | 0.5 |
| | 8/1/02 | 2-Butanone | 10 | U | 10 | | 3 |
| | 8/1/02 | 2-Hexanone | 1 | U | 1 | | |
| | 8/1/02 | 4-Methyl-2-pentanone | 1 | U | 1 | | 400 |
| | 8/1/02 | Acetone | 4 | R | 10 | | 700 |
| | 8/1/02 | Benzene | 1 | U | 1 | 5 | 0.2 |
| | 8/1/02 | Bromodichloromethane | 1 | U | 1 | | 0.3 |
| | 8/1/02 | Bromoform | 1 | U | 1 | | 4 |
| | 8/1/02 | Bromomethane | 1 | U | 1 | | 10 |
| | 8/1/02 | Carbon disulfide | 1 | U | 1 | | |
| | 8/1/02 | Carbon tetrachloride | 1 | U | 1 | | 0.4 |
| | 8/1/02 | Chlorobenzene | 1 | U | 1 | 100 | 4 |
| | 8/1/02 | Chloroethane | 1 | U | 1 | | |
| | 8/1/02 | Chloroform | 1 | U | 1 | | 6 |
| | 8/1/02 | Chloromethane | 1 | U | 1 | | 30 |
| | 8/1/02 | cis-1,2-Dichloroethene | 1 | U | 1 | | |
| | 8/1/02 | cis-1,3-Dichloropropene | 1 | U | 1 | | |
| | 8/1/02 | Dibromochloromethane | 1 | U | 1 | | 10 |
| | 8/1/02 | Ethylbenzene | 1 | U | 1 | 700 | 700 |
| | 8/1/02 | Methylene Chloride | 1 | U | 1 | | 2 |
| | 8/1/02 | Styrene | 1 | U | 1 | 100 | 100 |
| | 8/1/02 | Tetrachloroethene | 1 | U | 1 | 5 | 0.4 |
| | 8/1/02 | Toluene | 1 | U | 1 | 100 | 1000 |
| | 8/1/02 | Total Xylene | 2 | U | 2 | | |
| | 8/1/02 | trans-1,2-Dichloroethene | 1 | U | 1 | | |
| | 8/1/02 | Trans-1,3-Dichloropropene | 1 | U | 1 | | |
| | 8/1/02 | Trichloroethene | 1 | U | 1 | 5 | 1 |
| | 8/1/02 | Vinyl chloride | 1 | U | 1 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS06A | 7/10/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/10/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/10/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/10/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/10/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/10/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/10/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/10/02 | 2-Butanone | 5 | UJ | 5 | | 3 |
| | 7/10/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/10/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/10/02 | Acetone | 2 | R | 5 | | 700 |
| | 7/10/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/10/02 | Bromodichloromethane | 0.3 | J | 0.5 | | 0.3 |
| | 7/10/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/10/02 | Bromomethane | 0.5 | UJ | 0.5 | | 10 |
| | 7/10/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/10/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/10/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/10/02 | Chloroethane | 0.5 | UJ | 0.5 | | |
| | 7/10/02 | Chloroform | 2 | | 0.5 | | 6 |
| | 7/10/02 | Chloromethane | 0.4 | J | 0.5 | | 30 |
| | 7/10/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/10/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/10/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/10/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/10/02 | Methylene chloride | 0.5 | UJ | 0.5 | | 2 |
| | 7/10/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/10/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/10/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/10/02 | Total Xylene | 1 | U | 1 | | |
| | 7/10/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/10/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/10/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/10/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| **Monitoring wells completed in bedrock:** | | | | | | | |
| B38W02D | 7/17/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/17/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/17/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/17/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/17/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/17/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/17/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/17/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/17/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/17/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/17/02 | Acetone | 8 | R | 5 | | 700 |
| | 7/17/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/17/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/17/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/17/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/17/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/17/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/17/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/17/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/17/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/17/02 | Chloromethane | 0.7 | | 0.5 | | 30 |
| | 7/17/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/17/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/17/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/17/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/17/02 | Methylene Chloride | 0.5 | U | 0.5 | | 2 |
| | 7/17/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/17/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/17/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/17/02 | Total Xylene | 1 | U | 1 | | |
| | 7/17/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/17/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/17/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/17/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W14D | 7/24/02 | 1,1,1-Trichloroethane | 25 | U | 25 | 200 | 30 |
| | 7/24/02 | 1,1,2,2-Tetrachloroethane | 25 | U | 25 | | 2 |
| | 7/24/02 | 1,1,2-Trichloroethane | 25 | U | 25 | 3/5 | 3 |
| | 7/24/02 | 1,1-Dichloroethane | 25 | U | 25 | | 70 |
| | 7/24/02 | 1,1-Dichloroethene | 25 | U | 25 | 7 | 1 |
| | 7/24/02 | 1,2-Dichloroethane | 25 | U | 25 | 5 | 0.3 |
| | 7/24/02 | 1,2-Dichloropropane | 25 | U | 25 | 5 | 0.5 |
| | 7/24/02 | 2-Butanone | 250 | UJ | 250 | | 3 |
| | 7/24/02 | 2-Hexanone | 25 | U | 25 | | |
| | 7/24/02 | 4-Methyl-2-pentanone | 25 | U | 25 | | 400 |
| | 7/24/02 | Acetone | 250 | R | 250 | | 700 |
| | 7/24/02 | Benzene | 25 | U | 25 | 5 | 0.2 |
| | 7/24/02 | Bromodichloromethane | 25 | U | 25 | | 0.3 |
| | 7/24/02 | Bromoform | 25 | U | 25 | | 4 |
| | 7/24/02 | Bromomethane | 25 | UJ | 25 | | 10 |
| | 7/24/02 | Carbon disulfide | 25 | U | 25 | | |
| | 7/24/02 | Carbon tetrachloride | 25 | U | 25 | | 0.4 |
| | 7/24/02 | Chlorobenzene | 25 | U | 25 | 100 | 4 |
| | 7/24/02 | Chloroethane | 25 | U | 25 | | |
| | 7/24/02 | Chloroform | 25 | U | 25 | | 6 |
| | 7/24/02 | Chloromethane | 25 | U | 25 | | 30 |
| | 7/24/02 | cis-1,2-Dichloroethene | 100 | | 25 | | |
| | 7/24/02 | cis-1,3-Dichloropropene | 25 | U | 25 | | |
| | 7/24/02 | Dibromochloromethane | 25 | U | 25 | | 10 |
| | 7/24/02 | Ethylbenzene | 25 | U | 25 | 700 | 700 |
| | 7/24/02 | Methylene chloride | 25 | UJ | 25 | | 2 |
| | 7/24/02 | Styrene | 25 | U | 25 | 100 | 100 |
| | 7/24/02 | Tetrachloroethene | 640 | | 25 | 5 | 0.4 |
| | 7/24/02 | Toluene | 25 | U | 25 | 100 | 1000 |
| | 7/24/02 | Total Xylene | 50 | U | 50 | | |
| | 7/24/02 | trans-1,2-Dichloroethene | 25 | U | 25 | | |
| | 7/24/02 | trans-1,3-Dichloropropene | 25 | U | 25 | | |
| | 7/24/02 | Trichloroethene | 160 | | 25 | 5 | 1 |
| | 7/24/02 | Vinyl chloride | 25 | U | 25 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W15D | 7/16/02 | 1,1,1-Trichloroethane | 5 | U | 5 | 200 | 30 |
| | 7/16/02 | 1,1,2,2-Tetrachloroethane | 5 | U | 5 | | 2 |
| | 7/16/02 | 1,1,2-Trichloroethane | 5 | U | 5 | 3/5 | 3 |
| | 7/16/02 | 1,1-Dichloroethane | 2 | J | 5 | | 70 |
| | 7/16/02 | 1,1-Dichloroethene | 3 | J | 5 | 7 | 1 |
| | 7/16/02 | 1,2-Dichloroethane | 5 | U | 5 | 5 | 0.3 |
| | 7/16/02 | 1,2-Dichloropropane | 5 | U | 5 | 5 | 0.5 |
| | 7/16/02 | 2-Butanone | 50 | U | 50 | | 3 |
| | 7/16/02 | 2-Hexanone | 5 | U | 5 | | |
| | 7/16/02 | 4-Methyl-2-pentanone | 5 | U | 5 | | 400 |
| | 7/16/02 | Acetone | 87 | R | 50 | | 700 |
| | 7/16/02 | Benzene | 5 | U | 5 | 5 | 0.2 |
| | 7/16/02 | Bromodichloromethane | 5 | U | 5 | | 0.3 |
| | 7/16/02 | Bromoform | 5 | U | 5 | | 4 |
| | 7/16/02 | Bromomethane | 5 | U | 5 | | 10 |
| | 7/16/02 | Carbon disulfide | 5 | U | 5 | | |
| | 7/16/02 | Carbon tetrachloride | 5 | U | 5 | | 0.4 |
| | 7/16/02 | Chlorobenzene | 5 | U | 5 | 100 | 4 |
| | 7/16/02 | Chloroethane | 5 | U | 5 | | |
| | 7/16/02 | Chloroform | 5 | U | 5 | | 6 |
| | 7/16/02 | Chloromethane | 5 | U | 5 | | 30 |
| | 7/16/02 | cis-1,2-Dichloroethene | 45 | | 5 | | |
| | 7/16/02 | cis-1,3-Dichloropropene | 5 | U | 5 | | |
| | 7/16/02 | Dibromochloromethane | 5 | U | 5 | | 10 |
| | 7/16/02 | Ethylbenzene | 5 | U | 5 | 700 | 700 |
| | 7/16/02 | Methylene Chloride | 4 | U | 5 | | 2 |
| | 7/16/02 | Styrene | 5 | U | 5 | 100 | 100 |
| | 7/16/02 | Tetrachloroethene | 180 | | 5 | 5 | 0.4 |
| | 7/16/02 | Toluene | 5 | U | 5 | 100 | 1000 |
| | 7/16/02 | Total Xylene | 10 | U | 10 | | |
| | 7/16/02 | trans-1,2-Dichloroethene | 25 | | 5 | | |
| | 7/16/02 | Trans-1,3-Dichloropropene | 5 | U | 5 | | |
| | 7/16/02 | Trichloroethene | 36 | | 5 | 5 | 1 |
| | 7/16/02 | Vinyl chloride | 5 | U | 5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W17B | 7/2/02 | 1,1,1-Trichloroethane | 5 | U | 5 | 200 | 30 |
| | 7/2/02 | 1,1,2,2-Tetrachloroethane | 5 | U | 5 | | 2 |
| | 7/2/02 | 1,1,2-Trichloroethane | 5 | U | 5 | 3/5 | 3 |
| | 7/2/02 | 1,1-Dichloroethane | 5 | U | 5 | | 70 |
| | 7/2/02 | 1,1-Dichloroethene | 5 | UJ | 5 | 7 | 1 |
| | 7/2/02 | 1,2-Dichloroethane | 5 | U | 5 | 5 | 0.3 |
| | 7/2/02 | 1,2-Dichloropropane | 5 | U | 5 | 5 | 0.5 |
| | 7/2/02 | 2-Butanone | 10 | UJ | 10 | | 3 |
| | 7/2/02 | 2-Hexanone | 10 | UJ | 10 | | |
| | 7/2/02 | 4-Methyl-2-pentanone | 10 | UJ | 10 | | 400 |
| | 7/2/02 | Acetone | 10 | U | 10 | | 700 |
| | 7/2/02 | Benzene | 5 | U | 5 | 5 | 0.2 |
| | 7/2/02 | Bromodichloromethane | 5 | U | 5 | | 0.3 |
| | 7/2/02 | Bromoform | 5 | U | 5 | | 4 |
| | 7/2/02 | Bromomethane | 5 | UJ | 5 | | 10 |
| | 7/2/02 | Carbon disulfide | 5 | UJ | 5 | | |
| | 7/2/02 | Carbon tetrachloride | 5 | U | 5 | | 0.4 |
| | 7/2/02 | Chlorobenzene | 5 | U | 5 | 100 | 4 |
| | 7/2/02 | Chloroethane | 5 | U | 5 | | |
| | 7/2/02 | Chloroform | 5 | U | 5 | | 6 |
| | 7/2/02 | Chloromethane | 5 | U | 5 | | 30 |
| | 7/2/02 | cis-1,2-Dichloroethene | 0.5 | J | 5 | | |
| | 7/2/02 | cis-1,3-Dichloropropene | 5 | U | 5 | | |
| | 7/2/02 | Dibromochloromethane | 5 | U | 5 | | 10 |
| | 7/2/02 | Ethylbenzene | 5 | U | 5 | 700 | 700 |
| | 7/2/02 | Methylene chloride | 5 | U | 5 | | 2 |
| | 7/2/02 | Styrene | 5 | U | 5 | 100 | 100 |
| | 7/2/02 | Tetrachloroethene | 5 | U | 5 | 5 | 0.4 |
| | 7/2/02 | Toluene | 5 | U | 5 | 100 | 1000 |
| | 7/2/02 | Total Xylene | 5 | U | 5 | | |
| | 7/2/02 | trans-1,2-Dichloroethene | 5 | U | 5 | | |
| | 7/2/02 | trans-1,3-Dichloropropene | 5 | U | 5 | | |
| | 7/2/02 | Trichloroethene | 5 | U | 5 | 5 | 1 |
| | 7/2/02 | Vinyl chloride | 5 | U | 5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W18D | 7/18/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/18/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/18/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/18/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/18/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/18/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/18/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/18/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/18/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/18/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/18/02 | Acetone | 3 | J | 5 | | 700 |
| | 7/18/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/18/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/18/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/18/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/18/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/18/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/18/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/18/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/18/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/18/02 | Chloromethane | 0.5 | U | 0.5 | | 30 |
| | 7/18/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/18/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/18/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/18/02 | Methylene Chloride | 0.5 | U | 0.5 | | 2 |
| | 7/18/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/18/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/18/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/18/02 | Total Xylene | 1 | U | 1 | | |
| | 7/18/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/18/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W18D Duplicate | 7/18/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/18/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/18/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/18/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/18/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/18/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/18/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/18/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/18/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/18/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/18/02 | Acetone | 4 | J | 5 | | 700 |
| | 7/18/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/18/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/18/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/18/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/18/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/18/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/18/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/18/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/18/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/18/02 | Chloromethane | 0.4 | J | 0.5 | | 30 |
| | 7/18/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/18/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/18/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/18/02 | Methylene Chloride | 0.5 | U | 0.5 | | 2 |
| | 7/18/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/18/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/18/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/18/02 | Total Xylene | 1 | U | 1 | | |
| | 7/18/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/18/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W19D | 7/9/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/9/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/9/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/9/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/9/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/9/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/9/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/9/02 | 2-Butanone | 5 | UJ | 5 | | 3 |
| | 7/9/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/9/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/9/02 | Acetone | 2 | R | 5 | | 700 |
| | 7/9/02 | Benzene | 0.7 | | 0.5 | 5 | 0.2 |
| | 7/9/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/9/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/9/02 | Bromomethane | 0.5 | UJ | 0.5 | | 10 |
| | 7/9/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/9/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/9/02 | Chlorobenzene | 0.2 | J | 0.5 | 100 | 4 |
| | 7/9/02 | Chloroethane | 0.5 | UJ | 0.5 | | |
| | 7/9/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/9/02 | Chloromethane | 0.5 | U | 0.5 | | 30 |
| | 7/9/02 | cis-1,2-Dichloroethene | 0.2 | J | 0.5 | | |
| | 7/9/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/9/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/9/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/9/02 | Methylene chloride | 0.5 | UJ | 0.5 | | 2 |
| | 7/9/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/9/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/9/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/9/02 | Total Xylene | 1 | U | 1 | | |
| | 7/9/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/9/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/9/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/9/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W24D | 7/15/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/15/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/15/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/15/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/15/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/15/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/15/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/15/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/15/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/15/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/15/02 | Acetone | 5 | R | 5 | | 700 |
| | 7/15/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/15/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/15/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/15/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/15/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/15/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/15/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/15/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/15/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/15/02 | Chloromethane | 0.3 | J | 0.5 | | 30 |
| | 7/15/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/15/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/15/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/15/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/15/02 | Methylene Chloride | 1 | U | 0.5 | | 2 |
| | 7/15/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/15/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/15/02 | Toluene | 0.3 | U | 0.5 | 100 | 1000 |
| | 7/15/02 | Total Xylene | 1 | U | 1 | | |
| | 7/15/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/15/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/15/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/15/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| B38W25D | 7/10/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/10/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/10/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/10/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/10/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/10/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/10/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/10/02 | 2-Butanone | 5 | UJ | 5 | | 3 |
| | 7/10/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/10/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/10/02 | Acetone | 2 | R | 5 | | 700 |
| | 7/10/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/10/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/10/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/10/02 | Bromomethane | 0.5 | UJ | 0.5 | | 10 |
| | 7/10/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/10/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/10/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/10/02 | Chloroethane | 0.5 | UJ | 0.5 | | |
| | 7/10/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/10/02 | Chloromethane | 0.2 | J | 0.5 | | 30 |
| | 7/10/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/10/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/10/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/10/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/10/02 | Methylene chloride | 0.5 | UJ | 0.5 | | 2 |
| | 7/10/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/10/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/10/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/10/02 | Total Xylene | 1 | U | 1 | | |
| | 7/10/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/10/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/10/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/10/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS01B | 7/18/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/18/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/18/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/18/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/18/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/18/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/18/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/18/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/18/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/18/02 | 4-Methyl-2-pentanone | 0.5 | U | 0.5 | | 400 |
| | 7/18/02 | Acetone | 5 | J | 5 | | 700 |
| | 7/18/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/18/02 | Bromodichloromethane | 3 | | 0.5 | | 0.3 |
| | 7/18/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/18/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/18/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/18/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/18/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/18/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/18/02 | Chloroform | 7 | | 0.5 | | 6 |
| | 7/18/02 | Chloromethane | 0.6 | J | 0.5 | | 30 |
| | 7/18/02 | cis-1,2-Dichloroethene | 0.4 | J | 0.5 | | |
| | 7/18/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Dibromochloromethane | 0.9 | | 0.5 | | 10 |
| | 7/18/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/18/02 | Methylene Chloride | 0.5 | U | 0.5 | | 2 |
| | 7/18/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/18/02 | Tetrachloroethene | 4 | | 0.5 | 5 | 0.4 |
| | 7/18/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/18/02 | Total Xylene | 0.4 | J | 1 | | |
| | 7/18/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Trichloroethene | 0.3 | J | 0.5 | 5 | 1 |
| | 7/18/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS01B Duplicate | 7/18/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/18/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/18/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/18/02 | 1,1-Dichloroethane | 0.5 | U | 0.5 | | 70 |
| | 7/18/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/18/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/18/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/18/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/18/02 | 2-Hexanone | 0.5 | U | 0.5 | | |
| | 7/18/02 | 4-Methyl-2-pentanone | 6 | J | 0.5 | | 400 |
| | 7/18/02 | Acetone | 4 | J | 5 | | 700 |
| | 7/18/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/18/02 | Bromodichloromethane | 2 | | 0.5 | | 0.3 |
| | 7/18/02 | Bromoform | 0.5 | U | 0.5 | | 4 |
| | 7/18/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/18/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/18/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/18/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/18/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/18/02 | Chloroform | 7 | | 0.5 | | 6 |
| | 7/18/02 | Chloromethane | 0.4 | J | 0.5 | | 30 |
| | 7/18/02 | cis-1,2-Dichloroethene | 0.5 | J | 0.5 | | |
| | 7/18/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Dibromochloromethane | 0.7 | | 0.5 | | 10 |
| | 7/18/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/18/02 | Methylene Chloride | 0.5 | U | 0.5 | | 2 |
| | 7/18/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/18/02 | Tetrachloroethene | 4 | | 0.5 | 5 | 0.4 |
| | 7/18/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/18/02 | Total Xylene | 0.3 | J | 1 | | |
| | 7/18/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/18/02 | Trichloroethene | 0.3 | J | 0.5 | 5 | 1 |
| | 7/18/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS02B | 7/8/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/8/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/8/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/8/02 | 1,1-Dichloroethane | 0.1 | J | 0.5 | | 70 |
| | 7/8/02 | 1,1-Dichloroethene | 0.5 | U | 0.5 | 7 | 1 |
| | 7/8/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/8/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/8/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/8/02 | 2-Hexanone | 0.5 | UJ | 0.5 | | |
| | 7/8/02 | 4-Methyl-2-pentanone | 0.5 | UJ | 0.5 | | 400 |
| | 7/8/02 | Acetone | 5 | R | 5 | | 700 |
| | 7/8/02 | Benzene | 0.2 | J | 0.5 | 5 | 0.2 |
| | 7/8/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/8/02 | Bromoform | 0.5 | UJ | 0.5 | | 4 |
| | 7/8/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/8/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/8/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/8/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/8/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/8/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/8/02 | Chloromethane | 0.5 | U | 0.5 | | 30 |
| | 7/8/02 | cis-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/8/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/8/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/8/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/8/02 | Methylene chloride | 0.5 | U | 0.5 | | 2 |
| | 7/8/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/8/02 | Tetrachloroethene | 0.5 | U | 0.5 | 5 | 0.4 |
| | 7/8/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/8/02 | Total Xylene | 1 | U | 1 | | |
| | 7/8/02 | trans-1,2-Dichloroethene | 0.5 | U | 0.5 | | |
| | 7/8/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/8/02 | Trichloroethene | 0.5 | U | 0.5 | 5 | 1 |
| | 7/8/02 | Vinyl chloride | 0.5 | U | 0.5 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS05B | 7/31/02 | 1,1,1-Trichloroethane | 25 | U | 25 | 200 | 30 |
| | 7/31/02 | 1,1,2,2-Tetrachloroethane | 25 | U | 25 | | 2 |
| | 7/31/02 | 1,1,2-Trichloroethane | 25 | U | 25 | 3/5 | 3 |
| | 7/31/02 | 1,1-Dichloroethane | 25 | U | 25 | | 70 |
| | 7/31/02 | 1,1-Dichloroethene | 25 | U | 25 | 7 | 1 |
| | 7/31/02 | 1,2-Dichloroethane | 25 | U | 25 | 5 | 0.3 |
| | 7/31/02 | 1,2-Dichloropropane | 25 | U | 25 | 5 | 0.5 |
| | 7/31/02 | 2-Butanone | 250 | UJ | 250 | | 3 |
| | 7/31/02 | 2-Hexanone | 25 | U | 25 | | |
| | 7/31/02 | 4-Methyl-2-pentanone | 25 | U | 25 | | 400 |
| | 7/31/02 | Acetone | 250 | R | 250 | | 700 |
| | 7/31/02 | Benzene | 680 | | 25 | 5 | 0.2 |
| | 7/31/02 | Bromodichloromethane | 25 | U | 25 | | 0.3 |
| | 7/31/02 | Bromoform | 25 | U | 25 | | 4 |
| | 7/31/02 | Bromomethane | 25 | UJ | 25 | | 10 |
| | 7/31/02 | Carbon disulfide | 25 | U | 25 | | |
| | 7/31/02 | Carbon tetrachloride | 25 | U | 25 | | 0.4 |
| | 7/31/02 | Chlorobenzene | 25 | U | 25 | 100 | 4 |
| | 7/31/02 | Chloroethane | 25 | U | 25 | | |
| | 7/31/02 | Chloroform | 25 | U | 25 | | 6 |
| | 7/31/02 | Chloromethane | 25 | UJ | 25 | | 30 |
| | 7/31/02 | cis-1,2-Dichloroethene | 25 | U | 25 | | |
| | 7/31/02 | cis-1,3-Dichloropropene | 25 | U | 25 | | |
| | 7/31/02 | Dibromochloromethane | 25 | U | 25 | | 10 |
| | 7/31/02 | Ethylbenzene | 25 | U | 25 | 700 | 700 |
| | 7/31/02 | Methylene Chloride | 25 | UJ | 25 | | 2 |
| | 7/31/02 | Styrene | 25 | U | 25 | 100 | 100 |
| | 7/31/02 | Tetrachloroethene | 25 | U | 25 | 5 | 0.4 |
| | 7/31/02 | Toluene | 6 | J | 25 | 100 | 1000 |
| | 7/31/02 | Total Xylene | 50 | U | 50 | | |
| | 7/31/02 | trans-1,2-Dichloroethene | 25 | U | 25 | | |
| | 7/31/02 | Trans-1,3-Dichloropropene | 25 | U | 25 | | |
| | 7/31/02 | Trichloroethene | 25 | U | 25 | 5 | 1 |
| | 7/31/02 | Vinyl chloride | 25 | U | 25 | 5 | 0.08 |

**Table A-13**
**2002 Groundwater Analytical Results - Volatile Organic Compounds**
**Maywood Interim Storage Site-2002**

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS07B | 7/11/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/11/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/11/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/11/02 | 1,1-Dichloroethane | 0.6 | | 0.5 | | 70 |
| | 7/11/02 | 1,1-Dichloroethene | 0.3 | J | 0.5 | 7 | 1 |
| | 7/11/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/11/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/11/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/11/02 | 2-Hexanone | 0.5 | UJ | 0.5 | | |
| | 7/11/02 | 4-Methyl-2-pentanone | 0.5 | UJ | 0.5 | | 400 |
| | 7/11/02 | Acetone | 5 | R | 5 | | 700 |
| | 7/11/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/11/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/11/02 | Bromoform | 0.5 | UJ | 0.5 | | 4 |
| | 7/11/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/11/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/11/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/11/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/11/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/11/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/11/02 | Chloromethane | 0.5 | U | 0.5 | | 30 |
| | 7/11/02 | cis-1,2-Dichloroethene | 2 | | 0.5 | | |
| | 7/11/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/11/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/11/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/11/02 | Methylene chloride | 0.5 | U | 0.5 | | 2 |
| | 7/11/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/11/02 | Tetrachloroethene | 4 | | 0.5 | 5 | 0.4 |
| | 7/11/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/11/02 | Total Xylene | 1 | U | 1 | | |
| | 7/11/02 | trans-1,2-Dichloroethene | 3 | | 0.5 | | |
| | 7/11/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/11/02 | Trichloroethene | 1 | | 0.5 | 5 | 1 |
| | 7/11/02 | Vinyl chloride | 0.9 | | 0.5 | 5 | 0.08 |

## Table A-13
## 2002 Groundwater Analytical Results - Volatile Organic Compounds
## Maywood Interim Storage Site-2002

| Sampling Location | Date Collected | Analyte[a] | Result (µg/L) | Data Qualifiers[b] | Limit (µg/L) | Federal[c] (µg/L) | State[d] (µg/L) |
|---|---|---|---|---|---|---|---|
| MISS07B Duplicate | 7/11/02 | 1,1,1-Trichloroethane | 0.5 | U | 0.5 | 200 | 30 |
| | 7/11/02 | 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | | 2 |
| | 7/11/02 | 1,1,2-Trichloroethane | 0.5 | U | 0.5 | 3/5 | 3 |
| | 7/11/02 | 1,1-Dichloroethane | 0.6 | | 0.5 | | 70 |
| | 7/11/02 | 1,1-Dichloroethene | 0.3 | J | 0.5 | 7 | 1 |
| | 7/11/02 | 1,2-Dichloroethane | 0.5 | U | 0.5 | 5 | 0.3 |
| | 7/11/02 | 1,2-Dichloropropane | 0.5 | U | 0.5 | 5 | 0.5 |
| | 7/11/02 | 2-Butanone | 5 | U | 5 | | 3 |
| | 7/11/02 | 2-Hexanone | 0.5 | UJ | 0.5 | | |
| | 7/11/02 | 4-Methyl-2-pentanone | 0.5 | UJ | 0.5 | | 400 |
| | 7/11/02 | Acetone | 5 | R | 5 | | 700 |
| | 7/11/02 | Benzene | 0.5 | U | 0.5 | 5 | 0.2 |
| | 7/11/02 | Bromodichloromethane | 0.5 | U | 0.5 | | 0.3 |
| | 7/11/02 | Bromoform | 0.5 | UJ | 0.5 | | 4 |
| | 7/11/02 | Bromomethane | 0.5 | U | 0.5 | | 10 |
| | 7/11/02 | Carbon disulfide | 0.5 | U | 0.5 | | |
| | 7/11/02 | Carbon tetrachloride | 0.5 | U | 0.5 | | 0.4 |
| | 7/11/02 | Chlorobenzene | 0.5 | U | 0.5 | 100 | 4 |
| | 7/11/02 | Chloroethane | 0.5 | U | 0.5 | | |
| | 7/11/02 | Chloroform | 0.5 | U | 0.5 | | 6 |
| | 7/11/02 | Chloromethane | 0.2 | J | 0.5 | | 30 |
| | 7/11/02 | cis-1,2-Dichloroethene | 2 | | 0.5 | | |
| | 7/11/02 | cis-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/11/02 | Dibromochloromethane | 0.5 | U | 0.5 | | 10 |
| | 7/11/02 | Ethylbenzene | 0.5 | U | 0.5 | 700 | 700 |
| | 7/11/02 | Methylene chloride | 0.5 | U | 0.5 | | 2 |
| | 7/11/02 | Styrene | 0.5 | U | 0.5 | 100 | 100 |
| | 7/11/02 | Tetrachloroethene | 4 | | 0.5 | 5 | 0.4 |
| | 7/11/02 | Toluene | 0.5 | U | 0.5 | 100 | 1000 |
| | 7/11/02 | Total Xylene | 1 | U | 1 | | |
| | 7/11/02 | trans-1,2-Dichloroethene | 3 | | 0.5 | | |
| | 7/11/02 | trans-1,3-Dichloropropene | 0.5 | U | 0.5 | | |
| | 7/11/02 | Trichloroethene | 1 | | 0.5 | 5 | 1 |
| | 7/11/02 | Vinyl chloride | 0.9 | | 0.5 | 5 | 0.08 |

U= Analyte was analyzed for but not detected.
J = Reported as an estimated value. Data quality evaluation indicates that the analytical result is an estimate of the actual value.
D = Diluted out.
B= The analyte is found in the associated blank as well as in the sample. It indicates possible blank contamination.
UJ= Analyte was analyzed for but not detected, it must be estimated due to quality control consideration.

[a] All analytes were reported, detected and undetected.

[b] USACE and laboratory data qualifier flags based on the CDQMP-QAPP;

[c] Federal SDWA MCLs, 40 CFR 141 (October 1999).

[d] New Jersey Class IIA Groundwater Quality Standards, NJAC 7:9-6 (October 1999). Analytes for which the published PQL is greater than the GWQC are noted as such: GWQC / PQL.

[e] Monitoring well B38W01S is the background location for wells that are completed in unconsolidated sediment.

**Table A-14**
**2002 List of Analytes and reporting Limits for**
**Metals and Volatile Organic Compounds**
**Maywood Interim Storage Site - 2002**

| Groundwater Metals | Reporting Limit (mg/L) |
|---|---|
| Aluminum, Total | 500 |
| Antimony, Total | 20 |
| Arsenic, Total | 40 |
| Barium, Total | 5 |
| Beryllium, Total | 5 |
| Boron, Total | 60 |
| Cadmium, Total | 10 |
| Chromium, Total | 10 |
| Cobalt, Total | 10 |
| Copper, Total | 10 |
| Iron, Total | 200 |
| Lead, Total | 10 |
| Lithium | 50 |
| Manganese, Total | 15 |
| Mercury, Total | 0.2 |
| Nickel, Total | 10 |
| Selenium, Total | 30 |
| Silver, Total | 6 |
| Thallium, Total | 40 |
| Vanadium, Total | 6 |
| Zinc, Total | 50 |

| Groundwater Volatile Organic Compounds | Reporting Limit (µg/L) |
|---|---|
| 1,1,1-Trichloroethane | 0.5 |
| 1,1,2,2-Tetrachloroethane | 0.5 |
| 1,1,2-Trichloroethane | 0.5 |
| 1,1-Dichloroethane | 0.5 |
| 1,1-Dichloroethene | 0.5 |
| 1,2-Dichloroethane | 0.5 |
| 1,2-Dichloropropane | 0.5 |
| 2-Butanone | 5 |
| 2-Hexanone | 0.5 |
| 4-Methyl-2-pentanone | 0.5 |
| Acetone | 5 |
| Benzene | 0.5 |
| Bromodichloromethane | 0.5 |
| Bromoform | 0.5 |
| Bromomethane | 0.5 |
| Carbon disulfide | 0.5 |
| Carbon tetrachloride | 0.5 |
| Chlorobenzene | 0.5 |
| Chloroethane | 0.5 |
| Chloroform | 0.5 |
| Chloromethane | 0.5 |
| cis-1,2-Dichloroethene | 0.5 |
| cis-1,3-Dichloropropene | 0.5 |
| Dibromochloromethane | 0.5 |
| Ethylbenzene | 0.5 |
| Methylene Chloride | 0.5 |
| Styrene | 0.5 |
| Tetrachloroethene | 0.5 |
| Toluene | 0.5 |
| Total Xylene | 1 |
| trans-1,2-Dichloroethene | 0.5 |
| Trans-1,3-Dichloropropene | 0.5 |
| Trichloroethene | 0.5 |
| Vinyl chloride | |

# APPENDIX B
# HISTORICAL RESULTS

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# APPENDIX B HISTORICAL RESULTS

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**Table B-1**
**Historical Results for Radioactive Parameters in Sediment at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte | Result (pCi/g) | Result (µg/g) | Qualifier | Detection Limit (pCi/g) |
|---|---|---|---|---|---|---|
| SWSD002 | 04/10/92 | Radium-226 | 0.55 | | J | 0.00 |
| SWSD002 | 10/26/92 | Radium-226 | 0.25 | | | 0.18 |
| SWSD002 | 04/21/93 | Radium-226 | 0.44 | | | 0.27 |
| SWSD002 | 10/07/93 | Radium-226 | 0.57 | | J | 0.28 |
| SWSD002 | 05/30/94 | Radium-226 | 0.47 | | | 0.23 |
| SWSD002 | 05/08/95 | Radium-226 | 0.48 | | | 0.09 |
| SWSD002 | 11/13/95 | Radium-226 | 0.30 | | | 0.09 |
| SWSD002 | 05/08/96 | Radium-226 | 0.41 | | | 0.13 |
| SWSD002 | 10/15/96 | Radium-226 | 0.57 | | | 0.11 |
| SWSD002 | 05/05/97 | Radium-226 | 0.67 | | | 0.13 |
| SWSD002 | 06/02/98 | Radium-226 | 0.31 | | | 1.00 |
| SWSD002 | 11/03/98 | Radium-226 | 0.52 | | | 1.00 |
| SWSD002 | 05/21/99 | Radium-226 | 0.36 | | | 0.18 |
| SWSD002 | 07/24/00 | Radium-226 | 0.58 | | J | 0.12 |
| SWSD002 | 07/16/01 | Radium-226 | 0.66 | | J | 0.18 |
| SWSD002 | 07/22/02 | Radium-226 | 0.18 | | U | 0.31 |
| SWSD003 | 04/10/92 | Radium-226 | 0.52 | | J | 0.00 |
| SWSD003 | 10/26/92 | Radium-226 | 0.45 | | | 0.16 |
| SWSD003 | 04/21/93 | Radium-226 | 0.35 | | | 0.33 |
| SWSD003 | 10/07/93 | Radium-226 | 0.39 | | J | 0.30 |
| SWSD003 | 05/30/94 | Radium-226 | 0.46 | | | 0.29 |
| SWSD003 | 05/08/95 | Radium-226 | 0.55 | | | 0.08 |
| SWSD003 | 11/13/95 | Radium-226 | 0.29 | | | 0.05 |
| SWSD003 | 05/08/96 | Radium-226 | 0.52 | | | 0.12 |
| SWSD003 | 10/15/96 | Radium-226 | 0.70 | | | 0.10 |
| SWSD003 | 05/05/97 | Radium-226 | 0.49 | | | 0.10 |
| SWSD003 | 06/02/98 | Radium-226 | 0.28 | | | 1.00 |
| SWSD003 | 11/03/98 | Radium-226 | 0.28 | | | 1.00 |
| SWSD003 | 05/21/99 | Radium-226 | 0.3 | | | 0.19 |
| SWSD003 | 07/16/01 | Radium-226 | 0.24 | | J | 0.05 |
| SWSD003 | 07/22/02 | Radium-226 | 0.51 | | J | 0.29 |
| SWSD005 | 04/10/92 | Radium-226 | 0.51 | | J | 0.00 |
| SWSD005 | 10/26/92 | Radium-226 | 0.44 | | | 0.16 |
| SWSD005 | 04/21/93 | Radium-226 | 0.35 | | UJ | 0.35 |
| SWSD005 | 10/07/93 | Radium-226 | 0.00 | | UJ | 0.44 |
| SWSD005 | 05/30/94 | Radium-226 | 0.76 | | | 0.26 |
| SWSD005 | 05/30/94 | Radium-226 | 0.87 | | J | 0.25 |
| SWSD005 | 08/31/94 | Radium-226 | 1.30 | | U | 0.11 |
| SWSD005 | 05/08/95 | Radium-226 | 1.50 | | | 0.09 |
| SWSD005 | 05/08/95 | Radium-226 | 1.70 | | | 0.12 |
| SWSD005 | 11/13/95 | Radium-226 | 1.28 | | | 0.16 |
| SWSD005 | 11/13/95 | Radium-226 | 2.79 | | | 0.09 |
| SWSD005 | 05/08/96 | Radium-226 | 0.50 | | | 0.09 |
| SWSD005 | 10/15/96 | Radium-226 | 0.97 | | | 0.07 |
| SWSD005 | 05/05/97 | Radium-226 | 0.90 | | | 0.15 |
| SWSD005 | 06/02/98 | Radium-226 | 1.26 | | | 1.00 |
| SWSD005 | 11/03/98 | Radium-226 | 1.01 | | | 1.00 |

**Table B-1**
**Historical Results for Radioactive Parameters in Sediment at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte | Result (pCi/g) | Result (µg/g) | Qualifier | Detection Limit (pCi/g) |
|---|---|---|---|---|---|---|
| SWSD005 | 05/21/99 | Radium-226 | 1.44 | | | 0.16 |
| SWSD005 | 07/16/01 | Radium-226 | 0.87 | | J | 0.15 |
| SWSD005 | 07/22/02 | Radium-226 | 0.64 | | J | 0.29 |
| SWSD006 | 05/30/94 | Radium-226 | 3.10 | | | 0.99 |
| SWSD006 | 08/31/94 | Radium-226 | 2.90 | | | 0.14 |
| SWSD006 | 05/08/95 | Radium-226 | 1.30 | | | 0.12 |
| SWSD006 | 11/13/95 | Radium-226 | 4.45 | | | 0.15 |
| SWSD006 | 05/08/96 | Radium-226 | 0.99 | | | 0.09 |
| SWSD006 | 10/15/96 | Radium-226 | 4.50 | | | 0.08 |
| SWSD006 | 05/05/97 | Radium-226 | 3.50 | | | 0.15 |
| SWSD006 | 06/02/98 | Radium-226 | 4.65 | | | 1.00 |
| SWSD006 | 11/03/98 | Radium-226 | 3.86 | | | 1.00 |
| SWSD006 | 05/21/99 | Radium-226 | 8.04 | | | 0.28 |
| SWSD006 | 07/20/00 | Radium-226 | 0.64 | | J | 0.17 |
| SWSD006 | 07/16/01 | Radium-226 | 1.41 | | J | 0.18 |
| SWSD006 | 07/23/02 | Radium-226 | 3.51 | | | 0.30 |
| SWSD007 | 08/31/94 | Radium-226 | 0.99 | | U | 0.11 |
| SWSD007 | 05/08/95 | Radium-226 | 5.40 | | | 0.12 |
| SWSD007 | 11/13/95 | Radium-226 | 3.32 | | | 0.12 |
| SWSD007 | 05/08/96 | Radium-226 | 3.70 | | | 0.05 |
| SWSD007 | 05/08/96 | Radium-226 | 3.29 | | | 0.18 |
| SWSD007 | 10/15/96 | Radium-226 | 5.05 | | | 0.14 |
| SWSD007 | 10/15/96 | Radium-226 | 4.04 | | | 0.11 |
| SWSD007 | 05/05/97 | Radium-226 | 4.25 | | | 0.18 |
| SWSD007 | 05/05/97 | Radium-226 | 5.23 | | | 0.20 |
| SWSD007 | 06/02/98 | Radium-226 | 6.97 | | | 1.00 |
| SWSD007 | 11/03/98 | Radium-226 | 2.22 | | | 1.00 |
| SWSD007 | 05/21/99 | Radium-226 | 1.07 | | | 0.12 |
| SWSD007 | 07/20/00 | Radium-226 | -0.07 | | R | 0.18 |
| SWSD007 | 07/16/01 | Radium-226 | 0.89 | | J | 0.24 |
| SWSD007 | 07/11/02 | Radium-226 | 6.58 | | | 0.24 |
| SWSD002 | 04/10/92 | Radium-228 | 0.98 | | J | 0.00 |
| SWSD002 | 10/26/92 | Radium-228 | 0.29 | | J | 0.32 |
| SWSD002 | 04/21/93 | Radium-228 | 0.44 | | UJ | 0.44 |
| SWSD002 | 10/07/93 | Radium-228 | 0.00 | | UJ | 0.71 |
| SWSD002 | 05/30/94 | Radium-228 | 0.81 | | J | 0.41 |
| SWSD002 | 11/13/95 | Radium-228 | 1.60 | | | 0.42 |
| SWSD002 | 05/08/96 | Radium-228 | 0.60 | | | 0.16 |
| SWSD002 | 10/15/96 | Radium-228 | 0.72 | | | 0.13 |
| SWSD002 | 05/05/97 | Radium-228 | 0.56 | | | 0.17 |
| SWSD002 | 06/02/98 | Radium-228 | 0.55 | | | 1.00 |
| SWSD002 | 11/03/98 | Radium-228 | 0.54 | | | 1.00 |
| SWSD002 | 05/21/99 | Radium-228 | 0.74 | | | 0.17 |
| SWSD002 | 07/24/00 | Radium-228 | 0.31 | | J | 0.66 |
| SWSD002 | 07/16/01 | Radium-228 | 0.85 | | J | 0.70 |
| SWSD002 | 07/22/02 | Radium-228 | 0.61 | | J | 0.61 |

**Table B-1**
**Historical Results for Radioactive Parameters in Sediment at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte | Result (pCi/g) | Result (µg/g) | Qualifier | Detection Limit (pCi/g) |
|---|---|---|---|---|---|---|
| SWSD003 | 04/10/92 | Radium-228 | 0.74 | | J | 0.00 |
| SWSD003 | 10/26/92 | Radium-228 | 0.65 | | J | 0.29 |
| SWSD003 | 04/21/93 | Radium-228 | 0.77 | | | 0.31 |
| SWSD003 | 10/07/93 | Radium-228 | 0.00 | | UJ | 0.61 |
| SWSD003 | 11/13/95 | Radium-228 | 0.90 | | | 0.50 |
| SWSD003 | 05/08/96 | Radium-228 | 0.40 | | U | 0.11 |
| SWSD003 | 10/15/96 | Radium-228 | 0.43 | | | 0.14 |
| SWSD003 | 05/05/97 | Radium-228 | 0.45 | | | 0.14 |
| SWSD003 | 06/02/98 | Radium-228 | 0.4 | | | 1.00 |
| SWSD003 | 11/03/98 | Radium-228 | 0.65 | | | 1.00 |
| SWSD003 | 05/21/99 | Radium-228 | 0.35 | | | 0.19 |
| SWSD003 | 07/16/01 | Radium-228 | 0.21 | | UJ | 0.32 |
| SWSD003 | 07/22/02 | Radium-228 | 0.57 | | UJ | 0.80 |
| SWSD005 | 04/10/92 | Radium-228 | 0.73 | | J | 0.00 |
| SWSD005 | 10/26/92 | Radium-228 | 0.47 | | J | 0.29 |
| SWSD005 | 04/21/93 | Radium-228 | 0.69 | | | 0.24 |
| SWSD005 | 10/07/93 | Radium-228 | 0.00 | | UJ | 0.76 |
| SWSD005 | 05/30/94 | Radium-228 | 3.00 | | J | 0.44 |
| SWSD005 | 05/30/94 | Radium-228 | 3.60 | | J | 0.46 |
| SWSD005 | 11/13/95 | Radium-228 | 1.60 | | | 0.58 |
| SWSD005 | 11/13/95 | Radium-228 | 13.60 | | | 0.69 |
| SWSD005 | 05/08/96 | Radium-228 | 0.90 | | | 0.13 |
| SWSD005 | 10/15/96 | Radium-228 | 3.34 | | | 0.11 |
| SWSD005 | 05/05/97 | Radium-228 | 2.84 | | | 0.16 |
| SWSD005 | 06/02/98 | Radium-228 | 2.32 | | | 1.00 |
| SWSD005 | 11/03/98 | Radium-228 | 4.41 | | | 1.00 |
| SWSD005 | 05/21/99 | Radium-228 | 3.13 | | | 0.19 |
| SWSD005 | 07/20/00 | Radium-228 | 2.39 | | J | 0.59 |
| SWSD005 | 07/16/01 | Radium-228 | 3.45 | | | 0.50 |
| SWSD005 | 07/11/02 | Radium-228 | 1.64 | | | 1.40 |
| SWSD006 | 05/30/94 | Radium-228 | 19.60 | | J | 1.70 |
| SWSD006 | 11/13/95 | Radium-228 | 9.60 | | | 0.53 |
| SWSD006 | 05/08/96 | Radium-228 | 5.15 | | | 0.16 |
| SWSD006 | 10/15/96 | Radium-228 | 20.33 | | | 0.30 |
| SWSD006 | 05/05/97 | Radium-228 | 17.33 | | | 0.13 |
| SWSD006 | 06/02/98 | Radium-228 | 16.22 | | J | 1.00 |
| SWSD006 | 11/03/98 | Radium-228 | 17.74 | | | 1.00 |
| SWSD006 | 05/21/99 | Radium-228 | 7.67 | | | 0.26 |
| SWSD006 | 07/20/00 | Radium-228 | 0.39 | | J | 0.20 |
| SWSD006 | 07/16/01 | Radium-228 | 4.09 | | | 0.74 |
| SWSD006 | 07/23/02 | Radium-228 | 17.7 | | | 0.70 |
| SWSD007 | 11/13/95 | Radium-228 | 11.70 | | | 0.56 |
| SWSD007 | 05/08/96 | Radium-228 | 14.22 | | | 0.12 |
| SWSD007 | 05/08/96 | Radium-228 | 8.16 | | | 0.10 |
| SWSD007 | 10/15/96 | Radium-228 | 22.41 | | | 0.29 |
| SWSD007 | 10/15/96 | Radium-228 | 16.79 | | | 0.25 |

## Table B-1
## Historical Results for Radioactive Parameters in Sediment at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (pCi/g) | Result (µg/g) | Qualifier | Detection Limit (pCi/g) |
|---|---|---|---|---|---|---|
| SWSD007 | 05/05/97 | Radium-228 | 8.75 | | | 0.17 |
| SWSD007 | 05/05/97 | Radium-228 | 8.78 | | | 0.18 |
| SWSD007 | 06/02/98 | Radium-228 | 16.46 | | J | 1.00 |
| SWSD007 | 11/03/98 | Radium-228 | 8.49 | | | 1.00 |
| SWSD007 | 05/21/99 | Radium-228 | 1.79 | | | 0.17 |
| SWSD007 | 07/20/00 | Radium-228 | 1.42 | | J | 0.55 |
| SWSD007 | 07/16/01 | Radium-228 | 2.91 | | J | 0.83 |
| SWSD007 | 07/11/02 | Radium-228 | 20.0 | | | 1.00 |
| SWSD002 | 05/08/96 | Thorium-230 | 1.11 | | U | 0.09 |
| SWSD002 | 10/15/96 | Thorium-230 | 0.67 | | | 0.05 |
| SWSD002 | 05/05/97 | Thorium-230 | 0.80 | | U | 0.12 |
| SWSD002 | 06/02/98 | Thorium-230 | 0.52 | | U | 1.00 |
| SWSD002 | 11/03/98 | Thorium-230 | 0.91 | | | 1.00 |
| SWSD002 | 05/21/99 | Thorium-230 | 0.55 | | U | 0.17 |
| SWSD002 | 07/24/00 | Thorium-230 | 0.90 | | J | 0.05 |
| SWSD002 | 07/16/01 | Thorium-230 | 0.47 | | | 0.13 |
| SWSD002 | 07/22/02 | Thorium-230 | 0.35 | | J | 0.02 |
| SWSD003 | 05/08/96 | Thorium-230 | 1.33 | | U | 0.15 |
| SWSD003 | 10/15/96 | Thorium-230 | 0.47 | | | 0.06 |
| SWSD003 | 05/05/97 | Thorium-230 | 0.66 | | U | 0.09 |
| SWSD003 | 06/02/98 | Thorium-230 | 0.52 | | U | 1.00 |
| SWSD003 | 11/03/98 | Thorium-230 | 0.64 | | | 1.00 |
| SWSD003 | 05/21/99 | Thorium-230 | 0.96 | | | 0.15 |
| SWSD003 | 07/16/01 | Thorium-230 | 0.4 | | | 0.04 |
| SWSD003 | 07/22/02 | Thorium-230 | 0.84 | | J | 0.08 |
| SWSD005 | 05/08/96 | Thorium-230 | 0.97 | | U | 0.08 |
| SWSD005 | 10/15/96 | Thorium-230 | 1.33 | | | 0.06 |
| SWSD005 | 05/05/97 | Thorium-230 | 2.08 | | | 0.16 |
| SWSD005 | 06/02/98 | Thorium-230 | 0.7 | | U | 1.00 |
| SWSD005 | 11/03/98 | Thorium-230 | 1.42 | | | 1.00 |
| SWSD005 | 05/21/99 | Thorium-230 | 1.81 | | | 0.10 |
| SWSD005 | 07/20/00 | Thorium-230 | 0.64 | | J | 0.12 |
| SWSD005 | 07/16/01 | Thorium-230 | 2.00 | | | 0.18 |
| SWSD006 | 05/08/96 | Thorium-230 | 1.48 | | U | 0.12 |
| SWSD006 | 10/15/96 | Thorium-230 | 4.72 | | | 0.11 |
| SWSD006 | 05/05/97 | Thorium-230 | 3.54 | | | 0.05 |
| SWSD006 | 06/02/98 | Thorium-230 | 3.28 | | J | 1.00 |
| SWSD006 | 11/03/98 | Thorium-230 | 4.29 | | | 1.00 |
| SWSD006 | 05/21/99 | Thorium-230 | 1.62 | | | 0.22 |
| SWSD006 | 07/20/00 | Thorium-230 | 0.27 | | J | 0.11 |
| SWSD006 | 07/16/01 | Thorium-230 | 1.49 | | | 0.18 |
| SWSD006 | 07/23/02 | Thorium-230 | 2.96 | | | 0.10 |
| SWSD007 | 05/08/96 | Thorium-230 | 3.19 | | | 0.09 |
| SWSD007 | 05/08/96 | Thorium-230 | 1.81 | | | 0.05 |
| SWSD007 | 10/15/96 | Thorium-230 | 4.52 | | | 0.18 |
| SWSD007 | 10/15/96 | Thorium-230 | 3.31 | | | 0.14 |

## Table B-1
## Historical Results for Radioactive Parameters in Sediment at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (pCi/g) | Result (µg/g) | Qualifier | Detection Limit (pCi/g) |
|---|---|---|---|---|---|---|
| SWSD007 | 05/05/97 | Thorium-230 | 2.64 | | | 0.16 |
| SWSD007 | 05/05/97 | Thorium-230 | 2.09 | | | 0.09 |
| SWSD007 | 06/02/98 | Thorium-230 | 3.37 | | J | 1.00 |
| SWSD007 | 11/03/98 | Thorium-230 | 2.42 | | | 1.00 |
| SWSD007 | 05/21/99 | Thorium-230 | 1.18 | | | 0.13 |
| SWSD007 | 07/20/00 | Thorium-230 | 0.51 | | J | 0.09 |
| SWSD007 | 07/16/01 | Thorium-230 | 6.64 | | | 0.10 |
| SWSD002 | 04/10/92 | Thorium-232 | 0.80 | | | 0.00 |
| SWSD002 | 10/26/92 | Thorium-232 | 0.42 | | | 0.25 |
| SWSD002 | 04/21/93 | Thorium-232 | 0.70 | | | 0.20 |
| SWSD002 | 10/07/93 | Thorium-232 | 0.59 | | | 0.40 |
| SWSD002 | 05/30/94 | Thorium-232 | 0.71 | | | 0.36 |
| SWSD002 | 05/08/95 | Thorium-232 | 0.50 | | | 0.08 |
| SWSD002 | 11/13/95 | Thorium-232 | 0.39 | | U | 0.05 |
| SWSD002 | 05/08/96 | Thorium-232 | 0.44 | | | 0.15 |
| SWSD002 | 10/15/96 | Thorium-232 | 0.62 | | | 0.08 |
| SWSD002 | 05/05/97 | Thorium-232 | 0.33 | | | 0.06 |
| SWSD002 | 06/02/98 | Thorium-232 | 0.33 | | | 1.00 |
| SWSD002 | 11/03/98 | Thorium-232 | 0.5 | | U | 1.00 |
| SWSD002 | 05/21/99 | Thorium-232 | 0.39 | | U | 0.12 |
| SWSD002 | 07/24/00 | Thorium-232 | 0.35 | | J | 0.15 |
| SWSD002 | 07/16/01 | Thorium-232 | 0.35 | | J | 0.10 |
| SWSD002 | 07/22/02 | Thorium-232 | 0.35 | | J | 0.03 |
| SWSD003 | 04/10/92 | Thorium-232 | 0.85 | | J | 0.00 |
| SWSD003 | 10/26/92 | Thorium-232 | 0.65 | | | 0.23 |
| SWSD003 | 04/21/93 | Thorium-232 | 0.66 | | | 0.24 |
| SWSD003 | 10/07/93 | Thorium-232 | 0.00 | | UJ | 0.49 |
| SWSD003 | 05/30/94 | Thorium-232 | 0.65 | | UJ | 0.65 |
| SWSD003 | 05/08/95 | Thorium-232 | 0.56 | | | 0.10 |
| SWSD003 | 11/13/95 | Thorium-232 | 0.32 | | U | 0.04 |
| SWSD003 | 05/08/96 | Thorium-232 | 0.57 | | | 0.11 |
| SWSD003 | 10/15/96 | Thorium-232 | 0.30 | | | 0.06 |
| SWSD003 | 05/05/97 | Thorium-232 | 0.37 | | | 0.10 |
| SWSD003 | 06/02/98 | Thorium-232 | 0.39 | | | 1.00 |
| SWSD003 | 11/03/98 | Thorium-232 | 0.57 | | U | 1.00 |
| SWSD003 | 05/21/99 | Thorium-232 | 0.48 | | U | 0.11 |
| SWSD003 | 07/16/01 | Thorium-232 | 0.34 | | J | 0.04 |
| SWSD003 | 07/22/02 | Thorium-232 | 0.61 | | J | 0.04 |
| SWSD005 | 04/10/92 | Thorium-232 | 0.76 | | J | 0.00 |
| SWSD005 | 10/26/92 | Thorium-232 | 0.55 | | | 0.23 |
| SWSD005 | 04/21/93 | Thorium-232 | 0.65 | | | 0.19 |
| SWSD005 | 10/07/93 | Thorium-232 | 0.00 | | UJ | 0.60 |
| SWSD005 | 05/30/94 | Thorium-232 | 3.20 | | J | 0.38 |
| SWSD005 | 05/30/94 | Thorium-232 | 3.60 | | | 0.39 |
| SWSD005 | 08/31/94 | Thorium-232 | 1.00 | | | 0.05 |
| SWSD005 | 05/08/95 | Thorium-232 | 2.40 | | | 0.08 |

**Table B-1**
**Historical Results for Radioactive Parameters in Sediment at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte | Result (pCi/g) | Result (µg/g) | Qualifier | Detection Limit (pCi/g) |
|---|---|---|---|---|---|---|
| SWSD005 | 05/08/95 | Thorium-232 | 2.20 | | | 0.05 |
| SWSD005 | 11/13/95 | Thorium-232 | 2.53 | | | 0.06 |
| SWSD005 | 11/13/95 | Thorium-232 | 12.62 | | | 0.10 |
| SWSD005 | 05/08/96 | Thorium-232 | 0.92 | | | 0.10 |
| SWSD005 | 10/15/96 | Thorium-232 | 3.18 | | | 0.11 |
| SWSD005 | 05/05/97 | Thorium-232 | 2.94 | | | 0.13 |
| SWSD005 | 06/02/98 | Thorium-232 | 2.33 | | | 1.00 |
| SWSD005 | 11/03/98 | Thorium-232 | 4 | | | 1.00 |
| SWSD005 | 05/21/99 | Thorium-232 | 3.56 | | | 0.15 |
| SWSD005 | 07/20/00 | Thorium-232 | 1.73 | | | 0.12 |
| SWSD005 | 07/16/01 | Thorium-232 | 6.91 | | J | 0.13 |
| SWSD005 | 07/11/02 | Thorium-232 | 1.16 | | | 0.06 |
| SWSD006 | 05/30/94 | Thorium-232 | 20.90 | | | 1.50 |
| SWSD006 | 08/31/94 | Thorium-232 | 16.80 | | | 0.04 |
| SWSD006 | 05/08/95 | Thorium-232 | 2.50 | | | 0.04 |
| SWSD006 | 11/13/95 | Thorium-232 | 11.47 | | | 0.04 |
| SWSD006 | 05/08/96 | Thorium-232 | 4.93 | | | 0.13 |
| SWSD006 | 10/15/96 | Thorium-232 | 21.66 | | | 0.11 |
| SWSD006 | 05/05/97 | Thorium-232 | 17.34 | | | 0.09 |
| SWSD006 | 06/02/98 | Thorium-232 | 15.78 | | J | 1.00 |
| SWSD006 | 11/03/98 | Thorium-232 | 17.97 | | | 1.00 |
| SWSD006 | 05/21/99 | Thorium-232 | 8.13 | | | 0.15 |
| SWSD006 | 07/20/00 | Thorium-232 | 0.33 | | J | 0.08 |
| SWSD006 | 07/16/01 | Thorium-232 | 4.19 | | J | 0.14 |
| SWSD006 | 07/23/02 | Thorium-232 | 15.2 | | | 0.06 |
| SWSD007 | 08/31/94 | Thorium-232 | 1.10 | | | 0.10 |
| SWSD007 | 05/08/95 | Thorium-232 | 14.60 | | | 0.07 |
| SWSD007 | 11/13/95 | Thorium-232 | 9.49 | | | 0.04 |
| SWSD007 | 05/08/96 | Thorium-232 | 14.75 | | | 0.05 |
| SWSD007 | 05/08/96 | Thorium-232 | 7.63 | | | 0.08 |
| SWSD007 | 10/15/96 | Thorium-232 | 18.47 | | | 0.14 |
| SWSD007 | 10/15/96 | Thorium-232 | 22.50 | | | 0.21 |
| SWSD007 | 05/05/97 | Thorium-232 | 7.39 | | | 0.07 |
| SWSD007 | 05/05/97 | Thorium-232 | 8.54 | | | 0.07 |
| SWSD007 | 06/02/98 | Thorium-232 | 17.08 | | J | 1.00 |
| SWSD007 | 11/03/98 | Thorium-232 | 8.76 | | | 1.00 |
| SWSD007 | 05/21/99 | Thorium-232 | 1.9 | | | 0.11 |
| SWSD007 | 07/20/00 | Thorium-232 | 0.33 | | J | 0.08 |
| SWSD007 | 07/16/01 | Thorium-232 | 3.06 | | | 0.16 |
| SWSD007 | 07/11/02 | Thorium-232 | 17.6 | | | 0.06 |
| SWSD002 | 04/10/92 | Total Uranium | 2.90 | 4.29 | | 0.00 |
| SWSD002 | 10/26/92 | Total Uranium | 1.42 | 2.10 | | 0.10 |
| SWSD002 | 04/21/93 | Total Uranium | 1.62 | 2.40 | J | 0.10 |
| SWSD002 | 10/07/93 | Total Uranium | 0.88 | 1.30 | U | 0.10 |
| SWSD002 | 05/30/94 | Total Uranium | 0.88 | 1.30 | | 0.10 |
| SWSD002 | 05/08/95 | Total Uranium | 0.74 | 1.10 | U | 0.10 |

## Table B-1
## Historical Results for Radioactive Parameters in Sediment at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (pCi/g) | Result (µg/g) | Qualifier | Detection Limit (pCi/g) |
|---|---|---|---|---|---|---|
| SWSD002 | 11/13/95 | Total Uranium | 1.10 | 1.62 | U | 0.10 |
| SWSD002 | 05/08/96 | Total Uranium | 1.16 | 1.72 | | 0.10 |
| SWSD002 | 10/15/96 | Total Uranium | 1.20 | 1.77 | U | 0.10 |
| SWSD002 | 05/05/97 | Total Uranium | 0.93 | 1.38 | | 0.10 |
| SWSD002 | 06/02/98 | Total Uranium | 1.23 | 1.91 | | 1.00 |
| SWSD002 | 11/03/98 | Total Uranium | 2.01 | 3.12 | U | 1.00 |
| SWSD002 | 05/21/99 | Total Uranium | 1.27 | 1.87 | | 0.10 |
| SWSD002 | 00/24/00 | Total Uranium | 0.84 | 1.24 | | 0.09 |
| SWSD002 | 07/16/01 | Total Uranium | 1.61 | 2.13 | | 0.42 |
| SWSD002 | 07/22/02 | Total Uranium | 0.63 | 1.87 | | 0.18 |
| SWSD003 | 04/10/92 | Total Uranium | 2.72 | 4.02 | | 0.00 |
| SWSD003 | 10/26/92 | Total Uranium | 2.10 | 3.10 | | 0.10 |
| SWSD003 | 04/21/93 | Total Uranium | 2.57 | 3.80 | J | 0.10 |
| SWSD003 | 10/07/93 | Total Uranium | 0.81 | 1.20 | U | 0.10 |
| SWSD003 | 05/30/94 | Total Uranium | 0.68 | 1.00 | U | 0.10 |
| SWSD003 | 05/08/95 | Total Uranium | 1.29 | 1.90 | U | 0.10 |
| SWSD003 | 11/13/95 | Total Uranium | 1.27 | 1.88 | U | 0.10 |
| SWSD003 | 05/08/96 | Total Uranium | 1.02 | 1.50 | U | 0.10 |
| SWSD003 | 10/15/96 | Total Uranium | 1.16 | 1.72 | U | 0.10 |
| SWSD003 | 05/05/97 | Total Uranium | 1.06 | 1.56 | | 0.10 |
| SWSD003 | 06/02/98 | Total Uranium | 1.11 | 1.72 | | 1.00 |
| SWSD003 | 11/03/98 | Total Uranium | 2.13 | 3.3 | U | 1.00 |
| SWSD003 | 05/21/99 | Total Uranium | 1.19 | 1.76 | | 0.10 |
| SWSD003 | 07/16/01 | Total Uranium | 0.77 | 1.13 | | 0.22 |
| SWSD003 | 07/22/02 | Total Uranium | 0.62 | 0.8 | | 0.28 |
| SWSD005 | 04/10/92 | Total Uranium | 2.94 | 4.34 | | 0.00 |
| SWSD005 | 10/26/92 | Total Uranium | 2.30 | 3.40 | | 0.10 |
| SWSD005 | 04/21/93 | Total Uranium | 2.71 | 4.00 | J | 0.10 |
| SWSD005 | 10/07/93 | Total Uranium | 0.74 | 1.10 | U | 0.10 |
| SWSD005 | 05/30/94 | Total Uranium | 1.42 | 2.10 | | 0.10 |
| SWSD005 | 05/30/94 | Total Uranium | 1.56 | 2.30 | | 0.10 |
| SWSD005 | 08/31/94 | Total Uranium | 1.49 | 2.20 | U | 0.10 |
| SWSD005 | 05/08/95 | Total Uranium | 1.42 | 2.10 | U | 0.10 |
| SWSD005 | 05/08/95 | Total Uranium | 1.22 | 1.80 | U | 0.10 |
| SWSD005 | 11/13/95 | Total Uranium | 1.66 | 2.45 | U | 0.10 |
| SWSD005 | 11/13/95 | Total Uranium | 3.22 | 4.76 | | 0.10 |
| SWSD005 | 05/08/96 | Total Uranium | 1.21 | 1.79 | | 0.10 |
| SWSD005 | 10/15/96 | Total Uranium | 1.79 | 2.64 | | 0.10 |
| SWSD005 | 05/05/97 | Total Uranium | 1.20 | 1.77 | | 0.10 |
| SWSD005 | 06/02/98 | Total Uranium | 1.24 | 1.92 | | 1.00 |
| SWSD005 | 11/03/98 | Total Uranium | 3.97 | 6.17 | | 1.00 |
| SWSD005 | 05/21/99 | Total Uranium | 1.18 | 1.75 | | 0.10 |
| SWSD005 | 07/20/00 | Total Uranium | 1.79 | 2.65 | | 0.09 |
| SWSD005 | 07/16/01 | Total Uranium | 2.51 | 3.15 | | 0.57 |
| SWSD005 | 07/11/02 | Total Uranium | 0.65 | 1.04 | | 0.22 |
| SWSD006 | 05/30/94 | Total Uranium | 7.04 | 10.40 | | 0.10 |

**Table B-1**
**Historical Results for Radioactive Parameters in Sediment at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte | Result (pCi/g) | Result (µg/g) | Qualifier | Detection Limit (pCi/g) |
|---|---|---|---|---|---|---|
| SWSD006 | 08/31/94 | Total Uranium | 9.27 | 13.70 | | 0.10 |
| SWSD006 | 05/08/95 | Total Uranium | 1.35 | 2.00 | U | 0.10 |
| SWSD006 | 11/13/95 | Total Uranium | 7.18 | 10.61 | | 0.10 |
| SWSD006 | 05/08/96 | Total Uranium | 2.86 | 4.22 | | 0.10 |
| SWSD006 | 10/15/96 | Total Uranium | 8.86 | 13.09 | | 0.10 |
| SWSD006 | 05/05/97 | Total Uranium | 7.39 | 10.91 | | 0.10 |
| SWSD006 | 06/02/98 | Total Uranium | 8.06 | 12.51 | | 1.00 |
| SWSD006 | 11/03/98 | Total Uranium | 10.05 | 15.61 | | 1.00 |
| SWSD006 | 05/21/99 | Total Uranium | 12.41 | 18.33 | | 0.10 |
| SWSD006 | 07/20/00 | Total Uranium | 0.7 | 1.03 | | 0.09 |
| SWSD006 | 07/16/01 | Total Uranium | 4.18 | 5.26 | | 0.44 |
| SWSD006 | 07/23/02 | Total Uranium | 14.55 | 21.1 | | 0.19 |
| SWSD007 | 08/31/94 | Total Uranium | 2.03 | 3.00 | U | 0.10 |
| SWSD007 | 05/08/95 | Total Uranium | 6.16 | 9.10 | | 0.10 |
| SWSD007 | 11/13/95 | Total Uranium | 6.11 | 9.03 | | 0.10 |
| SWSD007 | 05/08/96 | Total Uranium | 5.84 | 8.62 | | 0.10 |
| SWSD007 | 05/08/96 | Total Uranium | 3.97 | 5.86 | | 0.10 |
| SWSD007 | 10/15/96 | Total Uranium | 8.88 | 13.12 | | 0.10 |
| SWSD007 | 10/15/96 | Total Uranium | 8.77 | 12.96 | | 0.10 |
| SWSD007 | 05/05/97 | Total Uranium | 5.29 | 7.82 | | 0.10 |
| SWSD007 | 05/05/97 | Total Uranium | 5.04 | 7.44 | | 0.10 |
| SWSD007 | 06/02/98 | Total Uranium | 5.13 | 8.02 | | 1.00 |
| SWSD007 | 11/03/98 | Total Uranium | 5.15 | 7.99 | | 1.00 |
| SWSD007 | 05/21/99 | Total Uranium | 2.00 | 3.00 | | 0.10 |
| SWSD007 | 07/20/00 | Total Uranium | 1.57 | 2.32 | | 0.10 |
| SWSD007 | 07/16/01 | Total Uranium | 7.50 | | | 0.45 |

## Table B-2
## Historical Results for Radioactive Parameters in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte Name | Result | Rev Q | Error | SQL | Units |
|---|---|---|---|---|---|---|---|
| B38W19D | 23-Jul-93 | RADIUM-226 | 0.04 | UJ | 0.08 | 0.21 | PCI/L |
| B38W19D | 16-May-94 | RADIUM-226 | 1.3 | U | 0.37 | 0.15 | PCI/L |
| B38W19D | 10-May-95 | RADIUM-226 | 0.09 | UJ | 0.1 | 0.16 | PCI/L |
| B38W19D | 16-May-96 | RADIUM-226 | 0.19 | | 0.12 | 0.14 | PCI/L |
| B38W19D | 16-May-97 | RADIUM-226 | 0.29 | | 0.16 | 0.16 | PCI/L |
| B38W19D | 17-Jun-98 | RADIUM-226 | 0.15 | UJ | 0.2 | 0.41 | PCI/L |
| B38W19D | 27-May-99 | RADIUM-226 | 0.33 | UJ | 0.26 | 0.38 | PCI/L |
| B38W19D | 12-Jul-00 | RADIUM-226 | 0.16 | UJ | 0.13 | 0.2 | PCI/L |
| B38W19D | 13-Jun-01 | RADIUM-226 | 0.28 | J | 0.17 | 0.21 | PCI/L |
| B38W19D | 9-Jul-02 | RADIUM-226 | 0.53 | J | 0.21 | 0.27 | PCI/L |
| B38W19S | 27-May-94 | RADIUM-226 | 0.78 | | 0.28 | 0.11 | PCI/L |
| B38W19S | 17-May-95 | RADIUM-226 | 0.11 | | 0.09 | 0.05 | PCI/L |
| B38W19S | 10-May-96 | RADIUM-226 | 0.11 | | 0.09 | 0.09 | PCI/L |
| B38W19S | 29-Jun-98 | RADIUM-226 | 0.32 | UJ | 0.24 | 0.34 | PCI/L |
| B38W19S | 14-May-99 | RADIUM-226 | 0.35 | UJ | 0.3 | 0.4 | PCI/L |
| B38W19S | 13-Jun-01 | RADIUM-226 | 0.51 | J | 0.23 | 0.24 | PCI/L |
| B38W19S | 9-Jul-02 | RADIUM-226 | 0.32 | J | 0.15 | 0.31 | PCI/L |
| B38W25S | 3-Aug-93 | RADIUM-226 | 0.34 | | 0.22 | 0.09 | PCI/L |
| B38W25S | 24-May-94 | RADIUM-226 | 0.37 | | 0.19 | 0.13 | PCI/L |
| B38W25S | 15-May-95 | RADIUM-226 | 0.16 | | 0.12 | 0.09 | PCI/L |
| B38W25S | 15-May-96 | RADIUM-226 | 0.26 | UJ | 0 | 0.26 | PCI/L |
| B38W25S | 5-Jun-97 | RADIUM-226 | 0.13 | UJ | 0.1 | 0.14 | PCI/L |
| B38W25S | 1-Jul-98 | RADIUM-226 | 0.13 | UJ | 0.17 | 0.34 | PCI/L |
| B38W25S | 17-May-99 | RADIUM-226 | 0.08 | UJ | 0.13 | 0.27 | PCI/L |
| B38W25S | 10-Jul-01 | RADIUM-226 | 0.32 | J | 0.18 | 0.21 | PCI/L |
| B38W25S | 10-Jul-02 | RADIUM-226 | 0.45 | | | | |
| MISS02B | 20-Jul-93 | RADIUM-226 | 0.05 | UJ | 0.1 | 0.29 | PCI/L |
| MISS02B | 13-May-94 | RADIUM-226 | 2 | U | 0.46 | 0.14 | PCI/L |
| MISS02B | 9-May-95 | RADIUM-226 | 0.1 | | 0.09 | 0.06 | PCI/L |
| MISS02B | 14-May-96 | RADIUM-226 | 0.11 | UJ | 0.11 | 0.2 | PCI/L |
| MISS02B | 19-May-97 | RADIUM-226 | 0.28 | | 0.16 | 0.12 | PCI/L |
| MISS02B | 10-Jun-98 | RADIUM-226 | 0.35 | | 0.24 | 0.3 | PCI/L |
| MISS02B | 18-May-99 | RADIUM-226 | 0.46 | | 0.31 | 0.42 | PCI/L |
| MISS02B | 23-Jun-00 | RADIUM-226 | 0.25 | J | 0.33 | 0.55 | PCI/L |
| MISS02B | 5-Jul-01 | RADIUM-226 | 0.23 | J | 0.17 | 0.28 | PCI/L |
| MISS02B | 8-Jul-02 | RADIUM-226 | 0.04 | UJ | 0.2 | 0.24 | PCI/L |
| MISS05A | 27-May-94 | RADIUM-226 | 1.33 | | 0.54 | 0.14 | PCI/L |
| MISS05A | 12-May-95 | RADIUM-226 | 0.2 | UJ | 0.18 | 0.22 | PCI/L |
| MISS05A | 10-May-96 | RADIUM-226 | 0.04 | UJ | 0.06 | 0.16 | PCI/L |
| MISS05A | 2-Jun-97 | RADIUM-226 | 0.52 | | 0.27 | 0.27 | PCI/L |
| MISS05A | 29-Jun-98 | RADIUM-226 | 0.23 | UJ | 0.24 | 0.42 | PCI/L |
| MISS05A | 14-May-99 | RADIUM-226 | 0.68 | | 0.48 | 0.64 | PCI/L |
| MISS05A | 19-Jun-01 | RADIUM-226 | 0.6 | J | 0.28 | 0.34 | PCI/L |
| MISS05A | 1-Aug-02 | RADIUM-226 | 0.36 | J | 0.15 | 0.23 | PCI/L |
| B38W19D | 16-May-96 | RADIUM-228 | 0.04 | UJ | 0.08 | 0.24 | PCI/L |
| B38W19D | 16-May-97 | RADIUM-228 | 0.08 | UJ | 0.12 | 0.22 | PCI/L |
| B38W19D | 17-Jun-98 | RADIUM-228 | 0.04 | UJ | 0.18 | 0.46 | PCI/L |
| B38W19D | 27-May-99 | RADIUM-228 | 0.13 | UJ | 0.39 | 0.91 | PCI/L |
| B38W19D | 12-Jul-00 | RADIUM-228 | 0.43 | U | 0.4 | 0.66 | PCI/L |

## Table B-2
## Historical Results for Radioactive Parameters in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte Name | Result | Rev Q | Error | SQL | Units |
|---|---|---|---|---|---|---|---|
| B38W19D | 13-Jun-01 | RADIUM-228 | 0.7 | UJ | 0.69 | 0.74 | PCI/L |
| B38W19D | 9-Jul-02 | RADIUM-228 | 0.89 | J | 0.49 | 0.76 | PCI/L |
| B38W19S | 10-May-96 | RADIUM-228 | 0.11 | UJ | 0.15 | 0.31 | PCI/L |
| B38W19S | 29-Jun-98 | RADIUM-228 | 0.26 | UJ | 0.27 | 0.41 | PCI/L |
| B38W19S | 14-May-99 | RADIUM-228 | 0.48 | UJ | 0.15 | 0.48 | PCI/L |
| B38W19S | 13-Jun-01 | RADIUM-228 | 2.49 | J | 0.72 | 0.70 | PCI/L |
| B38W19S | 9-Jul-02 | RADIUM-228 | 2.33 | | 0.66 | 0.83 | PCI/L |
| B38W25S | 15-May-96 | RADIUM-228 | 0.21 | | 0.19 | 0.19 | PCI/L |
| B38W25S | 5-Jun-97 | RADIUM-228 | 0.13 | UJ | 0.15 | 0.26 | PCI/L |
| B38W25S | 1-Jul-98 | RADIUM-228 | 0.3 | UJ | 0.31 | 0.48 | PCI/L |
| B38W25S | 17-May-99 | RADIUM-228 | 0.12 | UJ | 0.22 | 0.44 | PCI/L |
| B38W25S | 7-Jul-00 | RADIUM-228 | 0.17 | U | 0.42 | 0.71 | PCI/L |
| B38W25S | 10-Jul-01 | RADIUM-228 | 0.76 | UJ | 0.72 | 0.77 | PCI/L |
| B38W25S | 10-Jul-02 | RADIUM-228 | 1.13 | | 0.5 | 0.74 | PCI/L |
| MISS02B | 14-May-96 | RADIUM-228 | 0.09 | UJ | 0.12 | 0.39 | PCI/L |
| MISS02B | 19-May-97 | RADIUM-228 | 0.05 | UJ | 0.14 | 0.34 | PCI/L |
| MISS02B | 10-Jun-98 | RADIUM-228 | 0.01 | UJ | 0.12 | 0.37 | PCI/L |
| MISS02B | 18-May-99 | RADIUM-228 | 0.02 | UJ | 0.17 | 0.48 | PCI/L |
| MISS02B | 23-Jun-00 | RADIUM-228 | 0.32 | U | 0.33 | 0.55 | PCI/L |
| MISS02B | 5-Jul-01 | RADIUM-228 | 1.36 | J | 1.05 | 1.11 | PCI/L |
| MISS02B | 8-Jul-02 | RADIUM-228 | 0.71 | J | 0.39 | 0.60 | PCI/L |
| MISS05A | 10-May-96 | RADIUM-228 | 0.14 | UJ | 0.21 | 0.46 | PCI/L |
| MISS05A | 2-Jun-97 | RADIUM-228 | 0.67 | | 0.44 | 0.51 | PCI/L |
| MISS05A | 29-Jun-98 | RADIUM-228 | 0.55 | | 0.42 | 0.53 | PCI/L |
| MISS05A | 14-May-99 | RADIUM-228 | 0.16 | UJ | 0.31 | 0.66 | PCI/L |
| MISS05A | 19-Jun-01 | RADIUM-228 | 2.05 | J | 0.85 | 0.87 | PCI/L |
| MISS05A | 1-Jul-02 | RADIUM-228 | 4.02 | | 0.75 | 0.80 | PCI/L |
| B38W19D | 16-May-96 | THORIUM-228 | 0.04 | UJ | 0.08 | 0.24 | PCI/L |
| B38W19D | 16-May-97 | THORIUM-228 | 0.08 | UJ | 0.12 | 0.22 | PCI/L |
| B38W19D | 17-Jun-98 | THORIUM-228 | 0.04 | UJ | 0.18 | 0.46 | PCI/L |
| B38W19D | 17-May-99 | THORIUM-228 | 0.13 | U | 0.39 | 0.91 | PCI/L |
| B38W19D | 13-Jun-01 | THORIUM-228 | 0.42 | UJ | 0.44 | 0.66 | PCI/L |
| B38W19D | 9-Jul-02 | THORIUM-228 | 0.23 | UJ | 0.22 | 0.30 | PCI/L |
| B38W19S | 10-May-96 | THORIUM-228 | 0.11 | UJ | 0.15 | 0.31 | PCI/L |
| B38W19S | 29-Jun-98 | THORIUM-228 | 0.26 | UJ | 0.27 | 0.41 | PCI/L |
| B38W19S | 14-May-99 | THORIUM-228 | 0.48 | U | 0.15 | 0.48 | PCI/L |
| B38W19S | 13-Jun-01 | THORIUM-228 | 0.36 | UJ | 0.35 | 0.52 | PCI/L |
| B38W19S | 0-Jul-02 | THORIUM-228 | 0.19 | UJ | 0.17 | 0.23 | PCI/L |
| B38W25S | 15-May-96 | THORIUM-228 | 0.21 | | 0.19 | 0.19 | PCI/L |
| B38W25S | 15-May-96 | THORIUM-228 | 0.21 | UJ | 0.19 | 0.33 | PCI/L |
| B38W25S | 5-Jun-97 | THORIUM-228 | 0.13 | UJ | 0.15 | 0.26 | PCI/L |
| B38W25S | 1-Jul-98 | THORIUM-228 | 0.3 | UJ | 0.31 | 0.48 | PCI/L |
| B38W25S | 17-May-99 | THORIUM-228 | 0.12 | UJ | 0.22 | 0.44 | PCI/L |
| B38W25S | 7-Jul-00 | THORIUM-228 | 0.46 | J | 0.32 | 0.38 | PCI/L |
| B38W25S | 10-Jul-01 | THORIUM-228 | 0.53 | U | 0.14 | 0.53 | PCI/L |
| B38W25S | 10-Jul-02 | THORIUM-228 | 0.24 | J | 0.16 | 0.12 | PCI/L |
| MISS02B | 14-May-96 | THORIUM-228 | 0.09 | UJ | 0.12 | 0.39 | PCI/L |
| MISS02B | 19-May-97 | THORIUM-228 | 0.05 | UJ | 0.14 | 0.34 | PCI/L |

**Table B-2**
**Historical Results for Radioactive Parameters in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte Name | Result | Rev Q | Error | SQL | Units |
|---|---|---|---|---|---|---|---|
| MISS02B | 10-Jun-98 | THORIUM-228 | 0.01 | UJ | 0.12 | 0.37 | PCI/L |
| MISS02B | 18-May-99 | THORIUM-228 | 0.02 | UJ | 0.17 | 0.48 | PCI/L |
| MISS02B | 23-Jun-00 | THORIUM-228 | 0.04 | U | 0.09 | 0.2 | PCI/L |
| MISS02B | 5-Jul-01 | THORIUM-228 | 0.23 | UJ | 0.26 | 0.41 | PCI/L |
| MISS02B | 8-Jul-02 | THORIUM-228 | 0.09 | U | 0.13 | 0.06 | PCI/L |
| MISS05A | 10-May-96 | THORIUM-228 | 0.14 | UJ | 0.21 | 0.46 | PCI/L |
| MISS05A | 2-Jun-97 | THORIUM-228 | 0.67 | | 0.44 | 0.51 | PCI/L |
| MISS05A | 29-Jun-98 | THORIUM-228 | 0.55 | | 0.42 | 0.53 | PCI/L |
| MISS05A | 14-May-99 | THORIUM-228 | 0.16 | UJ | 0.31 | 0.66 | PCI/L |
| MISS05A | 19-Jun-01 | THORIUM-228 | 0.07 | U | 0.2 | 0.49 | PCI/L |
| MISS05A | 1-Jul-02 | THORIUM-228 | 0.14 | UJ | 0.14 | 0.23 | PCI/L |
| B38W19D | 10-May-95 | THORIUM-230 | 0.37 | U | 0.23 | 0.09 | PCI/L |
| B38W19D | 16-May-96 | THORIUM-230 | 0.24 | | 0.2 | 0.11 | PCI/L |
| B38W19D | 16-May-97 | THORIUM-230 | 0.5 | U | 0.3 | 0.25 | PCI/L |
| B38W19D | 17-Jun-98 | THORIUM-230 | 0.17 | UJ | 0.24 | 0.42 | PCI/L |
| B38W19D | 27-May-99 | THORIUM-230 | 0.67 | UJ | 0.57 | 0.76 | PCI/L |
| B38W19D | 12-Jul-00 | THORIUM-230 | 0.11 | UJ | 0.12 | 0.18 | PCI/L |
| B38W19D | 13-Jun-01 | THORIUM-230 | 0.72 | UJ | 0.6 | 0.87 | PCI/L |
| B38W19D | 9-Jul-02 | THORIUM-230 | 1.15 | J | 0.19 | 0.22 | PCI/L |
| B38W19S | 17-May-95 | THORIUM-230 | 0.35 | U | 0.25 | 0.18 | PCI/L |
| B38W19S | 10-May-96 | THORIUM-230 | 3.4 | J | 1.03 | 0.14 | PCI/L |
| B38W19S | 29-Jun-98 | THORIUM-230 | 0.17 | UJ | 0.21 | 0.34 | PCI/L |
| B38W19S | 29-May-99 | THORIUM-230 | 0.07 | UJ | 0.17 | 0.4 | PCI/L |
| B38W19S | 13-Jun-01 | THORIUM-230 | 1.51 | J | 0.7 | 0.52 | PCI/L |
| B38W19S | 0-Jul-02 | THORIUM-230 | 0.1 | UJ | 0.12 | 0.16 | PCI/L |
| B38W25S | 15-May-95 | THORIUM-230 | 0.14 | UJ | 0.16 | 0.21 | PCI/L |
| B38W25S | 15-May-96 | THORIUM-230 | 0.5 | | 0.3 | 0.19 | PCI/L |
| B38W25S | 5-Jun-97 | THORIUM-230 | 0.44 | U | 0.29 | 0.26 | PCI/L |
| B38W25S | 1-Jul-98 | THORIUM-230 | 0.14 | UJ | 0.2 | 0.33 | PCI/L |
| B38W25S | 17-May-99 | THORIUM-230 | 0.26 | UJ | 0.26 | 0.36 | PCI/L |
| B38W25S | 7-Jul-00 | THORIUM-230 | 0.38 | J | 0.28 | 0.28 | PCI/L |
| B38W25S | 10-Jul-01 | THORIUM-230 | 0.65 | J | 0.42 | 0.33 | PCI/L |
| B38W25S | 10-Jul-02 | THORIUM-230 | 0.59 | J | 0.27 | 0.17 | PCI/L |
| MISS02B | 9-May-95 | THORIUM-230 | 0.08 | UJ | 0.12 | 0.19 | PCI/L |
| MISS02B | 14-May-96 | THORIUM-230 | 0.38 | | 0.26 | 0.19 | PCI/L |
| MISS02B | 19-May-97 | THORIUM-230 | 0.81 | U | 0.4 | 0.21 | PCI/L |
| MISS02B | 10-Jun-98 | THORIUM-230 | 0.18 | UJ | 0.22 | 0.32 | PCI/L |
| MISS02B | 18-May-99 | THORIUM-230 | 0.59 | | 0.4 | 0.43 | PCI/L |
| MISS02B | 23-Jun-00 | THORIUM-230 | 0.4 | J | 0.25 | 0.27 | PCI/L |
| MISS02B | 5-Jul-01 | THORIUM-230 | 0.66 | J | 0.42 | 0.44 | PCI/L |
| MISS02B | 8-Jul-02 | THORIUM-230 | 0.49 | J | 0.25 | 0.19 | PCI/L |
| MISS05A | 12-May-95 | THORIUM-230 | 0.43 | U | 0.28 | 0.22 | PCI/L |
| MISS05A | 10-May-96 | THORIUM-230 | 1.7 | J | 0.77 | 0.33 | PCI/L |
| MISS05A | 2-Jun-97 | THORIUM-230 | 0.92 | | 0.52 | 0.43 | PCI/L |
| MISS05A | 29-Jun-98 | THORIUM-230 | 0.28 | UJ | 0.3 | 0.46 | PCI/L |
| MISS05A | 14-May-99 | THORIUM-230 | 0.69 | | 0.48 | 0.44 | PCI/L |
| MISS05A | 19-Jun-01 | THORIUM-230 | 1.25 | J | 0.67 | 0.72 | PCI/L |
| MISS05A | 1-Aug-02 | THORIUM-230 | 0.57 | J | 0.25 | 0.11 | PCI/L |
| MISS07B | 11-May-95 | THORIUM-230 | 0.34 | U | 0.22 | 0.09 | PCI/L |

**Table B-2**
**Historical Results for Radioactive Parameters in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte Name | Result | Rev Q | Error | SQL | Units |
|---|---|---|---|---|---|---|---|
| MISS07B | 16-May-96 | THORIUM-230 | 0.26 | U | 0.22 | 0.26 | PCI/L |
| MISS07B | 16-May-97 | THORIUM-230 | 0.44 | U | 0.27 | 0.22 | PCI/L |
| MISS07B | 27-May-99 | THORIUM-230 | 0.39 | U | 0.88 | 0.49 | PCI/L |
| MISS07B | 12-Jul-00 | THORIUM-230 | 0.37 | J | 0.24 | 0.21 | PCI/L |
| MISS07B | 11-Jun-01 | THORIUM-230 | 0.19 | U | 0.38 | 0.84 | PCI/L |
| MISS07B | 11-Jul-02 | THORIUM-230 | 0.48 | J | 0.26 | 0.08 | PCI/L |
| B38W19D | 23-Jul-93 | THORIUM-232 | 0.14 | UJ | 0.29 | 0.43 | PCI/L |
| B38W19D | 16-May-94 | THORIUM-232 | 0.04 | UJ | 0.07 | 0.1 | PCI/L |
| B38W19D | 10-May-95 | THORIUM-232 | 0.09 | UJ | | 0.09 | PCI/L |
| B38W19D | 16-May-96 | THORIUM-232 | 0.19 | UJ | 0 | 0.19 | PCI/L |
| B38W19D | 16-May-97 | THORIUM-232 | 0.29 | U | 0.22 | 0.22 | PCI/L |
| B38W19D | 17-Jun-98 | THORIUM-232 | 0.15 | UJ | 0.2 | 0.31 | PCI/L |
| B38W19D | 27-May-99 | THORIUM-232 | 0.22 | UJ | 0.32 | 0.54 | PCI/L |
| B38W19D | 12-Jul-00 | THORIUM-232 | 0.01 | U | 0.05 | 0.13 | PCI/L |
| B38W19D | 13-Jun-01 | THORIUM-232 | 0.52 | UJ | 0.5 | 0.78 | PCI/L |
| B38W19D | 9-Jul-02 | THORIUM-232 | 0.0 | U | 0.0 | 0.1 | PCI/L |
| B38W19S | 27-May-94 | THORIUM-232 | 0.04 | UJ | 0.09 | 0.12 | PCI/L |
| B38W19S | 17-May-95 | THORIUM-232 | -0.01 | UJ | 0.02 | 0.21 | PCI/L |
| B38W19S | 10-May-96 | THORIUM-232 | 0.24 | UJ | 0 | 0.24 | PCI/L |
| B38W19S | 29-Jun-98 | THORIUM-232 | 0.03 | UJ | 0.11 | 0.32 | PCI/L |
| B38W19S | 14-May-99 | THORIUM-232 | 0.02 | UJ | 0.1 | 0.29 | PCI/L |
| B38W19S | 13-Jun-01 | THORIUM-232 | 0.3 | UJ | 0.32 | 0.52 | PCI/L |
| B38W19S | 0-Jul-02 | THORIUM-232 | 0.0 | U | 0.0 | 0.08 | PCI/L |
| B38W25S | 3-Aug-93 | THORIUM-232 | 0.24 | | 0.16 | 0.14 | PCI/L |
| B38W25S | 24-May-94 | THORIUM-232 | 0.13 | UJ | 0 | 0.13 | PCI/L |
| B38W25S | 15-May-95 | THORIUM-232 | 0.06 | UJ | 0.11 | 0.2 | PCI/L |
| B38W25S | 15-May-96 | THORIUM-232 | 0.08 | UJ | 0.12 | 0.19 | PCI/L |
| B38W25S | 5-Jun-97 | THORIUM-232 | 0.17 | UJ | 0.18 | 0.2 | PCI/L |
| B38W25S | 1-Jul-98 | THORIUM-232 | 0.04 | UJ | 0.11 | 0.3 | PCI/L |
| B38W25S | 17-May-99 | THORIUM-232 | 0.13 | UJ | 0.18 | 0.3 | PCI/L |
| B38W25S | 7-Jul-00 | THORIUM-232 | 0.13 | U | 0.17 | 0.28 | PCI/L |
| B38W25S | 10-Jul-01 | THORIUM-232 | 0.03 | UJ | 0.13 | 0.36 | PCI/L |
| B38W25S | 10-Jul-02 | THORIUM-232 | 0.03 | U | 0.07 | 0.17 | PCI/L |
| MISS02B | 20-Jul-93 | THORIUM-232 | 0 | UJ | 0 | 0.2 | PCI/L |
| MISS02B | 9-May-95 | THORIUM-232 | 0.07 | UJ | 0.12 | 0.22 | PCI/L |
| MISS02B | 14-May-96 | THORIUM-232 | 0.25 | UJ | 0 | 0.25 | PCI/L |
| MISS02B | 19-May-97 | THORIUM-232 | 0.14 | UJ | 0.16 | 0.12 | PCI/L |
| MISS02B | 10-Jun-98 | THORIUM-232 | 0.05 | UJ | 0.11 | 0.14 | PCI/L |
| MISS02B | 18-May-99 | THORIUM-232 | 0.04 | UJ | 0.11 | 0.3 | PCI/L |
| MISS02B | 23-Jun-00 | THORIUM-232 | 0.02 | U | 0.06 | 0.14 | PCI/L |
| MISS02B | 5-Jul-01 | THORIUM-232 | 0.54 | | 0.39 | 0.45 | PCI/L |
| MISS02B | 8-Jul-02 | THORIUM-232 | 0.08 | J | 0.09 | 0.07 | PCI/L |
| MISS05A | 27-May-94 | THORIUM-232 | 0.4 | J | 0.29 | 0.21 | PCI/L |
| MISS05A | 12-May-95 | THORIUM-232 | 0.23 | | 0.2 | 0.18 | PCI/L |
| MISS05A | 10-May-96 | THORIUM-232 | 0.21 | UJ | 0.25 | 0.19 | PCI/L |
| MISS05A | 2-Jun-97 | THORIUM-232 | 0.13 | UJ | 0.19 | 0.51 | PCI/L |
| MISS05A | 29-Jun-98 | THORIUM-232 | 0.04 | UJ | 0.17 | 0.48 | PCI/L |
| MISS05A | 14-May-99 | THORIUM-232 | 0.17 | UJ | 0.26 | 0.47 | PCI/L |
| MISS05A | 19-Jun-01 | THORIUM-232 | 0.29 | UJ | 0.3 | 0.43 | PCI/L |

## Table B-2
## Historical Results for Radioactive Parameters in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte Name | Result | Rev Q | Error | SQL | Units |
|---|---|---|---|---|---|---|---|
| MISS05A | 1-Jul-02 | THORIUM-232 | 0.08 | UJ | 0.09 | 0.12 | PCI/L |
| B38W19D | 23-Jul-93 | TOTAL URANIUM | 0.36 | | 0.04 | 0.03 | UG/L |
| B38W19D | 16-May-94 | TOTAL URANIUM | 0.35 | | 0.04 | 0.03 | UG/L |
| B38W19D | 10-May-95 | TOTAL URANIUM | 0.29 | | 0.03 | 0.03 | UG/L |
| B38W19D | 16-May-96 | TOTAL URANIUM | 1.27 | | 0.03 | 0.03 | UG/L |
| B38W19D | 16-May-97 | TOTAL URANIUM | 0.3 | | 0.01 | 0.03 | UG/L |
| B38W19D | 17-Jun-98 | TOTAL URANIUM | 0.03 | UJ | 0 | 0.03 | UG/L |
| B38W19D | 27-May-99 | TOTAL URANIUM | 0.26 | UJ | 0.02 | 0.03 | UG/L |
| B38W19D | 12-Jul-00 | TOTAL URANIUM | 1.82 | | | | UG/L |
| B38W19D | 13-Jun-01 | TOTAL URANIUM | 1.00 | | | | UG/L |
| B38W19D | 9-Jul-02 | TOTAL URANIUM | 0.68 | | | | UG/L |
| B38W19S | 27-May-94 | TOTAL URANIUM | 0.38 | | 0.04 | 0.03 | UG/L |
| B38W19S | 17-May-95 | TOTAL URANIUM | 1.4 | | 0.15 | 0.03 | UG/L |
| B38W19S | 10-May-96 | TOTAL URANIUM | 0.58 | | 0.01 | 0.03 | UG/L |
| B38W19S | 29-Jun-98 | TOTAL URANIUM | 0.03 | UJ | 0 | 0.03 | UG/L |
| B38W19S | 14-May-99 | TOTAL URANIUM | 0.02 | UJ | 0.01 | 0.03 | UG/L |
| B38W19S | 13-Jun-01 | TOTAL URANIUM | 0.89 | | | | UG/L |
| B38W19S | 9-Jul-02 | TOTAL URANIUM | 1.13 | | | | UG/L |
| B38W25S | 3-Aug-93 | TOTAL URANIUM | 0.5 | | 0.05 | 0.03 | UG/L |
| B38W25S | 24-May-94 | TOTAL URANIUM | 0.06 | | 0.01 | 0.03 | UG/L |
| B38W25S | 15-May-95 | TOTAL URANIUM | 0.09 | | 0.01 | 0.03 | UG/L |
| B38W25S | 15-May-96 | TOTAL URANIUM | 0.45 | | 0.01 | 0.03 | UG/L |
| B38W25S | 5-Jun-97 | TOTAL URANIUM | 0.5 | | 0.01 | 0.03 | UG/L |
| B38W25S | 1-Jul-98 | TOTAL URANIUM | 0.03 | UJ | 0 | 0.03 | UG/L |
| B38W25S | 17-May-99 | TOTAL URANIUM | 0.17 | UJ | 0.01 | 0.03 | UG/L |
| B38W25S | 7-Jul-00 | TOTAL URANIUM | 0.41 | | | | UG/L |
| B38W25S | 10-Jul-01 | TOTAL URANIUM | 3.74 | | | | UG/L |
| B38W25S | 10-Jul-02 | TOTAL URANIUM | 0.68 | | | | UG/L |
| MISS02B | 20-Jul-93 | TOTAL URANIUM | 0.33 | | 0.04 | 0.03 | UG/L |
| MISS02B | 13-May-94 | TOTAL URANIUM | 0.29 | | 0.03 | 0.03 | UG/L |
| MISS02B | 9-May-95 | TOTAL URANIUM | 0.29 | | 0.03 | 0.03 | UG/L |
| MISS02B | 14-May-96 | TOTAL URANIUM | 0.68 | | 0.02 | 0.03 | UG/L |
| MISS02B | 19-May-97 | TOTAL URANIUM | 0.28 | | 0.02 | 0.03 | UG/L |
| MISS02B | 10-Jun-98 | TOTAL URANIUM | 0.03 | UJ | 0 | 0.03 | UG/L |
| MISS02B | 18-May-99 | TOTAL URANIUM | 0.12 | | 0.01 | 0.03 | UG/L |
| MISS02B | 23-Jun-00 | TOTAL URANIUM | 0.48 | | | | UG/L |
| MISS02B | 5-Jul-01 | TOTAL URANIUM | 2.98 | | | | UG/L |
| MISS02B | 8-Jul-02 | TOTAL URANIUM | 0.45 | | | | UG/L |
| MISS05A | 27-May-94 | TOTAL URANIUM | 86.8 | | 10.3 | 0.03 | UG/L |
| MISS05A | 12-May-95 | TOTAL URANIUM | 41.2 | | 4.8 | 0.03 | UG/L |
| MISS05A | 10-May-96 | TOTAL URANIUM | 140 | | 8.6 | 0.03 | UG/L |
| MISS05A | 15-OCT-96 | TOTAL URANIUM | 139.05 | | 8.95 | 0.03 | UG/L |
| MISS05A | 2-Jun-97 | TOTAL URANIUM | 96.15 | | 6.03 | 0.03 | UG/L |
| MISS05A | 29-Jun-98 | TOTAL URANIUM | 181.71 | | 12.18 | 0.03 | UG/L |
| MISS05A | 14-May-99 | TOTAL URANIUM | 110.46 | | 2.51 | 0.03 | UG/L |
| MISS05A | 19-Jun-01 | TOTAL URANIUM | 52.87 | | | | UG/L |
| MISS05A | 1-Aug-02 | TOTAL URANIUM | 103.71 | | | | UG/L |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W01S | 17-Jul-02 | REG | ALUMINUM | 127 | | J |
| B38W15S | 16-Jul-02 | REG | ALUMINUM | 102 | | J |
| MISS02A | 22-Jun-00 | REG | ALUMINUM | 360 | | |
| MISS02A | 5-Jul-01 | REG | ALUMINUM | 29.5 | | |
| MISS02A | 8-Jul-02 | REG | ALUMINUM | 505 | | J |
| B38W17A | 19-Jun-00 | REG | ALUMINUM | 785 | | |
| B38W17A | 14-Jun-01 | REG | ALUMINUM | 128 | | |
| B38W17B | 19-Jun-00 | REG | ALUMINUM | 40.6 | | J |
| B38W17B | 14-Jun-01 | REG | ALUMINUM | 68.6 | | |
| B38W18D | 3-Jul-02 | DUP | ALUMINUM | 164 | | J |
| B38W15D | 6-Jul-98 | REG | ANTIMONY | 0.7 | | |
| B38W15D | 26-Jun-00 | REG | ANTIMONY | 2.1 | | |
| B38W15D | 27-Jun-01 | REG | ANTIMONY | 1.9 | | |
| B38W15S | 6-Jul-98 | REG | ANTIMONY | 0.75 | | |
| B38W15S | 27-Jun-01 | REG | ANTIMONY | 1.9 | | |
| B38W17A | 28-Jul-93 | REG | ANTIMONY | 445 | = | |
| B38W17A | 2-Jul-98 | REG | ANTIMONY | 1 | | |
| B38W17A | 19-Jun-00 | REG | ANTIMONY | 37.6 | | |
| B38W17A | 14-Jun-01 | REG | ANTIMONY | 1.9 | | |
| B38W19S | 29-Jun-98 | REG | ANTIMONY | 0.65 | | |
| B38W24D | 2-Jul-98 | REG | ANTIMONY | 0.6 | | |
| B38W24D | 5-Jul-01 | REG | ANTIMONY | 1.9 | | |
| B38W24S | 2-Jul-98 | REG | ANTIMONY | 0.7 | | |
| B38W24S | 27-Jun-01 | REG | ANTIMONY | 1.9 | | |
| B38W25D | 12-May-95 | REG | ANTIMONY | 2.9 | = | |
| B38W25D | 15-May-97 | REG | ANTIMONY | 2 | | |
| B38W25D | 1-Jul-98 | REG | ANTIMONY | 0.65 | | |
| B38W25D | 10-Jul-01 | REG | ANTIMONY | 1.9 | | |
| B38W25S | 15-May-95 | REG | ANTIMONY | 1.5 | = | |
| B38W25S | 10-Jul-01 | REG | ANTIMONY | 1.9 | | |
| MISS02A | 10-May-95 | REG | ANTIMONY | 2.4 | = | |
| MISS02A | 15-May-97 | DUP | ANTIMONY | 5.1 | | |
| MISS02A | 11-Jun-98 | DUP | ANTIMONY | 3.2 | | |
| MISS02A | 18-May-99 | DUP | ANTIMONY | 3.9 | | |
| MISS02A | 5-Jul-01 | REG | ANTIMONY | 1.9 | | |
| MISS05A | 27-May-94 | REG | ANTIMONY | 36.4 | = | |
| MISS05A | 12-May-95 | REG | ANTIMONY | 1.8 | = | |
| MISS05A | 29-Jun-98 | REG | ANTIMONY | 1.2 | | |
| MISS05A | 14-May-99 | REG | ANTIMONY | 0.7 | | |
| MISS05A | 19-Jun-01 | REG | ANTIMONY | 1.9 | | |
| MISS06A | 24-May-94 | REG | ANTIMONY | 34.9 | = | |
| MISS06A | 1-Jul-98 | REG | ANTIMONY | 1.8 | | |
| MISS06A | 17-May-99 | REG | ANTIMONY | 0.81 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS06A | 20-Jun-01 | REG | ANTIMONY | 1.9 | | |
| MISS07B | 18-May-94 | REG | ANTIMONY | 25.7 | = | |
| MISS07B | 18-May-95 | REG | ANTIMONY | 25.7 | | |
| MISS07B | 11-Jun-01 | REG | ANTIMONY | 1.9 | | |
| MISS07B | 16-Jun-98 | REG | ARSENIC | 57.3 | | |
| MISS07B | 27-May-99 | REG | ARSENIC | 49.9 | | J |
| MISS07B | 12-Jul-00 | REG | ARSENIC | 52.6 | | |
| MISS07B | 11-Jun-01 | REG | ARSENIC | 82.8 | | |
| MISS07B | 11-Jul-02 | DUP | ARSENIC | 56.5 | | J |
| B38W02D | 30-Jun-98 | REG | ARSENIC | 0.75 | | |
| B38W02D | 20-May-99 | REG | ARSENIC | 0.61 | | |
| B38W02D | 28-Jun-01 | REG | ARSENIC | 2.3 | | |
| B38W14S | 4-Aug-93 | REG | ARSENIC | 2.1 | B | J |
| B38W14S | 4-Jun-97 | REG | ARSENIC | 4.7 | | |
| B38W14S | 17-May-99 | REG | ARSENIC | 0.52 | | |
| B38W14S | 2-Jul-01 | REG | ARSENIC | 2.3 | | |
| B38W15D | 2-Aug-93 | REG | ARSENIC | 6.8 | B | J |
| B38W15D | 26-May-94 | REG | ARSENIC | 2.6 | = | J |
| B38W15D | 13-May-96 | REG | ARSENIC | 5.4 | = | |
| B38W15D | 3-Jun-97 | REG | ARSENIC | 5.7 | | |
| B38W15D | 6-Jul-98 | REG | ARSENIC | 7.5 | | |
| B38W15D | 26-Jun-00 | REG | ARSENIC | 11.1 | | |
| B38W15D | 27-Jun-01 | DUP | ARSENIC | 4.6 | | |
| B38W15D | 16-Jul-02 | REG | ARSENIC | 13.9 | | J |
| B38W15S | 2-Aug-93 | REG | ARSENIC | 3.9 | B | J |
| B38W15S | 19-May-95 | REG | ARSENIC | 4.9 | = | |
| B38W15S | 19-May-95 | DUP | ARSENIC | 4.8 | = | |
| B38W15S | 3-Jun-97 | REG | ARSENIC | 2.6 | | |
| B38W15S | 6-Jul-98 | REG | ARSENIC | 3.1 | | |
| B38W15S | 27-Jun-01 | REG | ARSENIC | 4.4 | | |
| B38W17A | 28-Jul-93 | REG | ARSENIC | 8.9 | B | |
| B38W17A | 2-Jul-98 | REG | ARSENIC | 2.9 | | |
| B38W17A | 14-Jun-01 | REG | ARSENIC | 2.3 | | |
| B38W17B | 3-Jun-97 | REG | ARSENIC | 1.8 | | |
| B38W17B | 2-Jul-98 | REG | ARSENIC | 1.3 | | |
| B38W17B | 13-May-99 | REG | ARSENIC | 0.76 | | |
| B38W17B | 14-Jun-01 | REG | ARSENIC | 2.3 | | |
| B38W18D | 21-Jul-93 | REG | ARSENIC | 2.5 | B | |
| B38W18D | 8-Jun-98 | REG | ARSENIC | 1.7 | | |
| B38W18D | 20-May-99 | REG | ARSENIC | 2.3 | | |
| B38W18D | 6-Jul-00 | REG | ARSENIC | 8.2 | | J |
| B38W18D | 20-Jun-01 | REG | ARSENIC | 2.3 | | |
| B38W18D | 3-Jul-02 | REG | ARSENIC | 8.7 | | |
| B38W19D | 23-Jul-93 | REG | ARSENIC | 93 | = | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W19D | 16-May-94 | REG | ARSENIC | 68.7 | = | |
| B38W19D | 10-May-95 | REG | ARSENIC | 48.8 | = | J |
| B38W19D | 16-May-96 | REG | ARSENIC | 50.5 | = | |
| B38W19D | 16-May-97 | REG | ARSENIC | 59.5 | | |
| B38W19D | 17-Jun-98 | REG | ARSENIC | 60.8 | | |
| B38W19D | 27-May-99 | REG | ARSENIC | 55.1 | = | J |
| B38W19D | 12-Jul-00 | REG | ARSENIC | 70.3 | | |
| B38W19D | 13-Jun-01 | REG | ARSENIC | 69.8 | | |
| B38W19D | 9-Jul-02 | REG | ARSENIC | 71 | | |
| B38W19S | 27-May-94 | REG | ARSENIC | 8.6 | = | |
| B38W19S | 10-May-96 | REG | ARSENIC | 5.4 | = | |
| B38W19S | 29-Jun-98 | REG | ARSENIC | 18.1 | | |
| B38W19S | 14-May-99 | REG | ARSENIC | 17.8 | | |
| B38W19S | 13-Jun-01 | REG | ARSENIC | 28.7 | | |
| B38W24S | 2-Jul-98 | REG | ARSENIC | 1.8 | | |
| B38W24S | 27-Jun-01 | REG | ARSENIC | 2.3 | | |
| B38W24D | 22-Jun-00 | REG | ARSENIC | 2.1 | | J |
| B38W24D | 15-Jul-02 | REG | ARSENIC | 8.4 | | J |
| B38W25D | 15-May-97 | REG | ARSENIC | 2.9 | | |
| B38W25D | 1-Jul-98 | REG | ARSENIC | 1.1 | | |
| B38W25D | 10-Jul-01 | REG | ARSENIC | 2.3 | | |
| B38W25S | 3-Aug-93 | REG | ARSENIC | 3.9 | B | J |
| B38W25S | 15-May-95 | DUP | ARSENIC | 2.5 | = | |
| B38W25S | 5-Jun-97 | REG | ARSENIC | 1.3 | | |
| B38W25S | 1-Jul-98 | REG | ARSENIC | 2.8 | | |
| B38W25S | 17-May-99 | REG | ARSENIC | 2.3 | | |
| B38W25S | 7-Jul-00 | REG | ARSENIC | 13.4 | | |
| B38W25S | 10-Jul-01 | REG | ARSENIC | 20.8 | | |
| MISS01AA | 31-Jul-93 | REG | ARSENIC | 2.8 | B | J |
| MISS01AA | 18-May-95 | REG | ARSENIC | 18.7 | = | |
| MISS01AA | 23-May-97 | REG | ARSENIC | 4.2 | | |
| MISS01AA | 18-Jun-98 | REG | ARSENIC | 5.2 | | |
| MISS01AA | 12-May-99 | REG | ARSENIC | 6.5 | | |
| MISS01AA | 20-Jun-01 | REG | ARSENIC | 2.3 | | |
| MISS01B | 21-Jul-93 | REG | ARSENIC | 3.6 | B | |
| MISS01B | 16-May-94 | REG | ARSENIC | 3.6 | = | |
| MISS01B | 10-May-95 | REG | ARSENIC | 2.7 | = | J |
| MISS01B | 18-Jun-98 | REG | ARSENIC | 2.1 | | |
| MISS01B | 25-May-99 | REG | ARSENIC | 1.1 | | J |
| MISS01B | 19-Jun-01 | REG | ARSENIC | 2.3 | | |
| MISS02A | 20-Jul-93 | REG | ARSENIC | 2840 | = | |
| MISS02A | 12-May-94 | REG | ARSENIC | 6600 | = | J |
| MISS02A | 10-May-95 | REG | ARSENIC | 6000 | = | J |
| MISS02A | 16-May-96 | REG | ARSENIC | 6360 | = | |
| MISS02A | 15-May-97 | REG | ARSENIC | 5660 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02A | 15-May-97 | DUP | ARSENIC | 5580 | | |
| MISS02A | 11-Jun-98 | REG | ARSENIC | 4310 | | |
| MISS02A | 11-Jun-98 | DUP | ARSENIC | 5150 | | |
| MISS02A | 18-May-99 | DUP | ARSENIC | 6350 | | |
| MISS02A | 22-Jun-00 | REG | ARSENIC | 3520 | | |
| MISS02A | 5-Jul-01 | REG | ARSENIC | 2210 | | |
| MISS02A | 8-Jul-02 | REG | ARSENIC | 2110 | | |
| MISS05A | 27-May-94 | REG | ARSENIC | 3.5 | = | |
| MISS05A | 12-May-95 | REG | ARSENIC | 3.8 | = | |
| MISS05A | 2-Jun-97 | REG | ARSENIC | 16.6 | | |
| MISS05A | 29-Jun-98 | REG | ARSENIC | 16.4 | | |
| MISS05A | 14-May-99 | REG | ARSENIC | 2 | | |
| MISS05A | 19-Jun-01 | REG | ARSENIC | 2.3 | | |
| MISS05B | 23-Jul-93 | REG | ARSENIC | 16.6 | = | |
| MISS05B | 17-May-94 | REG | ARSENIC | 11.9 | = | J |
| MISS05B | 11-May-95 | REG | ARSENIC | 10.9 | = | J |
| MISS05B | 16-May-96 | REG | ARSENIC | 10.6 | = | |
| MISS05B | 14-May-97 | REG | ARSENIC | 10.1 | | J |
| MISS05B | 30-Jun-98 | REG | ARSENIC | 9.9 | | |
| MISS05B | 11-Jul-00 | REG | ARSENIC | 20.5 | | |
| MISS05B | 18-Jun-01 | REG | ARSENIC | 24.3 | | |
| MISS05B | 31-Jul-02 | REG | ARSENIC | 20.2 | | |
| MISS06A | 3-Jun-97 | REG | ARSENIC | 3.4 | | |
| MISS06A | 1-Jul-98 | REG | ARSENIC | 5.4 | | |
| MISS06A | 17-May-99 | REG | ARSENIC | 2.2 | | |
| MISS06A | 10-Jul-00 | REG | ARSENIC | 4 | | J |
| MISS06A | 20-Jun-01 | REG | ARSENIC | 2.3 | | |
| B38W01S | 23-May-94 | REG | BARIUM | 17.8 | = | |
| B38W01S | 21-May-95 | REG | BARIUM | 13.1 | = | |
| B38W01S | 17-May-96 | REG | BARIUM | 14.4 | = | |
| B38W01S | 4-Jun-97 | REG | BARIUM | 16.8 | | |
| B38W01S | 7-Jul-98 | REG | BARIUM | 16.3 | | |
| B38W01S | 11-Jul-01 | DUP | BARIUM | 15.1 | | |
| B38W01S | 17-Jul-02 | REG | BARIUM | 12.6 | | |
| B38W02D | 27-Jul-93 | REG | BARIUM | 385 | = | |
| B38W02D | 19-May-94 | REG | BARIUM | 342 | = | |
| B38W02D | 20-May-95 | REG | BARIUM | 298 | = | |
| B38W02D | 17-May-96 | REG | BARIUM | 349 | = | |
| B38W02D | 4-Jun-97 | REG | BARIUM | 391 | | |
| B38W02D | 30-Jun-98 | REG | BARIUM | 364 | | |
| B38W02D | 20-May-99 | REG | BARIUM | 342 | | |
| B38W02D | 13-Jul-00 | REG | BARIUM | 299 | | |
| B38W02D | 28-Jun-01 | REG | BARIUM | 332 | | |
| B38W02D | 17-Jul-02 | REG | BARIUM | 431 | | |
| MISS07B | 16-Jun-98 | REG | BARIUM | 28.1 | | |
| MISS07B | 27-May-99 | REG | BARIUM | 21.4 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS07B | 11-Jun-01 | REG | BARIUM | 20.6 | | |
| MISS07B | 11-Jul-02 | DUP | BARIUM | 15.9 | | J |
| B38W14D | 4-Aug-93 | REG | BARIUM | 106 | B | |
| B38W14D | 20-May-95 | REG | BARIUM | 73.6 | = | |
| B38W14D | 17-May-96 | REG | BARIUM | 97.3 | = | |
| B38W14D | 4-Jun-97 | REG | BARIUM | 113 | | |
| B38W14D | 7-Jul-98 | REG | BARIUM | 111 | | |
| B38W14D | 7-Jul-98 | DUP | BARIUM | 113 | | |
| B38W14D | 17-May-99 | DUP | BARIUM | 116 | | |
| B38W14D | 5-Jul-00 | REG | BARIUM | 105 | | |
| B38W14D | 2-Jul-01 | REG | BARIUM | 88.6 | | |
| B38W14D | 24-Jul-02 | REG | BARIUM | 109 | | |
| B38W14S | 4-Aug-93 | REG | BARIUM | 106 | B | |
| B38W14S | 20-May-95 | REG | BARIUM | 61.6 | = | |
| B38W14S | 17-May-96 | REG | BARIUM | 85.2 | = | |
| B38W14S | 17-May-96 | DUP | BARIUM | 77.8 | = | |
| B38W14S | 4-Jun-97 | REG | BARIUM | 90 | | |
| B38W14S | 7-Jul-98 | REG | BARIUM | 108 | | |
| B38W14S | 17-May-99 | REG | BARIUM | 86.6 | | |
| B38W14S | 5-Jul-00 | REG | BARIUM | 91.3 | | |
| B38W14S | 2-Jul-01 | REG | BARIUM | 85.6 | | |
| B38W14S | 24-Jul-02 | REG | BARIUM | 92.9 | | |
| B38W15D | 2-Aug-93 | REG | BARIUM | 32.4 | B | |
| B38W15D | 26-May-94 | REG | BARIUM | 30.3 | = | |
| B38W15D | 19-May-95 | REG | BARIUM | 22.3 | = | |
| B38W15D | 13-May-96 | REG | BARIUM | 39.4 | = | |
| B38W15D | 3-Jun-97 | REG | BARIUM | 27.5 | | |
| B38W15D | 6-Jul-98 | REG | BARIUM | 22.6 | | |
| B38W15D | 26-Jun-00 | REG | BARIUM | 30.2 | | |
| B38W15D | 27-Jun-01 | DUP | BARIUM | 15.9 | | |
| B38W15D | 16-Jul-02 | REG | BARIUM | 22.2 | | |
| B38W15S | 2-Aug-93 | REG | BARIUM | 50 | B | |
| B38W15S | 26-May-94 | REG | BARIUM | 34 | = | |
| B38W15S | 19-May-95 | REG | BARIUM | 50.9 | = | |
| B38W15S | 19-May-95 | DUP | BARIUM | 46.1 | = | |
| B38W15S | 13-May-96 | REG | BARIUM | 35.7 | = | |
| B38W15S | 3-Jun-97 | REG | BARIUM | 32.2 | | |
| B38W15S | 6-Jul-98 | REG | BARIUM | 32.5 | | |
| B38W15S | 26-Jun-00 | REG | BARIUM | 37.6 | | |
| B38W15S | 27-Jun-01 | REG | BARIUM | 46 | | |
| B38W15S | 16-Jul-02 | REG | BARIUM | 35.1 | | |
| B38W17A | 28-Jul-93 | REG | BARIUM | 299 | B | |
| B38W17A | 25-May-94 | REG | BARIUM | 46.9 | = | |
| B38W17A | 20-May-95 | REG | BARIUM | 36.4 | = | |
| B38W17A | 13-May-96 | REG | BARIUM | 60.3 | = | |
| B38W17A | 3-Jun-97 | REG | BARIUM | 49.3 | | |
| B38W17A | 2-Jul-98 | REG | BARIUM | 78.1 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W17A | 13-May-99 | REG | BARIUM | 63.1 | | |
| B38W17A | 19-Jun-00 | REG | BARIUM | 94.1 | | |
| B38W17A | 20-Jun-00 | REG | BARIUM | 44.7 | | |
| B38W17A | 2-Jul-02 | REG | BARIUM | 53.3 | | |
| B38W17B | 29-Jul-93 | REG | BARIUM | 64.9 | B | |
| B38W17B | 25-May-94 | REG | BARIUM | 89.4 | = | |
| B38W17B | 20-May-95 | REG | BARIUM | 71.8 | = | |
| B38W17B | 13-May-96 | REG | BARIUM | 98.3 | = | |
| B38W17B | 3-Jun-97 | REG | BARIUM | 96.5 | | |
| B38W17B | 2-Jul-98 | REG | BARIUM | 71.6 | | |
| B38W17B | 13-May-99 | REG | BARIUM | 89.1 | | |
| B38W17B | 19-Jun-00 | REG | BARIUM | 69.4 | | |
| B38W17B | 14-Jun-01 | DUP | BARIUM | 75.4 | | |
| B38W17B | 2-Jul-02 | REG | BARIUM | 62.9 | | |
| B38W18D | 21-Jul-93 | REG | BARIUM | 13.1 | B | |
| B38W18D | 13-May-94 | REG | BARIUM | 14.7 | = | |
| B38W18D | 15-May-95 | REG | BARIUM | 22.7 | = | |
| B38W18D | 14-May-96 | REG | BARIUM | 22.1 | = | |
| B38W18D | 9-May-97 | REG | BARIUM | 17.2 | | |
| B38W18D | 8-Jun-98 | REG | BARIUM | 18.8 | | |
| B38W18D | 20-May-99 | REG | BARIUM | 20.8 | | |
| B38W18D | 6-Jul-00 | REG | BARIUM | 22.9 | | |
| B38W18D | 20-Jun-01 | REG | BARIUM | 19 | | |
| B38W18D | 3-Jul-02 | DUP | BARIUM | 27.8 | | |
| B38W19D | 16-May-94 | REG | BARIUM | 30.8 | = | |
| B38W19D | 10-May-95 | REG | BARIUM | 22.4 | = | |
| B38W19D | 16-May-96 | REG | BARIUM | 29.7 | = | |
| B38W19D | 16-May-97 | REG | BARIUM | 29.5 | | |
| B38W19D | 17-Jun-98 | REG | BARIUM | 32.4 | | |
| B38W19D | 23-Jul-93 | REG | BARIUM | 23.9 | B | |
| B38W19D | 23-May-99 | REG | BARIUM | 31 | | |
| B38W19D | 12-Jul-00 | REG | BARIUM | 26.9 | | |
| B38W19D | 13-Jun-01 | REG | BARIUM | 33.2 | | |
| B38W19D | 9-Jul-02 | REG | BARIUM | 34.9 | | J |
| B38W19S | 27-May-94 | REG | BARIUM | 50.2 | = | |
| B38W19S | 17-May-95 | REG | BARIUM | 47.5 | = | |
| B38W19S | 10-May-96 | REG | BARIUM | 43.1 | = | |
| B38W19S | 29-Jun-98 | REG | BARIUM | 42.7 | | |
| B38W19S | 14-May-99 | REG | BARIUM | 43.2 | | |
| B38W19S | 13-Jun-01 | REG | BARIUM | 36.5 | | |
| B38W19S | 9-Jul-02 | REG | BARIUM | 32.6 | J | |
| B38W24D | 9-Aug-93 | REG | BARIUM | 49.6 | B | |
| B38W24D | 18-May-94 | REG | BARIUM | 41.2 | = | |
| B38W24D | 17-May-95 | REG | BARIUM | 24.6 | = | |
| B38W24D | 9-May-96 | REG | BARIUM | 56.2 | = | |
| B38W24D | 2-Jun-97 | REG | BARIUM | 50.6 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W24D | 2-Jul-98 | REG | BARIUM | 96.5 | | |
| B38W24D | 13-May-99 | REG | BARIUM | 45.6 | | |
| B38W24D | 22-Jun-00 | REG | BARIUM | 240 | | J |
| B38W24D | 5-Jul-01 | REG | BARIUM | 52.7 | | |
| B38W24D | 15-Jul-02 | REG | BARIUM | 30.6 | | |
| B38W24S | 5-Aug-93 | REG | BARIUM | 45 | B | |
| B38W24S | 25-May-94 | REG | BARIUM | 46 | = | |
| B38W24S | 17-May-95 | REG | BARIUM | 45.6 | = | |
| B38W24S | 9-May-96 | REG | BARIUM | 39.4 | = | |
| B38W24S | 2-Jun-97 | REG | BARIUM | 43.9 | | |
| B38W24S | 2-Jul-98 | REG | BARIUM | 43.3 | | |
| B38W24S | 2-May-99 | DUP | BARIUM | 39.1 | | |
| B38W24S | 21-Jun-00 | REG | BARIUM | 36.2 | | |
| B38W24S | 27-Jun-01 | REG | BARIUM | 34.1 | | |
| B38W24S | 15-Jul-02 | REG | BARIUM | 34.2 | | |
| B38W25D | 3-Aug-93 | REG | BARIUM | 49 | B | |
| B38W25D | 18-May-94 | REG | BARIUM | 51.7 | = | |
| B38W25D | 12-May-95 | REG | BARIUM | 62.7 | = | |
| B38W25D | 15-May-96 | REG | BARIUM | 54.5 | = | |
| B38W25D | 15-May-97 | REG | BARIUM | 48.3 | | |
| B38W25D | 1-Jul-98 | REG | BARIUM | 48.1 | | |
| B38W25D | 26-May-99 | REG | BARIUM | 58.4 | | |
| B38W25D | 7-Jul-00 | REG | BARIUM | 61.4 | | |
| B38W25D | 10-Jul-01 | DUP | BARIUM | 61.4 | | |
| B38W25D | 10-Jul-02 | REG | BARIUM | 92.2 | | J |
| B38W25S | 3-Aug-93 | REG | BARIUM | 126 | B | |
| B38W25S | 24-May-94 | REG | BARIUM | 50.5 | = | |
| B38W25S | 15-May-95 | REG | BARIUM | 68.5 | = | |
| B38W25S | 15-May-95 | DUP | BARIUM | 43.1 | = | |
| B38W25S | 15-May-96 | REG | BARIUM | 39 | = | |
| B38W25S | 15-May-96 | DUP | BARIUM | 39.4 | = | |
| B38W25S | 5-Jun-97 | REG | BARIUM | 47 | | |
| B38W25S | 1-Jul-98 | REG | BARIUM | 112 | | |
| B38W25S | 17-May-99 | REG | BARIUM | 73.6 | | |
| B38W25S | 7-Jul-00 | REG | BARIUM | 166 | | |
| B38W25S | 10-Jul-01 | REG | BARIUM | 198 | | |
| B38W25S | 10-Jul-02 | REG | BARIUM | 294 | | J |
| MISS01AA | 31-Jul-93 | REG | BARIUM | 159 | B | |
| MISS01AA | 23-May-94 | REG | BARIUM | 19.5 | = | |
| MISS01AA | 18-May-95 | REG | BARIUM | 10.6 | = | |
| MISS01AA | 9-May-96 | REG | BARIUM | 14.4 | = | |
| MISS01AA | 23-May-97 | REG | BARIUM | 7 | | |
| MISS01AA | 18-Jun-98 | REG | BARIUM | 8.1 | | |
| MISS01AA | 12-May-99 | REG | BARIUM | 8.7 | | |
| MISS01AA | 20-Jun-00 | REG | BARIUM | 6.9 | | |
| MISS01AA | 20-Jun-01 | REG | BARIUM | 9 | | |
| MISS01AA | 11-Jul-02 | REG | BARIUM | 6.4 | | J |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS01B | 21-Jul-93 | REG | BARIUM | 72.9 | B | |
| MISS01B | 21-Jul-93 | REG | BARIUM | 69.6 | B | |
| MISS01B | 16-May-94 | REG | BARIUM | 82.9 | = | |
| MISS01B | 10-May-95 | REG | BARIUM | 66.9 | = | |
| MISS01B | 15-May-96 | REG | BARIUM | 98.3 | = | |
| MISS01B | 18-Jun-98 | REG | BARIUM | 80 | | |
| MISS01B | 25-May-99 | REG | BARIUM | 73.5 | | |
| MISS01B | 20-Jun-00 | REG | BARIUM | 66.7 | | |
| MISS01B | 19-Jun-01 | REG | BARIUM | 71.4 | | |
| MISS01B | 18-Jul-02 | DUP | BARIUM | 66.8 | | |
| MISS02A | 20-Jul-93 | REG | BARIUM | 10 | = | |
| MISS02A | 12-May-94 | REG | BARIUM | 10.1 | = | J |
| MISS02A | 10-May-95 | REG | BARIUM | 12 | = | |
| MISS02A | 16-May-96 | REG | BARIUM | 9.5 | = | |
| MISS02A | 15-May-97 | DUP | BARIUM | 8.4 | | |
| MISS02A | 11-Jun-98 | DUP | BARIUM | 6.2 | | |
| MISS02A | 18-May-99 | DUP | BARIUM | 21 | | |
| MISS02A | 22-Jun-00 | REG | BARIUM | 8.6 | | |
| MISS02A | 5-Jul-01 | REG | BARIUM | 1.5 | | |
| MISS02A | 8-Jul-02 | REG | BARIUM | 9.4 | | J |
| MISS02B | 20-Jul-93 | REG | BARIUM | 13.3 | = | |
| MISS02B | 13-May-94 | REG | BARIUM | 7.8 | = | |
| MISS02B | 9-May-95 | REG | BARIUM | 18.1 | = | |
| MISS02B | 14-May-96 | REG | BARIUM | 9.2 | = | |
| MISS02B | 19-May-97 | REG | BARIUM | 9 | | |
| MISS02B | 10-Jun-98 | REG | BARIUM | 10 | | |
| MISS02B | 18-May-99 | REG | BARIUM | 11 | | |
| MISS02B | 23-Jun-00 | REG | BARIUM | 11.4 | | |
| MISS02B | 5-Jul-01 | REG | BARIUM | 10.3 | | |
| MISS02B | 8-Jul-02 | REG | BARIUM | 10.5 | | J |
| MISS05A | 27-May-94 | REG | BARIUM | 28.2 | = | |
| MISS05A | 12-May-95 | REG | BARIUM | 37.8 | = | |
| MISS05A | 10-May-96 | REG | BARIUM | 32 | = | |
| MISS05A | 2-Jun-97 | REG | BARIUM | 23.1 | | |
| MISS05A | 29-Jun-98 | REG | BARIUM | 18.4 | | |
| MISS05A | 14-May-99 | REG | BARIUM | 20.3 | | |
| MISS05A | 19-Jun-01 | REG | BARIUM | 17.2 | | |
| MISS05A | 1-Aug-02 | REG | BARIUM | 16.1 | | |
| MISS05B | 23-Jul-93 | REG | BARIUM | 52.2 | B | |
| MISS05B | 17-May-94 | REG | BARIUM | 89.9 | = | |
| MISS05B | 11-May-95 | REG | BARIUM | 128 | = | |
| MISS05B | 16-May-96 | REG | BARIUM | 38.3 | = | |
| MISS05B | 14-May-97 | REG | BARIUM | 37.9 | | |
| MISS05B | 30-Jun-98 | REG | BARIUM | 26.3 | | |
| MISS05B | 11-Jul-00 | REG | BARIUM | 41.6 | | |
| MISS05B | 18-Jun-01 | REG | BARIUM | 62.2 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS05B | 31-Jul-02 | REG | BARIUM | 125 | | |
| MISS06A | 4-Aug-93 | REG | BARIUM | 80.3 | B | |
| MISS06A | 24-May-94 | REG | BARIUM | 44.3 | = | |
| MISS06A | 16-May-95 | REG | BARIUM | 122 | = | |
| MISS06A | 10-May-96 | REG | BARIUM | 39.4 | = | |
| MISS06A | 3-Jun-97 | REG | BARIUM | 57.9 | | |
| MISS06A | 1-Jul-98 | REG | BARIUM | 48.1 | | |
| MISS06A | 17-May-99 | REG | BARIUM | 48 | | |
| MISS06A | 10-Jul-00 | REG | BARIUM | 51.4 | | |
| MISS06A | 20-Jun-01 | REG | BARIUM | 54.8 | | |
| MISS06A | 10-Jul-02 | REG | BARIUM | 33.1 | | J |
| MISS07B | 12-Jul-00 | REG | BARIUM | 20 | | |
| MISS07B | 11-Jul-02 | DUP | BARIUM | 15.9 | | J |
| B38W01S | 28-Jul-93 | REG | BERYLLIUM | 4 | B | |
| B38W01S | 23-May-94 | REG | BERYLLIUM | 1.1 | = | |
| B38W01S | 21-May-95 | REG | BERYLLIUM | 3.1 | = | |
| B38W01S | 17-May-96 | REG | BERYLLIUM | 2.3 | = | |
| B38W01S | 4-Jun-97 | REG | BERYLLIUM | 2.7 | | |
| B38W01S | 7-Jul-98 | REG | BERYLLIUM | 1.9 | | |
| B38W01S | 11-Jul-01 | DUP | BERYLLIUM | 2.2 | | |
| B38W01S | 17-Jul-02 | REG | BERYLLIUM | 1.6 | | J |
| B38W02D | 4-Jun-97 | REG | BERYLLIUM | 0.24 | | |
| B38W02D | 28-Jun-01 | REG | BERYLLIUM | 0.2 | | |
| MISS07B | 16-Jun-98 | REG | BERYLLIUM | 0.14 | | |
| MISS07B | 11-Jun-01 | REG | BERYLLIUM | 0.36 | | |
| B38W14D | 4-Jun-97 | REG | BERYLLIUM | 0.2 | | |
| B38W14D | 2-Jul-01 | REG | BERYLLIUM | 0.2 | | |
| B38W14S | 4-Jun-97 | REG | BERYLLIUM | 0.28 | | |
| B38W14S | 2-Jul-01 | REG | BERYLLIUM | 0.2 | | |
| B38W15D | 26-May-94 | REG | BERYLLIUM | 0.5 | = | |
| B38W15D | 3-Jun-97 | REG | BERYLLIUM | 0.24 | | |
| B38W15D | 27-Jun-01 | REG | BERYLLIUM | 0.2 | | |
| B38W15S | 3-Jun-97 | REG | BERYLLIUM | 0.2 | | |
| B38W15S | 27-Jun-01 | REG | BERYLLIUM | 0.2 | | |
| B38W17A | 28-Jul-93 | REG | BERYLLIUM | 2.7 | B | |
| B38W17A | 3-Jun-97 | REG | BERYLLIUM | 0.2 | | |
| B38W17A | 19-Jun-00 | REG | BERYLLIUM | 0.21 | | J |
| B38W17A | 14-Jun-01 | REG | BERYLLIUM | 0.24 | | |
| B38W17B | 3-Jun-97 | REG | BERYLLIUM | 0.26 | | |
| B38W17B | 14-Jun-01 | REG | BERYLLIUM | 0.44 | | |
| B38W18D | 15-May-95 | REG | BERYLLIUM | 1.1 | = | |
| B38W18D | 14-May-96 | REG | BERYLLIUM | 0.84 | = | |
| B38W18D | 9-May-97 | REG | BERYLLIUM | 0.46 | | |
| B38W18D | 8-Jun-98 | REG | BERYLLIUM | 0.86 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W18D | 20-May-99 | DUP | BERYLLIUM | 0.99 | | |
| B38W18D | 6-Jul-00 | REG | BERYLLIUM | 0.52 | | J |
| B38W18D | 20-Jun-01 | REG | BERYLLIUM | 0.2 | | |
| B38W24D | 2-Jun-97 | REG | BERYLLIUM | 0.52 | | |
| B38W24D | 2-Jul-98 | REG | BERYLLIUM | 0.82 | | |
| B38W24D | 13-May-99 | REG | BERYLLIUM | 0.42 | | |
| B38W24D | 5-Jul-01 | REG | BERYLLIUM | 0.64 | | |
| B38W24S | 25-May-94 | REG | BERYLLIUM | 1.5 | = | |
| B38W24S | 17-May-95 | REG | BERYLLIUM | 0.77 | = | |
| B38W24S | 9-May-96 | REG | BERYLLIUM | 2 | = | |
| B38W24S | 2-Jun-97 | REG | BERYLLIUM | 6.3 | | |
| B38W24S | 2-Jul-98 | REG | BERYLLIUM | 4.5 | | |
| B38W24S | 13-May-99 | REG | BERYLLIUM | 1.1 | | |
| B38W24S | 21-Jun-00 | REG | BERYLLIUM | 1.1 | | |
| B38W24S | 27-Jun-01 | REG | BERYLLIUM | 1.4 | | |
| B38W24S | 15-Jul-02 | REG | BERYLLIUM | 1.4 | | J |
| B38W25S | 3-Aug-93 | REG | BERYLLIUM | 1.1 | B | |
| B38W25S | 5-Jun-97 | REG | BERYLLIUM | 0.3 | | |
| B38W25S | 10-Jul-01 | REG | BERYLLIUM | 0.3 | | |
| MISS02B | 20-Jul-93 | REG | BERYLLIUM | 1.8 | = | |
| MISS02B | 14-May-96 | REG | BERYLLIUM | 0.68 | = | |
| MISS02B | 19-May-97 | REG | BERYLLIUM | 0.66 | | |
| MISS02B | 10-Jun-98 | REG | BERYLLIUM | 0.74 | | |
| MISS02B | 18-May-99 | REG | BERYLLIUM | 0.84 | | |
| MISS02B | 23-Jun-00 | REG | BERYLLIUM | 0.57 | | J |
| MISS02B | 5-Jul-01 | REG | BERYLLIUM | 0.3 | | |
| MISS05A | 2-Jun-97 | REG | BERYLLIUM | 0.48 | | |
| MISS05A | 29-Jun-98 | REG | BERYLLIUM | 0.14 | | |
| MISS05A | 19-Jun-01 | REG | BERYLLIUM | 0.2 | | |
| B38W01S | 28-Jul-93 | REG | BORON | 516 | = | |
| B38W01S | 23-May-94 | REG | BORON | 496 | = | |
| B38W01S | 21-May-95 | REG | BORON | 444 | = | |
| B38W01S | 4-Jun-97 | REG | BORON | 373 | | |
| B38W01S | 7-Jul-98 | REG | BORON | 270 | | |
| B38W01S | 11-Jul-01 | DUP | BORON | 276 | | |
| B38W01S | 17-Jul-02 | REG | BORON | 239 | | |
| B38W02D | 20-May-95 | REG | BORON | 125 | = | |
| B38W02D | 4-Jun-97 | REG | BORON | 23.3 | | |
| B38W02D | 30-Jun-98 | REG | BORON | 24.8 | | |
| B38W02D | 20-May-99 | REG | BORON | 24.2 | | |
| B38W02D | 28-Jun-01 | REG | BORON | 19.7 | | |
| B38W02D | 17-Jul-02 | REG | BORON | 50 | | UJ |
| B38W14D | 4-Aug-93 | REG | BORON | 63.9 | = | |
| B38W14D | 20-May-95 | REG | BORON | 108 | = | |
| B38W14D | 4-Jun-97 | REG | BORON | 49.8 | | |
| B38W14D | 7-Jul-98 | DUP | BORON | 49.8 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W14D | 17-May-99 | REG | BORON | 47.5 | | |
| B38W14D | 2-Jul-01 | REG | BORON | 42.2 | | |
| B38W14D | 24-Jul-02 | REG | BORON | 76 | | J |
| B38W14S | 4-Aug-93 | REG | BORON | 68 | = | |
| B38W14S | 20-May-95 | REG | BORON | 142 | = | |
| B38W14S | 4-Jun-97 | REG | BORON | 40.6 | | |
| B38W14S | 7-Jul-98 | REG | BORON | 39.3 | | |
| B38W14S | 17-May-99 | REG | BORON | 38.6 | | |
| B38W14S | 2-Jul-01 | REG | BORON | 34.5 | | |
| B38W14S | 24-Jul-02 | REG | BORON | 82.1 | | J |
| B38W15D | 2-Aug-93 | REG | BORON | 297 | = | |
| B38W15D | 26-May-94 | REG | BORON | 520 | = | |
| B38W15D | 19-May-95 | REG | BORON | 338 | = | |
| B38W15D | 13-May-96 | REG | BORON | 521 | = | |
| B38W15D | 3-Jun-97 | REG | BORON | 415 | | |
| B38W15D | 6-Jul-98 | REG | BORON | 235 | | |
| B38W15D | 27-Jun-01 | DUP | BORON | 210 | | |
| B38W15D | 16-Jul-02 | REG | BORON | 616 | | |
| B38W15S | 2-Aug-93 | REG | BORON | 532 | = | |
| B38W15S | 26-May-94 | REG | BORON | 425 | = | |
| B38W15S | 19-May-95 | REG | BORON | 608 | = | |
| B38W15S | 19-May-95 | DUP | BORON | 566 | = | |
| B38W15S | 13-May-96 | REG | BORON | 432 | = | |
| B38W15S | 3-Jun-97 | REG | BORON | 492 | | |
| B38W15S | 6-Jul-98 | REG | BORON | 455 | | |
| B38W15S | 27-Jun-01 | REG | BORON | 642 | | |
| B38W15S | 16-Jul-02 | REG | BORON | 713 | | |
| B38W17A | 20-May-95 | REG | BORON | 156 | = | |
| B38W17A | 13-May-96 | REG | BORON | 143 | = | |
| B38W17A | 3-Jun-97 | REG | BORON | 72.3 | | |
| B38W17A | 2-Jul-98 | REG | BORON | 63.7 | | |
| B38W17A | 13-May-99 | REG | BORON | 66.2 | | |
| B38W17A | 14-Jun-01 | REG | BORON | 62.4 | | |
| B38W17A | 2-Jul-02 | REG | BORON | 63 | | J |
| B38W17B | 29-Jul-93 | REG | BORON | 392 | = | |
| B38W17B | 25-May-94 | REG | BORON | 355 | = | |
| B38W17B | 20-May-95 | REG | BORON | 382 | = | |
| B38W17B | 13-May-96 | REG | BORON | 303 | = | |
| B38W17B | 3-Jun-97 | REG | BORON | 365 | | |
| B38W17B | 2-Jul-98 | REG | BORON | 289 | | |
| B38W17B | 13-May-99 | REG | BORON | 317 | | |
| B38W17B | 14-Jun-01 | REG | BORON | 315 | | |
| B38W17B | 2-Jul-02 | REG | BORON | 267 | | |
| B38W18D | 21-Jul-93 | REG | BORON | 491 | = | |
| B38W18D | 13-May-94 | REG | BORON | 449 | = | J |
| B38W18D | 15-May-95 | REG | BORON | 425 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W18D | 9-May-97 | REG | BORON | 405 | | |
| B38W18D | 8-Jun-98 | REG | BORON | 425 | | |
| B38W18D | 20-May-99 | REG | BORON | 366 | | |
| B38W18D | 20-Jun-01 | REG | BORON | 173 | | |
| B38W18D | 3-Jul-02 | DUP | BORON | 348 | | |
| B38W19D | 23-Jul-93 | REG | BORON | 2020 | = | |
| B38W19D | 16-May-94 | REG | BORON | 1020 | = | |
| B38W19D | 10-May-95 | REG | BORON | 885 | = | |
| B38W19D | 16-May-96 | REG | BORON | 762 | = | J |
| B38W19D | 16-May-97 | REG | BORON | 879 | | |
| B38W19D | 17-Jun-98 | REG | BORON | 962 | | |
| B38W19D | 27-May-99 | REG | BORON | 1120 | | |
| B38W19D | 13-Jun-01 | REG | BORON | 717 | | |
| B38W19D | 9-Jul-02 | REG | BORON | 1100 | | |
| B38W19S | 27-May-94 | REG | BORON | 1130 | = | |
| B38W19S | 17-May-95 | REG | BORON | 1240 | = | |
| B38W19S | 10-May-96 | REG | BORON | 1030 | = | |
| B38W19S | 29-Jun-98 | REG | BORON | 741 | | |
| B38W19S | 14-May-99 | REG | BORON | 756 | | |
| B38W19S | 13-Jun-01 | REG | BORON | 746 | | |
| B38W19S | 9-Jul-02 | REG | BORON | 801 | | |
| B38W24D | 9-Aug-93 | REG | BORON | 142 | = | |
| B38W24D | 9-May-96 | REG | BORON | 138 | = | |
| B38W24D | 2-Jun-97 | REG | BORON | 90.4 | | |
| B38W24D | 2-Jul-98 | REG | BORON | 76.6 | | |
| B38W24D | 13-May-99 | REG | BORON | 98.3 | | |
| B38W24D | 5-Jul-01 | REG | BORON | 89.4 | | |
| B38W24D | 15-Jul-02 | REG | BORON | 89.7 | | |
| B38W24S | 5-Aug-93 | REG | BORON | 104 | = | |
| B38W24S | 17-May-95 | REG | BORON | 132 | = | |
| B38W24S | 9-May-96 | REG | BORON | 105 | = | |
| B38W24S | 2-Jun-97 | REG | BORON | 79.3 | | |
| B38W24S | 2-Jul-98 | REG | BORON | 82 | | |
| B38W24S | 13-May-99 | REG | BORON | 104 | | |
| B38W24S | 27-Jun-01 | REG | BORON | 92.8 | | |
| B38W24S | 15-Jul-02 | REG | BORON | 108 | | |
| B38W25D | 3-Aug-93 | REG | BORON | 168 | = | |
| B38W25D | 18-May-94 | REG | BORON | 172 | = | |
| B38W25D | 12-May-95 | REG | BORON | 236 | = | J |
| B38W25D | 15-May-96 | REG | BORON | 159 | = | |
| B38W25D | 15-May-97 | REG | BORON | 154 | | |
| B38W25D | 1-Jul-98 | REG | BORON | 138 | | |
| B38W25D | 26-May-99 | REG | BORON | 146 | | |
| B38W25D | 10-Jul-01 | REG | BORON | 128 | | |
| B38W25S | 3-Aug-93 | REG | BORON | 134 | = | |
| B38W25S | 24-May-94 | REG | BORON | 133 | = | UJ |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W25S | 15-May-95 | REG | BORON | 227 | = | |
| B38W25S | 15-May-95 | DUP | BORON | 171 | = | |
| B38W25S | 15-May-96 | REG | BORON | 150 | = | |
| B38W25S | 15-May-96 | DUP | BORON | 142 | = | |
| B38W25S | 5-Jun-97 | REG | BORON | 126 | | |
| B38W25S | 1-Jul-98 | REG | BORON | 98.4 | | |
| B38W25S | 17-May-99 | REG | BORON | 79.6 | | |
| B38W25S | 10-Jul-01 | REG | BORON | 79.3 | | |
| MISS01AA | 31-Jul-93 | REG | BORON | 189 | = | |
| MISS01AA | 23-May-94 | REG | BORON | 204 | = | |
| MISS01AA | 18-May-95 | REG | BORON | 222 | = | |
| MISS01AA | 9-May-96 | REG | BORON | 178 | = | |
| MISS01AA | 23-May-97 | REG | BORON | 234 | | |
| MISS01AA | 18-Jun-98 | REG | BORON | 270 | | |
| MISS01AA | 12-May-99 | REG | BORON | 278 | | |
| MISS01AA | 20-Jun-01 | REG | BORON | 376 | | |
| MISS01AA | 11-Jul-02 | REG | BORON | 260 | | J |
| MISS01B | 21-Jul-93 | REG | BORON | 106 | = | |
| MISS01B | 21-Jul-93 | REG | BORON | 85.3 | = | |
| MISS01B | 15-May-96 | REG | BORON | 94.9 | = | |
| MISS01B | 18-Jun-98 | REG | BORON | 72.1 | | |
| MISS01B | 25-May-99 | REG | BORON | 61.6 | | |
| MISS01B | 19-Jun-01 | REG | BORON | 62.4 | | |
| MISS01B | 18-Jul-02 | DUP | BORON | 54.8 | | J |
| MISS02A | 20-Jul-93 | REG | BORON | 1300 | = | |
| MISS02A | 12-May-94 | REG | BORON | 897 | = | J |
| MISS02A | 10-May-95 | REG | BORON | 1190 | = | |
| MISS02A | 16-May-96 | REG | BORON | 878 | = | J |
| MISS02A | 15-May-97 | REG | BORON | 1000 | | |
| MISS02A | 15-May-97 | DUP | BORON | 910 | | |
| MISS02A | 11-Jun-98 | DUP | BORON | 818 | | |
| MISS02A | 18-May-99 | REG | BORON | 1680 | | |
| MISS02A | 5-Jul-01 | REG | BORON | 977 | | |
| MISS02A | 8-Jul-02 | REG | BORON | 2080 | | |
| MISS02B | 20-Jul-93 | REG | BORON | 2150 | = | |
| MISS02B | 13-May-94 | REG | BORON | 1260 | = | J |
| MISS02B | 9-May-95 | REG | BORON | 1220 | = | |
| MISS02B | 14-May-96 | REG | BORON | 1680 | = | |
| MISS02B | 19-May-97 | REG | BORON | 1450 | | |
| MISS02B | 10-Jun-98 | REG | BORON | 1620 | | |
| MISS02B | 18-May-99 | REG | BORON | 1580 | | |
| MISS02B | 5-Jul-01 | REG | BORON | 4110 | | |
| MISS02B | 8-Jul-02 | REG | BORON | 1190 | | |
| MISS05A | 27-May-94 | REG | BORON | 420 | = | |
| MISS05A | 12-May-95 | REG | BORON | 588 | = | J |
| MISS05A | 10-May-96 | REG | BORON | 385 | = | |
| MISS05A | 2-Jun-97 | REG | BORON | 402 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS05A | 29-Jun-98 | REG | BORON | 291 | | |
| MISS05A | 14-May-99 | REG | BORON | 352 | | |
| MISS05A | 19-Jun-01 | REG | BORON | 326 | | |
| MISS05A | 1-Aug-02 | REG | BORON | 452 | | |
| MISS05B | 17-May-94 | REG | BORON | 747 | = | |
| MISS05B | 11-May-95 | REG | BORON | 665 | = | J |
| MISS05B | 14-May-97 | REG | BORON | 662 | | |
| MISS05B | 30-Jun-98 | REG | BORON | 281 | | |
| MISS05B | 23-Jul-93 | REG | BORON | 806 | = | |
| MISS05B | 18-Jun-01 | REG | BORON | 371 | | |
| MISS05B | 31-Jul-02 | REG | BORON | 429 | | |
| MISS06A | 4-Aug-93 | REG | BORON | 1800 | = | |
| MISS06A | 24-May-94 | REG | BORON | 498 | = | J |
| MISS06A | 16-May-95 | REG | BORON | 2080 | = | |
| MISS06A | 10-May-96 | REG | BORON | 326 | = | |
| MISS06A | 3-Jun-97 | REG | BORON | 482 | | |
| MISS06A | 1-Jul-98 | REG | BORON | 327 | | |
| MISS06A | 17-May-99 | REG | BORON | 352 | | |
| MISS06A | 20-Jun-01 | REG | BORON | 165 | | |
| MISS07B | 22-Jul-93 | REG | BORON | 1180 | = | |
| MISS07B | 18-May-94 | REG | BORON | 757 | = | |
| MISS07B | 11-May-95 | REG | BORON | 1210 | = | J |
| MISS07B | 16-May-96 | REG | BORON | 963 | = | |
| MISS07B | 16-May-97 | REG | BORON | 1050 | | |
| MISS07B | 16-Jun-98 | REG | BORON | 1260 | | |
| MISS07B | 27-May-99 | REG | BORON | 1670 | | |
| MISS07B | 11-Jun-01 | REG | BORON | 2860 | | |
| MISS07B | 11-Jul-02 | REG | BORON | 2120 | | |
| B38W01S | 23-May-94 | REG | CADMIUM | 2.4 | = | |
| B38W01S | 4-Jun-97 | REG | CADMIUM | 0.66 | | |
| B38W01S | 7-Jul-98 | REG | CADMIUM | 1.2 | | |
| B38W01S | 11-Jul-01 | REG | CADMIUM | 0.37 | | |
| B38W14D | 4-Aug-93 | REG | CADMIUM | 9.7 | = | J |
| B38W14D | 4-Jun-97 | REG | CADMIUM | 1 | | |
| B38W14D | 7-Jul-98 | DUP | CADMIUM | 2.4 | | |
| B38W14D | 7-Jul-98 | REG | CADMIUM | 2.4 | | |
| B38W14D | 5-Jul-00 | REG | CADMIUM | 2.9 | | |
| B38W14D | 2-Jul-01 | REG | CADMIUM | 4.7 | | |
| B38W14S | 4-Aug-93 | REG | CADMIUM | 9.5 | = | J |
| B38W14S | 4-Jun-97 | REG | CADMIUM | 1.3 | | |
| B38W14S | 7-Jul-98 | REG | CADMIUM | 11.9 | | |
| B38W14S | 5-Jul-00 | REG | CADMIUM | 1.1 | | |
| B38W14S | 2-Jul-01 | REG | CADMIUM | 0.48 | | |
| B38W15D | 2-Aug-93 | REG | CADMIUM | 6.4 | = | |
| B38W15D | 6-Jul-98 | REG | CADMIUM | 0.44 | | |
| B38W15D | 27-Jun-01 | DUP | CADMIUM | 0.82 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W15S | 3-Jun-97 | REG | CADMIUM | 2.6 | | |
| B38W15S | 6-Jul-98 | REG | CADMIUM | 2.2 | | |
| B38W15S | 27-Jun-01 | REG | CADMIUM | 0.51 | | |
| B38W15S | 16-Jul-02 | REG | CADMIUM | 3.4 | | J |
| B38W17A | 2-Jul-98 | REG | CADMIUM | 0.79 | | |
| B38W17A | 14-Jun-01 | REG | CADMIUM | 0.3 | | |
| B38W17B | 3-Jun-97 | REG | CADMIUM | 0.33 | | |
| B38W17B | 2-Jul-98 | REG | CADMIUM | 0.36 | | |
| B38W17B | 14-Jun-01 | REG | CADMIUM | 0.3 | | |
| B38W19D | 16-May-97 | REG | CADMIUM | 0.44 | | |
| B38W19D | 17-Jun-98 | REG | CADMIUM | 0.26 | | |
| B38W19D | 13-Jun-01 | REG | CADMIUM | 0.3 | | |
| B38W19S | 29-Jun-98 | REG | CADMIUM | 0.54 | | |
| B38W19S | 13-Jun-01 | REG | CADMIUM | 0.3 | | |
| B38W24D | 2-Jul-98 | REG | CADMIUM | 2.6 | | |
| B38W24D | 5-Jul-01 | REG | CADMIUM | 0.69 | | |
| B38W24S | 2-Jul-98 | REG | CADMIUM | 0.79 | | |
| B38W24S | 27-Jun-01 | REG | CADMIUM | 0.44 | | |
| B38W25S | 5-Jun-97 | REG | CADMIUM | 0.4 | | |
| B38W25S | 1-Jul-98 | REG | CADMIUM | 1.4 | | |
| B38W25S | 7-Jul-00 | REG | CADMIUM | 1.4 | | |
| B38W25S | 10-Jul-01 | REG | CADMIUM | 0.46 | | |
| MISS01AA | 31-Jul-93 | REG | CADMIUM | 7 | = | |
| MISS01AA | 23-May-97 | REG | CADMIUM | 1.4 | | |
| MISS01AA | 18-Jun-98 | REG | CADMIUM | 0.82 | | |
| MISS01AA | 20-Jun-01 | REG | CADMIUM | 0.3 | | |
| MISS02A | 12-May-94 | REG | CADMIUM | 7.9 | = | |
| MISS02A | 15-May-97 | REG | CADMIUM | 0.46 | | |
| MISS02A | 15-May-97 | DUP | CADMIUM | 0.32 | | |
| MISS02A | 5-Jul-01 | REG | CADMIUM | 0.3 | | |
| MISS02B | 23-Jun-00 | REG | CADMIUM | 0.97 | | |
| MISS05A | 29-Jun-98 | REG | CADMIUM | 0.98 | | |
| MISS05A | 19-Jun-01 | REG | CADMIUM | 0.3 | | |
| MISS05B | 30-Jun-98 | REG | CADMIUM | 0.48 | | |
| MISS05B | 18-Jun-01 | REG | CADMIUM | 0.3 | | |
| MISS06A | 24-May-94 | REG | CADMIUM | 4.2 | = | UJ |
| MISS06A | 3-Jun-97 | REG | CADMIUM | 2.6 | | |
| MISS06A | 1-Jul-98 | REG | CADMIUM | 2.2 | | |
| MISS06A | 10-Jul-00 | REG | CADMIUM | 1.5 | | |
| MISS06A | 20-Jun-01 | REG | CADMIUM | 2.7 | | |
| B38W01S | 28-Jul-93 | REG | CALCIUM | 427000 | = | |
| B38W01S | 23-May-94 | REG | CALCIUM | 392000 | = | |
| B38W01S | 21-May-95 | REG | CALCIUM | 371000 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W01S | 17-May-96 | REG | CALCIUM | 420000 | = | |
| B38W01S | 4-Jun-97 | REG | CALCIUM | 433000 | | |
| B38W01S | 7-Jul-98 | REG | CALCIUM | 404000 | | |
| B38W01S | 17-Jul-02 | REG | CALCIUM | 308000 | | |
| B38W02D | 27-Jul-93 | REG | CALCIUM | 89000 | = | |
| B38W02D | 19-May-94 | REG | CALCIUM | 77700 | = | |
| B38W02D | 20-May-95 | REG | CALCIUM | 73700 | = | |
| B38W02D | 17-May-96 | REG | CALCIUM | 87700 | = | |
| B38W02D | 4-Jun-97 | REG | CALCIUM | 88700 | | |
| B38W02D | 30-Jun-98 | REG | CALCIUM | 84700 | | |
| B38W02D | 20-May-99 | REG | CALCIUM | 95600 | | |
| B38W02D | 13-Jul-00 | REG | CALCIUM | 86300 | | |
| B38W02D | 17-Jul-02 | REG | CALCIUM | 84400 | | |
| B38W14D | 4-Aug-93 | REG | CALCIUM | 97900 | = | J |
| B38W14D | 20-May-95 | REG | CALCIUM | 77400 | = | |
| B38W14D | 17-May-96 | REG | CALCIUM | 111000 | = | |
| B38W14D | 4-Jun-97 | REG | CALCIUM | 110000 | | |
| B38W14D | 7-Jul-98 | DUP | CALCIUM | 109000 | | |
| B38W14D | 17-May-99 | DUP | CALCIUM | 119000 | | |
| B38W14D | 5-Jul-00 | REG | CALCIUM | 102000 | | |
| B38W14D | 24-Jul-02 | REG | CALCIUM | 100000 | | |
| B38W14S | 4-Aug-93 | REG | CALCIUM | 47800 | = | J |
| B38W14S | 20-May-95 | REG | CALCIUM | 70800 | = | |
| B38W14S | 17-May-96 | REG | CALCIUM | 99700 | = | |
| B38W14S | 17-May-96 | DUP | CALCIUM | 90600 | = | |
| B38W14S | 4-Jun-97 | REG | CALCIUM | 90500 | | |
| B38W14S | 7-Jul-98 | REG | CALCIUM | 85200 | | |
| B38W14S | 17-May-99 | REG | CALCIUM | 95600 | | |
| B38W14S | 5-Jul-00 | REG | CALCIUM | 94600 | | |
| B38W14S | 24-Jul-02 | REG | CALCIUM | 98400 | | |
| B38W15D | 2-Aug-93 | REG | CALCIUM | 48600 | = | |
| B38W15D | 26-May-94 | REG | CALCIUM | 92800 | = | |
| B38W15D | 19-May-95 | REG | CALCIUM | 58700 | = | J |
| B38W15D | 13-May-96 | REG | CALCIUM | 98600 | = | J |
| B38W15D | 3-Jun-97 | REG | CALCIUM | 71300 | | |
| B38W15D | 6-Jul-98 | REG | CALCIUM | 44400 | | |
| B38W15D | 26-Jun-00 | REG | CALCIUM | 102000 | | |
| B38W15D | 16-Jul-02 | REG | CALCIUM | 80400 | | |
| B38W15S | 2-Aug-93 | REG | CALCIUM | 75700 | = | |
| B38W15S | 26-May-94 | REG | CALCIUM | 55100 | = | |
| B38W15S | 19-May-95 | REG | CALCIUM | 80500 | = | J |
| B38W15S | 19-May-95 | DUP | CALCIUM | 75100 | = | J |
| B38W15S | 13-May-96 | REG | CALCIUM | 52500 | = | J |
| B38W15S | 3-Jun-97 | REG | CALCIUM | 57200 | | |
| B38W15S | 6-Jul-98 | REG | CALCIUM | 55400 | | |
| B38W15S | 26-Jun-00 | REG | CALCIUM | 80500 | | |
| B38W15S | 16-Jul-02 | REG | CALCIUM | 82200 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W17A | 28-Jul-93 | REG | CALCIUM | 133000 | = | |
| B38W17A | 25-May-94 | REG | CALCIUM | 75000 | = | |
| B38W17A | 20-May-95 | REG | CALCIUM | 57300 | = | |
| B38W17A | 13-May-96 | REG | CALCIUM | 93800 | = | J |
| B38W17A | 3-Jun-97 | REG | CALCIUM | 53400 | | |
| B38W17A | 2-Jul-98 | REG | CALCIUM | 60800 | | |
| B38W17A | 17-May-99 | DUP | CALCIUM | 88300 | | |
| B38W17A | 19-Jun-00 | REG | CALCIUM | 54000 | | |
| B38W17A | 2-Jul-02 | REG | CALCIUM | 77700 | | |
| B38W17B | 29-Jul-93 | REG | CALCIUM | 219000 | = | J |
| B38W17B | 25-May-94 | REG | CALCIUM | 291000 | = | |
| B38W17B | 20-May-95 | REG | CALCIUM | 223000 | = | |
| B38W17B | 13-May-96 | REG | CALCIUM | 309000 | = | J |
| B38W17B | 3-Jun-97 | REG | CALCIUM | 313000 | | |
| B38W17B | 2-Jul-98 | REG | CALCIUM | 235000 | | |
| B38W17B | 13-May-99 | REG | CALCIUM | 303000 | | |
| B38W17B | 19-Jun-00 | REG | CALCIUM | 258000 | | |
| B38W17B | 2-Jul-02 | REG | CALCIUM | 230000 | | |
| B38W18D | 21-Jul-93 | REG | CALCIUM | 151000 | = | |
| B38W18D | 13-May-94 | REG | CALCIUM | 164000 | = | J |
| B38W18D | 15-May-95 | REG | CALCIUM | 154000 | = | |
| B38W18D | 14-May-96 | REG | CALCIUM | 166000 | = | |
| B38W18D | 9-May-97 | REG | CALCIUM | 154000 | | |
| B38W18D | 8-Jun-98 | REG | CALCIUM | 162000 | | |
| B38W18D | 20-May-99 | REG | CALCIUM | 161000 | | |
| B38W18D | 6-Jul-00 | REG | CALCIUM | 143000 | | |
| B38W18D | 3-Jul-02 | REG | CALCIUM | 189000 | | |
| B38W19D | 23-Jul-93 | REG | CALCIUM | 214000 | = | |
| B38W19D | 16-May-94 | REG | CALCIUM | 296000 | = | |
| B38W19D | 10-May-95 | REG | CALCIUM | 180000 | = | |
| B38W19D | 16-May-96 | REG | CALCIUM | 262000 | = | |
| B38W19D | 16-May-97 | REG | CALCIUM | 256000 | | |
| B38W19D | 17-Jun-98 | REG | CALCIUM | 226000 | | |
| B38W19D | 17-Jun-98 | REG | CALCIUM | 209000 | | |
| B38W19D | 27-May-99 | REG | CALCIUM | 258000 | | |
| B38W19D | 12-Jul-00 | REG | CALCIUM | 192000 | | |
| B38W19D | 9-Jul-02 | REG | CALCIUM | 234000 | | |
| B38W19S | 27-May-94 | REG | CALCIUM | 629000 | = | |
| B38W19S | 17-May-95 | REG | CALCIUM | 657000 | = | |
| B38W19S | 10-May-96 | REG | CALCIUM | 611000 | = | J |
| B38W19S | 29-Jun-98 | REG | CALCIUM | 670000 | | |
| B38W19S | 27-May-99 | REG | CALCIUM | 654000 | | |
| B38W19S | 9-Jul-02 | REG | CALCIUM | 582000 | | |
| B38W24D | 9-Aug-93 | REG | CALCIUM | 80700 | = | J |
| B38W24D | 18-May-94 | REG | CALCIUM | 81300 | = | |
| B38W24D | 17-May-95 | REG | CALCIUM | 69700 | = | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W24D | 9-May-96 | REG | CALCIUM | 98300 | = | J |
| B38W24D | 2-Jun-97 | REG | CALCIUM | 83600 | | |
| B38W24D | 2-Jul-98 | REG | CALCIUM | 82900 | | |
| B38W24D | 14-May-99 | REG | CALCIUM | 98800 | | |
| B38W24D | 22-Jun-00 | REG | CALCIUM | 89800 | | |
| B38W24D | 15-Jul-02 | REG | CALCIUM | 68600 | | |
| B38W24S | 5-Aug-93 | REG | CALCIUM | 42600 | = | J |
| B38W24S | 25-May-94 | REG | CALCIUM | 54000 | = | |
| B38W24S | 17-May-95 | REG | CALCIUM | 57000 | = | |
| B38W24S | 9-May-96 | REG | CALCIUM | 61300 | = | J |
| B38W24S | 2-Jun-97 | REG | CALCIUM | 43900 | | |
| B38W24S | 2-Jul-98 | REG | CALCIUM | 41000 | | |
| B38W24S | 13-May-99 | REG | CALCIUM | 67100 | | |
| B38W24S | 21-Jun-00 | REG | CALCIUM | 56700 | | |
| B38W24S | 15-Jul-02 | REG | CALCIUM | 52200 | | |
| B38W25D | 3-Aug-93 | REG | CALCIUM | 152000 | = | |
| B38W25D | 18-May-94 | REG | CALCIUM | 117000 | = | |
| B38W25D | 12-May-95 | REG | CALCIUM | 144000 | = | |
| B38W25D | 15-May-96 | REG | CALCIUM | 134000 | = | J |
| B38W25D | 15-May-97 | REG | CALCIUM | 109000 | | J |
| B38W25D | 1-Jul-98 | REG | CALCIUM | 109000 | | |
| B38W25D | 26-May-99 | REG | CALCIUM | 109000 | | |
| B38W25D | 7-Jul-00 | REG | CALCIUM | 99500 | | |
| B38W25D | 10-Jul-02 | REG | CALCIUM | 126000 | | |
| B38W25S | 3-Aug-93 | REG | CALCIUM | 255000 | = | |
| B38W25S | 24-May-94 | REG | CALCIUM | 189000 | = | J |
| B38W25S | 15-May-95 | REG | CALCIUM | 208000 | = | |
| B38W25S | 15-May-95 | DUP | CALCIUM | 199000 | = | |
| B38W25S | 15-May-96 | REG | CALCIUM | 162000 | = | J |
| B38W25S | 15-May-96 | DUP | CALCIUM | 183000 | = | J |
| B38W25S | 5-Jun-97 | REG | CALCIUM | 169000 | | |
| B38W25S | 1-Jul-98 | REG | CALCIUM | 144000 | | |
| B38W25S | 1-May-99 | REG | CALCIUM | 185000 | | |
| B38W25S | 7-Jul-00 | REG | CALCIUM | 186000 | | |
| B38W25S | 10-Jul-02 | REG | CALCIUM | 187000 | | |
| MISS01AA | 31-Jul-93 | REG | CALCIUM | 616000 | = | J |
| MISS01AA | 23-May-94 | REG | CALCIUM | 564000 | = | |
| MISS01AA | 18-May-95 | REG | CALCIUM | 714000 | = | |
| MISS01AA | 9-May-96 | REG | CALCIUM | 555000 | = | J |
| MISS01AA | 23-May-97 | REG | CALCIUM | 616000 | | |
| MISS01AA | 18-Jun-98 | REG | CALCIUM | 645000 | | |
| MISS01AA | 12-May-99 | REG | CALCIUM | 645000 | | |
| MISS01AA | 20-Jun-00 | REG | CALCIUM | 544000 | | |
| MISS01AA | 11-Jul-02 | REG | CALCIUM | 569000 | | |
| MISS01B | 21-Jul-93 | REG | CALCIUM | 92200 | = | |
| MISS01B | 16-May-94 | REG | CALCIUM | 90800 | = | |
| MISS01B | 10-May-95 | REG | CALCIUM | 84500 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS01B | 15-May-96 | REG | CALCIUM | 97100 | = | J |
| MISS01B | 18-Jun-98 | REG | CALCIUM | 91900 | | |
| MISS01B | 25-May-99 | REG | CALCIUM | 96600 | | |
| MISS01B | 18-Jul-02 | REG | CALCIUM | 62900 | | |
| MISS02A | 20-Jul-93 | REG | CALCIUM | 164000 | = | |
| MISS02A | 12-May-94 | REG | CALCIUM | 79400 | = | J |
| MISS02A | 10-May-95 | REG | CALCIUM | 54500 | = | |
| MISS02A | 16-May-96 | REG | CALCIUM | 67600 | = | |
| MISS02A | 15-May-97 | REG | CALCIUM | 66700 | | J |
| MISS02A | 15-May-97 | DUP | CALCIUM | 62400 | | J |
| MISS02A | 11-Jun-98 | DUP | CALCIUM | 106000 | | |
| MISS02A | 81-May-99 | REG | CALCIUM | 116000 | | |
| MISS02A | 22-Jun-00 | REG | CALCIUM | 116000 | | |
| MISS02A | 8-Jul-02 | REG | CALCIUM | 225000 | | |
| MISS02B | 20-Jul-93 | REG | CALCIUM | 295000 | = | |
| MISS02B | 13-May-94 | REG | CALCIUM | 221000 | = | J |
| MISS02B | 9-May-95 | REG | CALCIUM | 248000 | = | |
| MISS02B | 14-May-96 | REG | CALCIUM | 275000 | = | |
| MISS02B | 19-May-97 | REG | CALCIUM | 272000 | | |
| MISS02B | 10-Jun-98 | REG | CALCIUM | 304000 | | |
| MISS02B | 18-May-99 | DUP | CALCIUM | 304000 | | |
| MISS02B | 23-Jun-00 | REG | CALCIUM | 240000 | | |
| MISS02B | 8-Jul-02 | REG | CALCIUM | 255000 | | |
| MISS05A | 27-May-94 | REG | CALCIUM | 582000 | = | |
| MISS05A | 12-May-95 | REG | CALCIUM | 683000 | = | |
| MISS05A | 10-May-96 | REG | CALCIUM | 603000 | = | J |
| MISS05A | 2-Jun-97 | REG | CALCIUM | 612000 | | |
| MISS05A | 29-Jun-98 | REG | CALCIUM | 591000 | | |
| MISS05A | 14-May-99 | REG | CALCIUM | 677000 | | |
| MISS05A | 1-Aug-02 | REG | CALCIUM | 554000 | | |
| MISS05B | 23-Jul-93 | REG | CALCIUM | 315000 | = | |
| MISS05B | 17-May-94 | REG | CALCIUM | 339000 | = | |
| MISS05B | 11-May-95 | REG | CALCIUM | 295000 | = | |
| MISS05B | 16-May-96 | REG | CALCIUM | 322000 | = | |
| MISS05B | 14-May-97 | REG | CALCIUM | 340000 | | |
| MISS05B | 30-Jun-98 | REG | CALCIUM | 143000 | | |
| MISS05B | 11-Jul-00 | REG | CALCIUM | 201000 | | |
| MISS05B | 31-Jul-02 | REG | CALCIUM | 355000 | | |
| MISS06A | 4-Aug-93 | REG | CALCIUM | 218000 | = | J |
| MISS06A | 24-May-94 | REG | CALCIUM | 249000 | = | J |
| MISS06A | 16-May-95 | REG | CALCIUM | 292000 | = | |
| MISS06A | 10-May-96 | REG | CALCIUM | 225000 | = | J |
| MISS06A | 3-Jun-97 | REG | CALCIUM | 273000 | | |
| MISS06A | 1-Jul-98 | REG | CALCIUM | 198000 | | |
| MISS06A | 17-May-99 | DUP | CALCIUM | 252000 | | |
| MISS06A | 10-Jul-00 | REG | CALCIUM | 168000 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS06A | 10-Jul-02 | REG | CALCIUM | 171000 | | |
| MISS07B | 22-Jul-93 | REG | CALCIUM | 180000 | = | |
| MISS07B | 22-Jul-93 | REG | CALCIUM | 175000 | = | |
| MISS07B | 16-Jun-98 | REG | CALCIUM | 160000 | | |
| MISS07B | 27-May-99 | DUP | CALCIUM | 250000 | | |
| MISS07B | 12-Jul-00 | REG | CALCIUM | 138000 | | |
| MISS07B | 11-Jul-02 | REG | CALCIUM | 254000 | | |
| B38W02D | 27-Jul-93 | REG | CHROMIUM | 7.9 | B | |
| B38W02D | 17-May-96 | REG | CHROMIUM | 38.3 | = | |
| B38W02D | 4-Jun-97 | REG | CHROMIUM | 20.8 | | |
| B38W02D | 30-Jun-98 | REG | CHROMIUM | 371 | | |
| B38W02D | 20-May-99 | REG | CHROMIUM | 9.7 | | |
| B38W02D | 13-Jul-00 | REG | CHROMIUM | 98.4 | | J |
| B38W02D | 28-Jun-01 | REG | CHROMIUM | 48.9 | | |
| B38W02D | 17-Jul-02 | REG | CHROMIUM | 9.7 | | J |
| B38W14D | 4-Jun-97 | REG | CHROMIUM | 21.2 | | |
| B38W14D | 7-Jul-98 | REG | CHROMIUM | 3.9 | | |
| B38W14D | 7-Jul-98 | DUP | CHROMIUM | 2.6 | | |
| B38W14D | 17-May-99 | REG | CHROMIUM | 1 | | |
| B38W14D | 2-Jul-01 | REG | CHROMIUM | 8.7 | | |
| B38W14D | 24-Jul-02 | REG | CHROMIUM | 5.5 | | |
| B38W14S | 20-May-95 | REG | CHROMIUM | 35.9 | = | |
| B38W14S | 17-May-96 | REG | CHROMIUM | 345 | = | |
| B38W14S | 17-May-96 | DUP | CHROMIUM | 296 | = | |
| B38W14S | 4-Jun-97 | REG | CHROMIUM | 354 | | |
| B38W14S | 7-Jul-98 | REG | CHROMIUM | 420 | | |
| B38W14S | 17-May-99 | REG | CHROMIUM | 67.2 | | |
| B38W14S | 5-Jul-00 | REG | CHROMIUM | 7.5 | | |
| B38W14S | 2-Jul-01 | REG | CHROMIUM | 0.9 | | |
| B38W15D | 2-Aug-93 | REG | CHROMIUM | 9.3 | B | |
| B38W15D | 3-Jun-97 | REG | CHROMIUM | 2.2 | | |
| B38W15D | 6-Jul-98 | REG | CHROMIUM | 6.5 | | |
| B38W15D | 27-Jun-01 | REG | CHROMIUM | 19.5 | | |
| B38W15D | 16-Jul-02 | REG | CHROMIUM | 1.8 | | J |
| B38W15S | 3-Jun-97 | REG | CHROMIUM | 1.8 | | |
| B38W15S | 6-Jul-98 | REG | CHROMIUM | 5.5 | | |
| B38W15S | 27-Jun-01 | REG | CHROMIUM | 2.9 | | |
| B38W15S | 16-Jul-02 | REG | CHROMIUM | 2 | | J |
| B38W17A | 28-Jul-93 | REG | CHROMIUM | 21000 | = | |
| B38W17A | 25-May-94 | REG | CHROMIUM | 122 | = | |
| B38W17A | 20-May-95 | REG | CHROMIUM | 56.6 | = | |
| B38W17A | 13-May-96 | REG | CHROMIUM | 632 | = | |
| B38W17A | 3-Jun-97 | REG | CHROMIUM | 1880 | | |
| B38W17A | 2-Jul-98 | REG | CHROMIUM | 5350 | | |
| B38W17A | 13-May-99 | REG | CHROMIUM | 66.3 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W17A | 19-Jun-00 | REG | CHROMIUM | 1590 | | |
| B38W17A | 14-Jun-01 | REG | CHROMIUM | 3.9 | | |
| B38W17A | 2-Jul-02 | REG | CHROMIUM | 102 | | |
| B38W17B | 3-Jun-97 | REG | CHROMIUM | 0.84 | | |
| B38W17B | 2-Jul-98 | REG | CHROMIUM | 2.8 | | |
| B38W17B | 13-May-99 | REG | CHROMIUM | 1.4 | | |
| B38W17B | 19-Jun-00 | REG | CHROMIUM | 12.9 | | |
| B38W17B | 14-Jun-01 | REG | CHROMIUM | 3.6 | | |
| B38W17B | 2-Jul-02 | REG | CHROMIUM | 4.4 | | |
| B38W18D | 21-Jul-93 | REG | CHROMIUM | 27.2 | = | |
| B38W18D | 13-May-94 | REG | CHROMIUM | 25.8 | = | J |
| B38W18D | 15-May-95 | REG | CHROMIUM | 29.9 | = | |
| B38W18D | 14-May-96 | REG | CHROMIUM | 30.8 | = | J |
| B38W18D | 9-May-97 | REG | CHROMIUM | 26.9 | | |
| B38W18D | 8-Jun-98 | REG | CHROMIUM | 83.4 | | |
| B38W18D | 20-May-99 | REG | CHROMIUM | 39.5 | | |
| B38W18D | 6-Jul-00 | REG | CHROMIUM | 28 | | |
| B38W18D | 20-Jun-01 | REG | CHROMIUM | 10.3 | | |
| B38W18D | 3-Jul-02 | DUP | CHROMIUM | 28.6 | | |
| B38W19D | 16-May-94 | REG | CHROMIUM | 5.1 | = | |
| B38W19D | 16-May-97 | REG | CHROMIUM | 3.4 | | |
| B38W19D | 12-Jul-00 | REG | CHROMIUM | 2.8 | | |
| B38W19D | 13-Jun-01 | REG | CHROMIUM | 5 | | |
| B38W19S | 29-Jun-98 | REG | CHROMIUM | 2.9 | | |
| B38W19S | 14-May-99 | REG | CHROMIUM | 2.6 | | |
| B38W19S | 13-Jun-01 | REG | CHROMIUM | 0.9 | | |
| B38W24D | 9-Aug-93 | REG | CHROMIUM | 8.9 | B | J |
| B38W24D | 18-May-94 | REG | CHROMIUM | 6.2 | = | |
| B38W24D | 9-May-96 | REG | CHROMIUM | 6.2 | = | |
| B38W24D | 2-Jul-98 | REG | CHROMIUM | 17.9 | | |
| B38W24D | 13-May-99 | REG | CHROMIUM | 6.4 | | |
| B38W24D | 5-Jul-01 | REG | CHROMIUM | 5.4 | | |
| B38W24D | 15-Jul-02 | REG | CHROMIUM | 4.2 | | J |
| B38W24S | 25-May-94 | REG | CHROMIUM | 4.9 | = | |
| B38W24S | 2-Jun-97 | REG | CHROMIUM | 4.5 | | |
| B38W24S | 21-Jun-00 | REG | CHROMIUM | 5.6 | | |
| B38W24S | 27-Jun-01 | REG | CHROMIUM | 0.9 | | |
| B38W25D | 18-May-94 | REG | CHROMIUM | 8.8 | = | |
| B38W25D | 12-May-95 | REG | CHROMIUM | 36.5 | = | J |
| B38W25D | 15-May-97 | REG | CHROMIUM | 6.2 | | |
| B38W25D | 1-Jul-98 | REG | CHROMIUM | 3.2 | | |
| B38W25D | 7-Jul-00 | REG | CHROMIUM | 5.3 | | |
| B38W25D | 10-Jul-01 | DUP | CHROMIUM | 5.4 | | |
| B38W25S | 3-Aug-93 | REG | CHROMIUM | 210 | = | |
| B38W25S | 15-May-95 | REG | CHROMIUM | 14.6 | = | |
| B38W25S | 15-May-95 | DUP | CHROMIUM | 12.7 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W25S | 15-May-96 | REG | CHROMIUM | 4.9 | = | |
| B38W25S | 5-Jun-97 | REG | CHROMIUM | 20.7 | | |
| B38W25S | 1-Jul-98 | REG | CHROMIUM | 50.7 | | |
| B38W25S | 17-May-99 | REG | CHROMIUM | 106 | | |
| B38W25S | 7-Jul-00 | REG | CHROMIUM | 48.4 | | |
| B38W25S | 10-Jul-01 | REG | CHROMIUM | 3.5 | | |
| MISS01AA | 31-Jul-93 | REG | CHROMIUM | 54.9 | = | |
| MISS01AA | 23-May-94 | REG | CHROMIUM | 285 | = | |
| MISS01AA | 23-May-97 | REG | CHROMIUM | 2.1 | | |
| MISS01AA | 18-Jun-98 | REG | CHROMIUM | 7.4 | | |
| MISS01AA | 12-May-99 | REG | CHROMIUM | 1 | | |
| MISS01AA | 20-Jun-00 | REG | CHROMIUM | 4.4 | | |
| MISS01AA | 20-Jun-01 | REG | CHROMIUM | 0.9 | | |
| MISS01B | 20-Jun-00 | REG | CHROMIUM | 1.7 | | J |
| MISS01B | 18-Jul-02 | REG | CHROMIUM | 6.4 | | J |
| MISS02A | 20-Jul-93 | REG | CHROMIUM | 157 | = | |
| MISS02A | 12-May-94 | REG | CHROMIUM | 15.1 | = | J |
| MISS02A | 10-May-95 | REG | CHROMIUM | 94.5 | = | |
| MISS02A | 15-May-97 | REG | CHROMIUM | 24.3 | | |
| MISS02A | 15-May-97 | DUP | CHROMIUM | 22.3 | | |
| MISS02A | 11-Jun-98 | DUP | CHROMIUM | 26.8 | | |
| MISS02A | 18-May-99 | REG | CHROMIUM | 94.1 | | |
| MISS02A | 22-Jun-00 | REG | CHROMIUM | 69.2 | | |
| MISS02A | 5-Jul-01 | REG | CHROMIUM | 19.7 | | |
| MISS02A | 8-Jul-02 | REG | CHROMIUM | 81.1 | | |
| MISS02B | 20-Jul-93 | REG | CHROMIUM | 5.1 | = | |
| MISS02B | 9-May-95 | REG | CHROMIUM | 5.3 | = | |
| MISS02B | 19-May-97 | REG | CHROMIUM | 5.1 | | |
| MISS02B | 10-Jun-98 | REG | CHROMIUM | 6.2 | | |
| MISS02B | 18-May-99 | REG | CHROMIUM | 7.5 | | |
| MISS02B | 23-Jun-00 | REG | CHROMIUM | 24.1 | | |
| MISS02B | 5-Jul-01 | REG | CHROMIUM | 24.9 | | |
| MISS05B | 11-May-95 | REG | CHROMIUM | 10.9 | = | |
| MISS05B | 14-May-97 | REG | CHROMIUM | 2.9 | | |
| MISS05B | 30-Jun-98 | REG | CHROMIUM | 10.8 | | |
| MISS05B | 11-Jul-00 | REG | CHROMIUM | 2.4 | | |
| MISS05B | 18-Jun-01 | REG | CHROMIUM | 5.9 | | |
| MISS06A | 10-Jul-00 | REG | CHROMIUM | 16.8 | | |
| B38W07B | 16-Jun-98 | REG | CHROMIUM | 1.6 | | |
| B38W02D | 4-Jun-97 | REG | COBALT | 1.1 | | |
| B38W02D | 30-Jun-98 | REG | COBALT | 1.6 | | |
| B38W02D | 13-Jul-00 | REG | COBALT | 1.4 | | J |
| B38W02D | 28-Jun-01 | REG | COBALT | 42.1 | | |
| B38W14D | 7-Jul-98 | REG | COBALT | 0.42 | | |
| B38W14D | 2-Jul-01 | REG | COBALT | 13.5 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W14S | 4-Aug-93 | REG | COBALT | 20.1 | B | |
| B38W14S | 4-Jun-97 | REG | COBALT | 0.97 | | |
| B38W14S | 7-Jul-98 | REG | COBALT | 2.2 | | |
| B38W14S | 17-May-99 | REG | COBALT | 1.5 | | |
| B38W14S | 2-Jul-01 | REG | COBALT | 0.8 | | |
| B38W15D | 3-Jun-97 | REG | COBALT | 2.5 | | |
| B38W15D | 6-Jul-98 | REG | COBALT | 1.4 | | |
| B38W15D | 27-Jun-01 | DUP | COBALT | 21.4 | | |
| B38W15D | 16-Jul-02 | DUP | COBALT | 2.3 | | J |
| B38W15S | 3-Jun-97 | REG | COBALT | 1.4 | | |
| B38W15S | 6-Jul-98 | REG | COBALT | 0.69 | | |
| B38W15S | 2-Jul-01 | REG | COBALT | 0.8 | | |
| B38W17A | 28-Jul-93 | REG | COBALT | 57 | = | |
| B38W17A | 25-May-94 | REG | COBALT | 5.8 | = | |
| B38W17A | 3-Jun-97 | REG | COBALT | 1.6 | | |
| B38W17A | 2-Jul-98 | REG | COBALT | 8.1 | | |
| B38W17A | 13-May-99 | DUP | COBALT | 1.2 | | |
| B38W17A | 19-Jun-00 | REG | COBALT | 13 | | |
| B38W17A | 14-Jun-01 | REG | COBALT | 1.6 | | |
| B38W18D | 21-Jul-93 | REG | COBALT | 17.7 | B | |
| B38W18D | 13-May-94 | REG | COBALT | 19.1 | = | J |
| B38W18D | 15-May-95 | REG | COBALT | 18.5 | = | |
| B38W18D | 14-May-96 | REG | COBALT | 16.9 | = | |
| B38W18D | 9-May-97 | REG | COBALT | 11.5 | | |
| B38W18D | 8-Jun-98 | REG | COBALT | 13.3 | | |
| B38W18D | 20-May-99 | REG | COBALT | 15.7 | | |
| B38W18D | 20-Jun-01 | REG | COBALT | 49.2 | | |
| B38W18D | 3-Jul-02 | DUP | COBALT | 19 | | |
| B38W19D | 12-Jul-00 | REG | COBALT | 0.5 | | J |
| B38W19D | 13-Jun-01 | REG | COBALT | 14.2 | | |
| B38W24D | 9-Aug-93 | REG | COBALT | 12 | | B |
| B38W24D | 2-Jul-98 | REG | COBALT | 0.74 | | |
| B38W24D | 5-Jul-01 | REG | COBALT | 1.2 | | |
| B38W24D | 6-Jul-01 | REG | COBALT | | | |
| B38W24S | 21-Jun-00 | REG | COBALT | 0.72 | | J |
| B38W24S | 15-Jul-02 | REG | COBALT | 11.1 | | |
| B38W25S | 3-Aug-93 | REG | COBALT | 14.6 | | B |
| B38W25S | 15-May-95 | REG | COBALT | 3.6 | = | |
| B38W25S | 5-Jun-97 | REG | COBALT | 1.5 | | |
| B38W25S | 1-Jul-98 | REG | COBALT | 2.4 | | |
| B38W25S | 17-May-99 | REG | COBALT | 3.2 | | |
| B38W25S | 10-Jul-01 | REG | COBALT | 24 | | |
| B38W25S | 10-Jul-02 | REG | COBALT | 18.7 | | |
| MISS02A | 15-May-97 | REG | COBALT | 1 | | |
| MISS02A | 15-May-97 | DUP | COBALT | 0.98 | | |
| MISS02A | 11-Jun-98 | DUP | COBALT | 1.1 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02A | 18-May-99 | DUP | COBALT | 2.2 | | |
| MISS02A | 5-Jul-01 | REG | COBALT | 1 | | |
| MISS02B | 13-May-94 | REG | COBALT | 7 | = | J |
| MISS02B | 9-May-95 | REG | COBALT | 5.4 | = | |
| MISS02B | 19-May-97 | REG | COBALT | 3.3 | | |
| MISS02B | 10-Jun-98 | REG | COBALT | 2.8 | | |
| MISS02B | 18-May-99 | REG | COBALT | 3 | | |
| MISS02B | 5-Jul-01 | REG | COBALT | 11 | | |
| MISS05A | 12-May-95 | REG | COBALT | 9.1 | = | |
| MISS05A | 2-Jun-97 | REG | COBALT | 1.4 | | |
| MISS05A | 29-Jun-98 | REG | COBALT | 1.3 | | |
| MISS05A | 14-May-99 | REG | COBALT | 14.1 | | |
| MISS05A | 19-Jun-01 | REG | COBALT | 2.8 | | |
| MISS05A | 1-Aug-02 | REG | COBALT | 3.8 | | J |
| MISS06A | 24-May-94 | REG | COBALT | 4.2 | = | |
| MISS06A | 3-Jun-97 | REG | COBALT | 0.95 | | |
| MISS06A | 1-Jul-98 | REG | COBALT | 0.64 | | |
| MISS06A | 10-Jul-00 | REG | COBALT | 1.2 | | J |
| MISS06A | 20-Jun-01 | REG | COBALT | 0.8 | | |
| B38W07B | 16-Jun-98 | REG | COBALT | 4.4 | | |
| B38W07B | 27-May-99 | DUP | COBALT | 5.3 | | |
| B38W07B | 12-Jul-00 | REG | COBALT | 3.6 | | |
| B38W02D | 19-May-94 | REG | COPPER | 3.8 | = | |
| B38W02D | 4-Jun-97 | REG | COPPER | 2.4 | | |
| B38W02D | 30-Jun-98 | REG | COPPER | 8.7 | | |
| B38W02D | 20-May-99 | REG | COPPER | 2.9 | | |
| B38W02D | 28-Jun-01 | REG | COPPER | 4 | | |
| B38W14D | 4-Aug-93 | REG | COPPER | 33.1 | = | |
| B38W14D | 20-May-95 | REG | COPPER | 5.7 | = | |
| B38W14D | 4-Jun-97 | REG | COPPER | 15.7 | | |
| B38W14D | 7-Jul-98 | REG | COPPER | 13 | | |
| B38W14D | 7-Jul-98 | DUP | COPPER | 11.8 | | |
| B38W14D | 17-May-99 | DUP | COPPER | 3.6 | | |
| B38W14D | 5-Jul-00 | REG | COPPER | 21.6 | | |
| B38W14D | 2-Jul-01 | REG | COPPER | 19.4 | | |
| B38W14S | 4-Aug-93 | REG | COPPER | 14.7 | | B |
| B38W14S | 20-May-95 | REG | COPPER | 4.1 | = | |
| B38W14S | 4-Jun-97 | REG | COPPER | 8.9 | | |
| B38W14S | 7-Jul-98 | REG | COPPER | 22.3 | | |
| B38W14S | 17-May-99 | REG | COPPER | 4.9 | | |
| B38W14S | 5-Jul-00 | REG | COPPER | 2.5 | | |
| B38W14S | 2-Jul-01 | REG | COPPER | 1.4 | | |
| B38W15D | 2-Aug-93 | REG | COPPER | 33.7 | = | |
| B38W15D | 13-May-96 | REG | COPPER | 9.7 | = | |
| B38W15D | 3-Jun-97 | REG | COPPER | 2.6 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W15D | 6-Jul-98 | REG | COPPER | 9.2 | | |
| B38W15D | 26-Jun-00 | REG | COPPER | 1.3 | | |
| B38W15D | 27-Jun-01 | REG | COPPER | 13.6 | | |
| B38W15D | 16-Jul-02 | REG | COPPER | 2.1 | | J |
| B38W15S | 19-May-95 | REG | COPPER | 9.3 | = | |
| B38W15S | 19-May-95 | DUP | COPPER | 6.4 | = | |
| B38W15S | 3-Jun-97 | REG | COPPER | 5.4 | | |
| B38W15S | 6-Jul-98 | REG | COPPER | 21.8 | | |
| B38W15S | 26-Jun-00 | REG | COPPER | 4.1 | | |
| B38W15S | 27-Jun-01 | REG | COPPER | 18.9 | | |
| B38W15S | 16-Jul-02 | REG | COPPER | 16 | | |
| B38W17A | 28-Jul-93 | REG | COPPER | 118 | = | |
| B38W17A | 25-May-94 | REG | COPPER | 7.6 | = | |
| B38W17A | 13-May-96 | REG | COPPER | 8.4 | = | |
| B38W17A | 3-Jun-97 | REG | COPPER | 10 | | |
| B38W17A | 2-Jul-98 | REG | COPPER | 36.6 | | |
| B38W17A | 13-May-99 | REG | COPPER | 2.9 | | |
| B38W17A | 14-Jun-01 | REG | COPPER | 2 | | |
| B38W17B | 2-Jul-98 | REG | COPPER | 2.1 | | |
| B38W17B | 13-May-99 | REG | COPPER | 1.2 | | |
| B38W17B | 14-Jun-01 | REG | COPPER | 0.7 | | |
| B38W18D | 6-Jul-00 | REG | COPPER | 2.4 | | |
| B38W18D | 20-Jun-01 | REG | COPPER | 0.78 | | |
| B38W19D | 16-May-97 | REG | COPPER | 3.9 | | |
| B38W19D | 17-Jun-98 | REG | COPPER | 1 | | |
| B38W19D | 13-Jun-01 | REG | COPPER | 0.7 | | |
| B38W19S | 17-May-95 | REG | COPPER | 4.8 | = | |
| B38W19S | 29-Jun-98 | REG | COPPER | 2.8 | | |
| B38W19S | 13-Jun-01 | REG | COPPER | 0.7 | | |
| B38W24D | 9-Aug-93 | REG | COPPER | 6 | | B |
| B38W24D | 18-May-94 | REG | COPPER | 3.4 | = | |
| B38W24D | 2-Jun-97 | REG | COPPER | 1.3 | | |
| B38W24D | 2-Jul-98 | REG | COPPER | 10.4 | | |
| B38W24D | 13-May-99 | REG | COPPER | 3 | | |
| B38W24D | 5-Jul-01 | REG | COPPER | 4.6 | | |
| B38W24D | 15-Jul-02 | REG | COPPER | 3.2 | | J |
| B38W24S | 5-Aug-93 | REG | COPPER | 8.8 | | B |
| B38W24S | 2-Jun-97 | REG | COPPER | 24.2 | | |
| B38W24S | 2-Jul-98 | REG | COPPER | 2.8 | | |
| B38W24S | 13-May-99 | REG | COPPER | 9.4 | | |
| B38W24S | 27-Jun-01 | REG | COPPER | 1.3 | | |
| B38W25D | 15-May-97 | REG | COPPER | 4.6 | | |
| B38W25D | 1-Jul-98 | REG | COPPER | 1.3 | | |
| B38W25D | 7-Jul-00 | REG | COPPER | 0.54 | | J |
| B38W25D | 10-Jul-01 | DUP | COPPER | 2 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W25S | 3-Aug-93 | REG | COPPER | 52.4 | = | |
| B38W25S | 5-Jun-97 | REG | COPPER | 1 | | |
| B38W25S | 1-Jul-98 | REG | COPPER | 7.3 | | |
| B38W25S | 17-May-99 | REG | COPPER | 2.8 | | |
| B38W25S | 7-Jul-00 | REG | COPPER | 5.2 | | |
| B38W25S | 10-Jul-01 | REG | COPPER | 1.7 | | |
| MISS01AA | 31-Jul-93 | REG | COPPER | 31.1 | = | |
| MISS01AA | 23-May-94 | REG | COPPER | 11.7 | = | |
| MISS01AA | 23-May-97 | REG | COPPER | 3.9 | | |
| MISS01AA | 20-Jun-01 | REG | COPPER | 0.7 | | |
| MISS02A | 20-Jul-93 | REG | COPPER | 126 | = | |
| MISS02A | 12-May-94 | REG | COPPER | 103 | = | |
| MISS02A | 10-May-95 | REG | COPPER | 173 | = | |
| MISS02A | 16-May-96 | REG | COPPER | 169 | = | |
| MISS02A | 15-May-97 | REG | COPPER | 112 | | |
| MISS02A | 15-May-97 | DUP | COPPER | 114 | | |
| MISS02A | 11-Jun-98 | DUP | COPPER | 96.2 | | |
| MISS02A | 18-May-99 | REG | COPPER | 366 | | |
| MISS02A | 5-Jul-01 | REG | COPPER | 20.8 | | |
| MISS02A | 8-Jul-02 | REG | COPPER | 76.1 | | |
| MISS02B | 13-May-94 | REG | COPPER | 166 | = | J |
| MISS02B | 9-May-95 | REG | COPPER | 6 | = | |
| MISS02B | 19-May-97 | REG | COPPER | 3.4 | | |
| MISS02B | 10-Jun-98 | REG | COPPER | 1.1 | | |
| MISS02B | 23-Jun-00 | REG | COPPER | 1.7 | | |
| MISS02B | 5-Jul-01 | REG | COPPER | 2 | | |
| MISS05A | 10-May-96 | REG | COPPER | 6 | = | |
| MISS05A | 2-Jun-97 | REG | COPPER | 3.7 | | |
| MISS05A | 29-Jun-98 | REG | COPPER | 4.1 | | |
| MISS05A | 14-May-99 | REG | COPPER | 1.7 | | |
| MISS05A | 19-Jun-01 | REG | COPPER | 1.4 | | |
| MISS05B | 11-May-95 | REG | COPPER | 4.9 | = | |
| MISS05B | 30-Jun-98 | REG | COPPER | 3.4 | | |
| MISS05B | 18-Jun-01 | REG | COPPER | 0.7 | | |
| MISS06A | 4-Aug-93 | REG | COPPER | 22.9 | B | |
| MISS06A | 24-May-94 | REG | COPPER | 21.8 | = | |
| MISS06A | 16-May-95 | REG | COPPER | 31.3 | = | |
| MISS06A | 10-May-96 | REG | COPPER | 27.2 | = | |
| MISS06A | 3-Jun-97 | REG | COPPER | 50.1 | | |
| MISS06A | 1-Jul-98 | REG | COPPER | 44 | | |
| MISS06A | 17-May-99 | REG | COPPER | 29.4 | | |
| MISS06A | 20-Jun-01 | REG | COPPER | 17.6 | | |
| MISS06A | 10-Jul-02 | REG | COPPER | 12.8 | | J |
| B38W07B | 16-Jun-98 | REG | COPPER | 4.9 | | |
| MISS07B | 11-Jul-02 | REG | COPPER | 7.6 | | J |
| B38W01S | 28-Jul-93 | REG | IRON | 31000 | = | |
| B38W01S | 23-May-94 | REG | IRON | 27500 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W01S | 21-May-95 | REG | IRON | 22100 | = | |
| B38W01S | 17-May-96 | REG | IRON | 24700 | = | |
| B38W01S | 4-Jun-97 | REG | IRON | 28100 | | J |
| B38W01S | 7-Jul-98 | REG | IRON | 28900 | | J |
| B38W01S | 11-Jul-01 | DUP | IRON | 23200 | | |
| B38W01S | 17-Jul-02 | DUP | IRON | 22400 | | |
| B38W02D | 19-May-94 | REG | IRON | 33.1 | = | |
| B38W02D | 20-May-95 | REG | IRON | 72.4 | = | |
| B38W02D | 17-May-96 | REG | IRON | 737 | = | |
| B38W02D | 4-Jun-97 | REG | IRON | 183 | | J |
| B38W02D | 30-Jun-98 | REG | IRON | 580 | | J |
| B38W02D | 20-May-99 | REG | IRON | 28.8 | | |
| B38W02D | 13-Jul-00 | REG | IRON | 202 | | |
| B38W02D | 28-Jun-01 | REG | IRON | 362 | | |
| B38W02D | 17-Jul-02 | REG | IRON | 104 | | J |
| B38W14D | 4-Aug-93 | REG | IRON | 320 | = | |
| B38W14D | 20-May-95 | REG | IRON | 32.4 | = | |
| B38W14D | 7-Jul-98 | REG | IRON | 274 | | J |
| B38W14D | 7-Jul-98 | DUP | IRON | 204 | | J |
| B38W14D | 17-May-99 | REG | IRON | 64.2 | | J |
| B38W14D | 2-Jul-01 | REG | IRON | 217 | | |
| B38W14D | 24-Jul-02 | REG | IRON | 692 | | |
| B38W14S | 4-Aug-93 | REG | IRON | 403 | = | |
| B38W14S | 20-May-95 | REG | IRON | 324 | = | |
| B38W14S | 17-May-96 | REG | IRON | 820 | = | |
| B38W14S | 17-May-96 | DUP | IRON | 743 | = | |
| B38W14S | 4-Jun-97 | REG | IRON | 1200 | | J |
| B38W14S | 7-Jul-98 | REG | IRON | 2540 | | J |
| B38W14S | 17-May-99 | REG | IRON | 528 | | J |
| B38W14S | 5-Jul-00 | REG | IRON | 340 | | |
| B38W14S | 2-Jul-01 | REG | IRON | 82.4 | | |
| B38W14S | 24-Jul-02 | REG | IRON | 172 | | |
| B38W15D | 2-Aug-93 | REG | IRON | 709 | = | |
| B38W15D | 13-May-96 | REG | IRON | 103 | = | UJ |
| B38W15D | 3-Jun-97 | REG | IRON | 160 | | J |
| B38W15D | 6-Jul-98 | REG | IRON | 593 | | J |
| B38W15D | 27-Jun-01 | REG | IRON | 301 | | |
| B38W15S | 2-Aug-93 | REG | IRON | 537 | = | |
| B38W15S | 26-May-94 | REG | IRON | 400 | = | |
| B38W15S | 19-May-95 | REG | IRON | 1720 | = | |
| B38W15S | 19-May-95 | DUP | IRON | 1450 | = | |
| B38W15S | 13-May-96 | REG | IRON | 530 | = | J |
| B38W15S | 3-Jun-97 | REG | IRON | 675 | | J |
| B38W15S | 6-Jul-98 | REG | IRON | 1010 | | J |
| B38W15S | 26-Jun-00 | REG | IRON | 546 | | |
| B38W15S | 27-Jun-01 | REG | IRON | 1210 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W15S | 16-Jul-02 | REG | IRON | 577 | | |
| B38W17A | 28-Jul-93 | REG | IRON | 116000 | = | |
| B38W17A | 25-May-94 | REG | IRON | 829 | = | |
| B38W17A | 20-May-95 | REG | IRON | 688 | = | |
| B38W17A | 13-May-96 | REG | IRON | 3280 | = | J |
| B38W17A | 3-Jun-97 | REG | IRON | 11700 | | J |
| B38W17A | 2-Jul-98 | REG | IRON | 27900 | | J |
| B38W17A | 13-May-99 | REG | IRON | 377 | | |
| B38W17A | 19-Jun-00 | REG | IRON | 12500 | | |
| B38W17A | 14-Jun-01 | REG | IRON | 189 | | |
| B38W17A | 2-Jul-02 | REG | IRON | 867 | | |
| B38W17B | 29-Jul-93 | REG | IRON | 6520 | = | J |
| B38W17B | 25-May-94 | REG | IRON | 10200 | = | |
| B38W17B | 20-May-95 | REG | IRON | 6570 | = | |
| B38W17B | 13-May-96 | REG | IRON | 11400 | = | J |
| B38W17B | 3-Jun-97 | REG | IRON | 9470 | | J |
| B38W17B | 2-Jul-98 | REG | IRON | 6890 | | J |
| B38W17B | 13-May-99 | REG | IRON | 8350 | | |
| B38W17B | 19-Jun-00 | REG | IRON | 8490 | | |
| B38W17B | 14-Jun-01 | REG | IRON | 8450 | | |
| B38W17B | 2-Jul-02 | REG | IRON | 6840 | | |
| B38W18D | 21-Jul-93 | REG | IRON | 16000 | = | J |
| B38W18D | 13-May-94 | REG | IRON | 12900 | = | J |
| B38W18D | 15-May-95 | REG | IRON | 14400 | = | |
| B38W18D | 14-May-96 | REG | IRON | 14200 | = | |
| B38W18D | 9-May-97 | REG | IRON | 12100 | | |
| B38W18D | 8-Jun-98 | REG | IRON | 13500 | | |
| B38W18D | 20-May-99 | REG | IRON | 14800 | | |
| B38W18D | 6-Jul-00 | REG | IRON | 11600 | | |
| B38W18D | 20-Jun-01 | REG | IRON | 647 | | |
| B38W18D | 3-Jul-02 | DUP | IRON | 16000 | | |
| B38W19D | 23-Jul-93 | REG | IRON | 3030 | = | J |
| B38W19D | 16-May-94 | REG | IRON | 4090 | = | |
| B38W19D | 10-May-95 | REG | IRON | 2630 | = | J |
| B38W19D | 16-May-96 | REG | IRON | 3530 | = | |
| B38W19D | 16-May-97 | REG | IRON | 3260 | | J |
| B38W19D | 17-Jun-98 | REG | IRON | 3110 | | J |
| B38W19D | 17-Jun-98 | REG | IRON | 3160 | | |
| B38W19D | 27-May-99 | REG | IRON | 3670 | | |
| B38W19D | 12-Jul-00 | REG | IRON | 3110 | | |
| B38W19D | 13-Jun-01 | REG | IRON | 3870 | | |
| B38W19D | 9-Jul-02 | REG | IRON | 3890 | | |
| B38W19S | 27-May-94 | REG | IRON | 3240 | = | |
| B38W19S | 17-May-95 | REG | IRON | 1300 | = | |
| B38W19S | 10-May-96 | REG | IRON | 4590 | = | J |
| B38W19S | 29-Jun-98 | REG | IRON | 5980 | | J |
| B38W19S | 14-May-99 | REG | IRON | 6600 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W19S | 13-Jun-01 | REG | IRON | 2500 | | |
| B38W19S | 9-Jul-02 | REG | IRON | 1070 | | |
| B38W24D | 9-Aug-93 | REG | IRON | 22900 | = | J |
| B38W24D | 18-May-94 | REG | IRON | 21800 | = | |
| B38W24D | 17-May-95 | REG | IRON | 17500 | = | |
| B38W24D | 9-May-96 | REG | IRON | 28600 | = | J |
| B38W24D | 2-Jun-97 | REG | IRON | 26600 | | J |
| B38W24D | 2-Jul-98 | REG | IRON | 25600 | | J |
| B38W24D | 13-May-99 | REG | IRON | 27000 | | |
| B38W24D | 22-Jun-00 | REG | IRON | 37900 | | |
| B38W24D | 5-Jul-01 | REG | IRON | 28600 | | |
| B38W24D | 15-Jul-02 | REG | IRON | 19400 | | |
| B38W24S | 5-Aug-93 | REG | IRON | 34800 | = | |
| B38W24S | 25-May-94 | REG | IRON | 35900 | = | |
| B38W24S | 17-May-95 | REG | IRON | 46500 | = | |
| B38W24S | 9-May-96 | REG | IRON | 33400 | = | J |
| B38W24S | 2-Jun-97 | REG | IRON | 51100 | | J |
| B38W24S | 2-Jul-98 | REG | IRON | 31700 | | J |
| B38W24S | 13-May-99 | DUP | IRON | 36100 | | |
| B38W24S | 21-Jun-00 | REG | IRON | 31900 | | |
| B38W24S | 27-Jun-01 | REG | IRON | 24700 | | |
| B38W24S | 15-Jul-02 | REG | IRON | 30000 | | |
| B38W25D | 3-Aug-93 | REG | IRON | 5380 | = | |
| B38W25D | 18-May-94 | REG | IRON | 5550 | = | |
| B38W25D | 12-May-95 | REG | IRON | 6760 | = | |
| B38W25D | 15-May-96 | REG | IRON | 6460 | = | J |
| B38W25D | 15-May-97 | REG | IRON | 5640 | | J |
| B38W25D | 1-Jul-98 | REG | IRON | 4620 | | J |
| B38W25D | 26-May-99 | REG | IRON | 4980 | | |
| B38W25D | 7-Jul-00 | REG | IRON | 5270 | | |
| B38W25D | 10-Jul-01 | DUP | IRON | 4770 | | |
| B38W25D | 10-Jul-02 | DUP | IRON | 6460 | | |
| B38W25S | 3-Aug-93 | REG | IRON | 19700 | = | |
| B38W25S | 24-May-94 | REG | IRON | 9080 | = | J |
| B38W25S | 15-May-95 | REG | IRON | 14600 | = | |
| B38W25S | 15-May-95 | DUP | IRON | 12000 | = | |
| B38W25S | 15-May-96 | REG | IRON | 9620 | = | J |
| B38W25S | 15-May-96 | DUP | IRON | 10200 | = | J |
| B38W25S | 5-Jun-97 | REG | IRON | 6260 | | J |
| B38W25S | 1-Jul-98 | REG | IRON | 7490 | | J |
| B38W25S | 17-May-99 | REG | IRON | 10400 | | J |
| B38W25S | 7-Jul-00 | REG | IRON | 14000 | | |
| B38W25S | 10-Jul-01 | REG | IRON | 30900 | | |
| B38W25S | 10-Jul-02 | REG | IRON | 47100 | | |
| MISS01AA | 31-Jul-93 | REG | IRON | 9340 | = | |
| MISS01AA | 23-May-94 | REG | IRON | 2210 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS01AA | 18-May-95 | REG | IRON | 360 | = | |
| MISS01AA | 9-May-96 | REG | IRON | 725 | = | J |
| MISS01AA | 23-May-97 | REG | IRON | 571 | | |
| MISS01AA | 18-Jun-98 | REG | IRON | 512 | | |
| MISS01AA | 12-May-99 | REG | IRON | 2790 | | |
| MISS01AA | 20-Jun-00 | REG | IRON | 490 | | |
| MISS01AA | 20-Jun-01 | REG | IRON | 731 | | |
| MISS01B | 21-Jul-93 | REG | IRON | 1620 | = | J |
| MISS01B | 16-May-94 | REG | IRON | 7780 | = | |
| MISS01B | 10-May-95 | REG | IRON | 1030 | = | J |
| MISS01B | 15-May-96 | REG | IRON | 6260 | = | J |
| MISS01B | 18-Jun-98 | REG | IRON | 2080 | | |
| MISS01B | 25-May-99 | REG | IRON | 1060 | | |
| MISS01B | 20-Jun-00 | REG | IRON | 4970 | | |
| MISS01B | 19-Jun-01 | REG | IRON | 3990 | | |
| MISS01B | 18-Jul-02 | REG | IRON | 13700 | | |
| MISS02A | 20-Jul-93 | REG | IRON | 914 | = | |
| MISS02A | 12-May-94 | REG | IRON | 402 | = | J |
| MISS02A | 10-May-95 | REG | IRON | 892 | = | J |
| MISS02A | 16-May-96 | REG | IRON | 584 | = | |
| MISS02A | 15-May-97 | REG | IRON | 426 | | J |
| MISS02A | 15-May-97 | DUP | IRON | 500 | | J |
| MISS02A | 11-Jun-98 | REG | IRON | 1070 | | |
| MISS02A | 11-Jun-98 | DUP | IRON | 1440 | | |
| MISS02A | 18-May-99 | REG | IRON | 1010 | | |
| MISS02A | 22-Jun-00 | REG | IRON | 5410 | | |
| MISS02A | 5-Jul-01 | REG | IRON | 863 | | |
| MISS02A | 8-Jul-02 | REG | IRON | 4810 | | |
| MISS02B | 20-Jul-93 | REG | IRON | 19300 | = | |
| MISS02B | 13-May-94 | REG | IRON | 6800 | = | J |
| MISS02B | 9-May-95 | REG | IRON | 8690 | = | |
| MISS02B | 14-May-96 | REG | IRON | 7880 | = | |
| MISS02B | 19-May-97 | REG | IRON | 8880 | | J |
| MISS02B | 10-Jun-98 | REG | IRON | 8140 | | |
| MISS02B | 18-May-99 | REG | IRON | 8620 | | |
| MISS02B | 23-Jun-00 | REG | IRON | 15500 | | |
| MISS02B | 5-Jul-01 | REG | IRON | 37000 | | |
| MISS02B | 8-Jul-02 | REG | IRON | 11200 | | |
| MISS05A | 27-May-94 | REG | IRON | 9770 | = | |
| MISS05A | 12-May-95 | REG | IRON | 15800 | = | |
| MISS05A | 10-May-96 | REG | IRON | 6590 | = | J |
| MISS05A | 2-Jun-97 | REG | IRON | 31600 | | J |
| MISS05A | 29-Jun-98 | REG | IRON | 15900 | | J |
| MISS05A | 14-May-99 | REG | IRON | 2190 | | |
| MISS05A | 19-Jun-01 | REG | IRON | 1530 | | |
| MISS05A | 1-Aug-02 | REG | IRON | 706 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS05B | 23-Jul-93 | REG | IRON | 2660 | = | J |
| MISS05B | 17-May-94 | REG | IRON | 2780 | = | |
| MISS05B | 11-May-95 | REG | IRON | 3180 | = | J |
| MISS05B | 16-May-96 | REG | IRON | 2910 | = | |
| MISS05B | 14-May-97 | REG | IRON | 2560 | | |
| MISS05B | 30-Jun-98 | REG | IRON | 13800 | | J |
| MISS05B | 18-Jun-01 | REG | IRON | 14900 | | |
| MISS05B | 31-Jul-02 | REG | IRON | 6220 | | |
| MISS06A | 4-Aug-93 | REG | IRON | 225 | = | |
| MISS06A | 24-May-94 | REG | IRON | 455 | = | J |
| MISS06A | 16-May-95 | REG | IRON | 333 | = | |
| MISS06A | 10-May-96 | REG | IRON | 157 | = | J |
| MISS06A | 3-Jun-97 | REG | IRON | 759 | | J |
| MISS06A | 1-Jul-98 | REG | IRON | 1320 | | J |
| MISS06A | 17-May-99 | REG | IRON | 370 | | J |
| MISS06A | 22-Jul-00 | REG | IRON | 1910 | | |
| MISS06A | 20-Jun-01 | REG | IRON | 308 | | |
| B38W07B | 16-Jun-98 | REG | IRON | 9160 | | |
| B38W07B | 27-May-99 | REG | IRON | 5920 | | |
| B38W07B | 12-Jul-00 | REG | IRON | 6390 | | |
| MISS07B | 11-Jul-02 | REG | IRON | 13100 | | |
| B38W02D | 17-May-96 | REG | LEAD | 1.4 | = | |
| B38W02D | 4-Jun-97 | REG | LEAD | 2.8 | | |
| B38W02D | 30-Jun-98 | REG | LEAD | 7.1 | | |
| B38W02D | 28-Jun-01 | REG | LEAD | 2.6 | | |
| B38W14D | 20-May-95 | REG | LEAD | 2.8 | = | J |
| B38W14D | 7-Jul-98 | DUP | LEAD | 1.7 | | |
| B38W14D | 17-May-99 | REG | LEAD | 0.86 | | |
| B38W14D | 2-Jul-01 | REG | LEAD | 2.6 | | |
| B38W14S | 20-May-95 | REG | LEAD | 2.9 | = | J |
| B38W14S | 17-May-96 | REG | LEAD | 1.2 | = | |
| B38W14S | 17-May-96 | DUP | LEAD | 1.8 | = | |
| B38W14S | 4-Jun-97 | REG | LEAD | 5.6 | | |
| B38W14S | 7-Jul-98 | REG | LEAD | 23.9 | | |
| B38W14S | 17-May-99 | REG | LEAD | 2.5 | | |
| B38W14S | 2-Jul-01 | REG | LEAD | 2.6 | | |
| B38W15D | 2-Aug-93 | REG | LEAD | 27.5 | = | J |
| B38W15D | 3-Jun-97 | REG | LEAD | 1.8 | | |
| B38W15D | 6-Jul-98 | REG | LEAD | 3.3 | | |
| B38W15D | 27-Jun-01 | REG | LEAD | 2.6 | | |
| B38W15S | 2-Aug-93 | REG | LEAD | 2.3 | B | J |
| B38W15S | 26-May-94 | REG | LEAD | 3 | = | J |
| B38W15S | 19-May-95 | REG | LEAD | 2 | = | |
| B38W15S | 19-May-95 | DUP | LEAD | 2.4 | = | |
| B38W15S | 3-Jun-97 | REG | LEAD | 4 | | |
| B38W15S | 6-Jul-98 | REG | LEAD | 5.3 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W15S | 27-Jun-01 | REG | LEAD | 5 | | |
| B38W17A | 28-Jul-93 | REG | LEAD | 36.6 | = | J |
| B38W17A | 20-May-95 | REG | LEAD | 2.8 | = | J |
| B38W17A | 13-May-96 | REG | LEAD | 1.1 | = | J |
| B38W17A | 3-Jun-97 | REG | LEAD | 2.3 | | |
| B38W17A | 2-Jul-98 | REG | LEAD | 1.3 | | |
| B38W17A | 14-Jun-01 | REG | LEAD | 2.6 | | |
| B38W18D | 14-May-96 | REG | LEAD | 1 | = | |
| B38W18D | 8-Jun-98 | REG | LEAD | 0.45 | | |
| B38W18D | 20-May-99 | REG | LEAD | 1.1 | | |
| B38W18D | 6-Jul-00 | REG | LEAD | 1.9 | | J |
| B38W18D | 20-Jun-01 | REG | LEAD | 2.6 | | |
| B38W19S | 29-Jun-98 | REG | LEAD | 0.35 | | |
| B38W19S | 13-Jun-01 | REG | LEAD | 2.6 | | |
| B38W19S | 9-Jul-02 | REG | LEAD | 17 | | UJ |
| B38W24D | 2-Jul-98 | REG | LEAD | 2.4 | | |
| B38W24D | 13-May-99 | REG | LEAD | 1.2 | | |
| B38W24D | 5-Jul-01 | REG | LEAD | 2.6 | | |
| B38W24S | 17-May-95 | REG | LEAD | 1.8 | = | |
| B38W24S | 2-Jul-98 | REG | LEAD | 0.85 | | |
| B38W24S | 27-Jun-01 | REG | LEAD | 2.6 | | |
| B38W25S | 24-May-94 | REG | LEAD | 3.8 | = | UJ |
| B38W25S | 15-May-96 | REG | LEAD | 1.5 | = | J |
| B38W25S | 5-Jun-97 | REG | LEAD | 0.6 | | |
| B38W25S | 1-Jul-98 | REG | LEAD | 1.3 | | |
| B38W25S | 17-May-99 | REG | LEAD | 0.66 | | |
| B38W25S | 10-Jul-01 | REG | LEAD | 2.6 | | |
| B38W25S | 10-Jul-02 | REG | LEAD | 17 | | UJ |
| MISS01AA | 31-Jul-93 | REG | LEAD | 4.1 | = | J |
| MISS01AA | 18-May-95 | REG | LEAD | 2 | = | |
| MISS01AA | 18-Jun-98 | REG | LEAD | 9.8 | | |
| MISS01AA | 12-May-99 | REG | LEAD | 1.6 | | |
| MISS01AA | 20-Jun-01 | REG | LEAD | 2.6 | | |
| MISS01AA | 11-Jul-02 | REG | LEAD | 17 | | UJ |
| MISS02A | 20-Jul-93 | REG | LEAD | 2.5 | = | UJ |
| MISS02A | 12-May-94 | REG | LEAD | 7.3 | = | J |
| MISS02A | 10-May-95 | REG | LEAD | 3.6 | = | |
| MISS02A | 16-May-96 | REG | LEAD | 8.1 | = | |
| MISS02A | 15-May-97 | REG | LEAD | 4.8 | | J |
| MISS02A | 15-May-97 | DUP | LEAD | 4.7 | | J |
| MISS02A | 11-Jun-98 | REG | LEAD | 3.9 | | |
| MISS02A | 11-Jun-98 | DUP | LEAD | 4.9 | | |
| MISS02A | 18-May-99 | REG | LEAD | 11 | | |
| MISS02A | 22-Jun-00 | REG | LEAD | 13 | | |
| MISS02A | 5-Jul-01 | REG | LEAD | 2.6 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02A | 8-Jul-02 | REG | LEAD | 17 | | UJ |
| MISS05A | 29-Jun-98 | REG | LEAD | 11.9 | | |
| MISS05A | 14-May-99 | REG | LEAD | 0.35 | | |
| MISS05A | 19-Jun-01 | REG | LEAD | 2.6 | | |
| MISS05B | 17-May-94 | REG | LEAD | 2.1 | = | J |
| MISS05B | 30-Jun-98 | REG | LEAD | 0.5 | | |
| MISS05B | 18-Jun-01 | REG | LEAD | 2.6 | | |
| MISS06A | 24-May-94 | REG | LEAD | 4.4 | = | UJ |
| MISS06A | 3-Jun-97 | REG | LEAD | 13.8 | | |
| MISS06A | 1-Jul-98 | REG | LEAD | 17.8 | | |
| MISS06A | 17-May-99 | REG | LEAD | 2.9 | | |
| MISS06A | 10-Jul-00 | REG | LEAD | 9.6 | | |
| MISS06A | 20-Jun-01 | REG | LEAD | 2.6 | | |
| MISS06A | 10-Jul-02 | REG | LEAD | 17 | | UJ |
| B38W19D | 9-Jul-02 | REG | LEAD | 17 | | UJ |
| B38W25D | 10-Jul-02 | REG | LEAD | 17 | | UJ |
| MISS02B | 8-Jul-02 | REG | LEAD | 17 | | UJ |
| MISS07B | 11-Jul-02 | REG | LEAD | 17 | | UJ |
| B38W01S | 28-Jul-93 | REG | LITHIUM | 2690 | = | |
| B38W01S | 23-May-94 | REG | LITHIUM | 2410 | = | |
| B38W01S | 17-May-96 | REG | LITHIUM | 1830 | = | J |
| B38W01S | 4-Jun-97 | REG | LITHIUM | 2370 | | |
| B38W01S | 7-Jul-98 | REG | LITHIUM | 1840 | | J |
| B38W01S | 11-Jul-01 | DUP | LITHIUM | 1580 | | |
| B38W01S | 17-Jul-02 | DUP | LITHIUM | 1210 | | |
| B38W02D | 19-May-94 | REG | LITHIUM | 30.1 | = | |
| B38W02D | 4-Jun-97 | REG | LITHIUM | 14.8 | | |
| B38W02D | 30-Jun-98 | REG | LITHIUM | 16.5 | | J |
| B38W02D | 20-May-99 | REG | LITHIUM | 11.7 | | |
| B38W02D | 28-Jun-01 | REG | LITHIUM | 14.3 | | |
| B38W02D | 17-Jul-02 | REG | LITHIUM | 16 | | J |
| B38W14D | 4-Aug-93 | REG | LITHIUM | 49.8 | = | |
| B38W14D | 4-Jun-97 | REG | LITHIUM | 44.5 | | |
| B38W14D | 7-Jul-98 | DUP | LITHIUM | 48.4 | | J |
| B38W14D | 7-Jul-98 | REG | LITHIUM | 47.2 | | J |
| B38W14D | 17-May-99 | REG | LITHIUM | 34.3 | | |
| B38W14D | 2-Jul-01 | REG | LITHIUM | 27.3 | | |
| B38W14D | 24-Jul-02 | REG | LITHIUM | 18.6 | | J |
| B38W14S | 4-Aug-93 | REG | LITHIUM | 126 | = | |
| B38W14S | 4-Jun-97 | REG | LITHIUM | 48 | | |
| B38W14S | 7-Jul-98 | REG | LITHIUM | 45.5 | | J |
| B38W14S | 17-May-99 | REG | LITHIUM | 38 | | |
| B38W14S | 2-Jul-01 | REG | LITHIUM | 30.5 | | |
| B38W14S | 24-Jul-02 | REG | LITHIUM | 22.9 | | J |
| B38W15D | 2-Aug-93 | REG | LITHIUM | 1740 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W15D | 26-May-94 | REG | LITHIUM | 2750 | = | |
| B38W15D | 13-May-96 | REG | LITHIUM | 2980 | = | J |
| B38W15D | 3-Jun-97 | REG | LITHIUM | 2980 | | |
| B38W15D | 6-Jul-98 | REG | LITHIUM | 2060 | | |
| B38W15D | 27-Jun-01 | REG | LITHIUM | 871 | | |
| B38W15D | 16-Jul-02 | REG | LITHIUM | 2530 | | |
| B38W15S | 2-Aug-93 | REG | LITHIUM | 1910 | = | |
| B38W15S | 2-Aug-93 | REG | LITHIUM | 1970 | = | |
| B38W15S | 26-May-94 | REG | LITHIUM | 1590 | = | |
| B38W15S | 13-May-96 | REG | LITHIUM | 1800 | = | J |
| B38W15S | 3-Jun-97 | REG | LITHIUM | 2590 | | |
| B38W15S | 6-Jul-98 | REG | LITHIUM | 2590 | | |
| B38W15S | 27-Jun-01 | REG | LITHIUM | 3150 | | |
| B38W15S | 16-Jul-02 | REG | LITHIUM | 2560 | | |
| B38W17A | 28-Jul-93 | REG | LITHIUM | 348 | = | |
| B38W17A | 25-May-94 | REG | LITHIUM | 347 | = | |
| B38W17A | 13-May-96 | REG | LITHIUM | 431 | = | J |
| B38W17A | 3-Jun-97 | REG | LITHIUM | 334 | | |
| B38W17A | 2-Jul-98 | REG | LITHIUM | 307 | | J |
| B38W17A | 13-May-99 | DUP | LITHIUM | 363 | | |
| B38W17A | 14-Jun-01 | REG | LITHIUM | 298 | | |
| B38W17B | 29-Jul-93 | REG | LITHIUM | 1650 | = | J |
| B38W17B | 25-May-94 | REG | LITHIUM | 1060 | = | |
| B38W17B | 13-May-96 | REG | LITHIUM | 920 | = | J |
| B38W17B | 3-Jun-97 | REG | LITHIUM | 1740 | | |
| B38W17B | 2-Jul-98 | REG | LITHIUM | 1800 | | J |
| B38W17B | 13-May-99 | REG | LITHIUM | 1460 | | J |
| B38W17B | 14-Jun-01 | REG | LITHIUM | 1810 | | |
| B38W18D | 21-Jul-93 | REG | LITHIUM | 3610 | = | |
| B38W18D | 13-May-94 | REG | LITHIUM | 3380 | = | J |
| B38W18D | 14-May-96 | REG | LITHIUM | 3000 | = | J |
| B38W18D | 9-May-97 | REG | LITHIUM | 3540 | | |
| B38W18D | 8-Jun-98 | REG | LITHIUM | 3790 | | |
| B38W18D | 20-May-99 | REG | LITHIUM | 2850 | | |
| B38W18D | 20-Jun-01 | REG | LITHIUM | 1480 | | |
| B38W19D | 23-Jul-93 | REG | LITHIUM | 6890 | = | |
| B38W19D | 16-May-94 | REG | LITHIUM | 4600 | = | |
| B38W19D | 16-May-96 | REG | LITHIUM | 3800 | = | J |
| B38W19D | 16-May-97 | REG | LITHIUM | 5600 | | |
| B38W19D | 17-Jun-98 | REG | LITHIUM | 6220 | | J |
| B38W19D | 17-Jun-98 | REG | LITHIUM | 5920 | | |
| B38W19D | 27-May-99 | REG | LITHIUM | 6350 | | J |
| B38W19D | 13-Jun-01 | REG | LITHIUM | 5250 | | |
| B38W19D | 9-Jul-02 | REG | LITHIUM | 4770 | | |
| B38W19S | 27-May-94 | REG | LITHIUM | 1690 | = | |
| B38W19S | 10-May-96 | REG | LITHIUM | 1450 | = | J |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W19S | 29-Jun-98 | REG | LITHIUM | 1700 | | J |
| B38W19S | 14-May-99 | REG | LITHIUM | 1400 | | J |
| B38W19S | 13-Jun-01 | REG | LITHIUM | 1480 | | |
| B38W19S | 9-Jul-02 | REG | LITHIUM | 1250 | | |
| B38W24D | 9-Aug-93 | REG | LITHIUM | 44.1 | = | |
| B38W24D | 18-May-94 | REG | LITHIUM | 37.5 | = | |
| B38W24D | 9-May-96 | REG | LITHIUM | 80.1 | = | J |
| B38W24D | 2-Jun-97 | REG | LITHIUM | 54.3 | | |
| B38W24D | 2-Jul-98 | REG | LITHIUM | 46.1 | | J |
| B38W24D | 13-May-99 | REG | LITHIUM | 50.4 | | |
| B38W24D | 5-Jul-01 | REG | LITHIUM | 50.8 | | |
| B38W24S | 9-May-96 | REG | LITHIUM | 56 | = | J |
| B38W24S | 2-Jun-97 | REG | LITHIUM | 27.5 | | |
| B38W24S | 2-Jul-98 | REG | LITHIUM | 26.5 | | J |
| B38W24S | 13-May-99 | DUP | LITHIUM | 32.4 | | |
| B38W24S | 27-Jun-01 | REG | LITHIUM | 27.2 | | |
| B38W24S | 15-Jul-02 | REG | LITHIUM | 35.8 | | J |
| B38W25D | 3-Aug-93 | REG | LITHIUM | 1330 | = | |
| B38W25D | 18-May-94 | REG | LITHIUM | 1230 | = | |
| B38W25D | 15-May-96 | REG | LITHIUM | 1370 | = | J |
| B38W25D | 15-May-97 | REG | LITHIUM | 1600 | | |
| B38W25D | 1-Jul-98 | REG | LITHIUM | 1430 | | J |
| B38W25D | 26-May-99 | REG | LITHIUM | 1280 | | J |
| B38W25D | 10-Jul-01 | DUP | LITHIUM | 981 | | |
| B38W25D | 10-Jul-02 | DUP | LITHIUM | 888 | | |
| B38W25S | 3-Aug-93 | REG | LITHIUM | 1360 | = | |
| B38W25S | 24-May-94 | REG | LITHIUM | 1130 | = | J |
| B38W25S | 15-May-96 | DUP | LITHIUM | 994 | = | J |
| B38W25S | 5-Jun-97 | REG | LITHIUM | 1190 | | |
| B38W25S | 1-Jul-98 | REG | LITHIUM | 827 | | J |
| B38W25S | 17-May-99 | REG | LITHIUM | 793 | | |
| B38W25S | 10-Jul-01 | REG | LITHIUM | 610 | | |
| B38W25S | 10-Jul-02 | REG | LITHIUM | 623 | | |
| MISS01AA | 31-Jul-93 | REG | LITHIUM | 442 | = | |
| MISS01AA | 23-May-94 | REG | LITHIUM | 240 | = | |
| MISS01AA | 9-May-96 | REG | LITHIUM | 224 | = | J |
| MISS01AA | 23-May-97 | REG | LITHIUM | 265 | | |
| MISS01AA | 18-Jun-98 | REG | LITHIUM | 258 | | |
| MISS01AA | 12-May-99 | REG | LITHIUM | 224 | | J |
| MISS01AA | 20-Jun-01 | REG | LITHIUM | 260 | | |
| MISS01AA | 11-Jul-02 | REG | LITHIUM | 203 | | |
| MISS01B | 21-Jul-93 | REG | LITHIUM | 114 | = | |
| MISS01B | 16-May-94 | REG | LITHIUM | 80.8 | = | |
| MISS01B | 15-May-96 | REG | LITHIUM | 128 | = | J |
| MISS01B | 18-Jun-98 | REG | LITHIUM | 105 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS01B | 25-May-99 | REG | LITHIUM | 95.1 | | J |
| MISS01B | 19-Jun-01 | REG | LITHIUM | 66.7 | | |
| MISS01B | 18-Jul-02 | DUP | LITHIUM | 43.6 | | J |
| MISS02A | 20-Jul-93 | REG | LITHIUM | 6990 | = | |
| MISS02A | 12-May-94 | REG | LITHIUM | 4660 | = | |
| MISS02A | 16-May-96 | REG | LITHIUM | 4480 | = | J |
| MISS02A | 15-May-97 | REG | LITHIUM | 7090 | | |
| MISS02A | 15-May-97 | DUP | LITHIUM | 6650 | | |
| MISS02A | 11-Jun-98 | DUP | LITHIUM | 6110 | | |
| MISS02A | 11-May-99 | REG | LITHIUM | 9300 | | |
| MISS02A | 5-Jul-01 | REG | LITHIUM | 8150 | | |
| MISS02A | 8-Jul-02 | REG | LITHIUM | 8950 | | |
| MISS02B | 20-Jul-93 | REG | LITHIUM | 14100 | = | |
| MISS02B | 13-May-94 | REG | LITHIUM | 10200 | = | J |
| MISS02B | 14-May-96 | REG | LITHIUM | 11900 | = | J |
| MISS02B | 19-May-97 | REG | LITHIUM | 15200 | | |
| MISS02B | 10-Jun-98 | REG | LITHIUM | 12800 | | |
| MISS02B | 18-May-99 | DUP | LITHIUM | 12200 | | J |
| MISS02B | 5-Jul-01 | REG | LITHIUM | 11900 | | |
| MISS02B | 8-Jul-02 | REG | LITHIUM | 8160 | | |
| MISS05A | 27-May-94 | REG | LITHIUM | 677 | = | |
| MISS05A | 10-May-96 | REG | LITHIUM | 664 | = | J |
| MISS05A | 2-Jun-97 | REG | LITHIUM | 854 | | |
| MISS05A | 29-Jun-98 | REG | LITHIUM | 660 | | J |
| MISS05A | 14-May-99 | REG | LITHIUM | 863 | | J |
| MISS05A | 19-Jun-01 | REG | LITHIUM | 767 | | |
| MISS05B | 23-Jul-93 | REG | LITHIUM | 2520 | = | |
| MISS05B | 17-May-94 | REG | LITHIUM | 2370 | = | |
| MISS05B | 16-May-96 | REG | LITHIUM | 2130 | = | J |
| MISS05B | 14-May-97 | REG | LITHIUM | 2710 | | |
| MISS05B | 30-Jun-98 | REG | LITHIUM | 1920 | | J |
| MISS05B | 18-Jun-01 | REG | LITHIUM | 3090 | | |
| MISS05B | 31-Jul-02 | REG | LITHIUM | 2330 | | |
| MISS06A | 4-Aug-93 | REG | LITHIUM | 7340 | = | |
| MISS06A | 24-May-94 | REG | LITHIUM | 2140 | = | J |
| MISS06A | 10-May-96 | REG | LITHIUM | 1680 | = | J |
| MISS06A | 3-Jun-97 | REG | LITHIUM | 2780 | | |
| MISS06A | 1-Jul-98 | REG | LITHIUM | 2130 | | J |
| MISS06A | 17-May-99 | REG | LITHIUM | 2130 | | |
| MISS06A | 20-Jun-01 | REG | LITHIUM | 1460 | | |
| MISS06A | 10-Jul-02 | REG | LITHIUM | 814 | | |
| B38W07B | 16-Jun-98 | REG | LITHIUM | 5480 | | |
| B38W07B | 27-May-99 | REG | LITHIUM | 6870 | | J |
| MISS07B | 11-Jul-02 | DUP | LITHIUM | 6000 | | |
| B38W01S | 28-Jul-93 | REG | MAGNESIUM | 36900 | = | |
| B38W01S | 23-May-94 | REG | MAGNESIUM | 35400 | = | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W01S | 21-May-95 | REG | MAGNESIUM | 27600 | = | |
| B38W01S | 17-May-96 | REG | MAGNESIUM | 32800 | = | |
| B38W01S | 4-Jun-97 | REG | MAGNESIUM | 30300 | | |
| B38W01S | 7-Jul-98 | REG | MAGNESIUM | 25600 | | J |
| B38W01S | 17-Jul-02 | REG | MAGNESIUM | 27800 | | |
| B38W02D | 27-Jul-93 | REG | MAGNESIUM | 3830 | | B |
| B38W02D | 19-May-94 | REG | MAGNESIUM | 3480 | = | |
| B38W02D | 20-May-95 | REG | MAGNESIUM | 3020 | = | |
| B38W02D | 17-May-96 | REG | MAGNESIUM | 3710 | = | |
| B38W02D | 4-Jun-97 | REG | MAGNESIUM | 3840 | | |
| B38W02D | 20-May-99 | REG | MAGNESIUM | 4020 | | |
| B38W02D | 13-Jul-00 | REG | MAGNESIUM | 3740 | | |
| B38W02D | 17-Jul-02 | REG | MAGNESIUM | 4410 | | |
| B38W07B | 16-Jun-98 | REG | MAGNESIUM | 57500 | | |
| B38W07B | 27-May-99 | DUP | MAGNESIUM | 88300 | | |
| B38W14D | 4-Aug-93 | REG | MAGNESIUM | 25100 | = | J |
| B38W14D | 20-May-95 | REG | MAGNESIUM | 19500 | = | |
| B38W14D | 17-May-96 | REG | MAGNESIUM | 27800 | = | |
| B38W14D | 4-Jun-97 | REG | MAGNESIUM | 27700 | | |
| B38W14D | 7-Jul-98 | DUP | MAGNESIUM | 28700 | | J |
| B38W14D | 17-May-99 | REG | MAGNESIUM | 30000 | | |
| B38W14D | 5-Jul-00 | REG | MAGNESIUM | 25300 | | |
| B38W14D | 24-Jul-02 | REG | MAGNESIUM | 24100 | | |
| B38W14S | 4-Aug-93 | REG | MAGNESIUM | 12100 | = | J |
| B38W14S | 20-May-95 | REG | MAGNESIUM | 20000 | = | |
| B38W14S | 17-May-96 | REG | MAGNESIUM | 28900 | = | |
| B38W14S | 17-May-96 | DUP | MAGNESIUM | 26300 | = | |
| B38W14S | 4-Jun-97 | REG | MAGNESIUM | 25300 | | |
| B38W14S | 7-Jul-98 | REG | MAGNESIUM | 25000 | | J |
| B38W14S | 17-May-99 | REG | MAGNESIUM | 27400 | | |
| B38W14S | 5-Jul-00 | REG | MAGNESIUM | 26600 | | |
| B38W14S | 24-Jul-02 | REG | MAGNESIUM | 26900 | | |
| B38W15D | 2-Aug-93 | REG | MAGNESIUM | 18100 | = | |
| B38W15D | 26-May-94 | REG | MAGNESIUM | 35500 | = | |
| B38W15D | 19-May-95 | REG | MAGNESIUM | 22700 | = | J |
| B38W15D | 13-May-96 | REG | MAGNESIUM | 37500 | = | |
| B38W15D | 3-Jun-97 | REG | MAGNESIUM | 26500 | | |
| B38W15D | 6-Jul-98 | REG | MAGNESIUM | 17100 | | J |
| B38W15D | 26-Jun-00 | REG | MAGNESIUM | 39400 | | |
| B38W15D | 16-Jul-02 | REG | MAGNESIUM | 30300 | | |
| B38W15S | 2-Aug-93 | REG | MAGNESIUM | 25200 | = | |
| B38W15S | 26-May-94 | REG | MAGNESIUM | 19300 | = | |
| B38W15S | 19-May-95 | REG | MAGNESIUM | 27700 | = | J |
| B38W15S | 19-May-95 | DUP | MAGNESIUM | 25300 | = | J |
| B38W15S | 13-May-96 | REG | MAGNESIUM | 17800 | = | |
| B38W15S | 3-Jun-97 | REG | MAGNESIUM | 19000 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W15S | 6-Jul-98 | REG | MAGNESIUM | 18100 | | J |
| B38W15S | 26-Jun-00 | REG | MAGNESIUM | 25300 | | |
| B38W15S | 16-Jul-02 | REG | MAGNESIUM | 24400 | | |
| B38W17A | 28-Jul-93 | REG | MAGNESIUM | 13300 | = | |
| B38W17A | 25-May-94 | REG | MAGNESIUM | 7340 | = | |
| B38W17A | 20-May-95 | REG | MAGNESIUM | 5610 | = | |
| B38W17A | 13-May-96 | REG | MAGNESIUM | 9720 | = | |
| B38W17A | 3-Jun-97 | REG | MAGNESIUM | 5620 | | |
| B38W17A | 2-Jul-98 | REG | MAGNESIUM | 6280 | | J |
| B38W17A | 13-May-99 | DUP | MAGNESIUM | 9300 | | |
| B38W17A | 19-Jun-00 | REG | MAGNESIUM | 5930 | | |
| B38W17A | 2-Jul-02 | REG | MAGNESIUM | 7440 | | |
| B38W17B | 29-Jul-93 | REG | MAGNESIUM | 25400 | = | J |
| B38W17B | 25-May-94 | REG | MAGNESIUM | 26600 | = | |
| B38W17B | 20-May-95 | REG | MAGNESIUM | 22800 | = | |
| B38W17B | 13-May-96 | REG | MAGNESIUM | 23500 | = | |
| B38W17B | 3-Jun-97 | REG | MAGNESIUM | 24900 | | |
| B38W17B | 13-May-99 | REG | MAGNESIUM | 25200 | | |
| B38W17B | 2-Jul-02 | REG | MAGNESIUM | 18000 | | |
| B38W18D | 21-Jul-93 | REG | MAGNESIUM | 13600 | = | |
| B38W18D | 13-May-94 | REG | MAGNESIUM | 14400 | = | J |
| B38W18D | 15-May-95 | REG | MAGNESIUM | 14100 | = | |
| B38W18D | 14-May-96 | REG | MAGNESIUM | 14300 | = | |
| B38W18D | 9-May-97 | REG | MAGNESIUM | 14000 | | |
| B38W18D | 8-Jun-98 | REG | MAGNESIUM | 14400 | | |
| B38W18D | 20-May-99 | REG | MAGNESIUM | 14500 | | |
| B38W18D | 6-Jul-00 | REG | MAGNESIUM | 12400 | | |
| B38W18D | 3-Jul-02 | DUP | MAGNESIUM | 15300 | | |
| B38W19D | 23-Jul-93 | REG | MAGNESIUM | 37200 | = | |
| B38W19D | 16-May-94 | REG | MAGNESIUM | 52600 | = | |
| B38W19D | 10-May-95 | REG | MAGNESIUM | 31200 | = | |
| B38W19D | 16-May-96 | REG | MAGNESIUM | 43900 | = | |
| B38W19D | 16-May-97 | REG | MAGNESIUM | 36600 | | J |
| B38W19D | 17-Jun-98 | REG | MAGNESIUM | 38900 | | |
| B38W19D | 27-May-99 | REG | MAGNESIUM | 42000 | | |
| B38W19D | 12-Jul-00 | REG | MAGNESIUM | 31100 | | |
| B38W19D | 9-Jul-02 | REG | MAGNESIUM | 36800 | | |
| B38W19S | 27-May-94 | REG | MAGNESIUM | 76200 | = | |
| B38W19S | 17-May-95 | REG | MAGNESIUM | 69000 | = | |
| B38W19S | 10-May-96 | REG | MAGNESIUM | 62600 | = | |
| B38W19S | 29-Jun-98 | REG | MAGNESIUM | 43300 | | J |
| B38W19S | 14-May-99 | REG | MAGNESIUM | 46100 | | |
| B38W19S | 9-Jul-02 | REG | MAGNESIUM | 43400 | | |
| B38W24D | 9-Aug-93 | REG | MAGNESIUM | 9710 | = | J |
| B38W24D | 18-May-94 | REG | MAGNESIUM | 9810 | = | |
| B38W24D | 17-May-95 | REG | MAGNESIUM | 8290 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W24D | 9-May-96 | REG | MAGNESIUM | 11600 | = | |
| B38W24D | 2-Jun-97 | REG | MAGNESIUM | 10100 | | |
| B38W24D | 2-Jul-98 | REG | MAGNESIUM | 9790 | | J |
| B38W24D | 24-May-99 | REG | MAGNESIUM | 11400 | | |
| B38W24D | 22-Jun-00 | REG | MAGNESIUM | 10700 | | |
| B38W24D | 15-Jul-02 | REG | MAGNESIUM | 8730 | | |
| B38W24S | 5-Aug-93 | REG | MAGNESIUM | 6330 | = | J |
| B38W24S | 25-May-94 | REG | MAGNESIUM | 7930 | = | |
| B38W24S | 17-May-95 | REG | MAGNESIUM | 8430 | = | |
| B38W24S | 9-May-96 | REG | MAGNESIUM | 8550 | = | |
| B38W24S | 2-Jun-97 | REG | MAGNESIUM | 6280 | | |
| B38W24S | 2-Jul-98 | REG | MAGNESIUM | 5810 | | J |
| B38W24S | 13-May-99 | REG | MAGNESIUM | 4910 | | |
| B38W24S | 21-Jun-00 | REG | MAGNESIUM | 7830 | | |
| B38W24S | 15-Jul-02 | REG | MAGNESIUM | 6810 | | |
| B38W25D | 3-Aug-93 | REG | MAGNESIUM | 6810 | = | |
| B38W25D | 18-May-94 | REG | MAGNESIUM | 5680 | = | |
| B38W25D | 12-May-95 | REG | MAGNESIUM | 6940 | = | |
| B38W25D | 15-May-96 | REG | MAGNESIUM | 6470 | = | |
| B38W25D | 15-May-97 | REG | MAGNESIUM | 5670 | | J |
| B38W25D | 1-Jul-98 | REG | MAGNESIUM | 5520 | | J |
| B38W25D | 26-May-99 | REG | MAGNESIUM | 5290 | | |
| B38W25D | 7-Jul-00 | REG | MAGNESIUM | 4920 | | |
| B38W25D | 10-Jul-02 | REG | MAGNESIUM | 6150 | | |
| B38W25S | 3-Aug-93 | REG | MAGNESIUM | 7480 | = | |
| B38W25S | 24-May-94 | REG | MAGNESIUM | 7290 | = | J |
| B38W25S | 15-May-95 | REG | MAGNESIUM | 9110 | = | |
| B38W25S | 15-May-95 | DUP | MAGNESIUM | 7630 | = | |
| B38W25S | 15-May-96 | REG | MAGNESIUM | 7550 | = | |
| B38W25S | 15-May-96 | DUP | MAGNESIUM | 7980 | = | |
| B38W25S | 5-Jun-97 | REG | MAGNESIUM | 7470 | | |
| B38W25S | 1-Jul-98 | REG | MAGNESIUM | 7810 | | J |
| B38W25S | 17-May-99 | REG | MAGNESIUM | 6150 | | |
| B38W25S | 7-Jul-00 | REG | MAGNESIUM | 7520 | | |
| B38W25S | 10-Jul-02 | REG | MAGNESIUM | 7770 | | |
| MISS01AA | 31-Jul-93 | REG | MAGNESIUM | 23800 | = | |
| MISS01AA | 23-May-94 | REG | MAGNESIUM | 22200 | = | |
| MISS01AA | 18-May-95 | REG | MAGNESIUM | 22000 | = | |
| MISS01AA | 9-May-96 | REG | MAGNESIUM | 24100 | = | |
| MISS01AA | 23-May-97 | REG | MAGNESIUM | 32100 | | |
| MISS01AA | 18-Jun-98 | REG | MAGNESIUM | 33800 | | |
| MISS01AA | 12-May-99 | REG | MAGNESIUM | 31700 | | |
| MISS01AA | 20-Jun-00 | REG | MAGNESIUM | 23700 | | |
| MISS01AA | 11-Jul-02 | REG | MAGNESIUM | 29200 | | |
| MISS01B | 21-Jul-93 | REG | MAGNESIUM | 18700 | = | |
| MISS01B | 16-May-94 | REG | MAGNESIUM | 18400 | = | |
| MISS01B | 10-May-95 | REG | MAGNESIUM | 17600 | = | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS01B | 15-May-96 | REG | MAGNESIUM | 19200 | = | |
| MISS01B | 18-Jun-98 | REG | MAGNESIUM | 18900 | | |
| MISS01B | 25-May-99 | REG | MAGNESIUM | 18800 | | |
| MISS01B | 20-Jun-00 | REG | MAGNESIUM | 17200 | | |
| MISS01B | 18-Jul-02 | REG | MAGNESIUM | 12900 | | |
| MISS02A | 20-Jul-93 | REG | MAGNESIUM | 16100 | = | |
| MISS02A | 12-May-94 | REG | MAGNESIUM | 7980 | = | |
| MISS02A | 10-May-95 | REG | MAGNESIUM | 3410 | = | |
| MISS02A | 16-May-96 | REG | MAGNESIUM | 5980 | = | |
| MISS02A | 15-May-97 | REG | MAGNESIUM | 7560 | | J |
| MISS02A | 15-May-97 | DUP | MAGNESIUM | 7030 | | J |
| MISS02A | 11-Jun-98 | DUP | MAGNESIUM | 11800 | | |
| MISS02A | 18-May-99 | REG | MAGNESIUM | 5700 | | |
| MISS02A | 22-Jun-00 | REG | MAGNESIUM | 7780 | | |
| MISS02A | 8-Jul-02 | REG | MAGNESIUM | 14300 | | |
| MISS02B | 20-Jul-93 | REG | MAGNESIUM | 42300 | = | |
| MISS02B | 13-May-94 | REG | MAGNESIUM | 30100 | = | J |
| MISS02B | 9-May-95 | REG | MAGNESIUM | 33600 | = | |
| MISS02B | 14-May-96 | REG | MAGNESIUM | 36100 | = | |
| MISS02B | 19-May-97 | REG | MAGNESIUM | 32500 | | J |
| MISS02B | 10-Jun-98 | REG | MAGNESIUM | 34600 | | |
| MISS02B | 18-May-99 | DUP | MAGNESIUM | 40500 | | |
| MISS02B | 23-Jun-00 | REG | MAGNESIUM | 34200 | | |
| MISS02B | 8-Jul-02 | REG | MAGNESIUM | 35200 | | |
| MISS05A | 27-May-94 | REG | MAGNESIUM | 48200 | = | |
| MISS05A | 12-May-95 | REG | MAGNESIUM | 79200 | = | |
| MISS05A | 10-May-96 | REG | MAGNESIUM | 42700 | = | |
| MISS05A | 2-Jun-97 | REG | MAGNESIUM | 43300 | | |
| MISS05A | 29-Jun-98 | REG | MAGNESIUM | 33100 | | J |
| MISS05A | 14-May-99 | REG | MAGNESIUM | 47700 | | |
| MISS05A | 1-Aug-02 | REG | MAGNESIUM | 72200 | | |
| MISS05B | 23-Jul-93 | REG | MAGNESIUM | 58200 | = | |
| MISS05B | 17-May-94 | REG | MAGNESIUM | 64400 | = | |
| MISS05B | 11-May-95 | REG | MAGNESIUM | 52200 | = | J |
| MISS05B | 16-May-96 | REG | MAGNESIUM | 47400 | = | |
| MISS05B | 14-May-97 | REG | MAGNESIUM | 60300 | | |
| MISS05B | 30-Jun-98 | REG | MAGNESIUM | 19000 | | J |
| MISS05B | 11-Jul-00 | REG | MAGNESIUM | 23900 | | |
| MISS05B | 31-Jul-02 | REG | MAGNESIUM | 84900 | | |
| MISS06A | 4-Aug-93 | REG | MAGNESIUM | 14800 | = | J |
| MISS06A | 24-May-94 | REG | MAGNESIUM | 9830 | = | J |
| MISS06A | 16-May-95 | REG | MAGNESIUM | 19200 | = | |
| MISS06A | 10-May-96 | REG | MAGNESIUM | 8630 | = | |
| MISS06A | 3-Jun-97 | REG | MAGNESIUM | 13600 | | |
| MISS06A | 1-Jul-98 | REG | MAGNESIUM | 9670 | | J |
| MISS06A | 17-May-99 | DUP | MAGNESIUM | 12400 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS06A | 10-Jul-00 | REG | MAGNESIUM | 9330 | | |
| MISS06A | 10-Jul-02 | REG | MAGNESIUM | 7900 | | |
| MISS07B | 12-Jul-00 | REG | MAGNESIUM | 50000 | | |
| MISS07B | 11-Jul-02 | REG | MAGNESIUM | 88900 | | |
| B38W01S | 28-Jul-93 | REG | MANGANESE | 2880 | = | J |
| B38W01S | 23-May-94 | REG | MANGANESE | 2910 | = | |
| B38W01S | 21-May-95 | REG | MANGANESE | 2340 | = | |
| B38W01S | 17-May-96 | REG | MANGANESE | 2810 | = | |
| B38W01S | 4-Jun-97 | REG | MANGANESE | 2780 | | |
| B38W01S | 7-Jul-98 | REG | MANGANESE | 2270 | | |
| B38W01S | 11-Jul-01 | DUP | MANGANESE | 2570 | | |
| B38W01S | 17-Jul-02 | DUP | MANGANESE | 2250 | | |
| B38W02D | 27-Jul-93 | REG | MANGANESE | 2220 | = | J |
| B38W02D | 19-May-94 | REG | MANGANESE | 2000 | = | |
| B38W02D | 20-May-95 | REG | MANGANESE | 1240 | = | |
| B38W02D | 17-May-96 | REG | MANGANESE | 1350 | = | |
| B38W02D | 4-Jun-97 | REG | MANGANESE | 2480 | | |
| B38W02D | 30-Jun-98 | REG | MANGANESE | 3700 | | |
| B38W02D | 20-May-99 | REG | MANGANESE | 1130 | | |
| B38W02D | 13-Jul-00 | REG | MANGANESE | 2300 | | |
| B38W02D | 28-Jun-01 | REG | MANGANESE | 931 | | |
| B38W02D | 17-Jul-02 | REG | MANGANESE | 798 | | |
| B38W14D | 4-Aug-93 | REG | MANGANESE | 31.7 | = | |
| B38W14D | 20-May-95 | REG | MANGANESE | 5.3 | = | |
| B38W14D | 17-May-96 | REG | MANGANESE | 5.3 | = | |
| B38W14D | 4-Jun-97 | REG | MANGANESE | 33.5 | | |
| B38W14D | 7-Jul-98 | REG | MANGANESE | 14.2 | | |
| B38W14D | 7-Jul-98 | DUP | MANGANESE | 13.3 | | |
| B38W14D | 17-May-99 | REG | MANGANESE | 6.1 | | J |
| B38W14D | 5-Jul-00 | REG | MANGANESE | 11.5 | | |
| B38W14D | 2-Jul-01 | REG | MANGANESE | 7.3 | | |
| B38W14D | 24-Jul-02 | REG | MANGANESE | 16.1 | | |
| B38W14S | 4-Aug-93 | REG | MANGANESE | 505 | = | |
| B38W14S | 20-May-95 | REG | MANGANESE | 7.9 | = | |
| B38W14S | 17-May-96 | REG | MANGANESE | 22.6 | = | |
| B38W14S | 17-May-96 | DUP | MANGANESE | 20.3 | = | |
| B38W14S | 4-Jun-97 | REG | MANGANESE | 15.7 | | |
| B38W14S | 7-Jul-98 | REG | MANGANESE | 126 | | J |
| B38W14S | 17-May-99 | REG | MANGANESE | 32.1 | | |
| B38W14S | 5-Jul-00 | REG | MANGANESE | 76.3 | | |
| B38W14S | 2-Jul-01 | REG | MANGANESE | 50.8 | | |
| B38W14S | 24-Jul-02 | REG | MANGANESE | 115 | | |
| B38W15D | 2-Aug-93 | REG | MANGANESE | 474 | = | J |
| B38W15D | 26-May-94 | REG | MANGANESE | 944 | = | |
| B38W15D | 19-May-95 | REG | MANGANESE | 638 | = | J |
| B38W15D | 13-May-96 | REG | MANGANESE | 1080 | = | J |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W15D | 3-Jun-97 | REG | MANGANESE | 809 | | |
| B38W15D | 6-Jul-98 | REG | MANGANESE | 514 | | |
| B38W15D | 26-Jun-00 | REG | MANGANESE | 1060 | | |
| B38W15D | 27-Jun-01 | DUP | MANGANESE | 137 | | |
| B38W15D | 16-Jul-02 | REG | MANGANESE | 806 | | |
| B38W15S | 2-Aug-93 | REG | MANGANESE | 1850 | = | J |
| B38W15S | 26-May-94 | REG | MANGANESE | 1370 | = | |
| B38W15S | 19-May-95 | REG | MANGANESE | 2170 | = | J |
| B38W15S | 19-May-95 | DUP | MANGANESE | 1970 | = | J |
| B38W15S | 13-May-96 | REG | MANGANESE | 1400 | = | J |
| B38W15S | 3-Jun-97 | REG | MANGANESE | 1540 | | |
| B38W15S | 6-Jul-98 | REG | MANGANESE | 1550 | | |
| B38W15S | 26-Jun-00 | REG | MANGANESE | 2050 | | |
| B38W15S | 27-Jun-01 | REG | MANGANESE | 2300 | | |
| B38W15S | 16-Jul-02 | REG | MANGANESE | 2100 | | |
| B38W17A | 28-Jul-93 | REG | MANGANESE | 1030 | = | J |
| B38W17A | 25-May-94 | REG | MANGANESE | 57.7 | = | |
| B38W17A | 20-May-95 | REG | MANGANESE | 55.9 | = | |
| B38W17A | 13-May-96 | REG | MANGANESE | 38.4 | = | J |
| B38W17A | 3-Jun-97 | REG | MANGANESE | 59.9 | | |
| B38W17A | 2-Jul-98 | REG | MANGANESE | 137 | | |
| B38W17A | 13-May-99 | DUP | MANGANESE | 42.7 | | |
| B38W17A | 19-Jun-00 | REG | MANGANESE | 2070 | | |
| B38W17A | 14-Jun-01 | REG | MANGANESE | 253 | | |
| B38W17A | 2-Jul-02 | REG | MANGANESE | 314 | | |
| B38W17B | 29-Jul-93 | REG | MANGANESE | 3940 | = | J |
| B38W17B | 25-May-94 | REG | MANGANESE | 4650 | = | |
| B38W17B | 20-May-95 | REG | MANGANESE | 4020 | = | |
| B38W17B | 13-May-96 | REG | MANGANESE | 4710 | = | J |
| B38W17B | 3-Jun-97 | REG | MANGANESE | 4860 | | |
| B38W17B | 2-Jul-98 | REG | MANGANESE | 3940 | | |
| B38W17B | 13-May-99 | REG | MANGANESE | 4920 | | |
| B38W17B | 19-Jun-00 | REG | MANGANESE | 3970 | | |
| B38W17B | 14-Jun-01 | REG | MANGANESE | 4320 | | |
| B38W17B | 2-Jul-02 | REG | MANGANESE | 3010 | | |
| B38W18D | 21-Jul-93 | REG | MANGANESE | 4010 | = | J |
| B38W18D | 13-May-94 | REG | MANGANESE | 3800 | = | J |
| B38W18D | 15-May-95 | REG | MANGANESE | 4010 | = | |
| B38W18D | 14-May-96 | REG | MANGANESE | 3950 | = | |
| B38W18D | 9-May-97 | REG | MANGANESE | 2980 | | |
| B38W18D | 8-Jun-98 | REG | MANGANESE | 3670 | | |
| B38W18D | 20-May-99 | REG | MANGANESE | 4590 | | |
| B38W18D | 6-Jul-00 | REG | MANGANESE | 3510 | | |
| B38W18D | 20-Jun-01 | REG | MANGANESE | 180 | | |
| B38W18D | 3-Jul-02 | DUP | MANGANESE | 4210 | | |
| B38W19D | 23-Jul-93 | REG | MANGANESE | 2450 | = | J |
| B38W19D | 16-May-94 | REG | MANGANESE | 3090 | = | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W19D | 10-May-95 | REG | MANGANESE | 2030 | = | |
| B38W19D | 16-May-96 | REG | MANGANESE | 2570 | = | |
| B38W19D | 16-May-97 | REG | MANGANESE | 2400 | | |
| B38W19D | 17-Jun-98 | REG | MANGANESE | 2530 | | |
| B38W19D | 27-May-99 | REG | MANGANESE | 2820 | | |
| B38W19D | 12-Jul-00 | REG | MANGANESE | 2240 | | |
| B38W19D | 13-Jun-01 | REG | MANGANESE | 2190 | | |
| B38W19D | 9-Jul-02 | REG | MANGANESE | 2630 | | |
| B38W19S | 27-May-94 | REG | MANGANESE | 860 | = | |
| B38W19S | 17-May-95 | REG | MANGANESE | 301 | = | |
| B38W19S | 10-May-96 | REG | MANGANESE | 744 | = | J |
| B38W19S | 29-Jun-98 | REG | MANGANESE | 682 | | |
| B38W19S | 29-May-99 | REG | MANGANESE | 841 | | |
| B38W19S | 13-Jun-01 | REG | MANGANESE | 933 | | |
| B38W19S | 9-Jul-02 | REG | MANGANESE | 918 | | |
| B38W24D | 9-Aug-93 | REG | MANGANESE | 5620 | = | |
| B38W24D | 18-May-94 | REG | MANGANESE | 4730 | = | J |
| B38W24D | 17-May-95 | REG | MANGANESE | 3980 | = | |
| B38W24D | 9-May-96 | REG | MANGANESE | 6190 | = | J |
| B38W24D | 2-Jun-97 | REG | MANGANESE | 5600 | | |
| B38W24D | 2-Jul-98 | REG | MANGANESE | 4720 | | |
| B38W24D | 13-May-99 | REG | MANGANESE | 5860 | | |
| B38W24D | 22-Jun-00 | REG | MANGANESE | 5350 | | |
| B38W24D | 5-Jul-01 | REG | MANGANESE | 5870 | | |
| B38W24D | 15-Jul-02 | REG | MANGANESE | 4720 | | |
| B38W24S | 5-Aug-93 | REG | MANGANESE | 4720 | = | |
| B38W24S | 25-May-94 | REG | MANGANESE | 4610 | = | |
| B38W24S | 17-May-95 | REG | MANGANESE | 5420 | = | |
| B38W24S | 9-May-96 | REG | MANGANESE | 4430 | = | J |
| B38W24S | 2-Jun-97 | REG | MANGANESE | 3190 | | |
| B38W24S | 2-Jul-98 | REG | MANGANESE | 2910 | | |
| B38W24S | 13-May-99 | DUP | MANGANESE | 5040 | | |
| B38W24S | 21-Jun-00 | REG | MANGANESE | 3830 | | |
| B38W24S | 27-Jun-01 | REG | MANGANESE | 3010 | | |
| B38W24S | 15-Jul-02 | REG | MANGANESE | 3600 | | |
| B38W25D | 3-Aug-93 | REG | MANGANESE | 1620 | = | J |
| B38W25D | 18-May-94 | REG | MANGANESE | 1380 | = | J |
| B38W25D | 12-May-95 | REG | MANGANESE | 1740 | = | J |
| B38W25D | 15-May-96 | REG | MANGANESE | 1610 | = | J |
| B38W25D | 15-May-97 | REG | MANGANESE | 1380 | | |
| B38W25D | 1-Jul-98 | REG | MANGANESE | 1400 | | |
| B38W25D | 26-May-99 | REG | MANGANESE | 1390 | | |
| B38W25D | 7-Jul-00 | REG | MANGANESE | 1250 | | |
| B38W25D | 10-Jul-01 | DUP | MANGANESE | 1280 | | |
| B38W25D | 10-Jul-02 | DUP | MANGANESE | 1600 | | |
| B38W25S | 3-Aug-93 | REG | MANGANESE | 1730 | = | J |
| B38W25S | 24-May-94 | REG | MANGANESE | 1250 | = | J |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W25S | 15-May-95 | REG | MANGANESE | 1540 | = | |
| B38W25S | 15-May-95 | DUP | MANGANESE | 1410 | = | |
| B38W25S | 15-May-96 | REG | MANGANESE | 1330 | = | J |
| B38W25S | 15-May-96 | DUP | MANGANESE | 1480 | = | J |
| B38W25S | 5-Jun-97 | REG | MANGANESE | 1450 | | |
| B38W25S | 1-Jul-98 | REG | MANGANESE | 2390 | | |
| B38W25S | 17-May-99 | REG | MANGANESE | 2670 | | J |
| B38W25S | 7-Jul-00 | REG | MANGANESE | 7120 | | |
| B38W25S | 10-Jul-01 | REG | MANGANESE | 7380 | | |
| B38W25S | 10-Jul-02 | REG | MANGANESE | 5810 | | |
| MISS01AA | 31-Jul-93 | REG | MANGANESE | 309 | = | J |
| MISS01AA | 23-May-94 | REG | MANGANESE | 156 | = | |
| MISS01AA | 18-May-95 | REG | MANGANESE | 8.6 | = | |
| MISS01AA | 9-May-96 | REG | MANGANESE | 119 | = | J |
| MISS01AA | 23-May-97 | REG | MANGANESE | 116 | | |
| MISS01AA | 18-Jun-98 | REG | MANGANESE | 117 | | |
| MISS01AA | 12-May-99 | REG | MANGANESE | 118 | | |
| MISS01AA | 20-Jun-00 | REG | MANGANESE | 94.9 | | |
| MISS01AA | 20-Jun-01 | REG | MANGANESE | 117 | | |
| MISS01AA | 11-Jul-02 | REG | MANGANESE | 73.2 | | |
| MISS01B | 21-Jul-93 | REG | MANGANESE | 236 | = | J |
| MISS01B | 16-May-94 | REG | MANGANESE | 356 | = | |
| MISS01B | 10-May-95 | REG | MANGANESE | 271 | = | |
| MISS01B | 15-May-96 | REG | MANGANESE | 390 | = | J |
| MISS01B | 18-Jun-98 | REG | MANGANESE | 375 | | |
| MISS01B | 25-May-99 | REG | MANGANESE | 359 | | |
| MISS01B | 20-Jun-00 | REG | MANGANESE | 291 | | |
| MISS01B | 19-Jun-01 | REG | MANGANESE | 320 | | |
| MISS01B | 18-Jul-02 | REG | MANGANESE | 192 | | |
| MISS02A | 20-Jul-93 | REG | MANGANESE | 96.8 | = | |
| MISS02A | 12-May-94 | REG | MANGANESE | 21.9 | = | J |
| MISS02A | 10-May-95 | REG | MANGANESE | 50.6 | = | |
| MISS02A | 16-May-96 | REG | MANGANESE | 20.9 | = | |
| MISS02A | 15-May-97 | DUP | MANGANESE | 19.4 | | |
| MISS02A | 11-Jun-98 | DUP | MANGANESE | 49.7 | | |
| MISS02A | 18-May-99 | REG | MANGANESE | 71 | | |
| MISS02A | 22-Jun-00 | REG | MANGANESE | 268 | | |
| MISS02A | 5-Jul-01 | REG | MANGANESE | 109 | | |
| MISS02A | 8-Jul-02 | REG | MANGANESE | 392 | | |
| MISS02B | 20-Jul-93 | REG | MANGANESE | 4500 | = | |
| MISS02B | 13-May-94 | REG | MANGANESE | 4190 | = | J |
| MISS02B | 9-May-95 | REG | MANGANESE | 4210 | = | |
| MISS02B | 14-May-96 | REG | MANGANESE | 5470 | = | |
| MISS02B | 19-May-97 | REG | MANGANESE | 4630 | | |
| MISS02B | 10-Jun-98 | REG | MANGANESE | 5120 | | |
| MISS02B | 18-May-99 | DUP | MANGANESE | 5650 | | |
| MISS02B | 23-Jun-00 | REG | MANGANESE | 3820 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02B | 5-Jul-01 | REG | MANGANESE | 965 | | |
| MISS02B | 8-Jul-02 | REG | MANGANESE | 3380 | | |
| MISS05A | 27-May-94 | REG | MANGANESE | 728 | = | |
| MISS05A | 12-May-95 | REG | MANGANESE | 1330 | = | J |
| MISS05A | 10-May-96 | REG | MANGANESE | 646 | = | J |
| MISS05A | 2-Jun-97 | REG | MANGANESE | 584 | | |
| MISS05A | 29-Jun-98 | REG | MANGANESE | 330 | | |
| MISS05A | 14-May-99 | REG | MANGANESE | 688 | | |
| MISS05A | 19-Jun-01 | REG | MANGANESE | 722 | | |
| MISS05A | 1-Aug-02 | REG | MANGANESE | 551 | | |
| MISS05B | 23-Jul-93 | REG | MANGANESE | 2220 | = | J |
| MISS05B | 17-May-94 | REG | MANGANESE | 2530 | = | |
| MISS05B | 11-May-95 | REG | MANGANESE | 2180 | = | |
| MISS05B | 16-May-96 | REG | MANGANESE | 1920 | = | |
| MISS05B | 14-May-97 | REG | MANGANESE | 2450 | | |
| MISS05B | 30-Jun-98 | REG | MANGANESE | 771 | | |
| MISS05B | 11-Jul-00 | REG | MANGANESE | 951 | | |
| MISS05B | 18-Jun-01 | REG | MANGANESE | 2250 | | |
| MISS05B | 31-Jul-02 | REG | MANGANESE | 3010 | | |
| MISS06A | 4-Aug-93 | REG | MANGANESE | 826 | = | |
| MISS06A | 24-May-94 | REG | MANGANESE | 49.7 | = | J |
| MISS06A | 16-May-95 | REG | MANGANESE | 1540 | = | |
| MISS06A | 10-May-96 | REG | MANGANESE | 95 | = | J |
| MISS06A | 3-Jun-97 | REG | MANGANESE | 374 | | |
| MISS06A | 1-Jul-98 | REG | MANGANESE | 267 | | |
| MISS06A | 17-May-99 | REG | MANGANESE | 58.6 | | J |
| MISS06A | 10-Jul-00 | REG | MANGANESE | 228 | | |
| MISS06A | 20-Jun-01 | REG | MANGANESE | 13.6 | | |
| MISS06A | 10-Jul-02 | REG | MANGANESE | 46.7 | | |
| MISS07B | 12-Jul-00 | REG | MANGANESE | 2030 | | |
| MISS07B | 11-Jul-02 | REG | MANGANESE | 4660 | | |
| MISS02A | 11-Jun-98 | DUP | MERCURY | 0.52 | | J |
| MISS02A | 22-Jun-00 | REG | MERCURY | 0.45 | | |
| MISS02A | 5-Jul-01 | REG | MERCURY | 0.1 | | |
| MISS02A | 8-Jul-02 | REG | MERCURY | 0.32 | | J |
| B38W14D | 5-Jul-00 | REG | MERCURY | 0.11 | | J |
| B38W14D | 2-Jul-01 | REG | MERCURY | 0.1 | | |
| B38W24S | 21-Jun-00 | REG | MERCURY | 0.12 | | J |
| B38W24S | 27-Jun-01 | REG | MERCURY | 0.1 | | |
| B38W02D | 20-May-95 | REG | MOLYBDENU | 9.7 | = | |
| B38W02D | 4-Jun-97 | REG | MOLYBDENU | 2.5 | | |
| B38W02D | 30-Jun-98 | REG | MOLYBDENU | 23.6 | | |
| B38W14D | 20-May-95 | REG | MOLYBDENU | 16.6 | = | |
| B38W14S | 20-May-95 | REG | MOLYBDENU | 18.1 | = | |
| B38W14S | 4-Jun-97 | REG | MOLYBDENU | 20.5 | | |
| B38W14S | 7-Jul-98 | REG | MOLYBDENU | 29.7 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W14S | 17-May-99 | REG | MOLYBDENU | 9.4 | | |
| B38W17A | 28-Jul-93 | REG | MOLYBDENU | 281 | = | |
| B38W17A | 20-May-95 | REG | MOLYBDENU | 18.9 | = | |
| B38W17A | 3-Jun-97 | REG | MOLYBDENU | 18.7 | | |
| B38W17A | 2-Jul-98 | REG | MOLYBDENU | 79.1 | | |
| B38W17A | 13-May-99 | REG | MOLYBDENU | 2.6 | | |
| B38W18D | 8-Jun-98 | REG | MOLYBDENU | 9.7 | | |
| B38W19S | 17-May-95 | REG | MOLYBDENU | 20.4 | = | |
| B38W19S | 10-May-96 | REG | MOLYBDENU | 10.1 | = | |
| B38W24D | 2-Jul-98 | REG | MOLYBDENU | 3.9 | | |
| B38W25S | 24-May-94 | REG | MOLYBDENU | 6.4 | = | |
| B38W25S | 1-Jul-98 | REG | MOLYBDENU | 7.6 | | |
| B38W25S | 17-May-99 | REG | MOLYBDENU | 16.6 | | |
| MISS01AA | 23-May-94 | REG | MOLYBDENU | 49.2 | = | J |
| MISS01AA | 18-May-95 | REG | MOLYBDENU | 10 | = | |
| MISS01AA | 23-May-97 | REG | MOLYBDENU | 1.8 | | |
| MISS01AA | 18-Jun-98 | REG | MOLYBDENU | 3 | | |
| MISS02A | 12-May-94 | REG | MOLYBDENU | 5.9 | = | J |
| MISS02A | 15-May-97 | REG | MOLYBDENU | 3.5 | | |
| MISS02A | 15-May-97 | DUP | MOLYBDENU | 3.5 | | |
| MISS02A | 11-Jun-98 | REG | MOLYBDENU | 3.4 | | |
| MISS02A | 11-Jun-98 | DUP | MOLYBDENU | 3.8 | | |
| MISS02A | 11-Jun-99 | REG | MOLYBDENU | 31.1 | | |
| MISS05A | 2-Jun-97 | REG | MOLYBDENU | 2.5 | | |
| MISS05A | 29-Jun-98 | REG | MOLYBDENU | 3.3 | | |
| MISS05A | 14-May-99 | REG | MOLYBDENU | 1.9 | | |
| B38W01S | 28-Jul-93 | REG | NICKEL | 14.8 | B | |
| B38W01S | 4-Jun-97 | REG | NICKEL | 3.6 | | |
| B38W01S | 7-Jul-98 | REG | NICKEL | 2.7 | | |
| B38W01S | 11-Jul-01 | REG | NICKEL | 4.9 | | |
| B38W02D | 27-Jul-93 | REG | NICKEL | 14.8 | B | |
| B38W02D | 19-May-94 | REG | NICKEL | 10.1 | = | |
| B38W02D | 17-May-96 | REG | NICKEL | 40.8 | = | |
| B38W02D | 4-Jun-97 | REG | NICKEL | 17.6 | | |
| B38W02D | 30-Jun-98 | REG | NICKEL | 41.6 | | |
| B38W02D | 20-May-99 | REG | NICKEL | 5.7 | | |
| B38W02D | 13-Jul-00 | REG | NICKEL | 32.7 | | |
| B38W02D | 28-Jun-01 | REG | NICKEL | 20.2 | | |
| B38W02D | 17-Jul-02 | REG | NICKEL | 6.9 | | J |
| B38W14D | 4-Jun-97 | REG | NICKEL | 18.5 | | |
| B38W14D | 7-Jul-98 | REG | NICKEL | 10.2 | | |
| B38W14D | 7-Jul-98 | DUP | NICKEL | 9.1 | | |
| B38W14D | 17-May-99 | REG | NICKEL | 3.3 | | |
| B38W14D | 5-Jul-00 | REG | NICKEL | 12.1 | | |
| B38W14D | 2-Jul-01 | REG | NICKEL | 21.6 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W14D | 24-Jul-02 | REG | NICKEL | 5.3 | | |
| B38W14S | 4-Aug-93 | REG | NICKEL | 31.2 | B | |
| B38W14S | 17-May-96 | REG | NICKEL | 17 | = | |
| B38W14S | 17-May-96 | DUP | NICKEL | 17 | = | |
| B38W14S | 4-Jun-97 | REG | NICKEL | 19.7 | | |
| B38W14S | 7-Jul-98 | REG | NICKEL | 31.3 | | |
| B38W14S | 17-May-99 | REG | NICKEL | 23.5 | | |
| B38W14S | 5-Jul-00 | REG | NICKEL | 9.6 | | |
| B38W14S | 2-Jul-01 | REG | NICKEL | 4.8 | | |
| B38W14S | 24-Jul-02 | REG | NICKEL | 11.2 | | |
| B38W15D | 26-May-94 | REG | NICKEL | 30.9 | = | |
| B38W15D | 3-Jun-97 | REG | NICKEL | 6.8 | | |
| B38W15D | 6-Jul-98 | REG | NICKEL | 8.2 | | |
| B38W15D | 26-Jun-00 | REG | NICKEL | 9.7 | | |
| B38W15D | 27-Jun-01 | REG | NICKEL | 12 | | |
| B38W15D | 16-Jul-02 | REG | NICKEL | 7.2 | | J |
| B38W15S | 3-Jun-97 | REG | NICKEL | 3.8 | | |
| B38W15S | 6-Jul-98 | REG | NICKEL | 5.2 | | |
| B38W15S | 26-Jun-00 | REG | NICKEL | 4.8 | | |
| B38W15S | 27-Jun-01 | REG | NICKEL | 6.2 | | |
| B38W15S | 16-Jul-02 | REG | NICKEL | 3.7 | | J |
| B38W17A | 28-Jul-93 | REG | NICKEL | 824 | = | |
| B38W17A | 25-May-94 | REG | NICKEL | 153 | = | |
| B38W17A | 20-May-95 | REG | NICKEL | 167 | = | |
| B38W17A | 13-May-96 | REG | NICKEL | 143 | = | |
| B38W17A | 3-Jun-97 | REG | NICKEL | 148 | | |
| B38W17A | 2-Jul-98 | REG | NICKEL | 201 | | |
| B38W17A | 13-May-99 | DUP | NICKEL | 120 | | |
| B38W17A | 19-Jun-00 | REG | NICKEL | 114 | | |
| B38W17A | 14-Jun-01 | REG | NICKEL | 56.3 | | |
| B38W17A | 2-Jul-02 | REG | NICKEL | 102 | | |
| B38W17B | 3-Jun-97 | REG | NICKEL | 1.2 | | |
| B38W17B | 2-Jul-98 | REG | NICKEL | 2.4 | | |
| B38W17B | 13-May-99 | REG | NICKEL | 1.6 | | |
| B38W17B | 19-Jun-00 | REG | NICKEL | 7 | | |
| B38W17B | 14-Jun-01 | REG | NICKEL | 4.9 | | |
| B38W17B | 2-Jul-02 | REG | NICKEL | 4.1 | | |
| B38W18D | 21-Jul-93 | REG | NICKEL | 37.6 | B | |
| B38W18D | 13-May-94 | REG | NICKEL | 39.5 | = | J |
| B38W18D | 15-May-95 | REG | NICKEL | 26.3 | = | |
| B38W18D | 14-May-96 | REG | NICKEL | 28.4 | = | |
| B38W18D | 9-May-97 | REG | NICKEL | 17.3 | | |
| B38W18D | 8-Jun-98 | REG | NICKEL | 55.5 | | |
| B38W18D | 20-May-99 | REG | NICKEL | 24.9 | | |
| B38W18D | 6-Jul-00 | REG | NICKEL | 22.7 | | |
| B38W18D | 20-Jun-01 | REG | NICKEL | 36.6 | | |
| B38W18D | 3-Jul-02 | DUP | NICKEL | 28.4 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W19D | 16-May-97 | REG | NICKEL | 3.9 | | |
| B38W19D | 17-Jun-98 | REG | NICKEL | 1.9 | | |
| B38W19D | 27-May-99 | REG | NICKEL | 1.7 | | |
| B38W19D | 12-Jul-00 | REG | NICKEL | 2.2 | | J |
| B38W19S | 29-Jun-98 | REG | NICKEL | 4.7 | | |
| B38W19S | 14-May-99 | REG | NICKEL | 4.2 | | |
| B38W19S | 13-Jun-01 | REG | NICKEL | 3.5 | | |
| B38W24D | 18-May-94 | REG | NICKEL | 12.5 | = | |
| B38W24D | 2-Jun-97 | REG | NICKEL | 1.2 | | |
| B38W24D | 2-Jul-98 | REG | NICKEL | 14.7 | | |
| B38W24D | 13-May-99 | REG | NICKEL | 4.4 | | |
| B38W24D | 5-Jul-01 | REG | NICKEL | 4 | | |
| B38W24D | 15-Jul-02 | REG | NICKEL | 4 | | J |
| B38W24S | 2-Jun-97 | REG | NICKEL | 5.4 | | |
| B38W24S | 2-Jul-98 | REG | NICKEL | 0.85 | | |
| B38W24S | 21-Jun-00 | REG | NICKEL | 8 | | |
| B38W24S | 27-Jun-01 | REG | NICKEL | 1.2 | | |
| B38W24S | 15-Jul-02 | REG | NICKEL | 5.3 | | J |
| B38W25D | 12-May-95 | REG | NICKEL | 27.7 | = | |
| B38W25D | 15-May-97 | REG | NICKEL | 5.3 | | |
| B38W25D | 1-Jul-98 | REG | NICKEL | 2.7 | | |
| B38W25D | 26-May-99 | REG | NICKEL | 2.7 | | |
| B38W25D | 7-Jul-00 | REG | NICKEL | 3.6 | | |
| B38W25D | 10-Jul-01 | DUP | NICKEL | 3.3 | | |
| B38W25S | 3-Aug-93 | REG | NICKEL | 134 | = | |
| B38W25S | 15-May-95 | REG | NICKEL | 22.5 | = | |
| B38W25S | 15-May-95 | DUP | NICKEL | 30 | = | |
| B38W25S | 5-Jun-97 | REG | NICKEL | 5.8 | | |
| B38W25S | 1-Jul-98 | REG | NICKEL | 35.1 | | |
| B38W25S | 17-May-99 | DUP | NICKEL | 78.1 | | |
| B38W25S | 7-Jul-00 | REG | NICKEL | 32.4 | | |
| B38W25S | 10-Jul-01 | REG | NICKEL | 14.2 | | |
| MISS01AA | 31-Jul-93 | REG | NICKEL | 66.5 | = | |
| MISS01AA | 23-May-94 | REG | NICKEL | 243 | = | |
| MISS01AA | 23-May-97 | REG | NICKEL | 4.1 | | |
| MISS01AA | 18-Jun-98 | REG | NICKEL | 9.9 | | |
| MISS01AA | 12-May-99 | REG | NICKEL | 3.6 | | |
| MISS01AA | 20-Jun-00 | REG | NICKEL | 4 | | |
| MISS01AA | 20-Jun-01 | REG | NICKEL | 1.9 | | |
| MISS01B | 20-Jun-00 | REG | NICKEL | 1.9 | | J |
| MISS01B | 19-Jun-01 | REG | NICKEL | 4.1 | | |
| MISS01B | 18-Jul-02 | REG | NICKEL | 7.3 | | J |
| MISS02A | 12-May-94 | REG | NICKEL | 27.1 | = | |
| MISS02A | 10-May-95 | REG | NICKEL | 11.4 | = | |
| MISS02A | 15-May-97 | REG | NICKEL | 12.2 | | |
| MISS02A | 15-May-97 | DUP | NICKEL | 13.5 | | |
| MISS02A | 11-Jun-98 | REG | NICKEL | 9.7 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02A | 11-Jun-98 | DUP | NICKEL | 10.4 | | |
| MISS02A | 18-May-99 | REG | NICKEL | 31.1 | | |
| MISS02A | 22-Jun-00 | REG | NICKEL | 20 | | |
| MISS02A | 5-Jul-01 | REG | NICKEL | 4.3 | | |
| MISS02A | 8-Jul-02 | REG | NICKEL | 24.4 | | |
| MISS02B | 20-Jul-93 | REG | NICKEL | 22.6 | = | |
| MISS02B | 13-May-94 | REG | NICKEL | 181 | = | J |
| MISS02B | 19-May-97 | REG | NICKEL | 9.2 | | |
| MISS02B | 10-Jun-98 | REG | NICKEL | 9.2 | | |
| MISS02B | 18-May-99 | REG | NICKEL | 9.6 | | |
| MISS02B | 23-Jun-00 | REG | NICKEL | 20.9 | | |
| MISS02B | 5-Jul-01 | REG | NICKEL | 7.6 | | |
| MISS05A | 10-May-96 | REG | NICKEL | 10.9 | = | |
| MISS05A | 2-Jun-97 | REG | NICKEL | 6.1 | | |
| MISS05A | 29-Jun-98 | REG | NICKEL | 5 | | |
| MISS05A | 14-May-99 | REG | NICKEL | 22.8 | | |
| MISS05A | 19-Jun-01 | REG | NICKEL | 5.1 | | |
| MISS05A | 1-Aug-02 | REG | NICKEL | 14.1 | | |
| MISS05B | 23-Jul-93 | REG | NICKEL | 17.7 | B | |
| MISS05B | 14-May-97 | REG | NICKEL | 4.1 | | |
| MISS05B | 30-Jun-98 | REG | NICKEL | 10.8 | | |
| MISS05B | 18-Jun-01 | REG | NICKEL | 6.8 | | |
| MISS05B | 31-Jul-02 | REG | NICKEL | 2.3 | | J |
| MISS06A | 10-May-96 | REG | NICKEL | 17.3 | = | |
| MISS06A | 3-Jun-97 | REG | NICKEL | 10.6 | | |
| MISS06A | 1-Jul-98 | REG | NICKEL | 8.1 | | |
| MISS06A | 17-May-99 | DUP | NICKEL | 7.9 | | |
| MISS06A | 10-Jul-00 | REG | NICKEL | 21.1 | | |
| MISS06A | 20-Jun-01 | REG | NICKEL | 6.5 | | |
| MISS07B | 12-Jul-00 | REG | NICKEL | 6.8 | | |
| MISS07B | 11-Jun-01 | REG | NICKEL | 8.8 | | |
| MISS07B | 11-Jul-02 | REG | NICKEL | 10.6 | | J |
| B38W01S | 28-Jul-93 | REG | POTASSIUM | 59500 | = | |
| B38W01S | 23-May-94 | REG | POTASSIUM | 54100 | = | |
| B38W01S | 21-May-95 | REG | POTASSIUM | 44600 | = | |
| B38W01S | 17-May-96 | REG | POTASSIUM | 49300 | = | |
| B38W01S | 4-Jun-97 | REG | POTASSIUM | 49500 | | |
| B38W01S | 7-Jul-98 | REG | POTASSIUM | 43700 | | |
| B38W01S | 17-Jul-02 | REG | POTASSIUM | 57200 | | |
| B38W02D | 19-May-94 | REG | POTASSIUM | 1210 | = | |
| B38W02D | 17-May-96 | REG | POTASSIUM | 449 | = | |
| B38W02D | 4-Jun-97 | REG | POTASSIUM | 819 | | |
| B38W02D | 30-Jun-98 | REG | POTASSIUM | 941 | | |
| B38W02D | 20-May-99 | REG | POTASSIUM | 777 | | |
| B38W02D | 13-Jul-00 | REG | POTASSIUM | 847 | | |
| B38W02D | 17-Jul-02 | REG | POTASSIUM | 952 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W14D | 4-Aug-93 | REG | POTASSIUM | 7440 | = | |
| B38W14D | 20-May-95 | REG | POTASSIUM | 3750 | = | |
| B38W14D | 17-May-96 | REG | POTASSIUM | 4380 | = | |
| B38W14D | 4-Jun-97 | REG | POTASSIUM | 5300 | | |
| B38W14D | 7-Jul-98 | REG | POTASSIUM | 6020 | | |
| B38W14D | 7-Jul-98 | DUP | POTASSIUM | 6110 | | |
| B38W14D | 17-May-99 | REG | POTASSIUM | 4140 | | |
| B38W14D | 5-Jul-00 | REG | POTASSIUM | 6240 | | |
| B38W14D | 24-Jul-02 | REG | POTASSIUM | 6350 | | |
| B38W14S | 4-Aug-93 | REG | POTASSIUM | 5700 | = | |
| B38W14S | 20-May-95 | REG | POTASSIUM | 2850 | = | |
| B38W14S | 17-May-96 | REG | POTASSIUM | 3720 | = | |
| B38W14S | 17-May-96 | DUP | POTASSIUM | 3790 | = | |
| B38W14S | 4-Jun-97 | REG | POTASSIUM | 5080 | | |
| B38W14S | 7-Jul-98 | REG | POTASSIUM | 4930 | | |
| B38W14S | 17-May-99 | REG | POTASSIUM | 4810 | | |
| B38W14S | 5-Jul-00 | REG | POTASSIUM | 4420 | | |
| B38W14S | 24-Jul-02 | REG | POTASSIUM | 7190 | | |
| B38W15D | 2-Aug-93 | REG | POTASSIUM | 41200 | = | |
| B38W15D | 26-May-94 | REG | POTASSIUM | 58800 | = | |
| B38W15D | 19-May-95 | REG | POTASSIUM | 43300 | = | J |
| B38W15D | 13-May-96 | REG | POTASSIUM | 65000 | = | J |
| B38W15D | 3-Jun-97 | REG | POTASSIUM | 50500 | | |
| B38W15D | 6-Jul-98 | REG | POTASSIUM | 44200 | | |
| B38W15D | 26-Jun-00 | REG | POTASSIUM | 72700 | | |
| B38W15D | 16-Jul-02 | REG | POTASSIUM | 60100 | | |
| B38W15S | 2-Aug-93 | REG | POTASSIUM | 146000 | = | |
| B38W15S | 26-May-94 | REG | POTASSIUM | 138000 | = | |
| B38W15S | 19-May-95 | REG | POTASSIUM | 168000 | = | J |
| B38W15S | 19-May-95 | DUP | POTASSIUM | 154000 | = | J |
| B38W15S | 13-May-96 | REG | POTASSIUM | 136000 | = | J |
| B38W15S | 3-Jun-97 | REG | POTASSIUM | 136000 | | |
| B38W15S | 6-Jul-98 | REG | POTASSIUM | 120000 | | |
| B38W15S | 26-Jun-00 | REG | POTASSIUM | 164000 | | |
| B38W15S | 16-Jul-02 | REG | POTASSIUM | 195000 | | |
| B38W17A | 28-Jul-93 | REG | POTASSIUM | 26600 | = | |
| B38W17A | 25-May-94 | REG | POTASSIUM | 20300 | = | |
| B38W17A | 20-May-95 | REG | POTASSIUM | 13900 | = | |
| B38W17A | 13-May-96 | REG | POTASSIUM | 31000 | = | J |
| B38W17A | 3-Jun-97 | REG | POTASSIUM | 19200 | | |
| B38W17A | 2-Jul-98 | REG | POTASSIUM | 20800 | | |
| B38W17A | 13-May-99 | DUP | POTASSIUM | 25000 | | |
| B38W17A | 19-Jun-00 | REG | POTASSIUM | 18900 | | |
| B38W17A | 2-Jul-02 | REG | POTASSIUM | 32200 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W17B | 29-Jul-93 | REG | POTASSIUM | 78400 | = | J |
| B38W17B | 25-May-94 | REG | POTASSIUM | 83300 | = | |
| B38W17B | 20-May-95 | REG | POTASSIUM | 73200 | = | |
| B38W17B | 13-May-96 | REG | POTASSIUM | 88500 | = | J |
| B38W17B | 3-Jun-97 | REG | POTASSIUM | 91100 | | |
| B38W17B | 2-Jul-98 | REG | POTASSIUM | 88000 | | |
| B38W17B | 13-May-99 | REG | POTASSIUM | 98900 | | |
| B38W17B | 19-Jun-00 | REG | POTASSIUM | 93300 | | |
| B38W17B | 2-Jul-02 | REG | POTASSIUM | 126000 | | J |
| B38W18D | 21-Jul-93 | REG | POTASSIUM | 6910 | = | |
| B38W18D | 13-May-94 | REG | POTASSIUM | 6240 | = | J |
| B38W18D | 15-May-95 | REG | POTASSIUM | 6370 | = | |
| B38W18D | 14-May-96 | REG | POTASSIUM | 6830 | = | |
| B38W18D | 9-May-97 | REG | POTASSIUM | 7530 | | |
| B38W18D | 8-Jun-98 | REG | POTASSIUM | 8870 | | |
| B38W18D | 20-May-99 | DUP | POTASSIUM | 7370 | | |
| B38W18D | 6-Jul-00 | REG | POTASSIUM | 6320 | | |
| B38W18D | 3-Jul-02 | REG | POTASSIUM | 12600 | | J |
| B38W19D | 23-Jul-93 | REG | POTASSIUM | 381000 | = | |
| B38W19D | 16-May-94 | REG | POTASSIUM | 485000 | = | |
| B38W19D | 10-May-95 | REG | POTASSIUM | 329000 | = | |
| B38W19D | 16-May-96 | REG | POTASSIUM | 435000 | = | |
| B38W19D | 16-May-97 | REG | POTASSIUM | 397000 | | J |
| B38W19D | 17-Jun-98 | REG | POTASSIUM | 415000 | | J |
| B38W19D | 27-May-99 | REG | POTASSIUM | 408000 | | |
| B38W19D | 12-Jul-00 | REG | POTASSIUM | 291000 | | |
| B38W19D | 9-Jul-02 | REG | POTASSIUM | 389000 | | |
| B38W19S | 27-May-94 | REG | POTASSIUM | 43500 | = | |
| B38W19S | 17-May-95 | REG | POTASSIUM | 40400 | = | |
| B38W19S | 10-May-96 | REG | POTASSIUM | 33500 | = | J |
| B38W19S | 29-Jun-98 | REG | POTASSIUM | 31800 | | |
| B38W19S | 14-May-99 | REG | POTASSIUM | 35500 | | |
| B38W19S | 9-Jul-02 | REG | POTASSIUM | 39300 | | |
| B38W24D | 9-Aug-93 | REG | POTASSIUM | 13000 | = | |
| B38W24D | 18-May-94 | REG | POTASSIUM | 9900 | = | |
| B38W24D | 17-May-95 | REG | POTASSIUM | 7530 | = | |
| B38W24D | 9-May-96 | REG | POTASSIUM | 12700 | = | J |
| B38W24D | 2-Jun-97 | REG | POTASSIUM | 12800 | | |
| B38W24D | 2-Jul-98 | REG | POTASSIUM | 12200 | | |
| B38W24D | 13-May-99 | REG | POTASSIUM | 12800 | | |
| B38W24D | 22-Jun-00 | REG | POTASSIUM | 11600 | | |
| B38W24D | 15-Jul-02 | REG | POTASSIUM | 15700 | | |
| B38W24S | 5-Aug-93 | REG | POTASSIUM | 8060 | = | |
| B38W24S | 25-May-94 | REG | POTASSIUM | 6600 | = | |
| B38W24S | 17-May-95 | REG | POTASSIUM | 7050 | = | |
| B38W24S | 9-May-96 | REG | POTASSIUM | 8790 | = | J |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W24S | 2-Jun-97 | REG | POTASSIUM | 6030 | | |
| B38W24S | 2-Jul-98 | REG | POTASSIUM | 6450 | | |
| B38W24S | 13-May-99 | DUP | POTASSIUM | 7710 | | |
| B38W24S | 21-Jun-00 | REG | POTASSIUM | 6990 | | |
| B38W24S | 15-Jul-02 | REG | POTASSIUM | 12700 | | |
| B38W25D | 3-Aug-93 | REG | POTASSIUM | 92300 | = | |
| B38W25D | 18-May-94 | REG | POTASSIUM | 62800 | = | |
| B38W25D | 12-May-95 | REG | POTASSIUM | 73900 | = | J |
| B38W25D | 15-May-96 | REG | POTASSIUM | 77800 | = | J |
| B38W25D | 15-May-97 | REG | POTASSIUM | 61700 | | J |
| B38W25D | 1-Jul-98 | REG | POTASSIUM | 56900 | | |
| B38W25D | 26-May-99 | DUP | POTASSIUM | 56200 | | |
| B38W25D | 7-Jul-00 | REG | POTASSIUM | 48300 | | |
| B38W25D | 10-Jul-02 | REG | POTASSIUM | 58800 | | |
| B38W25S | 3-Aug-93 | REG | POTASSIUM | 167000 | = | |
| B38W25S | 24-May-94 | REG | POTASSIUM | 89600 | = | J |
| B38W25S | 15-May-95 | REG | POTASSIUM | 88400 | = | |
| B38W25S | 15-May-95 | DUP | POTASSIUM | 88800 | = | |
| B38W25S | 15-May-96 | REG | POTASSIUM | 72800 | = | J |
| B38W25S | 15-May-96 | DUP | POTASSIUM | 77900 | = | J |
| B38W25S | 5-Jun-97 | REG | POTASSIUM | 71400 | | |
| B38W25S | 1-Jul-98 | REG | POTASSIUM | 45900 | | |
| B38W25S | 17-May-99 | REG | POTASSIUM | 74400 | | |
| B38W25S | 7-Jul-00 | REG | POTASSIUM | 59900 | | |
| B38W25S | 10-Jul-02 | REG | POTASSIUM | 69400 | | |
| MISS01AA | 31-Jul-93 | REG | POTASSIUM | 2340 | B | J |
| MISS01AA | 18-May-95 | REG | POTASSIUM | 1550 | = | |
| MISS01AA | 9-May-96 | REG | POTASSIUM | 1460 | = | J |
| MISS01AA | 23-May-97 | REG | POTASSIUM | 1900 | | |
| MISS01AA | 18-Jun-98 | REG | POTASSIUM | 2100 | | |
| MISS01AA | 12-May-99 | REG | POTASSIUM | 1590 | | |
| MISS01AA | 20-Jun-00 | REG | POTASSIUM | 1270 | | |
| MISS01AA | 11-Jul-02 | REG | POTASSIUM | 1180 | | J |
| MISS01B | 21-Jul-93 | REG | POTASSIUM | 6350 | = | |
| MISS01B | 16-May-94 | REG | POTASSIUM | 5710 | = | |
| MISS01B | 10-May-95 | REG | POTASSIUM | 6950 | = | |
| MISS01B | 15-May-96 | REG | POTASSIUM | 15300 | = | J |
| MISS01B | 18-Jun-98 | REG | POTASSIUM | 13900 | | |
| MISS01B | 25-May-99 | REG | POTASSIUM | 11900 | | |
| MISS01B | 20-Jun-00 | REG | POTASSIUM | 9000 | | |
| MISS01B | 18-Jul-02 | DUP | POTASSIUM | 10200 | | |
| MISS02A | 20-Jul-93 | REG | POTASSIUM | 9390 | = | |
| MISS02A | 12-May-94 | REG | POTASSIUM | 2850 | = | |
| MISS02A | 10-May-95 | REG | POTASSIUM | 4340 | = | |
| MISS02A | 16-May-96 | REG | POTASSIUM | 3190 | = | |
| MISS02A | 15-May-97 | REG | POTASSIUM | 5120 | | J |
| MISS02A | 15-May-97 | DUP | POTASSIUM | 4940 | | J |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02A | 11-Jun-98 | REG | POTASSIUM | 4790 | | J |
| MISS02A | 11-Jun-98 | DUP | POTASSIUM | 5260 | | J |
| MISS02A | 18-May-99 | REG | POTASSIUM | 12500 | | |
| MISS02A | 22-Jun-00 | REG | POTASSIUM | 9350 | | J |
| MISS02A | 8-Jul-02 | REG | POTASSIUM | 13800 | | J |
| MISS02B | 20-Jul-93 | REG | POTASSIUM | 55100 | = | |
| MISS02B | 13-May-94 | REG | POTASSIUM | 32000 | = | J |
| MISS02B | 9-May-95 | REG | POTASSIUM | 40300 | = | |
| MISS02B | 14-May-96 | REG | POTASSIUM | 38000 | = | |
| MISS02B | 19-May-97 | REG | POTASSIUM | 40100 | | J |
| MISS02B | 10-Jun-98 | REG | POTASSIUM | 46200 | | J |
| MISS02B | 18-May-99 | REG | POTASSIUM | 70700 | | |
| MISS02B | 23-Jun-00 | REG | POTASSIUM | 84400 | | |
| MISS02B | 8-Jul-02 | REG | POTASSIUM | 66100 | | |
| MISS05A | 27-May-94 | REG | POTASSIUM | 57800 | = | |
| MISS05A | 12-May-95 | REG | POTASSIUM | 84600 | = | J |
| MISS05A | 10-May-96 | REG | POTASSIUM | 53000 | = | J |
| MISS05A | 2-Jun-97 | REG | POTASSIUM | 64100 | | |
| MISS05A | 29-Jun-98 | REG | POTASSIUM | 45000 | | |
| MISS05A | 14-May-99 | REG | POTASSIUM | 58300 | | |
| MISS05A | 1-Aug-02 | REG | POTASSIUM | 73700 | | |
| MISS05B | 23-Jul-93 | REG | POTASSIUM | 224000 | = | |
| MISS05B | 17-May-94 | REG | POTASSIUM | 230000 | = | |
| MISS05B | 11-May-95 | REG | POTASSIUM | 231000 | = | |
| MISS05B | 16-May-96 | REG | POTASSIUM | 234000 | = | |
| MISS05B | 14-May-97 | REG | POTASSIUM | 224000 | | |
| MISS05B | 30-Jun-98 | REG | POTASSIUM | 162000 | | |
| MISS05B | 11-Jul-00 | REG | POTASSIUM | 167000 | | |
| MISS05B | 31-Jul-02 | REG | POTASSIUM | 478000 | | |
| MISS06A | 4-Aug-93 | REG | POTASSIUM | 75400 | = | |
| MISS06A | 24-May-94 | REG | POTASSIUM | 12100 | = | J |
| MISS06A | 16-May-95 | REG | POTASSIUM | 97000 | = | |
| MISS06A | 10-May-96 | REG | POTASSIUM | 12300 | = | J |
| MISS06A | 3-Jun-97 | REG | POTASSIUM | 22900 | | |
| MISS06A | 1-Jul-98 | REG | POTASSIUM | 15000 | | |
| MISS06A | 17-May-99 | REG | POTASSIUM | 15800 | | |
| MISS06A | 10-Jul-00 | REG | POTASSIUM | 12600 | | |
| MISS06A | 10-Jul-02 | REG | POTASSIUM | 10800 | | |
| MISS07B | 12-Jul-00 | REG | POTASSIUM | 29200 | | |
| MISS07B | 11-Jul-02 | DUP | POTASSIUM | 71200 | | |
| B38W02D | 30-Jun-98 | REG | SILVER | 0.78 | | |
| B38W02D | 28-Jun-01 | REG | SILVER | 1 | | |
| B38W07B | 16-Jun-98 | REG | SILVER | 1.1 | | J |
| B38W07B | 27-May-99 | DUP | SILVER | 3 | | |
| B38W19D | 16-May-94 | REG | SILVER | 6 | = | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W19D | 17-Jun-98 | REG | SILVER | 4.3 | | |
| B38W19D | 13-Jun-01 | REG | SILVER | 1 | | |
| B38W19S | 14-May-99 | REG | SILVER | 1.5 | | |
| B38W24D | 18-May-94 | REG | SILVER | 4.8 | = | |
| B38W24D | 2-Jul-98 | REG | SILVER | 0.56 | | |
| B38W24D | 5-Jul-01 | REG | SILVER | 1 | | |
| MISS01AA | 18-Jun-98 | REG | SILVER | 1.3 | | J |
| MISS01AA | 20-Jun-01 | REG | SILVER | 1 | | |
| MISS01B | 16-May-94 | REG | SILVER | 6.4 | = | |
| MISS01B | 25-May-99 | REG | SILVER | 1.4 | | |
| MISS01B | 19-Jun-01 | REG | SILVER | 1 | | |
| MISS02A | 11-Jun-98 | REG | SILVER | 3.5 | | J |
| MISS02A | 11-Jun-98 | DUP | SILVER | 0.96 | | J |
| MISS02A | 18-May-99 | REG | SILVER | 1.4 | | |
| MISS02A | 5-Jul-01 | REG | SILVER | 1 | | |
| MISS02B | 10-Jun-98 | REG | SILVER | 1.2 | | J |
| MISS02B | 18-May-99 | REG | SILVER | 1.4 | | |
| MISS02B | 5-Jul-01 | REG | SILVER | 1 | | |
| MISS05A | 27-May-94 | REG | SILVER | 5.6 | = | |
| MISS05A | 14-May-99 | REG | SILVER | 1.5 | | |
| MISS05A | 19-Jun-01 | REG | SILVER | 1 | | |
| B38W01S | 28-Jul-93 | REG | SODIUM | 91100 | = | |
| B38W01S | 23-May-94 | REG | SODIUM | 80300 | = | |
| B38W01S | 21-May-95 | REG | SODIUM | 53700 | = | |
| B38W01S | 17-May-96 | REG | SODIUM | 59900 | = | |
| B38W01S | 4-Jun-97 | REG | SODIUM | 52200 | | |
| B38W01S | 7-Jul-98 | REG | SODIUM | 39500 | | J |
| B38W01S | 17-Jul-02 | REG | SODIUM | 37600 | | |
| B38W02D | 27-Jul-93 | REG | SODIUM | 7820 | = | |
| B38W02D | 19-May-94 | REG | SODIUM | 7060 | = | |
| B38W02D | 20-May-95 | REG | SODIUM | 6050 | = | |
| B38W02D | 17-May-96 | REG | SODIUM | 7210 | = | |
| B38W02D | 4-Jun-97 | REG | SODIUM | 8410 | | |
| B38W02D | 30-Jun-98 | REG | SODIUM | 8710 | | J |
| B38W02D | 20-May-99 | REG | SODIUM | 8350 | | |
| B38W02D | 13-Jul-00 | REG | SODIUM | 9050 | | |
| B38W02D | 17-Jul-02 | REG | SODIUM | 9160 | | |
| B38W14D | 4-Aug-93 | REG | SODIUM | 29400 | = | |
| B38W14D | 20-May-95 | REG | SODIUM | 22100 | = | |
| B38W14D | 17-May-96 | REG | SODIUM | 31100 | = | |
| B38W14D | 4-Jun-97 | REG | SODIUM | 34800 | | |
| B38W14D | 7-Jul-98 | REG | SODIUM | 34500 | | J |
| B38W14D | 7-Jul-98 | DUP | SODIUM | 35400 | | J |
| B38W14D | 17-May-99 | REG | SODIUM | 38800 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W14D | 5-Jul-00 | REG | SODIUM | 34800 | | |
| B38W14D | 24-Jul-02 | REG | SODIUM | 34400 | | |
| B38W14S | 4-Aug-93 | REG | SODIUM | 11500 | = | |
| B38W14S | 20-May-95 | REG | SODIUM | 13500 | = | |
| B38W14S | 17-May-96 | REG | SODIUM | 19500 | = | |
| B38W14S | 17-May-96 | DUP | SODIUM | 17700 | = | |
| B38W14S | 4-Jun-97 | REG | SODIUM | 21900 | | |
| B38W14S | 7-Jul-98 | REG | SODIUM | 19900 | | J |
| B38W14S | 17-May-99 | REG | SODIUM | 22800 | | |
| B38W14S | 5-Jul-00 | REG | SODIUM | 23300 | | |
| B38W14S | 24-Jul-02 | REG | SODIUM | 25900 | | |
| B38W15D | 2-Aug-93 | REG | SODIUM | 229000 | = | |
| B38W15D | 26-May-94 | REG | SODIUM | 340000 | = | |
| B38W15D | 19-May-95 | REG | SODIUM | 245000 | = | |
| B38W15D | 13-May-96 | REG | SODIUM | 361000 | = | J |
| B38W15D | 3-Jun-97 | REG | SODIUM | 251000 | | |
| B38W15D | 6-Jul-98 | REG | SODIUM | 181000 | | J |
| B38W15D | 26-Jun-00 | REG | SODIUM | 204000 | | |
| B38W15D | 16-Jul-02 | REG | SODIUM | 288000 | | |
| B38W15S | 2-Aug-93 | REG | SODIUM | 223000 | = | |
| B38W15S | 26-May-94 | REG | SODIUM | 205000 | = | |
| B38W15S | 19-May-95 | REG | SODIUM | 269000 | = | |
| B38W15S | 19-May-95 | DUP | SODIUM | 248000 | = | |
| B38W15S | 13-May-96 | REG | SODIUM | 207000 | = | J |
| B38W15S | 3-Jun-97 | REG | SODIUM | 207000 | | |
| B38W15S | 6-Jul-98 | REG | SODIUM | 187000 | | J |
| B38W15S | 26-Jun-00 | REG | SODIUM | 175000 | | |
| B38W15S | 16-Jul-02 | REG | SODIUM | 255000 | | |
| B38W17A | 28-Jul-93 | REG | SODIUM | 47000 | = | |
| B38W17A | 25-May-94 | REG | SODIUM | 37500 | = | |
| B38W17A | 20-May-95 | REG | SODIUM | 28000 | = | |
| B38W17A | 13-May-96 | REG | SODIUM | 58100 | = | J |
| B38W17A | 3-Jun-97 | REG | SODIUM | 33300 | | |
| B38W17A | 2-Jul-98 | REG | SODIUM | 32300 | | J |
| B38W17A | 13-May-99 | REG | SODIUM | 50800 | | |
| B38W17A | 19-Jun-00 | REG | SODIUM | 38100 | | |
| B38W17A | 2-Jul-02 | REG | SODIUM | 48300 | | |
| B38W17B | 29-Jul-93 | REG | SODIUM | 207000 | = | J |
| B38W17B | 25-May-94 | REG | SODIUM | 208000 | = | |
| B38W17B | 20-May-95 | REG | SODIUM | 232000 | = | |
| B38W17B | 13-May-96 | REG | SODIUM | 194000 | = | J |
| B38W17B | 3-Jun-97 | REG | SODIUM | 218000 | | |
| B38W17B | 2-Jul-98 | REG | SODIUM | 172000 | | J |
| B38W17B | 13-May-99 | REG | SODIUM | 197000 | | |
| B38W17B | 19-Jun-00 | REG | SODIUM | 211000 | | |
| B38W17B | 2-Jul-02 | REG | SODIUM | 118000 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W18D | 21-Jul-93 | REG | SODIUM | 28300 | = | |
| B38W18D | 13-May-94 | REG | SODIUM | 32800 | = | J |
| B38W18D | 15-May-95 | REG | SODIUM | 27000 | = | |
| B38W18D | 14-May-96 | REG | SODIUM | 29700 | = | |
| B38W18D | 9-May-97 | REG | SODIUM | 29100 | | |
| B38W18D | 8-Jun-98 | REG | SODIUM | 34800 | | |
| B38W18D | 20-May-99 | REG | SODIUM | 34300 | | |
| B38W18D | 6-Jul-00 | REG | SODIUM | 36600 | | |
| B38W18D | 3-Jul-02 | DUP | SODIUM | 56000 | | |
| B38W19D | 23-Jul-93 | REG | SODIUM | 469000 | = | |
| B38W19D | 16-May-94 | REG | SODIUM | 499000 | = | |
| B38W19D | 10-May-95 | REG | SODIUM | 306000 | = | |
| B38W19D | 16-May-96 | REG | SODIUM | 391000 | = | |
| B38W19D | 16-May-97 | REG | SODIUM | 327000 | | |
| B38W19D | 17-Jun-98 | REG | SODIUM | 367000 | | |
| B38W19D | 27-May-99 | REG | SODIUM | 383000 | | |
| B38W19D | 12-Jul-00 | REG | SODIUM | 206000 | | J |
| B38W19D | 3-Jul-02 | REG | SODIUM | 274000 | | |
| B38W19S | 27-May-94 | REG | SODIUM | 25900 | = | |
| B38W19S | 17-May-95 | REG | SODIUM | 23700 | = | J |
| B38W19S | 10-May-96 | REG | SODIUM | 22700 | = | J |
| B38W19S | 29-Jun-98 | REG | SODIUM | 21300 | | J |
| B38W19S | 14-May-99 | REG | SODIUM | 21700 | | |
| B38W19S | 9-Jul-02 | REG | SODIUM | 22800 | | |
| B38W24D | 9-Aug-93 | REG | SODIUM | 59800 | = | J |
| B38W24D | 18-May-94 | REG | SODIUM | 46600 | = | |
| B38W24D | 17-May-95 | REG | SODIUM | 39700 | = | J |
| B38W24D | 9-May-96 | REG | SODIUM | 54500 | = | J |
| B38W24D | 2-Jun-97 | REG | SODIUM | 41300 | | |
| B38W24D | 2-Jul-98 | REG | SODIUM | 33800 | | J |
| B38W24D | 13-May-99 | REG | SODIUM | 40000 | | |
| B38W24D | 22-Jun-00 | REG | SODIUM | 34700 | | |
| B38W24D | 15-Jul-02 | REG | SODIUM | 29500 | | |
| B38W24S | 5-Aug-93 | REG | SODIUM | 21700 | = | |
| B38W24S | 25-May-94 | REG | SODIUM | 19800 | = | |
| B38W24S | 17-May-95 | REG | SODIUM | 18800 | = | J |
| B38W24S | 9-May-96 | REG | SODIUM | 15700 | = | J |
| B38W24S | 2-Jun-97 | REG | SODIUM | 12500 | | |
| B38W24S | 2-Jul-98 | REG | SODIUM | 12000 | | J |
| B38W24S | 13-May-99 | DUP | SODIUM | 15600 | | |
| B38W24S | 21-Jun-00 | REG | SODIUM | 13900 | | |
| B38W24S | 15-Jul-02 | REG | SODIUM | 14900 | | |
| B38W25D | 3-Aug-93 | REG | SODIUM | 54500 | = | |
| B38W25D | 18-May-94 | REG | SODIUM | 40200 | = | |
| B38W25D | 12-May-95 | REG | SODIUM | 43700 | = | J |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W25D | 15-May-96 | REG | SODIUM | 37600 | = | J |
| B38W25D | 15-May-97 | REG | SODIUM | 30900 | | |
| B38W25D | 1-Jul-98 | REG | SODIUM | 28900 | | J |
| B38W25D | 26-May-99 | REG | SODIUM | 27700 | | |
| B38W25D | 7-Jul-00 | REG | SODIUM | 28600 | | |
| B38W25D | 10-Jul-02 | REG | SODIUM | 33000 | | |
| B38W25S | 3-Aug-93 | REG | SODIUM | 83800 | = | |
| B38W25S | 24-May-94 | REG | SODIUM | 42200 | = | J |
| B38W25S | 15-May-95 | REG | SODIUM | 37200 | = | |
| B38W25S | 15-May-95 | DUP | SODIUM | 37000 | = | |
| B38W25S | 15-May-96 | REG | SODIUM | 28300 | = | J |
| B38W25S | 15-May-96 | DUP | SODIUM | 31400 | = | J |
| B38W25S | 5-Jun-97 | REG | SODIUM | 31800 | | |
| B38W25S | 1-Jul-98 | REG | SODIUM | 21600 | | J |
| B38W25S | 17-May-99 | REG | SODIUM | 29900 | | |
| B38W25S | 7-Jul-00 | REG | SODIUM | 30100 | | |
| B38W25S | 10-Jul-02 | REG | SODIUM | 48100 | | |
| MISS01AA | 31-Jul-93 | REG | SODIUM | 7400 | = | |
| MISS01AA | 23-May-94 | REG | SODIUM | 4810 | = | |
| MISS01AA | 18-May-95 | REG | SODIUM | 5990 | = | J |
| MISS01AA | 9-May-96 | REG | SODIUM | 3870 | = | J |
| MISS01AA | 23-May-97 | REG | SODIUM | 5260 | | |
| MISS01AA | 18-Jun-98 | REG | SODIUM | 5300 | | |
| MISS01AA | 12-May-99 | REG | SODIUM | 5140 | | |
| MISS01AA | 20-Jun-00 | REG | SODIUM | 4850 | | |
| MISS01AA | 11-Jul-02 | REG | SODIUM | 4640 | | |
| MISS01B | 21-Jul-93 | REG | SODIUM | 53200 | = | |
| MISS01B | 16-May-94 | REG | SODIUM | 48100 | = | |
| MISS01B | 10-May-95 | REG | SODIUM | 48100 | = | |
| MISS01B | 15-May-96 | REG | SODIUM | 56900 | = | J |
| MISS01B | 18-Jun-98 | REG | SODIUM | 49000 | | |
| MISS01B | 25-May-99 | REG | SODIUM | 51500 | | |
| MISS01B | 20-Jun-00 | REG | SODIUM | 50000 | | |
| MISS01B | 18-Jul-02 | REG | SODIUM | 47700 | | |
| MISS02A | 20-Jul-93 | REG | SODIUM | 870000 | = | |
| MISS02A | 12-May-94 | REG | SODIUM | 878000 | = | |
| MISS02A | 10-May-95 | REG | SODIUM | 986000 | = | |
| MISS02A | 16-May-96 | REG | SODIUM | 800000 | = | |
| MISS02A | 15-May-97 | REG | SODIUM | 709000 | | |
| MISS02A | 15-May-97 | DUP | SODIUM | 679000 | | |
| MISS02A | 11-Jun-98 | DUP | SODIUM | 555000 | | |
| MISS02A | 22-Jun-00 | REG | SODIUM | 666000 | | |
| MISS02A | 8-Jul-02 | REG | SODIUM | 978000 | | |
| MISS02B | 20-Jul-93 | REG | SODIUM | 1310000 | = | |
| MISS02B | 13-May-94 | REG | SODIUM | 801000 | = | J |
| MISS02B | 9-May-95 | REG | SODIUM | 932000 | = | J |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02B | 14-May-96 | REG | SODIUM | 981000 | = | |
| MISS02B | 19-May-97 | REG | SODIUM | 959000 | | |
| MISS02B | 10-Jun-98 | REG | SODIUM | 973000 | | |
| MISS02B | 18-May-99 | REG | SODIUM | 1000000 | | |
| MISS02B | 23-Jun-00 | REG | SODIUM | 342000 | | |
| MISS02B | 8-Jul-02 | REG | SODIUM | 745000 | | |
| MISS05A | 27-May-94 | REG | SODIUM | 17300 | = | |
| MISS05A | 12-May-95 | REG | SODIUM | 24200 | = | J |
| MISS05A | 10-May-96 | REG | SODIUM | 14000 | = | J |
| MISS05A | 2-Jun-97 | REG | SODIUM | 20100 | | |
| MISS05A | 29-Jun-98 | REG | SODIUM | 13800 | | J |
| MISS05A | 14-May-99 | REG | SODIUM | 18000 | | |
| MISS05A | 1-Aug-02 | REG | SODIUM | 30500 | | |
| MISS05B | 23-Jul-93 | REG | SODIUM | 321000 | = | |
| MISS05B | 17-May-94 | REG | SODIUM | 382000 | = | |
| MISS05B | 11-May-95 | REG | SODIUM | 303000 | = | |
| MISS05B | 16-May-96 | REG | SODIUM | 272000 | = | |
| MISS05B | 14-May-97 | REG | SODIUM | 297000 | | |
| MISS05B | 30-Jun-98 | REG | SODIUM | 107000 | | J |
| MISS05B | 11-Jul-00 | REG | SODIUM | 94800 | | |
| MISS05B | 31-Jul-02 | REG | SODIUM | 384000 | | |
| MISS06A | 4-Aug-93 | REG | SODIUM | 57300 | = | |
| MISS06A | 24-May-94 | REG | SODIUM | 15100 | = | J |
| MISS06A | 16-May-95 | REG | SODIUM | 62600 | = | |
| MISS06A | 10-May-96 | REG | SODIUM | 10500 | = | J |
| MISS06A | 3-Jun-97 | REG | SODIUM | 19400 | | |
| MISS06A | 1-Jul-98 | REG | SODIUM | 15800 | | J |
| MISS06A | 17-May-99 | DUP | SODIUM | 21300 | | |
| MISS06A | 10-Jul-00 | REG | SODIUM | 17100 | | |
| MISS06A | 10-Jul-02 | REG | SODIUM | 20500 | | |
| MISS07B | 27-May-99 | REG | SODIUM | 1290000 | | |
| MISS07B | 12-Jul-00 | REG | SODIUM | 338000 | | |
| MISS07B | 11-Jul-02 | REG | SODIUM | 1290000 | | |
| B38W02D | 13-Jul-00 | REG | THALLIUM | 5.5 | | J |
| B38W02D | 28-Jun-01 | REG | THALLIUM | 3.9 | | |
| B38W15S | 26-Jun-00 | REG | THALLIUM | 6.2 | | J |
| B38W15S | 27-Jun-01 | REG | THALLIUM | 3.9 | | |
| B38W18D | 6-Jul-00 | REG | THALLIUM | 7.8 | | J |
| B38W18D | 20-Jun-01 | REG | THALLIUM | 3.9 | | |
| B38W25S | 7-Jul-00 | REG | THALLIUM | 17.4 | | |
| B38W25S | 10-Jul-01 | REG | THALLIUM | 3.9 | | |
| MISS02B | 23-Jun-00 | REG | THALLIUM | 7.8 | | J |
| MISS02B | 5-Jul-01 | REG | THALLIUM | 3.9 | | |
| B38W02D | 4-Jun-97 | REG | VANADIUM | 1.2 | | |
| B38W02D | 30-Jun-98 | REG | VANADIUM | 2.7 | | |
| B38W02D | 20-May-99 | REG | VANADIUM | 1 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W02D | 13-Jul-00 | REG | VANADIUM | 1.8 | | J |
| B38W02D | 28-Jun-01 | REG | VANADIUM | 1.5 | | |
| B38W14D | 17-May-96 | REG | VANADIUM | 4.7 | = | |
| B38W14D | 7-Jul-98 | REG | VANADIUM | 1.1 | | |
| B38W14D | 7-Jul-98 | DUP | VANADIUM | 0.8 | | |
| B38W14D | 17-May99 | REG | VANADIUM | 1.1 | | |
| B38W14D | 2-Jul-01 | REG | VANADIUM | 0.92 | | |
| B38W14D | 24-Jul-02 | REG | VANADIUM | 1.7 | | J |
| B38W14S | 17-May-96 | REG | VANADIUM | 7.4 | = | |
| B38W14S | 17-May-96 | DUP | VANADIUM | 7.2 | = | |
| B38W14S | 4-Jun-97 | REG | VANADIUM | 6.2 | | |
| B38W14S | 7-Jul-98 | REG | VANADIUM | 9.8 | | |
| B38W14S | 17-May-99 | REG | VANADIUM | 2.9 | | |
| B38W14S | 2-Jul-01 | REG | VANADIUM | 2.4 | | |
| B38W14S | 24-Jul-02 | REG | VANADIUM | 2.1 | | J |
| B38W15D | 26-May-94 | REG | VANADIUM | 11.9 | = | |
| B38W15D | 13-May-96 | REG | VANADIUM | 12.3 | = | |
| B38W15D | 3-Jun-97 | REG | VANADIUM | 4.2 | | |
| B38W15D | 6-Jul-98 | REG | VANADIUM | 4.2 | | |
| B38W15D | 27-Jun-01 | DUP | VANADIUM | 2.6 | | |
| B38W15D | 16-Jul-02 | REG | VANADIUM | 3 | | J |
| B38W15S | 2-Aug-93 | REG | VANADIUM | 13.3 | B | |
| B38W15S | 3-Jun-97 | REG | VANADIUM | 2.1 | | |
| B38W15S | 6-Jul-98 | REG | VANADIUM | 2.2 | | |
| B38W15S | 27-Jun-01 | REG | VANADIUM | 2.4 | | |
| B38W15S | 16-Jul-02 | REG | VANADIUM | 1.6 | | J |
| B38W17A | 25-May-94 | REG | VANADIUM | 9.9 | = | |
| B38W17A | 13-May-96 | REG | VANADIUM | 8.4 | = | |
| B38W17A | 3-Jun-97 | REG | VANADIUM | 7.2 | | |
| B38W17A | 2-Jul-98 | REG | VANADIUM | 28.2 | | |
| B38W17A | 19-Jun-00 | REG | VANADIUM | 11.8 | | |
| B38W17A | 14-Jun-01 | REG | VANADIUM | 0.7 | | |
| B38W17B | 25-May-94 | REG | VANADIUM | 20.8 | = | |
| B38W17B | 20-May-95 | REG | VANADIUM | 7.6 | = | |
| B38W17B | 13-May-96 | REG | VANADIUM | 20.6 | = | |
| B38W17B | 3-Jun-97 | REG | VANADIUM | 2 | | |
| B38W17B | 2-Jul-98 | REG | VANADIUM | 1 | | |
| B38W17B | 13-May-99 | REG | VANADIUM | 2.1 | | |
| B38W17B | 19-Jun-00 | REG | VANADIUM | 1 | | J |
| B38W17B | 14-Jun-01 | REG | VANADIUM | 2 | | |
| B38W19D | 16-May-94 | REG | VANADIUM | 4.2 | = | |
| B38W19D | 16-May-96 | REG | VANADIUM | 8.1 | = | |
| B38W19D | 16-May-97 | REG | VANADIUM | 5.2 | | |
| B38W19D | 17-Jun-98 | REG | VANADIUM | 4.2 | | |
| B38W19D | 27-May-99 | REG | VANADIUM | 8.2 | | |
| B38W19D | 12-Jul-00 | REG | VANADIUM | 4.5 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W19D | 13-Jun-01 | REG | VANADIUM | 4 | | |
| B38W19S | 27-May-94 | REG | VANADIUM | 56.6 | = | |
| B38W19S | 17-May-95 | REG | VANADIUM | 6.7 | = | |
| B38W19S | 10-May-96 | REG | VANADIUM | 41.9 | = | |
| B38W19S | 29-Jun-98 | REG | VANADIUM | 1.1 | | |
| B38W19S | 14-May-99 | REG | VANADIUM | 2 | | |
| B38W19S | 13-Jun-01 | REG | VANADIUM | 0.7 | | |
| B38W24D | 2-Jun-97 | REG | VANADIUM | 1.2 | | |
| B38W24D | 2-Jul-98 | REG | VANADIUM | 0.8 | | |
| B38W24D | 13-May-99 | REG | VANADIUM | 0.8 | | |
| B38W24D | 5-Jul-01 | REG | VANADIUM | 0.7 | | |
| B38W24S | 2-Jun-97 | REG | VANADIUM | 2.8 | | |
| B38W24S | 2-Jul-98 | REG | VANADIUM | 1.1 | | |
| B38W24S | 13-May-99 | REG | VANADIUM | 0.89 | | |
| B38W24S | 27-Jun-01 | REG | VANADIUM | 0.7 | | |
| B38W25S | 3-Aug-93 | REG | VANADIUM | 16.7 | B | J |
| B38W25S | 24-May-94 | REG | VANADIUM | 15 | = | |
| B38W25S | 15-May-96 | REG | VANADIUM | 9.3 | = | |
| B38W25S | 15-May-96 | DUP | VANADIUM | 13.1 | = | |
| B38W25S | 5-Jun-97 | REG | VANADIUM | 1.3 | | |
| B38W25S | 1-Jul-98 | REG | VANADIUM | 1.8 | | |
| B38W25S | 17-May-99 | REG | VANADIUM | 1.7 | | |
| B38W25S | 10-Jul-01 | REG | VANADIUM | 0.7 | | |
| MISS01AA | 31-Jul-93 | REG | VANADIUM | 46.1 | B | J |
| MISS01AA | 23-May-94 | REG | VANADIUM | 42.1 | = | |
| MISS01AA | 9-May-96 | REG | VANADIUM | 37.9 | = | |
| MISS01AA | 23-May-97 | REG | VANADIUM | 0.5 | | |
| MISS01AA | 18-Jun-98 | REG | VANADIUM | 4.6 | | |
| MISS01AA | 12-May-99 | REG | VANADIUM | 2.8 | | |
| MISS01AA | 20-Jun-01 | REG | VANADIUM | 0.81 | | |
| MISS01B | 16-May-94 | REG | VANADIUM | 7.4 | = | |
| MISS01B | 15-May-96 | REG | VANADIUM | 13.6 | = | |
| MISS01B | 18-Jun-98 | REG | VANADIUM | 2.5 | | |
| MISS01B | 25-May-99 | REG | VANADIUM | 3.4 | | |
| MISS01B | 20-Jun-00 | REG | VANADIUM | 2.9 | | J |
| MISS01B | 19-Jun-01 | REG | VANADIUM | 3.4 | | |
| MISS01B | 18-Jul-02 | REG | VANADIUM | 1.8 | | J |
| MISS02A | 10-May-95 | REG | VANADIUM | 10.1 | = | |
| MISS02A | 16-May-96 | REG | VANADIUM | 6.3 | = | |
| MISS02A | 15-May-97 | REG | VANADIUM | 4.7 | | |
| MISS02A | 15-May-97 | DUP | VANADIUM | 4.8 | | |
| MISS02A | 11-Jun-98 | REG | VANADIUM | 2 | | |
| MISS02A | 11-Jun-98 | DUP | VANADIUM | 2.4 | | |
| MISS02A | 18-May-99 | DUP | VANADIUM | 9.7 | | |
| MISS02A | 22-Jun-00 | REG | VANADIUM | 2.7 | | J |
| MISS02A | 5-Jul-01 | REG | VANADIUM | 1.3 | | |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02B | 9-May-95 | REG | VANADIUM | 6.8 | = | |
| MISS02B | 19-May-97 | REG | VANADIUM | 3.4 | | |
| MISS02B | 10-Jun-98 | REG | VANADIUM | 3.4 | | |
| MISS02B | 18-May-99 | DUP | VANADIUM | 3.9 | | |
| MISS02B | 23-Jun-00 | REG | VANADIUM | 4.7 | | |
| MISS02B | 5-Jul-01 | REG | VANADIUM | 2.8 | | |
| MISS05A | 27-May-94 | REG | VANADIUM | 50.5 | = | |
| MISS05A | 10-May-96 | REG | VANADIUM | 41.9 | = | |
| MISS05A | 2-Jun-97 | REG | VANADIUM | 16.9 | | |
| MISS05A | 29-Jun-98 | REG | VANADIUM | 11.3 | | |
| MISS05A | 14-May-99 | REG | VANADIUM | 1.6 | | |
| MISS05A | 19-Jun-01 | REG | VANADIUM | 0.7 | | |
| MISS05B | 17-May-94 | REG | VANADIUM | 27.7 | = | |
| MISS05B | 16-May-96 | REG | VANADIUM | 6 | = | |
| MISS05B | 14-May-97 | REG | VANADIUM | 3.8 | | |
| MISS05B | 30-Jun-98 | REG | VANADIUM | 0.96 | | |
| MISS05B | 11-Jul-00 | REG | VANADIUM | 2.1 | | J |
| MISS05B | 18-Jun-01 | REG | VANADIUM | 4.7 | | |
| MISS05B | 31-Jul-02 | REG | VANADIUM | 2.5 | | J |
| MISS06A | 4-Aug-93 | REG | VANADIUM | 21.9 | B | J |
| MISS06A | 24-May-94 | REG | VANADIUM | 23.6 | = | |
| MISS06A | 10-May-96 | REG | VANADIUM | 17.6 | = | |
| MISS06A | 3-Jun-97 | REG | VANADIUM | 1.2 | | |
| MISS06A | 1-Jul-98 | REG | VANADIUM | 1.2 | | |
| MISS06A | 17-May-99 | REG | VANADIUM | 1.2 | | |
| MISS06A | 10-Jul-00 | REG | VANADIUM | 2.1 | | J |
| MISS06A | 20-Jun-01 | REG | VANADIUM | 1.6 | | |
| MISS07B | 27-May-99 | DUP | VANADIUM | 19.6 | | |
| MISS07B | 12-Jul-00 | REG | VANADIUM | 13.9 | | |
| MISS07B | 11-Jun-01 | REG | VANADIUM | 12.9 | | |
| MISS07B | 11-Jul-02 | DUP | VANADIUM | 7 | | J |
| B38W01S | 23-May-94 | REG | ZINC | 129 | = | J |
| B38W01S | 7-Jul-98 | REG | ZINC | 13.5 | | |
| B38W01S | 11-Jul-01 | DUP | ZINC | 1.6 | | |
| B38W02D | 27-Jul-93 | REG | ZINC | 15.2 | B | |
| B38W02D | 17-May-96 | REG | ZINC | 3.2 | = | |
| B38W02D | 30-Jun-98 | REG | ZINC | 7.4 | | |
| B38W02D | 28-Jun-01 | REG | ZINC | 7.4 | | |
| B38W14D | 4-Aug-93 | REG | ZINC | 23.7 | = | |
| B38W14D | 17-May-96 | REG | ZINC | 4.2 | = | |
| B38W14D | 7-Jul-98 | REG | ZINC | 21.1 | | |
| B38W14D | 7-Jul-98 | DUP | ZINC | 17.9 | | |
| B38W14D | 5-Jul-00 | REG | ZINC | 24.7 | | |
| B38W14D | 2-Jul-01 | REG | ZINC | 43.3 | | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W14S | 4-Aug-93 | REG | ZINC | 47.1 | = | |
| B38W14S | 20-May-95 | REG | ZINC | 40.1 | = | |
| B38W14S | 17-May-96 | REG | ZINC | 6.5 | = | |
| B38W14S | 17-May-96 | DUP | ZINC | 5.3 | = | |
| B38W14S | 7-Jul-98 | REG | ZINC | 40.3 | | |
| B38W14S | 13-May-99 | REG | ZINC | 6.9 | | |
| B38W14S | 2-Jul-01 | REG | ZINC | 2.8 | | |
| B38W15D | 2-Aug-93 | REG | ZINC | 57.5 | = | UJ |
| B38W15D | 26-May-94 | REG | ZINC | 67.2 | = | |
| B38W15D | 6-Jul-98 | REG | ZINC | 11.2 | | |
| B38W15D | 27-Jun-01 | REG | ZINC | 22.5 | | |
| B38W15S | 2-Aug-93 | REG | ZINC | 48.6 | = | UJ |
| B38W15S | 2-Aug-93 | REG | ZINC | 36.4 | = | UJ |
| B38W15S | 6-Jul-98 | REG | ZINC | 13.9 | | |
| B38W15S | 27-Jun-01 | REG | ZINC | 9.3 | | |
| B38W17A | 28-Jul-93 | REG | ZINC | 147 | = | |
| B38W17A | 25-May-94 | REG | ZINC | 34.3 | = | |
| B38W17A | 2-Jul-98 | REG | ZINC | 22 | | |
| B38W17A | 13-May-99 | REG | ZINC | 4.9 | | |
| B38W17A | 19-Jun-00 | REG | ZINC | 25.8 | | |
| B38W17A | 14-Jun-01 | REG | ZINC | 12.1 | | |
| B38W17B | 25-May-94 | REG | ZINC | 42.8 | = | |
| B38W17B | 2-Jul-98 | REG | ZINC | 3.2 | | |
| B38W17B | 13-May-99 | REG | ZINC | 1.6 | | |
| B38W17B | 14-Jun-01 | REG | ZINC | 6.3 | | |
| B38W18D | 21-Jul-93 | REG | ZINC | 138 | = | |
| B38W18D | 13-May-94 | REG | ZINC | 226 | = | J |
| B38W18D | 15-May-95 | REG | ZINC | 152 | = | J |
| B38W18D | 14-May-96 | REG | ZINC | 102 | = | |
| B38W18D | 9-May-97 | REG | ZINC | 76.8 | | |
| B38W18D | 8-Jun-98 | REG | ZINC | 79.7 | | |
| B38W18D | 20-May-99 | DUP | ZINC | 81.5 | | |
| B38W18D | 6-Jul-00 | REG | ZINC | 91.2 | | |
| B38W18D | 20-Jun-01 | REG | ZINC | 112 | | |
| B38W19D | 16-May-96 | REG | ZINC | 4.6 | = | |
| B38W19D | 16-May-97 | REG | ZINC | 3.1 | | |
| B38W19D | 17-Jun-98 | REG | ZINC | 2.9 | | |
| B38W19D | 27-May-99 | REG | ZINC | 2.1 | | |
| B38W19D | 13-Jun-01 | REG | ZINC | 6.9 | | |
| B38W19S | 17-May-95 | REG | ZINC | 6 | = | UJ |
| B38W19S | 29-Jun-98 | REG | ZINC | 6.2 | | |
| B38W19S | 14-May-99 | REG | ZINC | 1.7 | | |
| B38W19S | 13-Jun-01 | REG | ZINC | 2.5 | | |
| B38W24D | 9-Aug-93 | REG | ZINC | 38.1 | = | J |
| B38W24D | 17-May-95 | REG | ZINC | 17.2 | = | UJ |

## Table B-3
## Historical Results for Detected Selected Metals in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| B38W24D | 2-Jul-98 | REG | ZINC | 15.4 | | |
| B38W24D | 13-May-99 | REG | ZINC | 5.9 | | |
| B38W24D | 5-Jul-01 | REG | ZINC | 11.9 | | |
| B38W24S | 17-May-95 | REG | ZINC | 7.6 | = | UJ |
| B38W24S | 2-Jul-98 | REG | ZINC | 12.3 | | |
| B38W24S | 13-May-99 | REG | ZINC | 30.4 | | |
| B38W24S | 27-Jun-01 | REG | ZINC | 6.1 | | |
| B38W24S | 15-Jul-02 | REG | ZINC | 67.1 | | |
| B38W25D | 3-Aug-93 | REG | ZINC | 28.5 | = | UJ |
| B38W25D | 15-May-97 | REG | ZINC | 2.8 | | |
| B38W25D | 1-Jul-98 | REG | ZINC | 4.6 | | |
| B38W25D | 26-May-99 | REG | ZINC | 4.5 | | |
| B38W25D | 10-Jul-01 | DUP | ZINC | 2.8 | | |
| B38W25S | 3-Aug-93 | REG | ZINC | 231 | = | J |
| B38W25S | 15-May-95 | REG | ZINC | 12.4 | = | UJ |
| B38W25S | 15-May-95 | DUP | ZINC | 13.1 | = | UJ |
| B38W25S | 15-May-96 | REG | ZINC | 38.2 | = | |
| B38W25S | 15-May-96 | DUP | ZINC | 31.6 | = | J |
| B38W25S | 1-Jul-98 | REG | ZINC | 198 | | |
| B38W25S | 17-May-99 | REG | ZINC | 29.7 | | |
| B38W25S | 7-Jul-00 | REG | ZINC | 530 | | |
| B38W25S | 10-Jul-01 | REG | ZINC | 35.9 | | |
| MISS01AA | 31-Jul-93 | REG | ZINC | 142 | = | J |
| MISS01AA | 23-May-94 | REG | ZINC | 88.8 | = | J |
| MISS01AA | 18-May-95 | REG | ZINC | 7.6 | = | UJ |
| MISS01AA | 23-May-97 | REG | ZINC | 4.8 | | |
| MISS01AA | 18-Jun-98 | REG | ZINC | 2.8 | | UJ |
| MISS01AA | 20-Jun-01 | REG | ZINC | 16.6 | | |
| MISS01B | 21-Jul-93 | REG | ZINC | 13.8 | B | |
| MISS01B | 10-May-95 | REG | ZINC | 34.6 | = | |
| MISS01B | 18-Jun-98 | REG | ZINC | 2.2 | | UJ |
| MISS01B | 25-May-99 | REG | ZINC | 2.9 | | |
| MISS01B | 19-Jun-01 | REG | ZINC | 6.9 | | |
| MISS01B | 18-Jul-02 | REG | ZINC | 26.9 | | J |
| MISS02A | 20-Jul-93 | REG | ZINC | 17.3 | = | |
| MISS02A | 12-May-94 | REG | ZINC | 50 | = | J |
| MISS02A | 10-May-95 | REG | ZINC | 19.3 | = | |
| MISS02A | 16-May-96 | REG | ZINC | 4.5 | = | |
| MISS02A | 15-May-97 | REG | ZINC | 8 | | |
| MISS02A | 15-May-97 | DUP | ZINC | 10.5 | | |
| MISS02A | 11-Jun-98 | REG | ZINC | 17.7 | | J |
| MISS02A | 11-Jun-98 | DUP | ZINC | 11 | | J |
| MISS02A | 18-May-99 | REG | ZINC | 36 | | |
| MISS02A | 22-Jun-00 | REG | ZINC | 18.8 | | |
| MISS02B | 13-May-94 | REG | ZINC | 148 | = | J |
| MISS02B | 9-May-95 | REG | ZINC | 22 | = | |

**Table B-3**
**Historical Results for Detected Selected Metals in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Sample Type | Analyte | Result (µg/L) | Lab Q | Rev Q |
|---|---|---|---|---|---|---|
| MISS02B | 14-May-96 | REG | ZINC | 1.8 | = | |
| MISS02B | 19-May-97 | REG | ZINC | 70.8 | | |
| MISS02B | 10-Jun-98 | REG | ZINC | 2.1 | | J |
| MISS02B | 23-Jun-00 | REG | ZINC | 109 | | |
| MISS02B | 5-Jul-01 | REG | ZINC | 5.4 | | |
| MISS05A | 27-May-94 | REG | ZINC | 34.6 | = | |
| MISS05A | 12-May-95 | REG | ZINC | 34.4 | = | |
| MISS05A | 10-May-96 | REG | ZINC | 72.1 | = | |
| MISS05A | 29-Jun-98 | REG | ZINC | 27.4 | | |
| MISS05A | 14-May-99 | REG | ZINC | 74.5 | | |
| MISS05A | 19-Jun-01 | REG | ZINC | 24.1 | | |
| MISS05A | 1-Aug-02 | REG | ZINC | 45.9 | | J |
| MISS05B | 11-May-95 | REG | ZINC | 98 | = | J |
| MISS05B | 16-May-96 | REG | ZINC | 7.8 | = | |
| MISS05B | 30-Jun-98 | REG | ZINC | 39.3 | | |
| MISS05B | 18-Jun-01 | REG | ZINC | 5.3 | | |
| MISS06A | 4-Aug-93 | REG | ZINC | 1260 | = | |
| MISS06A | 24-May-94 | REG | ZINC | 1120 | = | |
| MISS06A | 16-May-95 | REG | ZINC | 865 | = | |
| MISS06A | 10-May-96 | REG | ZINC | 968 | = | |
| MISS06A | 3-Jun-97 | REG | ZINC | 1060 | | |
| MISS06A | 1-Jul-98 | REG | ZINC | 802 | | |
| MISS06A | 17-May-99 | DUP | ZINC | 934 | | |
| MISS06A | 10-Jul-00 | REG | ZINC | 495 | | |
| MISS06A | 10-Jul-02 | REG | ZINC | 1780 | | |
| MISS07B | 27-May-99 | DUP | ZINC | 4.8 | | |

## Table B-4
## Historical Results for Detected VOCs in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (µg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (µg/L) |
|---|---|---|---|---|---|---|
| B38W14D | 4-Aug-93 | 1,1,1-Trichloroethane | 8.00 | | | 5 |
| B38W14D | 20-May-95 | 1,1,1-Trichloroethane | 6.00 | | | 5 |
| B38W14D | 4-Jun-97 | 1,1,1-Trichloroethane | 4.00 | J | J | 5 |
| B38W14D | 07-Jul-98 | 1,1,1-Trichloroethane | 3.00 | J | J | 10 |
| B38W14D | 20-May-99 | 1,1,1-Trichloroethane | 3.00 | J | J | 10 |
| B38W14D | 16-Nov-00 | 1,1,1-Trichloroethane | 2.00 | | | 1 |
| B38W14D | 2-Jul-01 | 1,1,1-Trichloroethane | 2.00 | | | 1 |
| B38W14S | 20-May-95 | 1,1,1-Trichloroethane | 7.00 | | | 5 |
| B38W14S | 4-Jun-97 | 1,1,1-Trichloroethane | 4.00 | J | J | 5 |
| B38W14S | 07-Jul-98 | 1,1,1-Trichloroethane | 4.00 | J | J | 5 |
| B38W14S | 17-May-99 | 1,1,1-Trichloroethane | 2.00 | J | J | 5 |
| B38W14S | 16-Nov-00 | 1,1,1-Trichloroethane | 1.00 | | U | 1 |
| B38W14S | 2-Jul-01 | 1,1,1-Trichloroethane | 2.00 | | | 1 |
| B38W15D | 2-Aug-93 | 1,1,1-Trichloroethane | 10.00 | | | 5 |
| B38W15D | 26-May-94 | 1,1,1-Trichloroethane | 5.00 | | | 5 |
| B38W15D | 19-May-95 | 1,1,1-Trichloroethane | 7.00 | | | 5 |
| B38W15D | 13-May-96 | 1,1,1-Trichloroethane | 3.00 | | | 2 |
| B38W15D | 3-Jun-97 | 1,1,1-Trichloroethane | 3.00 | J | J | 5 |
| B38W15D | 06-Jul-98 | 1,1,1-Trichloroethane | 5.00 | | | 5 |
| B38W15D | 9-Nov-00 | 1,1,1-Trichloroethane | 0.60 | | I | 1 |
| B38W15D | 27-Jun-01 | 1,1,1-Trichloroethane | 0.50 | J | | 1 |
| B38W15S | 2-Aug-93 | 1,1,1-Trichloroethane | 2.00 | | J | 5 |
| B38W15S | 26-May-94 | 1,1,1-Trichloroethane | 2.00 | | J | 5 |
| B38W15S | 13-May-96 | 1,1,1-Trichloroethane | 1.00 | J | J | 2 |
| B38W15S | 9-Nov-00 | 1,1,1-Trichloroethane | 1.00 | | U | 1 |
| MISS07B | 13-Oct-92 | 1,1,1-Trichloroethane | 1.00 | | J | 5 |
| MISS07B | 12-Aug-93 | 1,1,1-Trichloroethane | 2.00 | J | J | 5 |
| MISS07B | 18-May-94 | 1,1,1-Trichloroethane | 2.00 | | J | 5 |
| MISS07B | 18-May-94 | 1,1,1-Trichloroethane | 2.00 | | J | 5 |
| MISS07B | 6-Nov-00 | 1,1,1-Trichloroethane | 0.20 | | J | 1 |
| B38W14D | 4-Aug-93 | 1,1-Dichloroethane | 3.00 | | J | 5 |
| B38W14D | 20-May-95 | 1,1-Dichloroethane | 4.00 | | J | 5 |
| B38W14D | 4-Jun-97 | 1,1-Dichloroethane | 3.00 | J | J | 5 |
| B38W14D | 17-May-99 | 1,1-Dichloroethane | 2.00 | J | J | 5 |
| B38W14D | 16-Nov-00 | 1,1-Dichloroethane | 1.00 | | | 1 |
| B38W14D | 2-Jul-01 | 1,1-Dichloroethane | 1.00 | | | 1 |
| B38W14S | 20-May-95 | 1,1-Dichloroethane | 2.00 | | J | 5 |
| B38W14S | 4-Jun-97 | 1,1-Dichloroethane | 2.00 | J | J | 5 |
| B38W14S | 07-Jul-98 | 1,1-Dichloroethane | 1.00 | J | J | 5 |
| B38W14S | 8-Nov-00 | 1,1-Dichloroethane | 0.20 | | J | 1 |
| B38W14S | 2-Jul-01 | 1,1-Dichloroethane | 0.70 | J | | 1 |
| B38W15D | 2-Aug-93 | 1,1-Dichloroethane | 6.00 | | | 5 |
| B38W15D | 26-May-94 | 1,1-Dichloroethane | 4.00 | | J | 5 |
| B38W15D | 19-May-95 | 1,1-Dichloroethane | 6.00 | | | 5 |
| B38W15D | 13-May-96 | 1,1-Dichloroethane | 3.00 | | | 2 |
| B38W15D | 3-Jun-97 | 1,1-Dichloroethane | 4.00 | J | J | 5 |
| B38W15D | 06-Jul-98 | 1,1-Dichloroethane | 6.00 | | | 5 |
| B38W15D | 9-Nov-00 | 1,1-Dichloroethane | 2.00 | | | 1 |
| B38W15D | 27-Jun-01 | 1,1-Dichloroethane | 1.00 | | | 1 |

## Table B-4
## Historical Results for Detected VOCs in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (µg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (µg/L) |
|---|---|---|---|---|---|---|
| B38W15D | 16-Jul-02 | 1,1-Dichloroethane | 3.00 | J | | 5 |
| B38W15S | 2-Aug-93 | 1,1-Dichloroethane | 4.00 | | J | 5 |
| B38W15S | 26-May-94 | 1,1-Dichloroethane | 6.00 | | | 5 |
| B38W15S | 19-May-95 | 1,1-Dichloroethane | 4.00 | | J | 5 |
| B38W15S | 13-May-96 | 1,1-Dichloroethane | 5.00 | | | 2 |
| B38W15S | 3-Jun-97 | 1,1-Dichloroethane | 4.00 | J | J | 5 |
| B38W15S | 06-Jul-98 | 1,1-Dichloroethane | 4.00 | J | J | 5 |
| B38W15S | 9-Nov-00 | 1,1-Dichloroethane | 1.00 | | U | 1 |
| B38W15S | 27-Jun-01 | 1,1-Dichloroethane | 1.00 | | | 1 |
| B38W14D | 4-Aug-93 | 1,1-Dichloroethene | 6.00 | | | 5 |
| B38W14D | 20-May-95 | 1,1-Dichloroethene | 7.00 | | | 5 |
| B38W14D | 4-Jun-97 | 1,1-Dichloroethene | 5.00 | | | 1 |
| B38W14D | 07-Jul-98 | 1,1-Dichloroethene | 3.00 | J | J | 10 |
| B38W14D | 07-May-99 | 1,1-Dichloroethene | 3.00 | J | J | 5 |
| B38W14D | 16-Nov-00 | 1,1-Dichloroethene | 4.00 | | | 1 |
| B38W14D | 2-Jul-01 | 1,1-Dichloroethene | 3.00 | | | 1 |
| B38W14S | 20-May-95 | 1,1-Dichloroethene | 7.00 | | | 5 |
| B38W14S | 17-May-96 | 1,1-Dichloroethene | 6.00 | J | J | 10 |
| B38W14S | 4-Jun-97 | 1,1-Dichloroethene | 5.00 | | | 1 |
| B38W14S | 07-Jul-98 | 1,1-Dichloroethene | 5.00 | J | J | 5 |
| B38W14S | 17-May-99 | 1,1-Dichloroethene | 2.00 | J | J | 5 |
| B38W14S | 16-Nov-00 | 1,1-Dichloroethene | 1.00 | | U | 1 |
| B38W14S | 2-Jul-01 | 1,1-Dichloroethene | 4.00 | | | 1 |
| B38W14S | 24-Jul-02 | 1,1-Dichloroethene | 1.00 | J | | 2 |
| B38W15D | 2-Aug-93 | 1,1-Dichloroethene | 8.00 | | | 5 |
| B38W15D | 26-May-94 | 1,1-Dichloroethene | 7.00 | | | 5 |
| B38W15D | 19-May-95 | 1,1-Dichloroethene | 9.00 | | | 5 |
| B38W15D | 13-May-96 | 1,1-Dichloroethene | 5.00 | | | 2 |
| B38W15D | 3-Jun-97 | 1,1-Dichloroethene | 7.00 | J | | 1 |
| B38W15D | 06-Jul-98 | 1,1-Dichloroethene | 6.00 | | | 5 |
| B38W15D | 9-Nov-00 | 1,1-Dichloroethene | 2.00 | | | 1 |
| B38W15D | 27-Jun-01 | 1,1-Dichloroethene | 0.50 | J | | 1 |
| B38W15D | 16-Jul-02 | 1,1-Dichloroethene | 3.00 | J | | 5 |
| B38W15S | 13-May-96 | 1,1-Dichloroethene | 0.30 | J | J | 2 |
| B38W15S | 9-Nov-00 | 1,1-Dichloroethene | 1.00 | | U | 1 |
| MISS01B | 16-May-94 | 1,1-Dichloroethene | 1.00 | | J | 5 |
| MISS01B | 21-Dec-00 | 1,1-Dichloroethene | 0.20 | | J | 1 |
| MISS01B | 19-Jun-01 | 1,1-Dichloroethene | 0.20 | J | | 1 |
| MISS07B | 13-Oct-92 | 1,1-Dichloroethene | 2.00 | | J | 5 |
| MISS07B | 18-May-94 | 1,1-Dichloroethene | 3.00 | | J | 5 |
| MISS07B | 11-May-95 | 1,1-Dichloroethene | 2.00 | | J | 5 |
| MISS07B | 16-May-96 | 1,1-Dichloroethene | 2.00 | J | J | 2 |
| MISS07B | 16-May-97 | 1,1-Dichloroethene | 2.00 | | | 1 |
| MISS07B | 6-Nov-00 | 1,1-Dichloroethene | 0.70 | | J | 1 |
| MISS07B | 11-Jun-01 | 1,1-Dichloroethene | 0.40 | J | | 1 |
| MISS07B | 11-Jul-02 | 1,1-Dichloroethene | 0.30 | J | | 0.5 |
| B38W07B | 16-Jun-98 | 1,2-Dichloroethene (Total) | 6.00 | | | 5 |
| B38W07B | 6-Nov-00 | 1,2-Dichloroethene (Total) | 6.00 | | | 1 |
| B38W14D | 4-Aug-93 | 1,2-Dichloroethene (Total) | 56.00 | | | 5 |

## Table B-4
## Historical Results for Detected VOCs in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (µg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (µg/L) |
|---|---|---|---|---|---|---|
| B38W14D | 20-May-95 | 1,2-Dichloroethene (Total) | 93.00 | | | 5 |
| B38W14D | 17-May-96 | 1,2-Dichloroethene (Total) | 83.00 | | | 50 |
| B38W14D | 4-Jun-97 | 1,2-Dichloroethene (Total) | 78.00 | | | 5 |
| B38W14D | 07-Jul-98 | 1,2-Dichloroethene (Total) | 71.00 | | | 10 |
| B38W14D | 17-May-99 | 1,2-Dichloroethene (Total) | 77.00 | | | 5 |
| B38W14D | 16-Nov-00 | 1,2-Dichloroethene (Total) | 50.00 | D | | 1 |
| B38W14D | 2-Jul-01 | 1,2-Dichloroethene (Total) | 37.00 | | | 1 |
| B38W14S | 4-Aug-93 | 1,2-Dichloroethene (Total) | 10.00 | | | 5 |
| B38W14S | 20-May-95 | 1,2-Dichloroethene (Total) | 53.00 | | | 5 |
| B38W14S | 17-May-96 | 1,2-Dichloroethene (Total) | 29.00 | | | 10 |
| B38W14S | 17-May-96 | 1,2-Dichloroethene (Total) | 0.90 | J | J | 1 |
| B38W14S | 4-Jun-97 | 1,2-Dichloroethene (Total) | 43.00 | | | 5 |
| B38W14S | 07-Jul-98 | 1,2-Dichloroethene (Total) | 44.00 | | | 5 |
| B38W14S | 17-May-99 | 1,2-Dichloroethene (Total) | 43.00 | | | 5 |
| B38W14S | 16-Nov-00 | 1,2-Dichloroethene (Total) | 10.00 | | | 1 |
| B38W14S | 2-Jul-01 | 1,2-Dichloroethene (Total) | 25.00 | | | 1 |
| B38W15D | 2-Aug-93 | 1,2-Dichloroethene (Total) | 150.00 | | | 5 |
| B38W15D | 26-May-94 | 1,2-Dichloroethene (Total) | 120.00 | | | 5 |
| B38W15D | 19-May-95 | 1,2-Dichloroethene (Total) | 160.00 | | | 5 |
| B38W15D | 13-May-96 | 1,2-Dichloroethene (Total) | 110.00 | | | 2 |
| B38W15D | 3-Jun-97 | 1,2-Dichloroethene (Total) | 120.00 | J | | 5 |
| B38W15D | 06-Jul-98 | 1,2-Dichloroethene (Total) | 140.00 | | | 5 |
| B38W15D | 9-Nov-00 | 1,2-Dichloroethene (Total) | 55.00 | | | 1 |
| B38W15D | 27-Jun-01 | 1,2-Dichloroethene (Total) | 25.00 | | | 1 |
| B38W15S | 2-Aug-93 | 1,2-Dichloroethene (Total) | 42.00 | | | 5 |
| B38W15S | 26-May-94 | 1,2-Dichloroethene (Total) | 94.00 | | | 5 |
| B38W15S | 19-May-95 | 1,2-Dichloroethene (Total) | 6.00 | | | 5 |
| B38W15S | 19-May-95 | 1,2-Dichloroethene (Total) | 10.00 | | | 5 |
| B38W15S | 13-May-96 | 1,2-Dichloroethene (Total) | 55.00 | | | 2 |
| B38W15S | 3-Jun-97 | 1,2-Dichloroethene (Total) | 13.00 | | | 5 |
| B38W15S | 06-Jul-98 | 1,2-Dichloroethene (Total) | 15.00 | | | 5 |
| B38W15S | 9-Nov-00 | 1,2-Dichloroethene (Total) | 1.00 | | U | 1 |
| B38W15S | 27-Jun-01 | 1,2-Dichloroethene (Total) | 3.00 | | | 1 |
| B38W17B | 29-Jul-93 | 1,2-Dichloroethene (Total) | 3.00 | | J | 5 |
| B38W17B | 25-May-94 | 1,2-Dichloroethene (Total) | 1.00 | | J | 5 |
| B38W17B | 20-May-95 | 1,2-Dichloroethene (Total) | 2.00 | J | J | 5 |
| B38W17B | 14-Jun-01 | 1,2-Dichloroethene (Total) | 0.30 | J | | 1 |
| B38W19D | 11-Aug-93 | 1,2-Dichloroethene (Total) | 2.00 | | J | 5 |
| B38W19D | 16-May-96 | 1,2-Dichloroethene (Total) | 0.30 | J | J | 1 |
| B38W19D | 7-Nov-00 | 1,2-Dichloroethene (Total) | 0.50 | | J | 1 |
| B38W24D | 9-May-96 | 1,2-Dichloroethene (Total) | 0.70 | J | J | 1 |
| B38W24D | 15-Nov-00 | 1,2-Dichloroethene (Total) | 0.30 | | J | 1 |
| B38W24D | 5-Jul-01 | 1,2-Dichloroethene (Total) | 0.50 | J | | 1 |
| B38W24S | 9-May-96 | 1,2-Dichloroethene (Total) | 0.20 | J | J | 1 |
| MISS01B | 15-Oct-92 | 1,2-Dichloroethene (Total) | 1.00 | | J | 5 |
| MISS01B | 21-Jul-93 | 1,2-Dichloroethene (Total) | 5.00 | | J | 5 |
| MISS01B | 16-May-94 | 1,2-Dichloroethene (Total) | 31.00 | | | 5 |
| MISS01B | 10-May-95 | 1,2-Dichloroethene (Total) | 3.00 | | J | 5 |
| MISS01B | 15-May-96 | 1,2-Dichloroethene (Total) | 22.00 | | | 5 |

## Table B-4
## Historical Results for Detected VOCs in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (µg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (µg/L) |
|---|---|---|---|---|---|---|
| MISS01B | 18-JUN-98 | 1,2-Dichloroethene (Total) | 11.00 | | | 5 |
| MISS01B | 25-May-99 | 1,2-Dichloroethene (Total) | 2.00 | J | J | 5 |
| MISS01B | 21-Dec-00 | 1,2-Dichloroethene (Total) | 1.00 | | J | 1 |
| MISS01B | 19-Jun-01 | 1,2-Dichloroethene (Total) | 2.00 | | | 1 |
| MISS05B | 6-Nov-00 | 1,2-Dichloroethene (Total) | 0.80 | | J | 1 |
| MISS05B | 18-Jun-01 | 1,2-Dichloroethene (Total) | 0.10 | J | | 1 |
| MISS07B | 13-Oct-92 | 1,2-Dichloroethene (Total) | 10.00 | | | 5 |
| MISS07B | 14-Oct-92 | 1,2-Dichloroethene (Total) | 11.00 | J | J | 5 |
| MISS07B | 15-Oct-92 | 1,2-Dichloroethene (Total) | 9.00 | | | 5 |
| MISS07B | 16-Oct-92 | 1,2-Dichloroethene (Total) | 10.00 | | | 5 |
| MISS07B | 17-Oct-92 | 1,2-Dichloroethene (Total) | 8.00 | | | 5 |
| MISS07B | 18-Oct-92 | 1,2-Dichloroethene (Total) | 7.00 | | | 2 |
| MISS07B | 19-Oct-92 | 1,2-Dichloroethene (Total) | 7.00 | | | 5 |
| MISS07B | 20-Oct-92 | 1,2-Dichloroethene (Total) | 6.00 | | | 5 |
| MISS07B | 21-Oct-92 | 1,2-Dichloroethene (Total) | 6.00 | | | 5 |
| MISS07B | 22-Oct-92 | 1,2-Dichloroethene (Total) | 6.00 | | | 1 |
| MISS07B | 11-Jun-01 | 1,2-Dichloroethene (Total) | 5.00 | | | 1 |
| B38W14D | 23-Oct-92 | 1,2-Dichloropropane | 1.00 | | J | 5 |
| B38W14D | 24-Oct-92 | 1,2-Dichloropropane | 1.00 | | J | 5 |
| B38W14D | 25-Oct-92 | 1,2-Dichloropropane | 0.40 | | J | 1 |
| B38W14D | 2-Jul-01 | 1,2-Dichloropropane | 0.30 | J | | 1 |
| B38W15D | 26-Oct-92 | 1,2-Dichloropropane | 2.00 | | J | 5 |
| B38W15D | 27-Oct-92 | 1,2-Dichloropropane | 1.00 | | J | 5 |
| B38W15D | 28-Oct-92 | 1,2-Dichloropropane | 0.80 | J | J | 2 |
| B38W15D | 29-Oct-92 | 1,2-Dichloropropane | 2.00 | J | J | 5 |
| B38W15D | 30-Oct-92 | 1,2-Dichloropropane | 0.30 | | J | 1 |
| B38W15D | 27-Jun-01 | 1,2-Dichloropropane | 0.20 | J | | 1 |
| B38W15S | 31-Oct-92 | 1,2-Dichloropropane | 2.00 | | J | 5 |
| B38W15S | 1-Nov-92 | 1,2-Dichloropropane | 0.90 | J | J | 2 |
| MISS02A | 2-Nov-92 | 2-Butanone | 23.00 | | | 10 |
| MISS02A | 3-Nov-92 | 2-Butanone | 4.00 | | J | 5 |
| B38W15D | 4-Nov-92 | Benzene | 0.70 | J | J | 2 |
| B38W15D | 5-Nov-92 | Benzene | 0.70 | | J | 1 |
| B38W15D | 27-Jun-01 | Benzene | 0.30 | J | | 1 |
| B38W15S | 6-Nov-92 | Benzene | 1.00 | | J | 5 |
| B38W15S | 7-Nov-92 | Benzene | 0.50 | J | J | 2 |
| B38W15S | 8-Nov-92 | Benzene | 0.20 | | J | 1 |
| B38W19D | 9-Nov-92 | Benzene | 5.00 | | | 5 |
| B38W19D | 10-Nov-92 | Benzene | 1.00 | | J | 5 |
| B38W19D | 11-Nov-92 | Benzene | 5.00 | | | 1 |
| B38W19D | 12-Nov-92 | Benzene | 1.00 | | | 1 |
| B38W19D | 9-Aug-02 | Benzene | 0.70 | | | 0.5 |
| B38W24D | 13-Nov-92 | Benzene | 2.00 | | J | 5 |
| B38W24D | 14-Nov-92 | Benzene | 0.40 | J | J | 1 |
| B38W24D | 15-Nov-92 | Benzene | 0.20 | | J | 1 |
| B38W24D | 5-Jul-01 | Benzene | 0.10 | J | | 1 |
| MISS02B | 16-Nov-92 | Benzene | 3.00 | | J | 5 |
| MISS02B | 17-Nov-92 | Benzene | 7.00 | | | 5 |
| MISS02B | 18-Nov-92 | Benzene | 2.00 | | J | 5 |

**Table B-4**
**Historical Results for Detected VOCs in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte | Result (μg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (μg/L) |
|---|---|---|---|---|---|---|
| MISS02B | 19-Nov-92 | Benzene | 1.00 | | J | 5 |
| MISS02B | 20-Nov-92 | Benzene | 1.00 | | | 1 |
| MISS02B | 21-Nov-92 | Benzene | 0.60 | | J | 1 |
| MISS02B | 5-Jul-01 | Benzene | 0.30 | J | | 1 |
| MISS02B | 8-Jul-02 | Benzene | 0.20 | J | | 0.5 |
| MISS05B | 22-Nov-92 | Benzene | 200.00 | | | 5 |
| MISS05B | 23-Nov-92 | Benzene | 83.00 | J | | 5 |
| MISS05B | 24-Nov-92 | Benzene | 170.00 | | | 5 |
| MISS05B | 25-Nov-92 | Benzene | 89.00 | J | | 5 |
| MISS05B | 26-Nov-92 | Benzene | 97.00 | | | 2 |
| MISS05B | 27-Nov-92 | Benzene | 62.00 | | | 5 |
| MISS05B | 28-Nov-92 | Benzene | 15.00 | | | 5 |
| MISS05B | 29-Nov-92 | Benzene | 3500.00 | D | | 1 |
| MISS05B | 31-Jul-02 | Benzene | 680.00 | | | 5 |
| B38W24D | 2-Jul-98 | Benzene, 1,2-Dichloro-3-Methyl | 9.00 | NJ | NJ | 0 |
| B38W17B | 2-Jul-98 | Benzene, 1,2-Dichloro-3-Methyl | 4.00 | NJ | NJ | 0 |
| MISS05B | 30-JUN-98 | Benzene, 1,2-Dichloro-3-Methyl | 10.00 | NJ | NJ | 0 |
| MISS01AA | 16-Oct-92 | Bis(2-Ethylhexyl)Phthalate | 11.00 | | JB | 10 |
| B38W02D | 17-May-96 | C4-Alkenylbenzene | 1.00 | NJ | J | 0 |
| B38W19D | 16-May-96 | Chlorobenzene | 0.60 | J | J | 1 |
| B38W19D | 7-Nov-00 | Chlorobenzene | 0.40 | | J | 1 |
| B38W19D | 13-Jun-01 | Chlorobenzene | 0.30 | J | | 1 |
| B38W19D | 9-Jul-02 | Chlorobenzene | 0.20 | J | | 0.5 |
| B38W25S | 15-May-96 | Chlorobenzene | 0.40 | J | J | 1 |
| B38W25S | 27-Nov-00 | Chlorobenzene | 0.10 | | J | 1 |
| MISS02B | 14-May-96 | Chlorobenzene | 0.10 | J | J | 1 |
| MISS02B | 5-Jul-01 | Chlorobenzene | 0.10 | J | | 1 |
| MISS05B | 16-May-96 | Chlorobenzene | 0.60 | J | J | 2 |
| MISS05B | 6-Nov-00 | Chlorobenzene | 8.00 | | | 1 |
| MISS05B | 18-Jun-01 | Chlorobenzene | 1.00 | | | 1 |
| MISS07B | 6-Nov-00 | Chlorobenzene | 0.20 | | J | 1 |
| B38W14D | 4-Aug-93 | Chloroform | 7.00 | | | 5 |
| B38W14D | 17-May-96 | Chloroform | 6.00 | J | J | 50 |
| B38W14D | 4-Jun-97 | Chloroform | 6.00 | | | 5 |
| B38W14D | 17-May-99 | Chloroform | 2.00 | J | J | 5 |
| B38W14D | 16-Nov-00 | Chloroform | 2.00 | | | 1 |
| B38W14D | 2-Jul-01 | Chloroform | 2.00 | | | 1 |
| B38W14S | 20-May-95 | Chloroform | 3.00 | | J | 5 |
| B38W14S | 17-May-96 | Chloroform | 3.00 | J | J | 10 |
| B38W14S | 4-Jun-97 | Chloroform | 3.00 | J | J | 5 |
| B38W14S | 16-Nov-00 | Chloroform | 6.00 | | | 1 |
| B38W14S | 2-Jul-01 | Chloroform | 2.00 | | | 1 |
| B38W15D | 13-May-96 | Chloroform | 0.30 | J | J | 2 |
| B38W15D | 9-Nov-00 | Chloroform | 0.20 | | J | 1 |
| B38W15D | 27-Jun-01 | Chloroform | 0.10 | J | | 1 |
| MISS01B | 15-Oct-92 | Chloroform | 15.00 | | | 5 |
| MISS01B | 21-Jul-93 | Chloroform | 4.00 | | J | 5 |
| MISS01B | 16-May-94 | Chloroform | 2.00 | | J | 5 |
| MISS01B | 15-May-96 | Chloroform | 0.90 | J | J | 5 |

**Table B-4**
**Historical Results for Detected VOCs in Groundwater at MISS**
**Maywood Interim Storage Site - 2002**

| Station | Date | Analyte | Result (µg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (µg/L) |
|---|---|---|---|---|---|---|
| MISS01B | 21-Dec-00 | Chloroform | 0.20 | | J | 1 |
| MISS01B | 19-Jun-01 | Chloroform | 0.20 | J | | 1 |
| MISS01B | 18-Jul-02 | Chloroform | 7.00 | | | 0.5 |
| MISS06A | 10-May-96 | Chloroform | 0.20 | J | J | 1 |
| MISS06A | 21-Dec-00 | Chloroform | 0.30 | | J | 1 |
| MISS06A | 20-Jun-01 | Chloroform | 0.40 | UB | | 1 |
| MISS06A | 10-Jul-02 | Chloroform | 2.00 | | | 0.5 |
| B38W17B | 29-Jul-93 | Chlorotoluene | 20.00 | NJ | J | 0 |
| B38W17B | 3-Jun-97 | Chlorotoluene | 10.00 | NJ | J | |
| MISS05B | 12-Aug-93 | Chlorotoluene | 30.00 | NJ | J | 0 |
| MISS05B | 12-Aug-93 | Chlorotoluene | 20.00 | NJ | J | 0 |
| B38W25S | 15-May-95 | Dichloromethane | 1.00 | | J | 5 |
| B38W24D | 9-Aug-93 | Dichlorotoluene | 30.00 | NJ | J | 0 |
| MISS05B | 12-Aug-93 | Dichlorotoluene | 5.00 | NJ | J | 0 |
| B38W24D | 9-May-96 | Ethylbenzene | 0.10 | J | J | 1 |
| B38W24D | 5-Jul-01 | Ethylbenzene | 0.20 | J | | 1 |
| B38W19D | 13-Oct-92 | N-Nitrosodiphenylamine | 3.00 | | J | 10 |
| MISS02B | 15-Oct-92 | Phenol | 1.00 | J | J | 10 |
| B38W02D | 30-Jun-98 | Propane, 2-Methoxy-2-Methyl- | 30.00 | NJ | NJ | 0 |
| B38W15D | 06-Jul-98 | Propane, 2-Methoxy-2-Methyl- | 20.00 | NJ | NJ | 0 |
| B38W15S | 06-Jul-98 | Propane, 2-Methoxy-2-Methyl- | 6.00 | NJ | NJ | 0 |
| B38W25S | 01-Jul-98 | Silanol, Trimethyl- | 10.00 | J | NJ | 0 |
| B38W18D | 08-Jun-98 | Sulfur Dioxide | 6.00 | NJ | NJ | 0 |
| B38W01S | 07-Jul-98 | Tetrachloroethene | 6.00 | | | 5 |
| B38W07B | 16-Jun-98 | Tetrachloroethene | 48.00 | | | 5 |
| B38W14D | 17-May-96 | Tetrachloroethene | 1100.00 | | | 50 |
| B38W14D | 07-Jul-98 | Tetrachloroethene | 840.00 | | D | 25 |
| B38W14D | 17-May-99 | Tetrachloroethene | 630.00 | | D | 5 |
| B38W14D | 16-Nov-00 | Tetrachloroethene | 300.00 | D | | 1 |
| B38W14D | 2-Jul-01 | Tetrachloroethene | 170.00 | J | | 1 |
| B38W14D | 24-Jul-02 | Tetrachloroethene | 640.00 | | | 25 |
| B38W14S | 4-Aug-93 | Tetrachloroethene | 23.00 | | | 5 |
| B38W14S | 17-May-96 | Tetrachloroethene | 360.00 | | | 10 |
| B38W14S | 17-May-96 | Tetrachloroethene | 34.00 | | | 1 |
| B38W14S | 07-Jul-98 | Tetrachloroethene | 300.00 | E | | 12 |
| B38W14S | 17-May-99 | Tetrachloroethene | 290.00 | | D | 5 |
| B38W14S | 16-Nov-00 | Tetrachloroethene | 6.00 | | | 1 |
| B38W14S | 2-Jul-01 | Tetrachloroethene | 120.00 | J | | 1 |
| B38W14S | 24-Jul-02 | Tetrachloroethene | 83.00 | | | 2 |
| B38W15S | 13-May-96 | Tetrachloroethene | 0.30 | J | J | 2 |
| B38W15D | 9-Nov-00 | Tetrachloroethene | 120.00 | | | 1 |
| B38W15D | 27-Jun-01 | Tetrachloroethene | 46.00 | J | | 1 |
| B38W15D | 16-Jul-02 | Tetrachloroethene | 180.00 | | | 5 |
| MISS01B | 15-Oct-92 | Tetrachloroethene | 15.00 | | | 5 |
| MISS01B | 21-Jul-93 | Tetrachloroethene | 33.00 | | | 5 |
| MISS01B | 16-May-94 | Tetrachloroethene | 140.00 | | | 5 |
| MISS01B | 10-May-95 | Tetrachloroethene | 20.00 | | | 5 |
| MISS01B | 15-May-96 | Tetrachloroethene | 120.00 | | | 5 |

## Table B-4
## Historical Results for Detected VOCs in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (µg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (µg/L) |
|---|---|---|---|---|---|---|
| MISS01B | 18-Jun-98 | Tetrachloroethene | 69.00 | | | 5 |
| MISS01B | 18-May-99 | Tetrachloroethene | 15.00 | | | 5 |
| MISS01B | 21-Nov-00 | Tetrachloroethene | 12.00 | | | 1 |
| MISS01B | 19-Jun-01 | Tetrachloroethene | 21.00 | | | 1 |
| MISS01B | 18-Jul-02 | Tetrachloroethene | 4.00 | | | 0.5 |
| MISS06A | 4-Aug-93 | Tetrachloroethene | 14.00 | | | 5 |
| MISS07B | 13-Oct-92 | Tetrachloroethene | 43.00 | | | 5 |
| MISS07B | 12-Aug-93 | Tetrachloroethene | 61.00 | J | | 5 |
| MISS07B | 18-May-94 | Tetrachloroethene | 94.00 | | | 5 |
| MISS07B | 18-May-94 | Tetrachloroethene | 88.00 | | | 5 |
| MISS07B | 11-May-95 | Tetrachloroethene | 45.00 | | | 5 |
| MISS07B | 16-May-96 | Tetrachloroethene | 61.00 | | | 2 |
| MISS07B | 16-May-97 | Tetrachloroethene | 57.00 | | | 1 |
| MISS07B | 16-Jun-98 | Tetrachloroethene | 48.00 | | | 1 |
| MISS07B | 27-May-99 | Tetrachloroethene | 24.00 | | | 5 |
| MISS07B | 6-Nov-00 | Tetrachloroethene | 9.00 | | | 1 |
| MISS07B | 11-Jun-01 | Tetrachloroethene | 5.00 | | | 1 |
| MISS07B | 11-Jul-02 | Tetrachloroethene | 4.00 | | | 0.5 |
| B38W01S | 17-May-96 | Toluene | 0.20 | J | J | 1 |
| B38W01S | 8-Nov-00 | Toluene | 3.00 | | | 1 |
| B38W01S | 11-Jul-01 | Toluene | 0.20 | J | | 1 |
| B38W19D | 16-May-96 | Toluene | 0.10 | J | J | 1 |
| B38W19D | 7-Nov-00 | Toluene | 0.40 | | J | 1 |
| B38W24D | 9-May-96 | Toluene | 0.10 | J | J | 1 |
| B38W24D | 13-May-99 | Toluene | 2.00 | J | J | 5 |
| B38W24D | 15-Nov-00 | Toluene | 0.70 | | J | 1 |
| MISS02A | 11-JUN-98 | Toluene | 2.00 | J | J | 5 |
| MISS02A | 21-Nov-00 | Toluene | 0.60 | | J | 1 |
| MISS05B | 14-Oct-92 | Toluene | 2.00 | | J | 5 |
| MISS05B | 17-May-94 | Toluene | 1.00 | | J | 5 |
| MISS05B | 6-Nov-00 | Toluene | 6.00 | | | 1 |
| MISS05B | 31-Jul-02 | Toluene | 6.00 | J | | 25 |
| B38W01S | 07-Jul-98 | Trichloroethene | 2.00 | J | J | 5 |
| B38W07B | 16-Jun-98 | Trichloroethene | 2.00 | J | J | 5 |
| B38W07B | 6-Nov-00 | Trichloroethene | 2.00 | | | 1 |
| B38W07B | 11-Jun-01 | Trichloroethene | 0.80 | J | | 1 |
| B38W07B | 11-Jul-02 | Trichloroethene | 1.00 | | | 0.5 |
| B38W14D | 17-May-96 | Trichloroethene | 240.00 | | | 50 |
| B38W14D | 4-Jun-97 | Trichloroethene | 200.00 | J | | 1 |
| B38W14D | 07-Jul-98 | Trichloroethene | 210.00 | | | 10 |
| B38W14D | 17-May-99 | Trichloroethene | 160.00 | | | 5 |
| B38W14D | 16-Nov-00 | Trichloroethene | 82.00 | D | | 1 |
| B38W14D | 2-Jul-01 | Trichloroethene | 60.00 | J | | 1 |
| B38W14D | 24-Jul-02 | Trichloroethene | 160.00 | | | 25 |
| B38W14S | 4-Aug-93 | Trichloroethene | 6.00 | | | 5 |
| B38W14S | 20-May-95 | Trichloroethene | 140.00 | | | 5 |
| B38W14S | 17-May-96 | Trichloroethene | 77.00 | | | 10 |
| B38W14S | 17-May-96 | Trichloroethene | 4.00 | | | 1 |
| B38W14S | 4-Jun-97 | Trichloroethene | 91.00 | J | | 1 |

## Table B-4
## Historical Results for Detected VOCs in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (µg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (µg/L) |
|---|---|---|---|---|---|---|
| B38W14S | 7-Jul-98 | Trichloroethene | 79.00 | | | 5 |
| B38W14S | 17-May-99 | Trichloroethene | 67.00 | | | 5 |
| B38W14S | 8-Nov-00 | Trichloroethene | 5.00 | | | 1 |
| B38W14S | 2-Jul-01 | Trichloroethene | 38.00 | | | 1 |
| B38W14S | 24-Jul-02 | Trichloroethene | 22.00 | | | 2 |
| B38W15D | 26-May-94 | Trichloroethene | 170.00 | | | 5 |
| B38W15D | 3-Jun-97 | Trichloroethene | 170.00 | J | | 1 |
| B38W15D | 9-Nov-00 | Trichloroethene | 30.00 | | | 1 |
| B38W15D | 27-Jun-01 | Trichloroethene | 20.00 | | | 1 |
| B38W15D | 16-Jul-02 | Trichloroethene | 36.00 | | | 5 |
| B38W15S | 2-Aug-93 | Trichloroethene | 1.00 | | J | 5 |
| B38W15S | 26-May-94 | Trichloroethene | 2.00 | | J | 5 |
| B38W15S | 13-May-96 | Trichloroethene | 1.00 | J | J | 2 |
| MISS01B | 21-Jul-93 | Trichloroethene | 2.00 | | J | 5 |
| MISS01B | 16-May-94 | Trichloroethene | 9.00 | | | 5 |
| MISS01B | 10-May-95 | Trichloroethene | 2.00 | | J | 5 |
| MISS01B | 15-May-96 | Trichloroethene | 9.00 | | | 5 |
| MISS01B | 18-Jun-98 | Trichloroethene | 5.00 | J | J | 5 |
| MISS01B | 21-Dec-00 | Trichloroethene | 1.00 | | | 1 |
| MISS01B | 19-Jun-01 | Trichloroethene | 1.00 | | | 1 |
| MISS01B | 18-Jul-02 | Trichloroethene | 0.30 | J | | 0.5 |
| MISS02A | 11-Jun-98 | Trichloroethene | 1.00 | J | J | 5 |
| MISS06A | 4-Aug-93 | Trichloroethene | 1.00 | | J | 5 |
| MISS07B | 13-Oct-92 | Trichloroethene | 2.00 | | J | 5 |
| MISS07B | 12-Aug-93 | Trichloroethene | 4.00 | J | J | 5 |
| MISS07B | 18-May-94 | Trichloroethene | 3.00 | | J | 5 |
| MISS07B | 18-May-94 | Trichloroethene | 3.00 | | J | 5 |
| MISS07B | 11-May-95 | Trichloroethene | 3.00 | | J | 5 |
| MISS07B | 16-May-96 | Trichloroethene | 3.00 | | | 2 |
| MISS07B | 16-May-97 | Trichloroethene | 2.00 | | | 1 |
| MISS07B | 16-Jun-98 | Trichloroethene | 2.00 | J | | 1 |
| MISS07B | 27-May-99 | Trichloroethene | 2.00 | J | J | 5 |
| MISS07B | 6-Nov-00 | Trichloroethene | 2.00 | | | 1 |
| MISS07B | 11-Jun-01 | Trichloroethene | 0.80 | J | | 1 |
| MISS07B | 11-Jul-02 | Trichloroethene | 1.00 | | | 0.5 |
| B38W14S | 4-Aug-93 | Vinyl Chloride | 6.00 | | J | 10 |
| B38W15D | 2-Aug-93 | Vinyl Chloride | 4.00 | | J | 10 |
| B38W15D | 26-May-94 | Vinyl Chloride | 3.00 | | J | 10 |
| B38W15D | 13-May-96 | Vinyl Chloride | 1.00 | J | J | 4 |
| B38W15D | 3-Jun-97 | Vinyl Chloride | 1.00 | J | J | 2 |
| B38W15D | 9-Nov-00 | Vinyl Chloride | 0.60 | | J | 2 |
| B38W15S | 2-Aug-93 | Vinyl Chloride | 40.00 | | | 10 |
| B38W15S | 26-May-94 | Vinyl Chloride | 95.00 | | | 10 |
| B38W15S | 19-May-95 | Vinyl Chloride | 4.00 | | J | 10 |
| B38W15S | 19-May-95 | Vinyl Chloride | 5.00 | | J | 10 |
| B38W15S | 13-May-96 | Vinyl Chloride | 54.00 | | | 4 |
| B38W15S | 3-Jun-97 | Vinyl Chloride | 9.00 | | | 2 |
| B38W15S | 06-Jul-98 | Vinyl Chloride | 12.00 | | | 2 |
| B38W17B | 25-May-94 | Vinyl Chloride | 2.00 | | J | 10 |

## Table B-4
## Historical Results for Detected VOCs in Groundwater at MISS
## Maywood Interim Storage Site - 2002

| Station | Date | Analyte | Result (µg/L) | Qualifier BNI | Qualifier Lab | Detection Limit (µg/L) |
|---|---|---|---|---|---|---|
| B38W17B | 20-May-95 | Vinyl Chloride | 2.00 | J | J | 10 |
| B38W17B | 14-Jun-01 | Vinyl Chloride | 0.30 | J | | 2 |
| MISS07B | 18-May-94 | Vinyl Chloride | 2.00 | | J | 10 |
| MISS07B | 18-May-94 | Vinyl Chloride | 2.00 | | J | 10 |
| MISS07B | 16-May-96 | Vinyl Chloride | 0.80 | J | J | 4 |
| MISS07B | 16-May-97 | Vinyl Chloride | 0.80 | J | J | 2 |
| MISS07B | 6-Nov-00 | Vinyl Chloride | 1.00 | | J | 2 |
| MISS07B | 11-Jul-02 | Vinyl Chloride | 0.90 | | | 0.5 |
| B38W19D | 16-May-96 | Xylenes (Total) | 0.10 | J | J | 1 |
| B38W24D | 9-May-96 | Xylenes (Total) | 0.50 | J | J | 1 |
| MISS05B | 16-May-96 | Xylenes (Total) | 0.40 | J | J | 2 |
| MISS05B | 11-Jun-01 | Xylenes (Total) | 1.00 | J | | 1 |

# APPENDIX C
# WATER LEVEL MEASUREMENTS FOR THE YEAR 2002

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# *WATER LEVEL RECORD SHEET*

**Date: 3/7/2002** **Site:MISS** **Page 1 of 6**

**Measured by:** M. Hanashy
G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration: ________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-1AA | 0900 | 18.02 | Top of Riser | Protective CSG | X |
| Permit # | | 18.02 | Elevation: | Riser CSG X | |
| | | 18.02 | 62.7 | Ground | |
| | Average | 18.02 | | Other | |
| MISS-1B | 0902 | 16.9 | Top of Riser | Protective CSG | X |
| Permit # | | 16.9 | Elevation: | Riser CSG X | |
| | | 16.9 | 61.98 | Ground | |
| | Average | 16.9 | | Other | |
| MISS-2A | 0905 | 10.94 | Top of Riser | Protective CSG | X |
| Permit # | | 10.94 | Elevation: | Riser CSG X | |
| | | 10.94 | 61.47 | Ground | |
| | Average | 10.94 | | Other | |
| MISS-2B | 0907 | 12.2 | Top of Riser | Protective CSG | X |
| Permit # | | 12.2 | Elevation: | Riser CSG X | |
| | | 12.2 | 61.64 | Ground | |
| | Average | 12.2 | | Other | |
| MISS-3A | 0953 | 10.91 | Top of Riser | Protective CSG | X |
| Permit # | | 10.91 | Elevation: | Riser CSG X | |
| | | 10.91 | 58.52 | Ground | |
| | Average | 10.91 | | Other | |
| MISS-3B | 0952 | 11.39 | Top of Riser | Protective CSG | X |
| Permit # | | 11.39 | Elevation: | Riser CSG X | |
| | | 11.39 | 57.66 | Ground | |
| | Average | 11.39 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# WATER LEVEL RECORD SHEET

**Date: 3/7/2002** **Site:MISS** **Page 2 of 6**

**Measured by:** M. Hanashy

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-4A | 1002 | 8.40 | Top of Riser | Protective CSG | X |
| Permit # | | 8.40 | Elevation: | Riser CSG X | |
| | | 8.40 | 57.17 | Ground | |
| | Average | 8.40 | | Other | |
| MISS-4B | 1004 | 11.92 | Top of Riser | Protective CSG | X |
| Permit # | | 11.92 | Elevation: | Riser CSG X | |
| | | 11.92 | 56.42 | Ground | |
| | Average | 11.92 | Oter cas. bent | Other | |
| MISS-5A | 1014 | 14.98 | Top of Riser | Protective CSG | X |
| Permit # | | 14.98 | Elevation: | Riser CSG X | |
| | | 14.98 | 58.65 | Ground | |
| | Average | 14.98 | | Other | |
| MISS-5B | 1012 | 16.74 | Top of Riser | Protective CSG | X |
| Permit # | | 16.74 | Elevation: | Riser CSG X | |
| | | 16.74 | 59.76 | Ground | |
| | Average | 16.74 | | Other | |
| MISS-6A | 0855 | 12.18 | Top of Riser | Protective CSG | |
| Permit # | | 12.18 | Elevation: | Riser CSG X | |
| | | 12.18 | 58.26 | Ground | |
| | Average | 12.18 | Prot.Cas.damaged | Other | |
| MISS-7A | 1024 | 8.4 | Top of Riser | Protective CSG | X |
| Permit # | | 8.4 | Elevation: | Riser CSG X | |
| | | 8.4 | 55.6 | Ground | |
| | Average | 8.4 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# WATER LEVEL RECORD SHEET

**Date: 3/7/2002** **Site:MISS** **Page 3 of 6**

**Measured by:** M. Hanashy

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other ______________
☐ Calibration of electric sounder
Date of last calibration:_____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-7B | 1021 | 11.84 | Top of Riser | Protective CSG | |
| Permit # | | 11.84 | Elevation: | Riser CSG X | |
| | | 11.84 | 55.77 | Ground | |
| | Average | 11.84 | Cracked conc. Pa | Other | |
| B38W01S | 1125 | 7.3 | Top of Riser | Protective CSG | X |
| Permit # | 1 | 7.3 | Elevation: | Riser CSG X | |
| | | 7.3 | 60.72 | Ground | |
| | Average | 7.3 | | Other | |
| B38W02D | 1132 | 19.05 | Top of Riser | Protective CSG | X |
| Permit # 2614082-9 | | 19.05 | Elevation: | Riser CSG X | |
| | | 19.05 | 67.7 | Ground | |
| | Average | 19.05 | Needs Lock | Other | |
| B38W03B | 0948 | 11.48 | Top of Riser | Protective CSG | |
| Permit # | | 11.48 | Elevation: | Riser CSG X | |
| | | 11.48 | 58.27 | Ground | |
| | Average | 11.48 | Cracked conc. Pa | Other | |
| B38W04B | 0950 | 13.62 | Top of Riser | Protective CSG | X |
| Permit # | | 13.62 | Elevation: | Riser CSG X | |
| | | 13.62 | 65.85 | Ground | |
| | Average | 13.62 | Cas. cover rusted | Other | |
| B38W05B | 1045 | 17.85 | Top of Riser | Protective CSG | X |
| Permit # | | 17.85 | Elevation: | Riser CSG X | |
| | | 17.85 | 71.05 | Ground | |
| | Average | 17.85 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 3/7/2002** **Site:MISS** **Page 4 of 6**

**Measured by:** M. Hanashy

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| **Well No.** (Enter Complete Well No.) | **Time** (24-hour format) | **Depth to water (0.01 ft)** | **Remarks** | **Measurement Reference Point** | **X** |
|---|---|---|---|---|---|
| B38W06B | 945 | 11.19 | Top of Riser | Protective CSG | X |
| Permit # | | 11.19 | Elevation: | Riser CSG X | |
| | | 11.19 | 54.41 | Ground | |
| | Average | 11.19 | | Other | |
| B38W07B | 1007 | 10.45 | Top of Riser | Protective CSG | X |
| Permit # | | 10.45 | Elevation: | Riser CSG X | |
| | | 10.45 | 54.63 | Ground | |
| | Average | 10.45 | | Other | |
| B38W12A | 1050 | 7.90 | Top of Riser | Protective CSG | X |
| Permit # | | 7.90 | Elevation: | Riser CSG X | |
| | | 7.90 | 50.1 | Ground | |
| | Average | 7.90 | | Other | |
| B38W12B | 1052 | 7.42 | Top of Riser | Protective CSG | X |
| Permit # | | 7.42 | Elevation: | Riser CSG X | |
| | | 7.42 | 49.78 | Ground | |
| | Average | 7.42 | | Other | |
| B38W14S | 1111 | 5.3 | Top of Riser | Protective CSG | X |
| Permit # | | 5.3 | Elevation: | Riser CSG X | |
| | | 5.3 | 43.89 | Ground | |
| | Average | 5.3 | | Other | |
| B38W14D | 1114 | 3.65 | Top of Riser | Protective CSG | X |
| Permit # | | 3.65 | Elevation: | Riser CSG X | |
| | | 3.65 | 43.79 | Ground | |
| | Average | 3.65 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# WATER LEVEL RECORD SHEET

**Date: 3/7/2002** **Site:MISS** **Page 5 of 6**

**Measured by:** M. Hanashy

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W15S | 1105 | 6.46 | Top of Riser | Protective CSG | X |
| Permit # | | 6.46 | Elevation: | Riser CSG X | |
| | | 6.46 | 45.7 | Ground | |
| | Average | 6.46 | | Other | |
| B38W15D | 1107 | 5.9 | Top of Riser | Protective CSG | X |
| Permit # | | 5.9 | Elevation: | Riser CSG X | |
| | | 5.9 | 45.89 | Ground | |
| | Average | 5.9 | | Other | |
| B38W17A | 1055 | 10.25 | Top of Riser | Protective CSG | X |
| Permit # | | 10.25 | Elevation: | Riser CSG X | |
| | | 10.25 | 53.24 | Ground | |
| | Average | 10.25 | | Other | |
| B38W17B | 1100 | 10.30 | Top of Riser | Protective CSG | X |
| Permit # | | 10.30 | Elevation: | Riser CSG X | |
| | | 10.30 | 53.28 | Ground | |
| | Average | 10.30 | | Other | |
| B38W18D | 0910 | 9.39 | Top of Casing | Protective CSG | X |
| Permit # | | 9.39 | Elevation: | Riser CSG X | |
| | | 9.39 | 57.85 | Ground | |
| | Average | 9.39 | | Other | |
| B38W19S | 1018 | 16.8 | Top of Riser | Protective CSG | X |
| Permit # | | 16.8 | Elevation: | Riser CSG X | |
| | | 16.8 | 59.91 | Ground | |
| | Average | 16.8 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# WATER LEVEL RECORD SHEET

**Date: 3/7/2002** **Site:MISS** **Page 6 of 6**

**Measured by:** M. Hanashy

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other ______________
☐ Calibration of electric sounder
Date of last calibration:_____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W19D | 1016 | 16.94 | Top of Riser | Protective CSG | X |
| Permit # | | 16.94 | Elevation: | Riser CSG X | |
| | | 16.94 | 59.98 | Ground | |
| | Average | 16.94 | | Other | |
| B38W24S | 0957 | 10.79 | Top of Riser | Protective CSG | X |
| Permit # | | 10.79 | Elevation: | Riser CSG X | |
| | | 10.79 | 55.04 | Ground | |
| | Average | 10.79 | | Other | |
| B38W24D | 1000 | 10.36 | Top of Casing | Protective CSG | X |
| Permit # | | 10.36 | Elevation: | Riser CSG X | |
| | | 10.36 | 54.91 | Ground | |
| | Average | 10.36 | | Other | |
| B38W25S | 848 | 9.11 | Top of Riser | Protective CSG | X |
| Permit # | | 9.11 | Elevation: | Riser CSG X | |
| | | 9.11 | 57.44 | Ground | |
| | Average | 9.11 | | Other | |
| B38W25D | 845 | 9.50 | Top of Riser | Protective CSG | |
| Permit # | | 9.50 | Elevation: | Riser CSG X | |
| | | 9.50 | 58.24 | Ground | |
| | Average | 9.50 | Prot.Cas damage | Other | |
| | | | | Protective CSG | |
| Permit # | | | | Riser CSG X | |
| | | | | Ground | |
| | Average | | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 5/7/2002** **Site:MISS** **Page 1 of 6**

**Measured by:** R. Gendreau
G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration: ________________

| **Well No.** (Enter Complete Well No.) | **Time (24-hour format)** | **Depth to water (0.01 ft)** | **Remarks** | **Measurement Reference Point** | **X** |
|---|---|---|---|---|---|
| MISS-1AA | 1012 | 14.77 | Top of Riser | Protective CSG | X |
| Permit # | | 14.77 | Elevation: | Riser CSG X | |
| | | 14.77 | 62.7 | Ground | |
| | Average | 14.77 | | Other | |
| MISS-1B | 1013 | 15.49 | Top of Riser | Protective CSG | X |
| Permit # | | 15.49 | Elevation: | Riser CSG X | |
| | | 15.49 | 61.98 | Ground | |
| | Average | 15.49 | | Other | |
| MISS-2A | 1009 | 9.20 | Top of Riser | Protective CSG | X |
| Permit # | | 9.20 | Elevation: | Riser CSG X | |
| | | 9.20 | 61.47 | Ground | |
| | Average | 9.20 | | Other | |
| MISS-2B | 1008 | 11.10 | Top of Riser | Protective CSG | X |
| Permit # | | 11.10 | Elevation: | Riser CSG X | |
| | | 11.10 | 61.64 | Ground | |
| | Average | 11.10 | | Other | |
| MISS-3A | 0959 | 11.50 | Top of Riser | Protective CSG | X |
| Permit # | | 11.50 | Elevation: | Riser CSG X | |
| | | 11.50 | 58.52 | Ground | |
| | Average | 11.50 | | Other | |
| MISS-3B | 0958 | 9.20 | Top of Riser | Protective CSG | X |
| Permit # | | 9.20 | Elevation: | Riser CSG X | |
| | | 9.20 | 57.66 | Ground | |
| | Average | 9.20 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 5/7/2002** **Site:MISS** **Page 2 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-4A | 0955 | 7.65 | Top of Riser | Protective CSG | X |
| Permit # | | 7.65 | Elevation: | Riser CSG X | |
| | | 7.65 | 57.17 | Ground | |
| | Average | 7.65 | | Other | |
| MISS-4B | 0954 | 10.21 | Top of Riser | Protective CSG | X |
| Permit # | | 10.21 | Elevation: | Riser CSG X | |
| | | 10.21 | 56.42 | Ground | |
| | Average | 10.21 | Oter cas. bent | Other | |
| MISS-5A | 0941 | 12.26 | Top of Riser | Protective CSG | X |
| Permit # | | 12.26 | Elevation: | Riser CSG X | |
| | | 12.26 | 58.65 | Ground | |
| | Average | 12.26 | | Other | |
| MISS-5B | 0940 | 15.00 | Top of Riser | Protective CSG | X |
| Permit # | | 15.00 | Elevation: | Riser CSG X | |
| | | 15.00 | 59.76 | Ground | |
| | Average | 15.00 | | Other | |
| MISS-6A | 1016 | 9.80 | Top of Riser | Protective CSG | X |
| Permit # | | 9.80 | Elevation: | Riser CSG X | |
| | | 9.80 | 58.26 | Ground | |
| | Average | 9.80 | Prot.Cas.damaged | Other | |
| MISS-7A | 0946 | 8.25 | Top of Riser | Protective CSG | X |
| Permit # | | 8.25 | Elevation: | Riser CSG X | |
| | | 8.25 | 55.6 | Ground | |
| | Average | 8.25 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 5/7/2002** **Site:MISS** **Page 3 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-7B | 0945 | 10.32 | Top of Riser | Protective CSG | X |
| Permit # | | 10.32 | Elevation: | Riser CSG X | |
| | | 10.32 | 55.77 | Ground | |
| | Average | 10.32 | | Other | |
| B38W01S | 1119 | 6.10 | Top of Riser | Protective CSG | X |
| Permit # | 1 | 6.10 | Elevation: | Riser CSG X | |
| | | 6.10 | 60.72 | Ground | |
| | Average | 6.10 | | Other | |
| B38W02D | 1123 | 15.82 | Top of Riser | Protective CSG | X |
| Permit # 2614082-9 | | 15.82 | Elevation: | Riser CSG X | |
| | | 15.82 | 67.7 | Ground | |
| | Average | 15.82 | | Other | |
| B38W03B | 1000 | 9.31 | Top of Riser | Protective CSG | X |
| Permit # | | 9.31 | Elevation: | Riser CSG X | |
| | | 9.31 | 58.27 | Ground | |
| | Average | 9.31 | | Other | |
| B38W04B | 1005 | 10.98 | Top of Riser | Protective CSG | X |
| Permit # | | 10.98 | Elevation: | Riser CSG X | |
| | | 10.98 | 65.85 | Ground | |
| | Average | 10.98 | | Other | |
| B38W05B | 1039 | 12.43 | Top of Riser | Protective CSG | X |
| Permit # | | 12.43 | Elevation: | Riser CSG X | |
| | | 12.43 | 71.05 | Ground | |
| | Average | 12.43 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# WATER LEVEL RECORD SHEET

**Date: 5/7/2002** **Site:MISS** **Page 4 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W06B | 1003 | Well casing is | Top of Riser | Protective CSG | |
| Permit # | | broken. | Elevation: | Riser CSG X | |
| | | | 54.41 | Ground | |
| | Average | | | Other | |
| B38W07B | 937 | 8.37 | Top of Riser | Protective CSG | X |
| Permit # | | 8.37 | Elevation: | Riser CSG X | |
| | | 8.37 | 54.63 | Ground | |
| | Average | 8.37 | | Other | |
| B38W12A | 1042 | 5.94 | Top of Riser | Protective CSG | X |
| Permit # | | 5.94 | Elevation: | Riser CSG X | |
| | | 5.94 | 50.1 | Ground | |
| | Average | 5.94 | | Other | |
| B38W12B | 1043 | 5.45 | Top of Riser | Protective CSG | X |
| Permit # | | 5.45 | Elevation: | Riser CSG X | |
| | | 5.45 | 49.78 | Ground | |
| | Average | 5.45 | | Other | |
| B38W14S | 1105 | 4.55 | Top of Riser | Protective CSG | X |
| Permit # | | 4.55 | Elevation: | Riser CSG X | |
| | | 4.55 | 43.89 | Ground | |
| | Average | 4.55 | | Other | |
| B38W14D | 1107 | 3.70 | Top of Riser | Protective CSG | X |
| Permit # | | 3.70 | Elevation: | Riser CSG X | |
| | | 3.70 | 43.79 | Ground | |
| | Average | 3.70 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 5/7/2002** **Site:MISS** **Page 5 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W15S | 1054 | 5.35 | Top of Riser | Protective CSG | X |
| Permit # | | 5.35 | Elevation: | Riser CSG X | |
| | | 5.35 | 45.7 | Ground | |
| | Average | 5.35 | | Other | |
| B38W15D | 1055 | 4.39 | Top of Riser | Protective CSG | X |
| Permit # | | 4.39 | Elevation: | Riser CSG X | |
| | | 4.39 | 45.89 | Ground | |
| | Average | 4.39 | | Other | |
| B38W17A | 1049 | 8.36 | Top of Riser | Protective CSG | X |
| Permit # | | 8.36 | Elevation: | Riser CSG X | |
| | | 8.36 | 53.24 | Ground | |
| | Average | 8.36 | | Other | |
| B38W17B | 1050 | 8.47 | Top of Riser | Protective CSG | X |
| Permit # | | 8.47 | Elevation: | Riser CSG X | |
| | | 8.47 | 53.28 | Ground | |
| | Average | 8.47 | | Other | |
| B38W18D | 1306 | 3.80 | Top of Casing | Protective CSG | X |
| Permit # | | 3.80 | Elevation: | Riser CSG X | |
| | | 3.80 | 57.85 | Ground | |
| | Average | 3.80 | | Other | |
| B38W19S | 0943 | 15.14 | Top of Riser | Protective CSG | X |
| Permit # | | 15.14 | Elevation: | Riser CSG X | |
| | | 15.14 | 59.91 | Ground | |
| | Average | 15.14 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# WATER LEVEL RECORD SHEET

**Date: 5/7/2002** **Site:MISS** **Page 6 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other ______________
☐ Calibration of electric sounder
Date of last calibration:_____________________

| **Well No.** (Enter Complete Well No.) | **Time** (24-hour format) | **Depth to water** (0.01 ft) | **Remarks** | **Measurement Reference Point** | **X** |
|---|---|---|---|---|---|
| B38W19D | 0942 | 15.35 | Top of Riser | Protective CSG | X |
| Permit # | | 15.35 | Elevation: | Riser CSG X | |
| | | 15.35 | 59.98 | Ground | |
| | Average | 15.35 | | Other | |
| B38W24S | 0949 | 8.77 | Top of Riser | Protective CSG | X |
| Permit # | | 8.77 | Elevation: | Riser CSG X | |
| | | 8.77 | 55.04 | Ground | |
| | Average | 8.77 | | Other | |
| B38W24D | 0951 | 8.30 | Top of Casing | Protective CSG | X |
| Permit # | | 8.30 | Elevation: | Riser CSG X | |
| | | 8.30 | 54.91 | Ground | |
| | Average | 8.30 | | Other | |
| B38W25S | 1022 | 6.25 | Top of Riser | Protective CSG | X |
| Permit # | | 6.25 | Elevation: | Riser CSG X | |
| | | 6.25 | 57.44 | Ground | |
| | Average | 6.25 | | Other | |
| B38W25D | 1020 | 6.57 | Top of Riser | Protective CSG | X |
| Permit # | | 6.57 | Elevation: | Riser CSG X | |
| | | 6.57 | 58.24 | Ground | |
| | Average | 6.57 | | Other | |
| | | | | Protective CSG | |
| Permit # | | | | Riser CSG X | |
| | | | | Ground | |
| | Average | | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 8/26/2002** **Site:MISS** **Page 1 of 6**

**Measured by:** R. Gendreau
G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration: ________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-1AA | 1015 | 18.30 | Top of Riser | Protective CSG | X |
| Permit # | | 18.30 | Elevation: | Riser CSG X | |
| | | 18.30 | 62.7 | Ground | |
| | Average | 18.30 | | Other | |
| MISS-1B | 1018 | 17.15 | Top of Riser | Protective CSG | X |
| Permit # | | 17.15 | Elevation: | Riser CSG X | |
| | | 17.15 | 61.98 | Ground | |
| | Average | 17.15 | | Other | |
| MISS-2A | 1000 | 12.40 | Top of Riser | Protective CSG | X |
| Permit # | | 12.40 | Elevation: | Riser CSG X | |
| | | 12.40 | 61.47 | Ground | |
| | Average | 12.40 | | Other | |
| MISS-2B | 1005 | 13.50 | Top of Riser | Protective CSG | X |
| Permit # | | 13.50 | Elevation: | Riser CSG X | |
| | | 13.50 | 61.64 | Ground | |
| | Average | 13.50 | | Other | |
| MISS-3A | 1111 | 11.50 | Top of Riser | Protective CSG | X |
| Permit # | | 11.50 | Elevation: | Riser CSG X | |
| | | 11.50 | 58.52 | Ground | |
| | Average | 11.50 | | Other | |
| MISS-3B | 1110 | 12.30 | Top of Riser | Protective CSG | X |
| Permit # | | 12.30 | Elevation: | Riser CSG X | |
| | | 12.30 | 57.66 | Ground | |
| | Average | 12.30 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 8/26/2002** **Site:MISS** **Page 2 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-4A | 1106 | 11.80 | Top of Riser | Protective CSG | X |
| Permit # | | 11.80 | Elevation: | Riser CSG X | |
| | | 11.80 | 57.17 | Ground | |
| | Average | 11.80 | | Other | |
| MISS-4B | 1104 | 13.20 | Top of Riser | Protective CSG | X |
| Permit # | | 13.20 | Elevation: | Riser CSG X | |
| | | 13.20 | 56.42 | Ground | |
| | Average | 13.20 | Oter cas. bent | Other | |
| MISS-5A | 1044 | 15.00 | Top of Riser | Protective CSG | X |
| Permit # | | 15.00 | Elevation: | Riser CSG X | |
| | | 15.00 | 58.65 | Ground | |
| | Average | 15.00 | | Other | |
| MISS-5B | 1042 | 17.07 | Top of Riser | Protective CSG | X |
| Permit # | | 17.07 | Elevation: | Riser CSG X | |
| | | 17.07 | 59.76 | Ground | |
| | Average | 17.07 | | Other | |
| MISS-6A | 1022 | 12.65 | Top of Riser | Protective CSG | X |
| Permit # | | 12.65 | Elevation: | Riser CSG X | |
| | | 12.65 | 58.26 | Ground | |
| | Average | 12.65 | Prot.Cas.damage( | Other | |
| MISS-7A | 1055 | 9.2 | Top of Riser | Protective CSG | X |
| Permit # | | 9.2 | Elevation: | Riser CSG X | |
| | | 9.2 | 55.6 | Ground | |
| | Average | 9.2 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 8/26/2002** **Site:MISS** **Page 3 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-7B | 1052 | 12.10 | Top of Riser | Protective CSG | X |
| Permit # | | 12.10 | Elevation: | Riser CSG X | |
| | | 12.10 | 55.77 | Ground | |
| | Average | 12.10 | | Other | |
| B38W01S | 1354 | 8.30 | Top of Riser | Protective CSG | X |
| Permit # | 1 | 8.30 | Elevation: | Riser CSG X | |
| | | 8.30 | 60.72 | Ground | |
| | Average | 8.30 | | Other | |
| B38W02D | 1358 | 22.90 | Top of Riser | Protective CSG | X |
| Permit # 2614082-9 | | 22.90 | Elevation: | Riser CSG X | |
| | | 22.90 | 67.7 | Ground | |
| | Average | 22.90 | | Other | |
| B38W03B | 1114 | 11.85 | Top of Riser | Protective CSG | X |
| Permit # | | 11.85 | Elevation: | Riser CSG X | |
| | | 11.85 | 58.27 | Ground | |
| | Average | 11.85 | | Other | |
| B38W04B | 1118 | 12.80 | Top of Riser | Protective CSG | X |
| Permit # | | 12.80 | Elevation: | Riser CSG X | |
| | | 12.80 | 65.85 | Ground | |
| | Average | 12.80 | | Other | |
| B38W05B | 1305 | 16.20 | Top of Riser | Protective CSG | X |
| Permit # | | 16.20 | Elevation: | Riser CSG X | |
| | | 16.20 | 71.05 | Ground | |
| | Average | 16.20 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 8/26/2002** **Site:MISS** **Page 4 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other ______________
☐ Calibration of electric sounder
Date of last calibration:_____________________

| **Well No.** (Enter Complete Well No.) | **Time** (24-hour format) | **Depth to water** (0.01 ft) | **Remarks** | **Measurement Reference Point** | **X** |
|---|---|---|---|---|---|
| B38W06B | | Abondoned | Top of Riser | Protective CSG | |
| Permit # | | Well | Elevation: | Riser CSG X | |
| | | | 54.41 | Ground | |
| | Average | | | Other | |
| B38W07B | 1039 | 11.07 | Top of Riser | Protective CSG | X |
| Permit # | | 11.07 | Elevation: | Riser CSG X | |
| | | 11.07 | 54.63 | Ground | |
| | Average | 11.07 | | Other | |
| B38W12A | 1316 | 8.00 | Top of Riser | Protective CSG | X |
| Permit # | | 8.00 | Elevation: | Riser CSG X | |
| | | 8.00 | 50.1 | Ground | |
| | Average | 8.00 | | Other | |
| B38W12B | 1318 | 7.60 | Top of Riser | Protective CSG | X |
| Permit # | | 7.60 | Elevation: | Riser CSG X | |
| | | 7.60 | 49.78 | Ground | |
| | Average | 7.60 | | Other | |
| B38W14S | 1338 | 5.50 | Top of Riser | Protective CSG | X |
| Permit # | | 5.50 | Elevation: | Riser CSG X | |
| | | 5.50 | 43.89 | Ground | |
| | Average | 5.50 | | Other | |
| B38W14D | 1340 | 5.25 | Top of Riser | Protective CSG | X |
| Permit # | | 5.25 | Elevation: | Riser CSG X | |
| | | 5.25 | | Ground | |
| | Average | 5.25 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 8/26/2002** **Site:MISS** **Page 5 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other ______________
☐ Calibration of electric sounder
Date of last calibration:_____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W15S | 1328 | 7.75 | Top of Riser | Protective CSG | X |
| Permit # | | 7.75 | Elevation: | Riser CSG X | |
| | | 7.75 | 45.7 | Ground | |
| | Average | 7.75 | | Other | |
| B38W15D | 1333 | 6.00 | Top of Riser | Protective CSG | X |
| Permit # | | 6.00 | Elevation: | Riser CSG X | |
| | | 6.00 | 45.89 | Ground | |
| | Average | 6.00 | | Other | |
| B38W17A | 1325 | 10.75 | Top of Riser | Protective CSG | X |
| Permit # | | 10.75 | Elevation: | Riser CSG X | |
| | | 10.75 | 53.24 | Ground | |
| | Average | 10.75 | | Other | |
| B38W17B | 1323 | 10.70 | Top of Riser | Protective CSG | X |
| Permit # | | 10.70 | Elevation: | Riser CSG X | |
| | | 10.70 | 53.28 | Ground | |
| | Average | 10.70 | | Other | |
| B38W18D | 1410 | 6.20 | Top of Casing | Protective CSG | X |
| Permit # | | 6.20 | Elevation: | Riser CSG X | |
| | | 6.20 | 57.85 | Ground | |
| | Average | 6.20 | | Other | |
| B38W19S | 1049 | 17.05 | Top of Riser | Protective CSG | X |
| Permit # | | 17.05 | Elevation: | Riser CSG X | |
| | | 17.05 | 59.91 | Ground | |
| | Average | 17.05 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 8/26/2002** **Site:MISS** **Page 6 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other ______________
☐ Calibration of electric sounder
Date of last calibration:_____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W19D | 1051 | 17.24 | Top of Riser | Protective CSG | X |
| Permit # | | 17.24 | Elevation: | Riser CSG X | |
| | | 17.24 | 59.98 | Ground | |
| | Average | 17.24 | | Other | |
| B38W24S | 1059 | 11.00 | Top of Riser | Protective CSG | X |
| Permit # | | 11.00 | Elevation: | Riser CSG X | |
| | | 11.00 | 55.04 | Ground | |
| | Average | 11.00 | | Other | |
| B38W24D | 1101 | 11.45 | Top of Casing | Protective CSG | X |
| Permit # | | 11.45 | Elevation: | Riser CSG X | |
| | | 11.45 | 54.91 | Ground | |
| | Average | 11.45 | | Other | |
| B38W25S | 1131 | 9.40 | Top of Riser | Protective CSG | X |
| Permit # | | 9.40 | Elevation: | Riser CSG X | |
| | | 9.40 | 57.44 | Ground | |
| | Average | 9.40 | | Other | |
| B38W25D | 1129 | 9.70 | Top of Riser | Protective CSG | X |
| Permit # | | 9.70 | Elevation: | Riser CSG X | |
| | | 9.70 | 58.24 | Ground | |
| | Average | 9.70 | Casing Bent | Other | |
| | | | | Protective CSG | |
| Permit # | | | | Riser CSG X | |
| | | | | Ground | |
| | Average | | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 11/20/2002** **Site:MISS** **Page 1 of 6**

**Measured by:** R. Gendreau
G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration: ________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-1AA | 0837 | 13.90 | Top of Riser | Protective CSG | X |
| Permit # | | 13.90 | Elevation: | Riser CSG X | |
| | | 13.90 | 62.7 | Ground | |
| | Average | 13.90 | | Other | |
| MISS-1B | 0839 | 15.70 | Top of Riser | Protective CSG | X |
| Permit # | | 15.70 | Elevation: | Riser CSG X | |
| | | 15.70 | 61.98 | Ground | |
| | Average | 15.70 | | Other | |
| MISS-2A | 0943 | 8.80 | Top of Riser | Protective CSG | X |
| Permit # | | 8.80 | Elevation: | Riser CSG X | |
| | | 8.80 | 61.47 | Ground | |
| | Average | 8.80 | | Other | |
| MISS-2B | 0945 | 10.50 | Top of Riser | Protective CSG | X |
| Permit # | | 10.50 | Elevation: | Riser CSG X | |
| | | 10.50 | 61.64 | Ground | |
| | Average | 10.50 | | Other | |
| MISS-3A | 1017 | 5.00 | Top of Riser | Protective CSG | X |
| Permit # | | 5.00 | Elevation: | Riser CSG X | |
| | | 5.00 | 58.52 | Ground | |
| | Average | 5.00 | | Other | |
| MISS-3B | 1019 | 8.90 | Top of Riser | Protective CSG | X |
| Permit # | | 8.90 | Elevation: | Riser CSG X | |
| | | 8.90 | 57.66 | Ground | |
| | Average | 8.90 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 11/20/2002** **Site:MISS** **Page 2 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other ____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-4A | 1012 | 5.90 | Top of Riser | Protective CSG | X |
| Permit # | | 5.90 | Elevation: | Riser CSG X | |
| | | 5.90 | 57.17 | Ground | |
| | Average | 5.90 | | Other | |
| MISS-4B | 1014 | 9.30 | Top of Riser | Protective CSG | X |
| Permit # | | 9.30 | Elevation: | Riser CSG X | |
| | | 9.30 | 56.42 | Ground | |
| | Average | 9.30 | | Other | |
| MISS-5A | 0955 | 10.80 | Top of Riser | Protective CSG | X |
| Permit # | | 10.80 | Elevation: | Riser CSG X | |
| | | 10.80 | 58.65 | Ground | |
| | Average | 10.80 | | Other | |
| MISS-5B | 0957 | 14.14 | Top of Riser | Protective CSG | X |
| Permit # | | 14.14 | Elevation: | Riser CSG X | |
| | | 14.14 | 59.76 | Ground | |
| | Average | 14.14 | | Other | |
| MISS-6A | 0845 | 8.87 | Top of Riser | Protective CSG | X |
| Permit # | | 8.87 | Elevation: | Riser CSG X | |
| | | 8.87 | 58.26 | Ground | |
| | Average | 8.87 | | Other | |
| MISS-7A | 1005 | 6.80 | Top of Riser | Protective CSG | X |
| Permit # | | 6.80 | Elevation: | Riser CSG X | |
| | | 6.80 | 55.6 | Ground | |
| | Average | 6.80 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# WATER LEVEL RECORD SHEET

**Date: 11/20/2002** **Site:MISS** **Page 3 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| MISS-7B | 1004 | 9.55 | Top of Riser | Protective CSG | X |
| Permit # | | 9.55 | Elevation: | Riser CSG X | |
| | | 9.55 | 55.77 | Ground | |
| | Average | 9.55 | | Other | |
| B38W01S | 1341 | 5.55 | Top of Riser | Protective CSG | X |
| Permit # | 1 | 5.55 | Elevation: | Riser CSG X | |
| | | 5.55 | 60.72 | Ground | |
| | Average | 5.55 | | Other | |
| B38W02D | 1348 | 13.92 | Top of Riser | Protective CSG | X |
| Permit # 2614082-9 | | 13.92 | Elevation: | Riser CSG X | |
| | | 13.92 | 67.7 | Ground | |
| | Average | 13.92 | | Other | |
| B38W03B | 1102 | 8.10 | Top of Riser | Protective CSG | X |
| Permit # | | 8.10 | Elevation: | Riser CSG X | |
| | | 8.10 | 58.27 | Ground | |
| | Average | 8.10 | | Other | |
| B38W04B | 1107 | 9.50 | Top of Riser | Protective CSG | X |
| Permit # | | 9.50 | Elevation: | Riser CSG X | |
| | | 9.50 | 65.85 | Ground | |
| | Average | 9.50 | | Other | |
| B38W05B | 1304 | 10.30 | Top of Riser | Protective CSG | X |
| Permit # | | 10.30 | Elevation: | Riser CSG X | |
| | | 10.30 | 71.05 | Ground | |
| | Average | 10.30 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 11/20/2002** **Site:MISS** **Page 4 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W06B | | Well closed | Top of Riser | Protective CSG | |
| Permit # | | out | Elevation: | Riser CSG X | |
| | | | 54.41 | Ground | |
| | Average | | | Other | |
| B38W07B | 951 | 6.94 | Top of Riser | Protective CSG | X |
| Permit # | | 6.94 | Elevation: | Riser CSG X | |
| | | 6.94 | 54.63 | Ground | |
| | Average | 6.94 | | Other | |
| B38W12A | 1314 | 5.90 | Top of Riser | Protective CSG | X |
| Permit # | | 5.90 | Elevation: | Riser CSG X | |
| | | 5.90 | 50.1 | Ground | |
| | Average | 5.90 | | Other | |
| B38W12B | 1315 | 4.40 | Top of Riser | Protective CSG | X |
| Permit # | | 4.40 | Elevation: | Riser CSG X | |
| | | 4.40 | 49.78 | Ground | |
| | Average | 4.40 | | Other | |
| B38W14S | | No Access | Top of Riser | Protective CSG | |
| Permit # | | | Elevation: | Riser CSG X | |
| | | | 43.89 | Ground | |
| | Average | | | Other | |
| B38W14D | | No Access | Top of Riser | Protective CSG | |
| Permit # | | | Elevation: | Riser CSG X | |
| | | | 43.79 | Ground | |
| | Average | | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 11/20/2002** **Site:MISS** **Page 5 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other _____________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W15S | 1327 | 3.80 | Top of Riser | Protective CSG | X |
| Permit # | | 3.80 | Elevation: | Riser CSG X | |
| | | 3.80 | 45.7 | Ground | |
| | Average | 3.80 | | Other | |
| B38W15D | 1330 | 3.78 | Top of Riser | Protective CSG | X |
| Permit # | | 3.78 | Elevation: | Riser CSG X | |
| | | 3.78 | 45.89 | Ground | |
| | Average | 3.78 | | Other | |
| B38W17A | 1321 | 7.35 | Top of Riser | Protective CSG | X |
| Permit # | | 7.35 | Elevation: | Riser CSG X | |
| | | 7.35 | 53.24 | Ground | |
| | Average | 7.35 | | Other | |
| B38W17B | 1323 | 7.53 | Top of Riser | Protective CSG | X |
| Permit # | | 7.53 | Elevation: | Riser CSG X | |
| | | 7.53 | 53.28 | Ground | |
| | Average | 7.53 | | Other | |
| B38W18D | 1112 | 4.10 | Top of Riser | Protective CSG | X |
| Permit # | | 4.10 | Elevation: | Riser CSG X | |
| | | 4.10 | 57.85 | Ground | |
| | Average | 4.10 | | Other | |
| B38W19S | 1001 | 13.97 | Top of Riser | Protective CSG | X |
| Permit # | | 13.97 | Elevation: | Riser CSG X | |
| | | 13.97 | 59.91 | Ground | |
| | Average | 13.97 | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# *WATER LEVEL RECORD SHEET*

**Date: 11/20/2002** **Site:MISS** **Page 6 of 6**

**Measured by:** R. Gendreau

G. Moyer

☐ Battery Check ☐ Funct. Check ☐ Physical Exam.
☐ Electric Sounder ☐ Chalked Tape ☐ Other ______________
☐ Calibration of electric sounder
Date of last calibration:____________________

| Well No. (Enter Complete Well No.) | Time (24-hour format) | Depth to water (0.01 ft) | Remarks | Measurement Reference Point | X |
|---|---|---|---|---|---|
| B38W19D | 1002 | 14.50 | Top of Riser | Protective CSG | X |
| Permit # | | 14.50 | Elevation: | Riser CSG X | |
| | | 14.50 | 59.98 | Ground | |
| | Average | 14.50 | | Other | |
| B38W24S | 1010 | 7.45 | Top of Riser | Protective CSG | X |
| Permit # | | 7.45 | Elevation: | Riser CSG X | |
| | | 7.45 | 55.04 | Ground | |
| | Average | 7.45 | | Other | |
| B38W24D | 1012 | 6.80 | Top of Riser | Protective CSG | X |
| Permit # | | 6.80 | Elevation: | Riser CSG X | |
| | | 6.80 | 54.91 | Ground | |
| | Average | 6.80 | | Other | |
| B38W25S | 0853 | 4.90 | Top of Riser | Protective CSG | X |
| Permit # | | 4.90 | Elevation: | Riser CSG X | |
| | | 4.90 | 57.44 | Ground | |
| | Average | 4.90 | | Other | |
| B38W25D | 0850 | 5.40 | Top of Riser | Protective CSG | X |
| Permit # | | 5.40 | Elevation: | Riser CSG X | |
| | | 5.40 | 58.24 | Ground | |
| | Average | 5.40 | | Other | |
| | | | | Protective CSG | |
| Permit # | | | | Riser CSG X | |
| | | | | Ground | |
| | Average | | | Other | |

**X - if well head and pad are in good condition**
**FUSRAP SOP: SW-MWD-410- 2**
**Rev:**

# APPENDIX D
# FIGURES

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# APPENDIX D FIGURES

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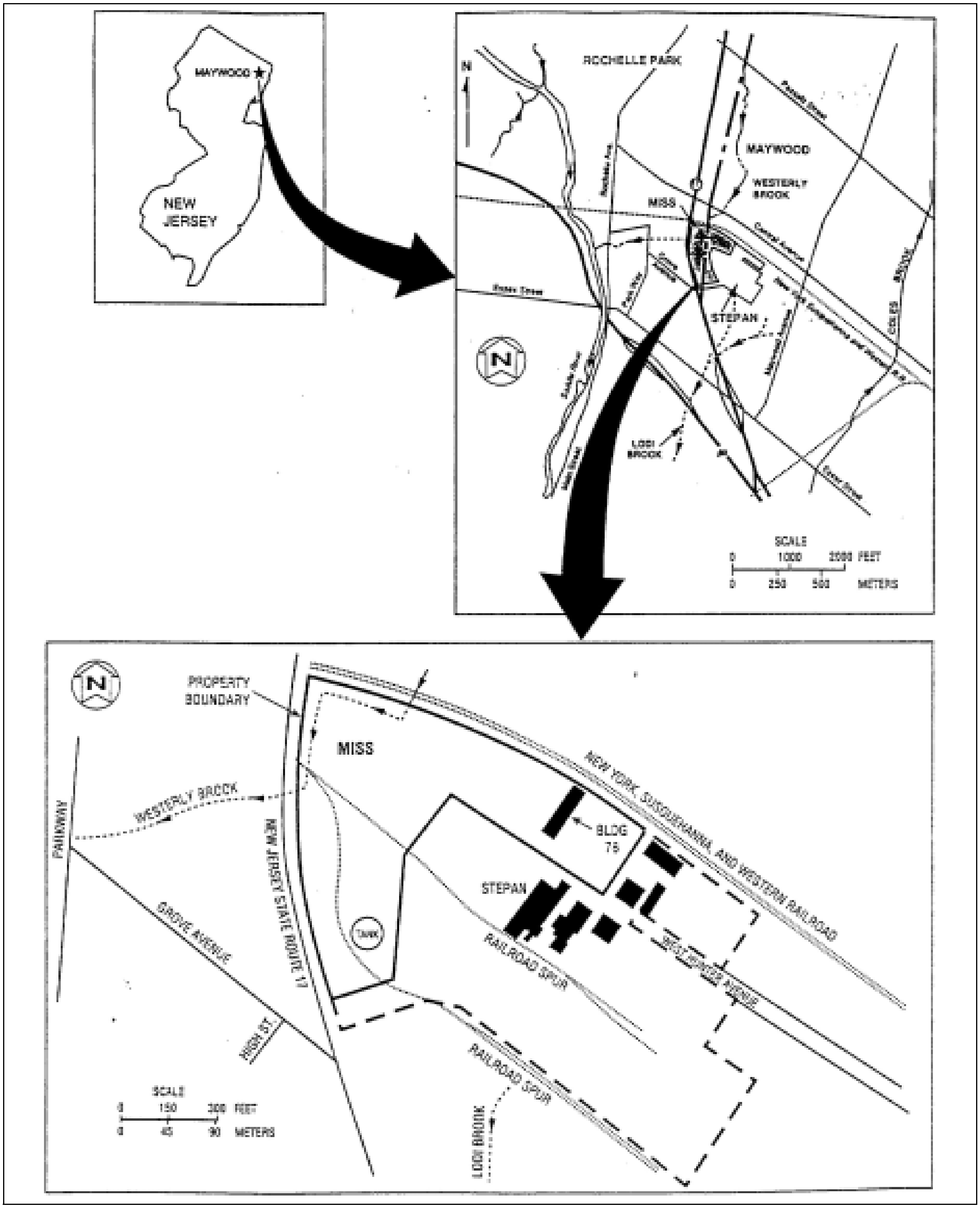


**Figure D-1**
**Maywood Interim Storage Site, Site Location and Map**

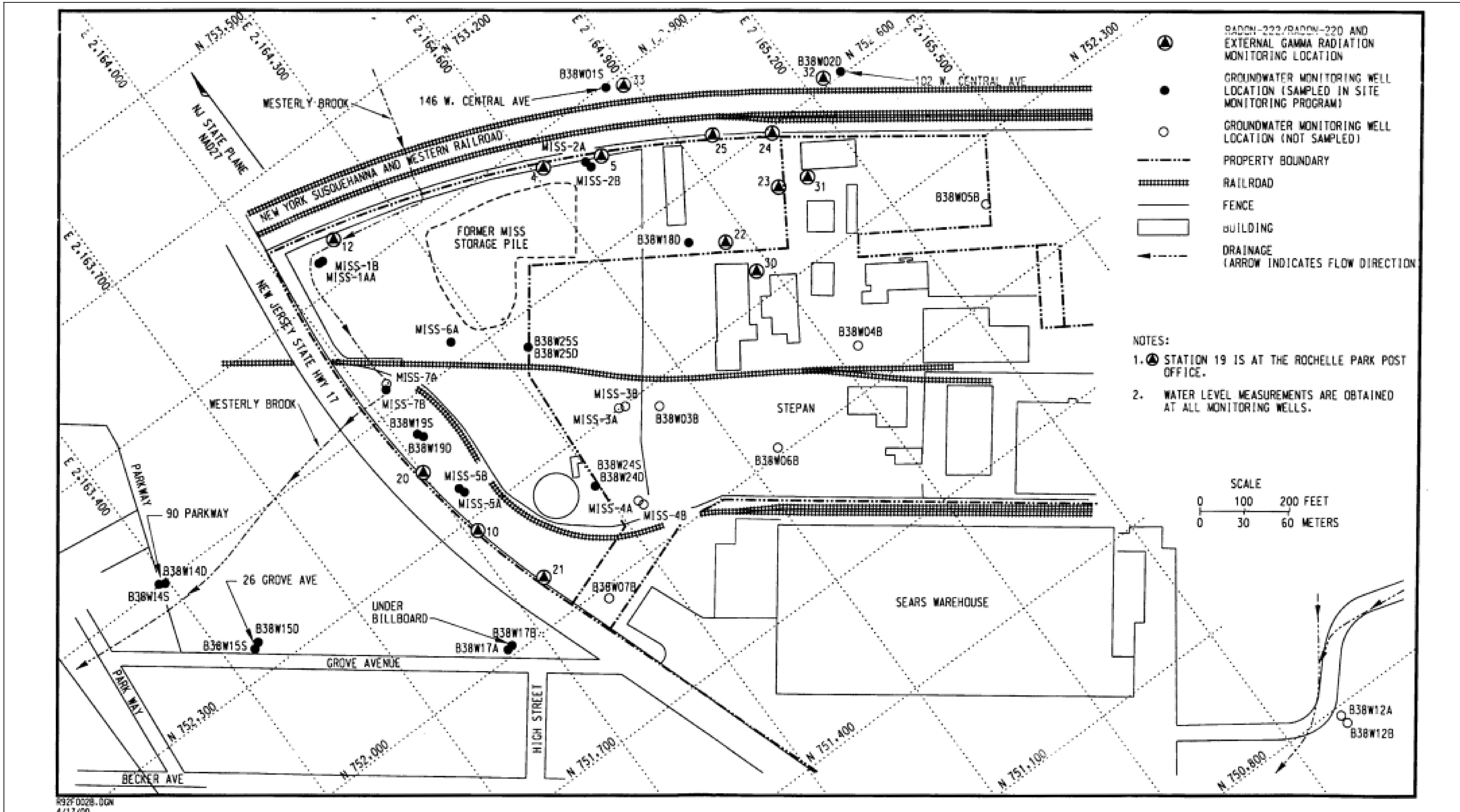


**Figure D-2**
**Maywood Interim Storage Site Environmental Monitoring Sampling Locations: External Gamma Radiation, Radon-222 / Radon-220, and Groundwater**

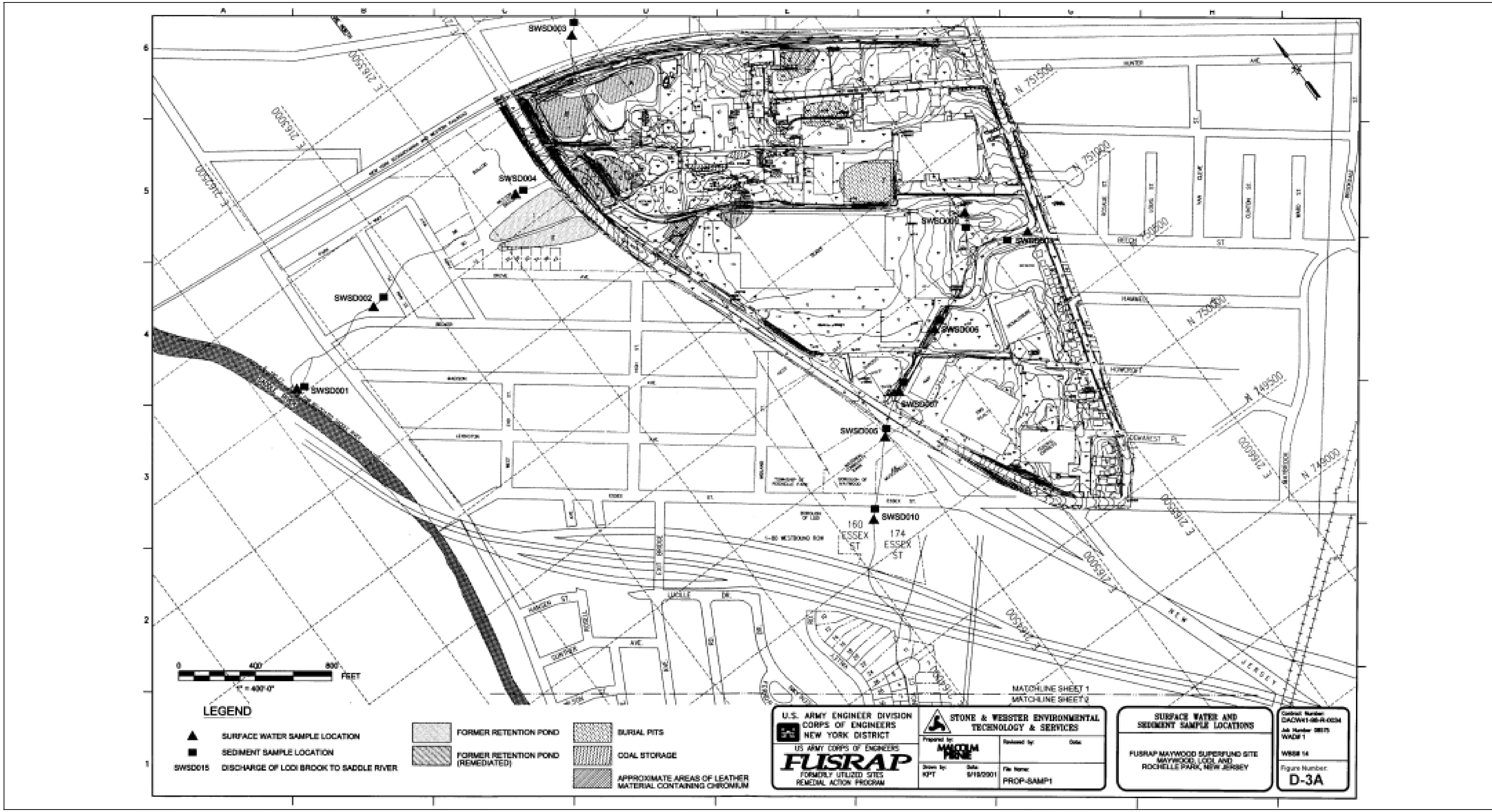


**Figure D-3A**
**Surface Water and Sediment Sample Locations**

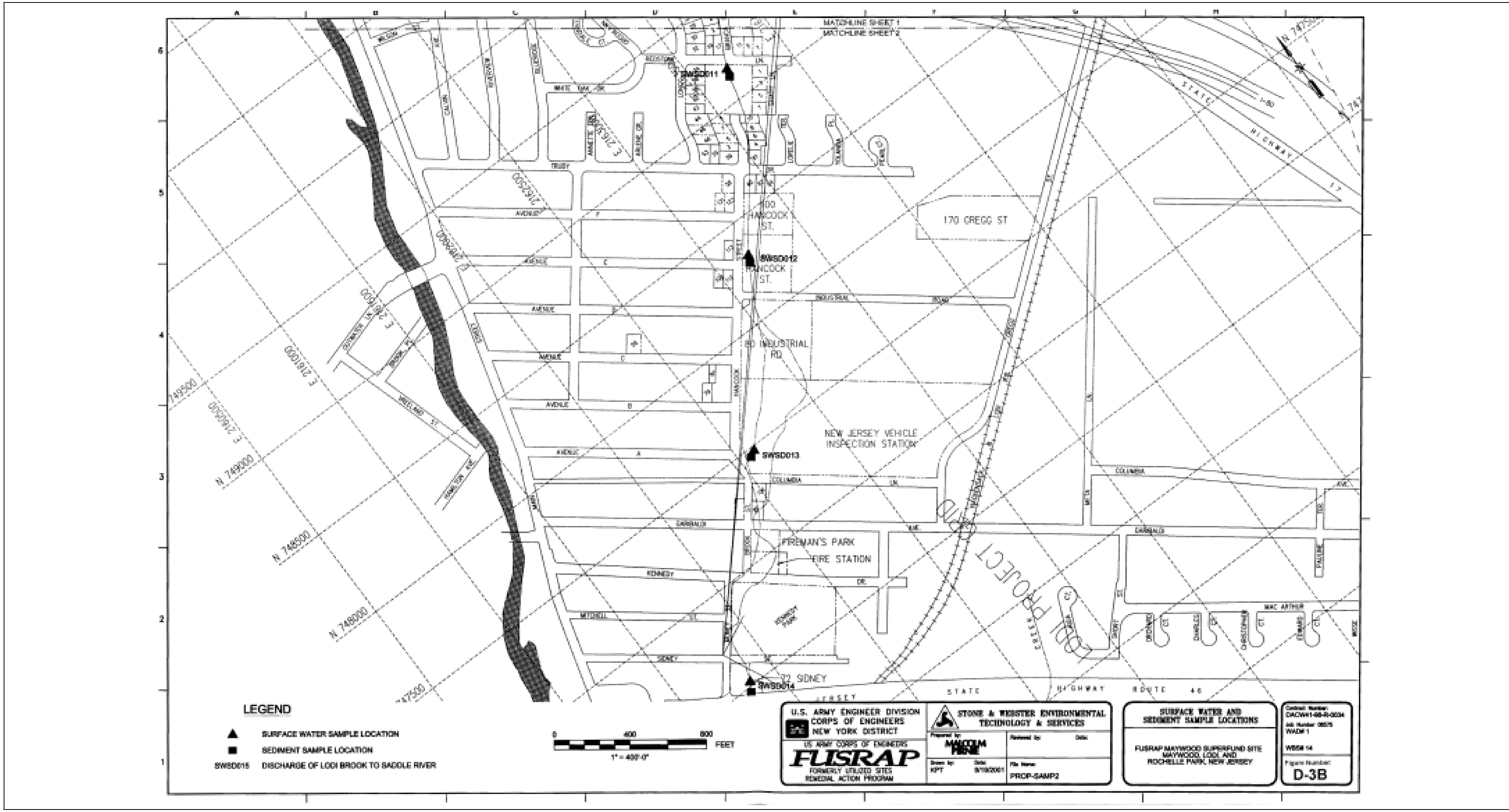


**Figure D-3B**
**Surface Water and Sediment Sample Locations**

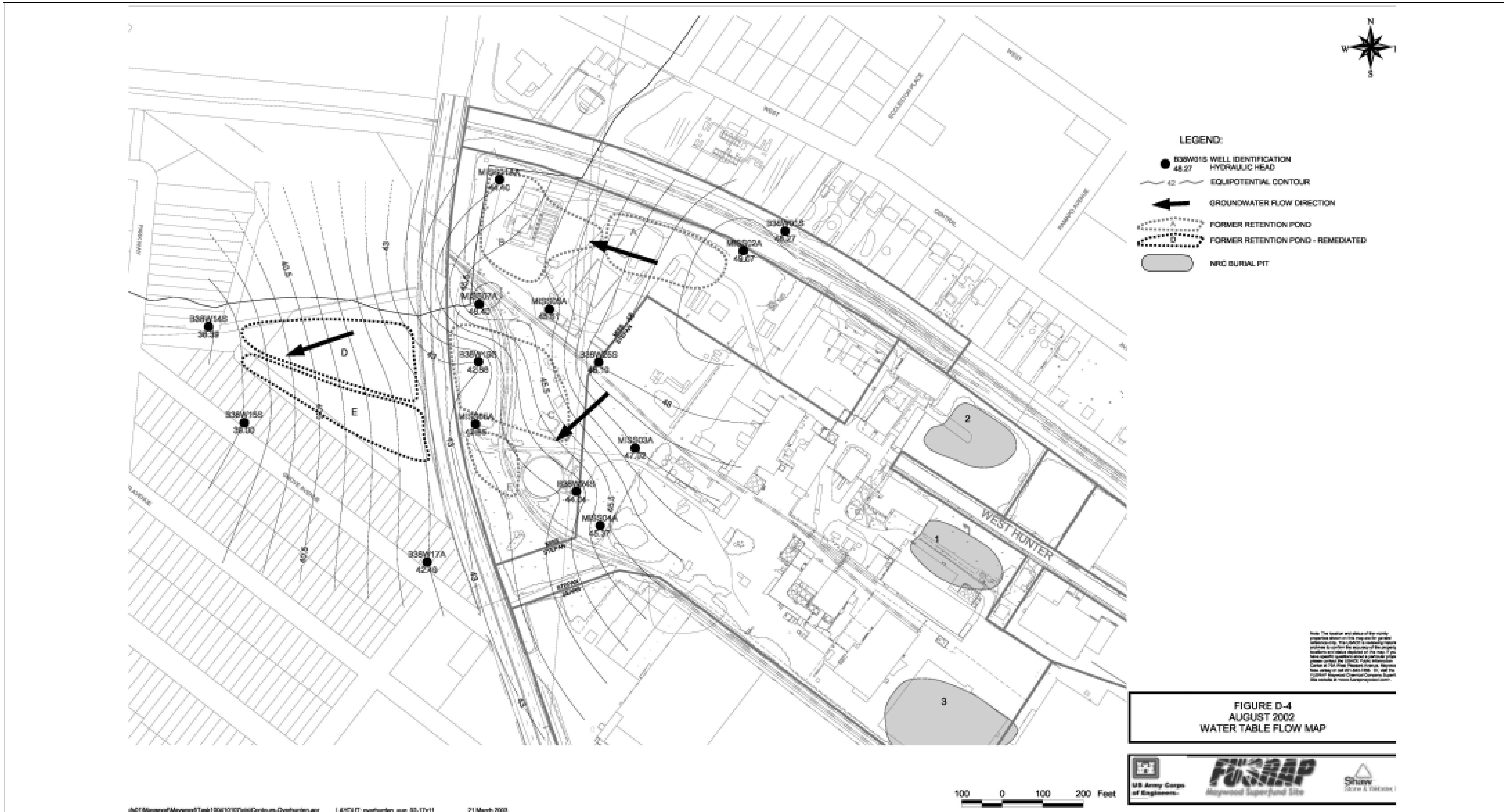


**Figure D-4**
**August 2002 Water Table Flow Map**

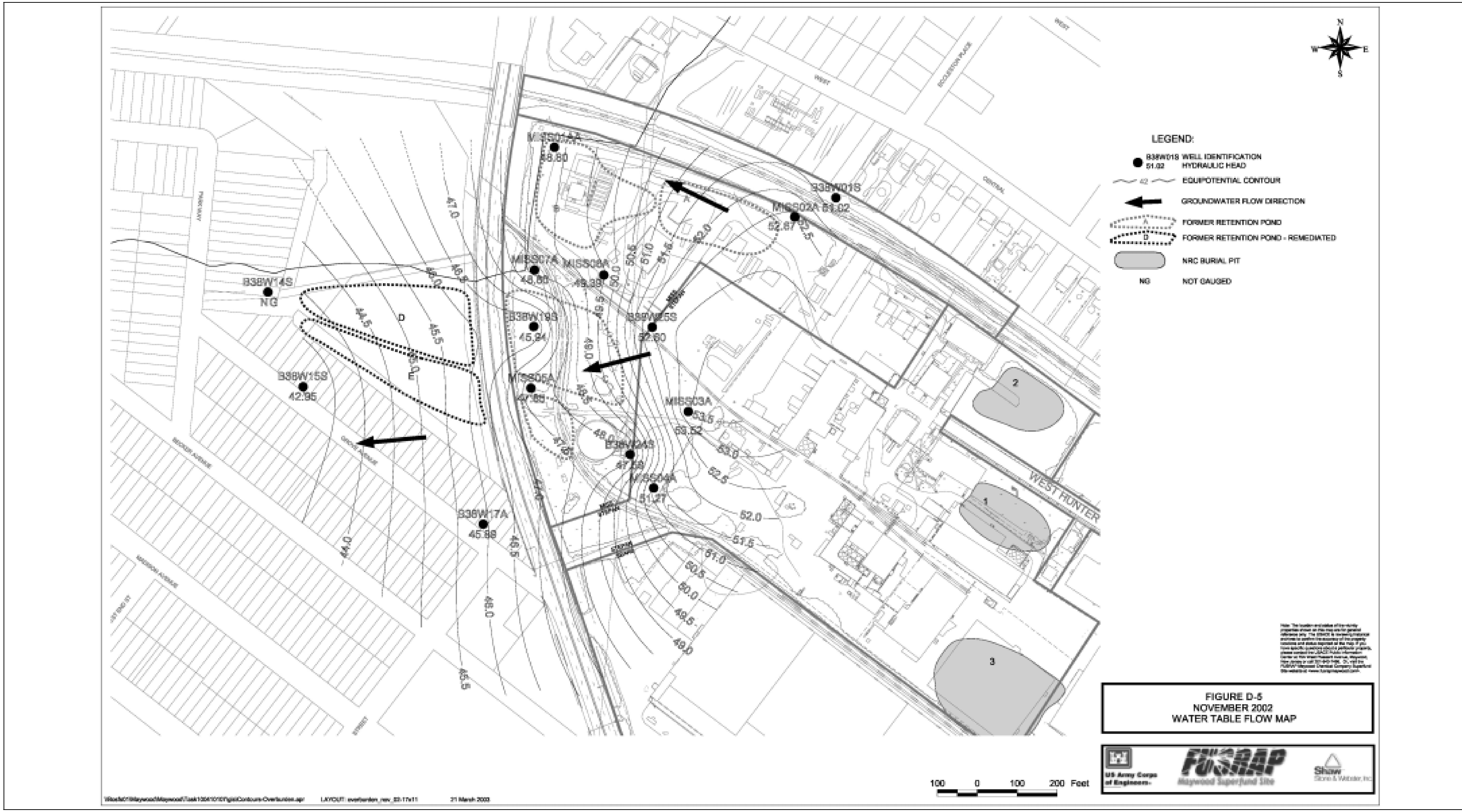


**Figure D-5**
**November 2002 Water Table Flow Map**

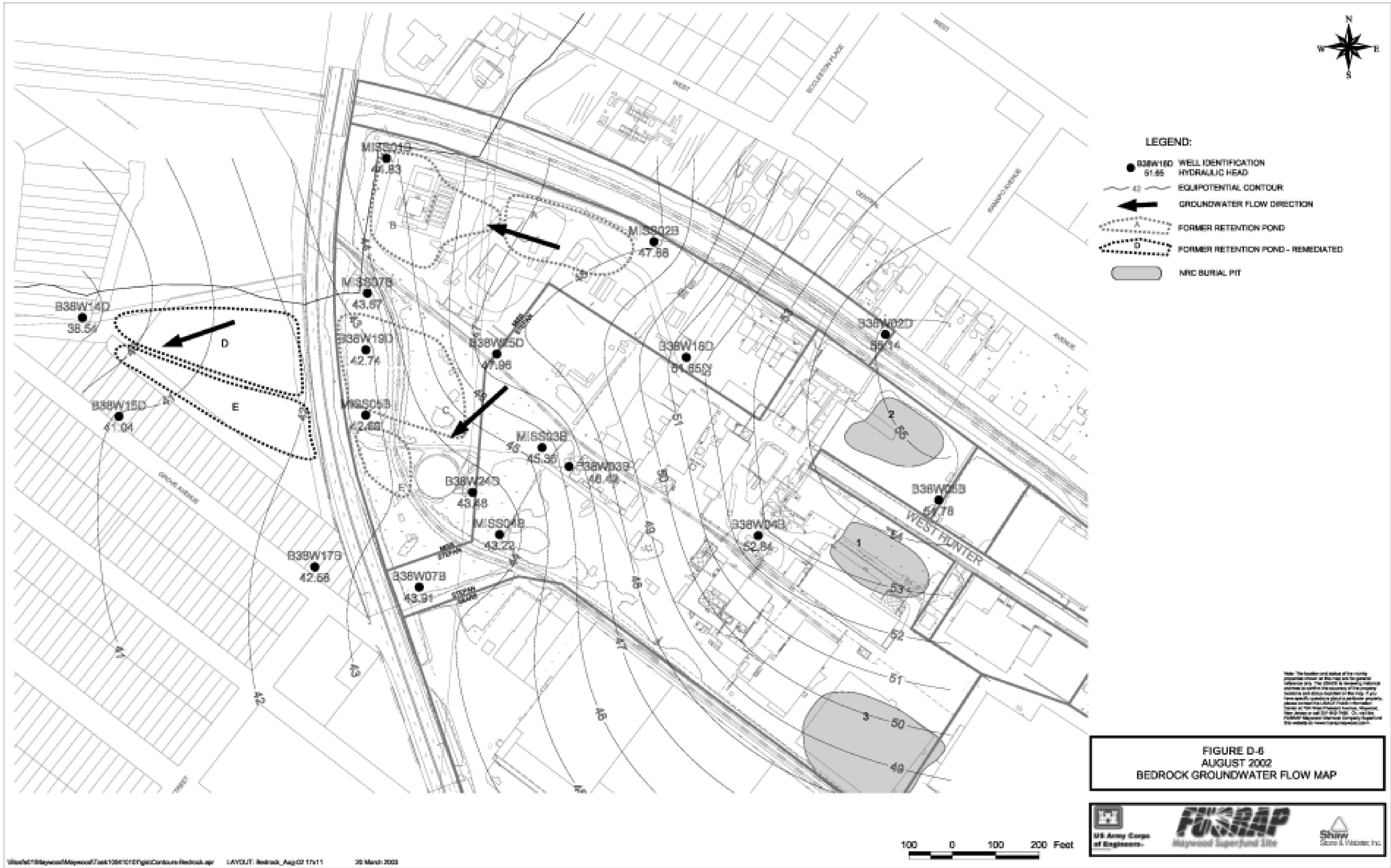


**Figure D-6**
**August 2002 Bedrock Groundwater Flow Map**

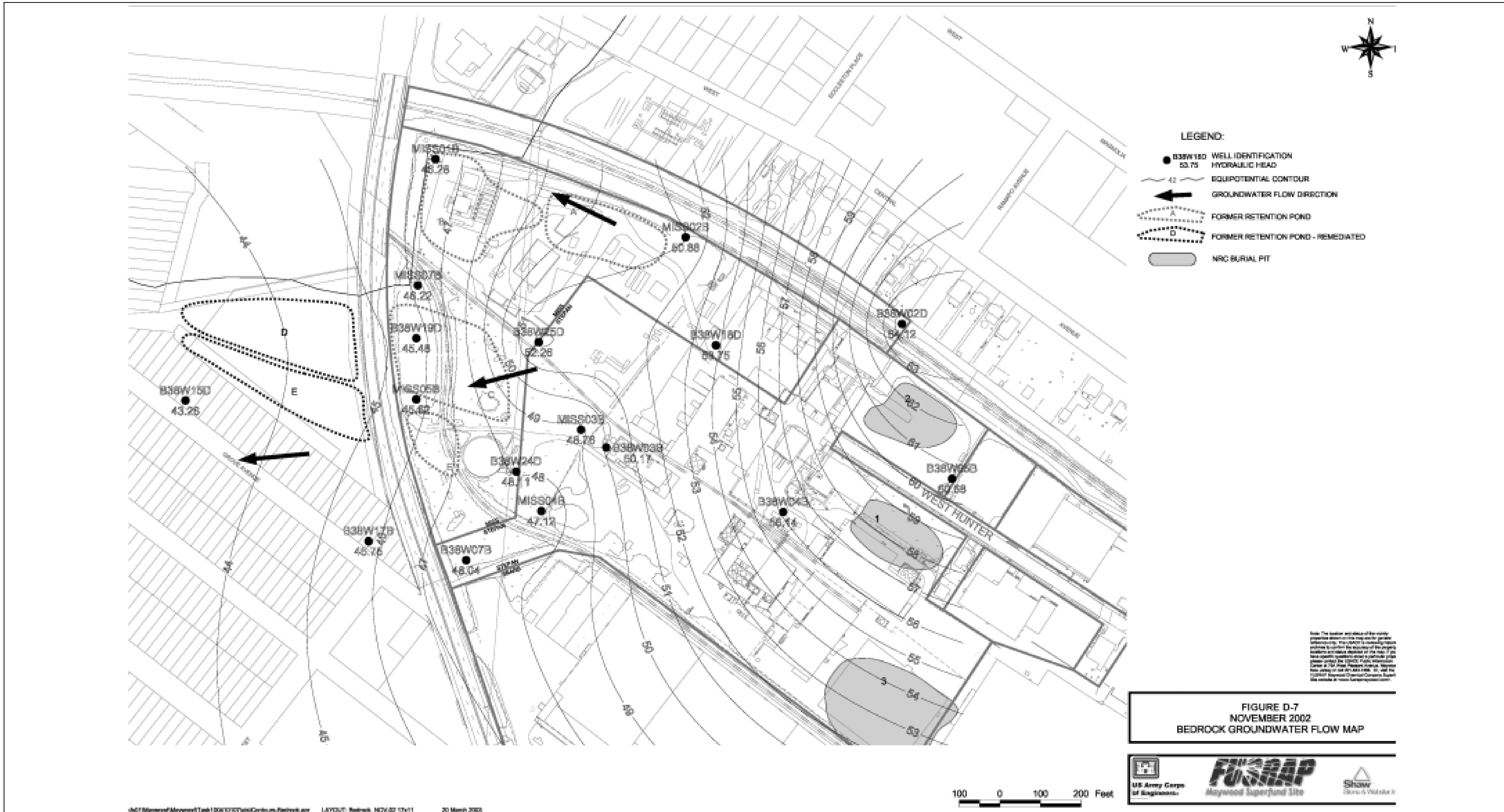


**Figure D-7**
**November 2002 Bedrock Groundwater Flow Map**

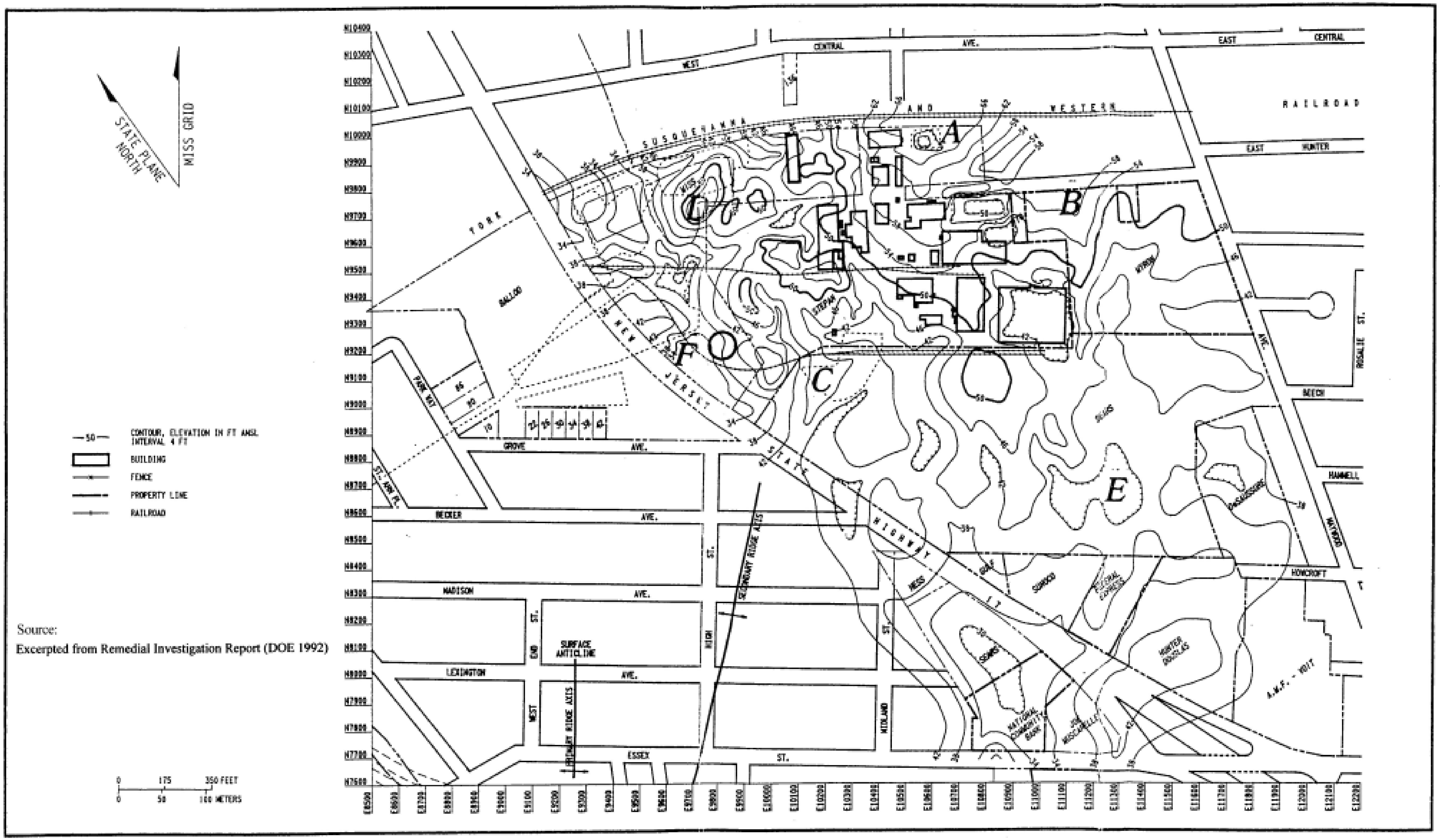


**Figure D-8**
**Contour Map of the Top of Bedrock in the Maywood Area**

# APPENDIX E
# ANNUAL NESHAP COMPLIANCE REPORT FOR THE YEAR 2002

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# Annual NESHAP Compliance Report for the Year 2002

## New York District
## Formerly Utilized Sites Remedial Action Program
## Maywood Superfund Site

**Prepared by:**
**Stone & Webster, Inc.**
**100 West Hunter Ave.**
**Maywood, New Jersey 07607**

**for:**
**US Army Corps of Engineers - Kansas City District**
**Formerly Utilized Sites Remedial Action Program**
**Contract No. DACW41-99-D-9001**

US Army Corps of Engineers®

June 2003

# ANNUAL NESHAP COMPLIANCE REPORT, YEAR 2002

**FUSRAP MAYWOOD SUPERFUND SITE**
**MAYWOOD, NEW JERSEY**

**SITE-SPECIFIC ENVIRONMENTAL RESTORATION**
**CONTRACT NO. DACW41-99-D-9001**
**TASK ORDER No. 0002**
**WAD 01, WBS 07**

*Submitted to*

Department of the Army
U.S. Army Engineer District, Kansas City
Corps of Engineers
700 Federal Building
Kansas City, Missouri 64106

Department of the Army
U.S. Army Engineer District, New York
Corps of Engineers
FUSRAP Project Office
26 Federal Plaza
New York, New York 10007

*Submitted by:*
Stone & Webster, Inc.
100 West Hunter Avenue
Maywood, NJ 07607

June 2003

Issued to: ______________________ Date: ______________

Copy No. _______ ☐ Controlled ☐ Uncontrolled

# ANNUAL NESHAP COMPLIANCE REPORT, YEAR 2002

**FUSRAP MAYWOOD SUPERFUND SITE**
**MAYWOOD, NEW JERSEY**

**SITE-SPECIFIC ENVIRONMENTAL RESTORATION**
**CONTRACT NO. DACW41-99-D-9001**
**TASK ORDER No. 0002**
**WAD 01, WBS 07**

*Submitted to*

Department of the Army
U.S. Army Engineer District, Kansas City
Corps of Engineers
700 Federal Building
Kansas City, Missouri 64106

Department of the Army
U.S. Army Engineer District, New York
Corps of Engineers
FUSRAP Project Office
26 Federal Plaza
New York, New York 10007

*Submitted by:*
Stone & Webster, Inc.
100 West Hunter Avenue
Maywood, NJ 07607

June 2003

| | | |
|---|---|---|
| Reviewed / Approved by: | ______________________<br>Andy Mills<br>Project Manager | Date: __________ |
| Reviewed / Approved by: | ______________________<br>Kevin F. Donnelly, P.E.<br>Project Environmental Engineer | Date: __________ |
| Reviewed / Approved by: | ______________________<br>Alan F. Brown, P.E.<br>Contractor Quality Control System Manager | Date: __________ |
| Reviewed / Approved by: | ______________________<br>Barbara Reider<br>Certified Health Physicist | Date: __________ |

# RECORD OF REVISIONS

| Revision No. | Description of Revision | Date |
|---|---|---|
| A | Draft issue for internal review and comment | March 2003 |
| B | Draft issue to the USACE for review and comment | April 2003 |
| C | Draft Final to the USACE for review | May 2003 |
| 0 | Final issue to the EPA | June 2003 |
| | | |
| | | |

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# TABLE OF CONTENTS

# LIST OF TABLES

# APPENDICES



*Note: Appendix C also contains an MS-Excel Spreadsheet on CD-ROM.*

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AEC | Atomic Energy Commission |
| AP-42 | Compilation of Air Pollutant Emission Factors – Volume 1 |
| °C | degrees Centigrade |
| CAA | Clean Air Act |
| CAP88-PC | Clean Air Act Assessment Package 1988 – Personal Computer (Version 2) |
| CERCLA | Comprehensive Environmental Response, Compensation and Liabilities Act |
| Ci/yr | Curies per year |
| cm | centimeters |
| CFR | Code of Federal Regulations |
| DOE | U.S. Department of Energy |
| DOT | U.S. Department of Transportation |
| EPA | U.S. Environmental Protection Agency |
| °F | degrees Fahrenheit |
| FFA | Federal Facilities Agreement |
| FMSS | Formerly Utilized Sites Remedial Action Program Maywood Superfund Site |
| $ft^2$ | square feet |
| FUSRAP | Formerly Utilized Sites Remedial Action Program |
| g | gram |
| HEPA | High Efficiency Particulate Air |
| in. | inches |
| ICRP | International Commission on Radiological Protection |
| kph | kilometers per hour |
| km | kilometers |
| m | meters |
| $m^2$ | square meters |
| mi | miles |
| MCW | Maywood Chemical Works |
| MISS | Maywood Interim Storage Site |
| mph | miles per hour |
| mSv/yr | millisievert per year |
| mrem | millirem |
| mrem/yr | millirem per year |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NJDEP | New Jersey Department of Environmental Protection |
| NJDOT | New Jersey Department of Transportation |
| NOAA | National Oceanic and Atmospheric Administration |
| ORAU | Oak Ridge Associated Universities |
| ORNL | Oak Ridge National Laboratory |
| pCi/g | picocuries per gram |
| $pCi/m^2/s$ | picocuries per square meter per second |
| Ra | radium |
| Ra-226 | radium-226 |
| Rn | Radon |
| ROW | right-of-way |

# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| TCRA | Time Critical Removal Action |
| Th | thorium |
| Th-232 | thorium-232 |
| U | uranium |
| U-238 | uranium-238 |
| USACE | U.S. Army Corps of Engineers |
| $yd^3$ | cubic yards |

# 1.0 FACILITY INFORMATION

## 1.1 REGULATORY OVERVIEW

The provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP), as codified in 40 CFR 61, Subpart H, apply to operations at any facility owned or operated by the U.S. Department of Energy (DOE) that emits any radionuclides other than radon–222 (Rn-222) or radon-220 (Rn-220) into the air. These provisions state that emissions of radionuclides to the ambient air from DOE facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 millirem per year (mrem/yr).

To determine compliance with the NESHAP-Subpart H standard, radionuclide emissions shall be determined and effective dose equivalent values to members of the public calculated using U.S. Environmental Protection Agency (EPA) approved sampling procedures, computer models Clean Air Act Assessment Package – 1988 Personal Computer (CAP88-PC) or AIRDOS-PC, or other procedures for which the EPA has granted prior approval. Compliance with this standard shall be determined by calculating the highest effective dose equivalent to any member of the public at any off-site point where there is a residence, school, business or office. The owners or operators of an applicable facility shall submit an annual compliance report to both the EPA headquarters and the appropriate regional office by June 30.

Activities at the DOE-owned Maywood Interim Storage Site (MISS) result in the emissions of radiologically contaminated particulates into the air. Thus, the MISS is an applicable facility and this report has been prepared to satisfy the requirements of 40 CFR Part 61, Subpart H. A detailed description of the MISS, the site history, and emission sources of radionuclides is provided below.

## 1.2 SITE DESCRIPTION

The MISS is an 11.7-acre (4.7-hectare) property located in the Borough of Maywood and the Township of Rochelle Park in Bergen County, New Jersey. The MISS lies approximately 12 miles (mi) (20 kilometers [km]) northwest of New York City and 13 mi (21 km) northeast of Newark, New Jersey (see Appendix A, **Figure A-1**). The MISS property was previously part of a 30-acre (12-hectare) property owned by the Stepan Company and it was formerly part of the Maywood Chemical Works (MCW). The property is bordered on the west by NJ Route 17, on the north by the New York, Susquehanna, and Western Railway line, and on the south and east by commercial and industrial properties.

The MISS is part of the Formerly Utilized Sites Remedial Action Program (FUSRAP) Maywood Superfund Site, or FMSS. The FMSS consists of 88 residential, commercial, municipal, and state or Federal properties designated under the Comprehensive Environmental Response, Compensation, and Liabilities Act (CERCLA). All 64 residential and municipal properties have been remediated either by the DOE or U.S. Army Corps of Engineers (USACE). The remaining 24 properties (Phase II) are being addressed by the USACE and were sub-divided into 12 clusters (i.e., sets of contiguous properties) to facilitate the pre-design investigation and subsequent removal actions for those properties. The interim storage of radiologically contaminated material removed from the clusters occurs at the DOE-owned MISS.

Land use in the vicinity of the MISS is primarily commercial and residential (see Appendix A, **Figure A-2**). The nearest schools are located approximately 0.5 mi (0.8 km) northeast and northwest of the MISS. There is no farmland in the vicinity of the MISS.

Based on the National Oceanic and Atmospheric Administration (NOAA) records for the year 2002 for Teterboro Airport, monthly average temperatures ranged from a low of 34.2°F (1.2°C) in December to a high of 78.0°F (25.6°C) in July. Total monthly precipitation ranged from a low of 0.75 in. (1.9 cm) in February to a high of 5.75 in. (14.6 cm) in October. Monthly average wind speed ranged from a low of 6.2 miles per hour (mph) (10.0 kilometers per hour [kph]) from the southeast in August to a high of 9.1 mph (14.6 kph) from the west in March.

Due to the absence of on-site meteorological monitoring data, observations from Teterboro Airport were used to represent the general climatic conditions at the MISS. Teterboro Airport is located approximately 3 mi (4.8 km) south of the MISS and thus, meteorological data collected at this location is considered to be the best available data to represent the climatic regime at the MISS.

## 1.3 SITE HISTORY

The MISS was established to provide storage for low level radioactive soils found in the vicinity of the former MCW. From 1916 through 1959, the MCW processed monazite sand (a thorium-containing ore) for industrial uses. Process wastes were placed in surface impoundments on-site. Some of these process wastes migrated off-site via surface water drainage and some were later used as mulch and fill on nearby properties, contaminating them with radioactive thorium (Th).

After the enactment of the Atomic Energy Act of 1954, the Atomic Energy Commission (AEC) issued a license to the MCW for the processing and manufacture of radioactive material. The MCW stopped processing Th in 1959 and shortly thereafter was sold to the Stepan Company. Based on AEC inspections and information, remedial actions were performed by the Stepan Company.

Subsequent radiological surveys from 1980 to 1984 identified additional areas of contamination, both on-site and off-site. Through a provision of the Energy and Water Development Appropriations Act of 1984, Congress authorized the DOE to conduct a decontamination research and development project at the former MCW site. The site was subsequently assigned to the Formerly Utilized Sites Remedial Action Program (FUSRAP). In 1984, the DOE negotiated a lease for Stepan Company land on which the MISS would be established. The land was transferred in 1985 to DOE ownership and currently provides interim storage for contaminated materials removed from vicinity properties.

FUSRAP was transferred from DOE to the USACE by Congressional action. The limits of USACE's responsibilities for the FMSS are defined under a Federal Facilities Agreement (FFA) between DOE and the EPA, Region II, which became effective April 22, 1991. The USACE became a successor to the DOE as of March 17, 1999.

## 1.4 MODEL SOURCES

The computer program used to model potential off-site exposure from airborne emissions is the CAP88-PC program (Version 2.0). Airborne emissions contributing to off-site exposure could occur from areas where the radioactively contaminated soil is exposed to the elements and from operations that generate airborne emissions (see Appendix A, **Figure A-3**). During the year 2002, the potential sources of airborne emissions at the MISS and vicinity properties were as follows:

- In situ, contaminated areas totaling approximately 635,000 square feet ($ft^2$) (59,000 square meters [$m^2$]) of the MISS and the adjacent Stepan Company property (within the MISS fence line) were potentially exposed to wind erosion during the year 2002.

- The performance of soil load-out, transportation and disposal operations at the MISS during the year 2002. Specifically, five soil load-out operations were performed during the year 2002. The various soil stockpiles consisted of soil and debris that had been transported to the MISS from the following sources: Cluster No. 1 removal action; Cluster No. 4 removal action; site preparation for installation of the foundation for the proposed radiochemistry laboratory at the MISS; the Stepan Company and Sears railspurs slope cutbacks at the MISS; installation of the new sewer line; and the repair of the Transco gas pipeline. These five actions involved the load-out of approximately 16,446 tons of material, which was placed into rail cars for transport to a disposal facility in Utah. The nearest commercial / residential buildings are located approximately 440 feet (135 meters [m]) west of the MISS soil load-out area.
- The performance of the removal action at Cluster No. 1 which is comprised of two lots within the Borough of Lodi: Block 164, Lots 1 (72 Sidney Street) and 5 (88 Money Street). Over the years, radiologically contaminated soil from the former MCW was transported downstream to the Cluster No. 1 properties via the Lodi Brook. This removal action involved the excavation of approximately 3,016 tons of soil, which was loaded into roll- off containers and transported by truck to the fabric structure at the MISS. The nearest commercial buildings are located approximately 100 feet (30 m) west of Cluster No. 1; the nearest residences are located approximately 100 feet (30 m) west-northwest of Cluster No. 1.
- The performance of the removal action at Cluster No. 4 which is comprised of three properties within the Borough of Lodi: 160 and 174 Essex Street and Interstate 80 Westbound right-of-way (ROW). The property at 150 Essex Street was subsequently added to Cluster No. 4 since contamination was also found at this site. Over the years, radiologically contaminated soil was transported downstream to the Cluster No. 4 properties via the Lodi Brook. The year 2002 portion of this removal action involved the excavation of approximately 5,232 tons of soil, which was loaded into trucks for transport to the fabric structure at the MISS. The nearest commercial buildings are located approximately 100 feet (30 m) north-northwest of Cluster No. 4; the nearest residences are located approximately 460 feet (140 m) southwest of Cluster No. 4.
- Excavation performed as part of the site preparation for the proposed radiochemistry laboratory at the MISS. The work consisted of the removal of contaminated soil and placement of clean backfill to support the foundation of the proposed laboratory. Excavation was performed for an area approximately 106 feet (32.3 m) in width, 100 feet (30 m) in length, and down to a maximum depth of approximately 11 feet (3.4 m). Excavated soils were transported to the fabric structure at the MISS for storage and subsequent disposal. This action involved the excavation of approximately 2,205 tons of soil, which was transported to the fabric structure at the MISS. The nearest commercial buildings are located approximately 195 feet (60 m) south of the radiochemistry laboratory construction; the nearest residences are located approximately 395 feet (120 m) northeast of the radiochemistry laboratory construction.
- Excavation performed for the Stepan Company and Sears railspurs slope cutbacks at the MISS. This action was undertaken primarily to enhance worker safety during soil load-outs by reducing the slope of the ground adjacent to both of the railspurs. This activity involved the excavation of approximately 5,992 tons of soil, which was placed into tucks for transport to the fabric structure at the MISS. The nearest commercial buildings / residences are located approximately 330 feet (100 m) west of the railspur slope cutbacks at the MISS.
- The installation of a new sewer line extending from the Stepan Company property (between Buildings Nos. 4 and 67 adjacent to the stack for the boiler plant) along the access road to the grinder pump manhole (located just past the security gate for the MISS) and then to the proposed radiochemistry laboratory foundation. Obstructions in the sewer line had resulted in septic conditions in the up-gradient portions of the sewer line; thus, a new sewer line was deemed

necessary. This action involved the excavation of approximately 100 tons of soil, which was loaded into trucks for transport to the fabric structure at the MISS. The nearest commercial receptors are located approximately 50 feet (15 m) south-southwest of the new sewer line installation; the nearest residences are located approximately 460 feet (140 m) northeast of the new sewer line installation.

- The operation of the exhaust system for the soil sample preparation laboratory located in Building No. 76 (see Appendix A, **Figure A-3**). Soil samples collected from the various soil load-outs and construction activities at the MISS as well as the removal actions at the vicinity properties were brought to this laboratory to prepare the samples for radiological analysis. The individual soil samples were dried and then ground before placing the soil into sealed containers. The grinding operations, which generated very small amounts of dust, were performed under a laboratory hood. Air from the exhaust hood is passed through a high efficiency particulate air (HEPA) filter prior to discharge to the ambient air.

The simulated airborne emissions from these potential sources are used by CAP88-PC to estimate the annual dose from airborne particulates to the population within 50 mi (80 km) of the site (see Appendix C). In addition, for user-defined distances from the center of the emission areas, CAP88-PC estimates individual effective dose equivalents in all compass directions. For specific potentially exposed individuals (workers and residents) at known distances and compass directions from the site, the user can determine and compare the calculated effective dose equivalents.

Analyses were performed separately for the various soil load-outs, Cluster No. 1 and Cluster No. 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspurs slope cutbacks at the MISS, and new sewer line installation given the differences in receptor locations most affected by each of these areas. The in situ wind erosion emissions and the exhaust hood emissions were found to be negligible and thus, these sources were not included in the modeling analyses. Where individual receptors are affected by more than one emission source, doses caused by those sources are added. The individual (worker and resident) corresponding to the maximum effective dose equivalent is identified as the hypothetical maximally exposed individual. Because the dose received from airborne emissions is dependent on prevailing wind direction in addition to the proximity to the site, the hypothetical maximally exposed individual is not necessarily the person nearest the site. The model was used to predict the annual effective dose at numerous receptors resulting from the combined impact of the above sources. Although the model determined the annual effective dose at numerous receptors, only the hypothetical maximally exposed resident and worker are discussed in this report.

The individual effective dose equivalents given in the CAP88-PC output are based on the default assumption that the receptor occupies the location 100% of the time (i.e., 24 hours per day, 7 days per week, 52 weeks per year). The occupancy factor of 100%, although conservative, is considered to be appropriate for a resident. To estimate the dose to an employee working normal hours, an occupancy factor of 27% (i.e., 9 hours per day, 5 days per week, 52 weeks per year) is applied to the CAP88-PC result.

The program calculates the effective dose equivalents by combining the inhalation and ingestion intake rates and the air and ground surface concentrations with dose conversion factors, using the weighting factors in "Recommendations of the International Commission on Radiological Protection" (ICRP Publication 26, 1977). CAP88-PC calculates dose to the gonads, breast, lungs, red marrow, thyroid, and endosteum in addition to the 50-year effective dose equivalent. Doses can be tabulated as a function of radionuclide, pathway, location, and organ as shown in the output (see Appendix C, pages 29 – 145) for the CAP88-PC runs.

## 1.5 DETAILED SOURCE DESCRIPTIONS

As discussed in the previous section, the key sources of potential airborne radioactive particulate releases to the atmosphere during the year 2002 were the five soil load-outs, Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspurs slope cutbacks, and installation of the new sewer line. In addition, in situ wind erosion at the MISS and operation of the exhaust system for the sample preparation laboratory in Building No. 76 were potential sources of radioactive particulates. A more comprehensive discussion of the activities performed at the above sources including the soil radiological concentrations and the potential pathways for the airborne release of contaminated particulates is provided below.

### 1.5.1 Soil Load-Outs

During the year 2002, various stockpiles were created that consisted of soil and debris that was transported to the fabric structure at the MISS from: the Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspurs slope cutbacks, new sewer line installation, and Transco gas pipeline repair project. The fabric structure is a 72 feet wide (21.9 m), 100 feet (30.5 m) long, and 24 feet (7.3 m) high truss frame building (see Appendix B, **Figure B-1**). The trusses are made of galvanized steel located 10 feet (3.1 m) apart. The cover is made of a heavy duty, fire rated, rip stop reinforced polyethylene. Each end of the structure has a roll-up fabric door. Placement of the soil stockpiles inside the fabric structure prevented wind erosion and the generation of storm water runoff from the piles. Concrete blocks were placed around the fabric structure to prevent storm water run-on from entering the structure and contacting the piles.

Five soil load-out, transportation, and disposal operations were performed during the year 2002. The first soil load-out commenced on May 16, 2002 and was completed on June 5, 2002. This action involved the load-out of approximately 3,016 tons of soil primarily from the Cluster No. 1 removal action, which was placed into rail cars for transport to Envirocare's Clive, Utah facility for disposal. Each rail car held approximately 70 to 85 cubic yards ($yd^3$) (53.5 to 65.0 $m^3$) of soil. A total of 28 rail cars were utilized to complete the soil load-out

The second soil load-out commenced on June 21, 2002 and was completed on July 18, 2002. This action involved the load-out of approximately 3,187 tons of soil primarily from the Cluster No. 4 removal action, the Transco gas pipeline repair project, and the radiochemistry laboratory foundation excavation, which was placed into rail cars for transport to the Envirocare facility for disposal. Each rail car held 70 to 85 $yd^3$ (53.5 to 65.0 $m^3$) of soil. A total of 30 rail cars were utilized to complete the soil load-out.

The third soil load-out commenced on July 29, 2002 and was completed on August 21, 2002. This action involved the load-out of approximately 3,182 tons of soil, which was placed into rail cars for transport to the Envirocare facility for disposal. This soil originated primarily from the Cluster No. 4 removal action and the radiochemistry laboratory foundation excavation. Each rail car held approximately 70 to 85 $yd^3$ (53.5 to 65.0 $m^3$) of soil. A total of 30 rail cars were used to complete the soil load-out.

The fourth soil load-out commenced on September 6, 2002 and was completed on October 18, 2002. This action involved the load-out of approximately 5,682 tons of soil, which was placed into rail cars for transport to the Envirocare facility for disposal. This soil originated primarily from the Cluster No. 4 removal action, installation of the new sewer line and the Stepan Company and Sears railspurs slope cutbacks. Each rail car held approximately 70 to 85 $yd^3$ (53.5 to 65.0 $m^3$) of soil. A total of 54 rail cars were used to complete the soil load-out.

The fifth soil load-out commenced on November 21, 2002 and was completed on December 12, 2002. This action involved the load-out of approximately 1,379 tons of soil, which was placed into rail cars for transport to the Envirocare facility for disposal. This soil originated primarily from the Cluster No. 4 removal action and installation of the new sewer line. Each rail car held approximately 70 to 85 $yd^3$ (53.5 to 65.0 $m^3$) of soil. A total of 13 rail cars were used to complete the soil load-out.

A front-end loader was used to transport soil from the fabric structure to the storage bins located near the rail car access ramp. The storage bins were sized to hold approximately 80 to 85 $yd^3$ of soil. An excavator was then used to place the soil from the storage bins into rail cars containing liners. The use of a liner ensured that the rail cars complied with U.S. Department of Transportation (DOT) requirements, the waste materials were protected from the elements, the potential loss of soil during shipping was prevented, and potential impacts to the community were minimized. In Appendix B, **Figure B-1** shows various photographs depicting the soil load-out operation.

Prior to loading the soil into each rail car, a composite sample was generated from the soil in the stockpile. Five soil samples were collected from the perimeter of the stockpile. These samples were homogenized into one composite sample and analyzed by gamma spectroscopy for Th, radium (Ra), and uranium (U). The average soil radionuclide concentrations of thorium-232 (Th-232), radium-226 (Ra-226), and uranium-238 (U-238) for the various soil load-outs are shown in **Table 1-1**.

In addition, the soil moisture content was determined for each individual rail car. A portion of the composite sample generated for radiological analysis of each rail car was used to determine the soil moisture content. If the moisture content of the soil was too high, a pre-determined amount of absorbent, based upon the soil moisture content of the soil, was blended into the soil stockpile.

Upon completion of loading, the rail cars were moved eastward down the rail spur, the liner was closed and an outgoing rail car survey performed. Prior to a loaded rail car being shipped off-site for disposal, the proper labels and placards were attached and a radiological release survey performed.

**Table 1-1**
**Year 2002 Soil Load-Outs at the MISS – Average Soil Radionuclide Concentrations**

| Activity | Time Period | Soil (tons) | Th-232 Concentration (pCi/g)[1] | Ra-226 Concentration (pCi/g) | U-238 Concentration (pCi/g) |
|---|---|---|---|---|---|
| Soil Load-out 1 | May 16 – June 5 | 3,016 | 1.58 | 0.68 | 1.56 |
| Soil Load-out 2 | June 21 – July 18 | 3,187 | 5.16 | 0.87 | 2.47 |
| Soil Load-out 3 | July 29 – Aug. 21 | 3,182 | 3.39 | 0.73 | 1.69 |
| Soil Load-out 4 | Sep. 6 – Oct. 18 | 5,682 | 7.4 | 0.9 | 2.2 |
| Soil Load-out 5 | Nov. 21 – Dec. 12 | 1,379 | 7.29 | 1.43 | 2.38 |

Note: 1. (pCi/g) = picocuries per gram

## 1.5.2 Cluster No. 1 Removal Action

Cluster No. 1 is comprised of two lots within the Borough of Lodi: Block 164, Lots 1 (72 Sidney Street) and 5 (88 Money Street). The cluster is bounded by New Jersey State Highway 46 to the south, Money Street to the west, Sidney Street to the north, and a commercial building to the east. The property is a topographically flat vacant lot of approximately half an acre (0.20 hectare), bordered by asphalt and a chain link fence.

The surface of Cluster No. 1 had scattered crushed stone, asphalt and concrete with patches of weeds and bare soil. Previously, the property was utilized by Schenck Chevrolet, a used car dealership, as a parking area for their stock. A Sanborn map search revealed that the property was the site of a gas station in the 1950s.

Over the years, radiologically contaminated soil from the former MCW was transported downstream to the Cluster No. 1 properties via an open channel (i.e., Lodi Brook). After time, the open channel was diverted into a culvert that channels the Lodi Brook and local storm water to the Saddle River. During the installation of the culvert at the Cluster No. 1 properties, the contamination was spread unknowingly when the contaminated soil was used as backfill. In addition, residents were known to use the process waste generated by the former MCW as fill material. These were the major mechanisms for the distribution of radiologically impacted materials to off-site properties such as Cluster No. 1.

Remediation activities for Cluster No. 1 commenced in early January 2002 and were completed in mid March 2002. This action involved the excavation of approximately 3,016 tons of soil during the year 2002, which was loaded into roll-off containers / trucks for transport to the MISS. An excavator was used to remove and load the soil into lined dump trucks. The containers / dump trucks were covered with a tarp before proceeding to the MISS. Upon arrival at the MISS, the containers / trucks were emptied and the soil stockpiled using a front-end loader before placement into the fabric structure. At both Cluster No. 1 and at the MISS, water sprays were used for dust suppression. In Appendix B, **Figure B-2** shows selected photographs of the Cluster No. 1 removal action.

The average soil radionuclide concentrations for the excavated soil were determined from sampling that was conducted for the Cluster No. 1 soil load-out at the MISS. Composite samples were collected from the railcar soil stockpiles prior to loading. These samples were analyzed by gamma spectroscopy for Th, Ra, and U. The average radionuclide concentrations of Th-232, Ra-226, and U-238 for the Cluster No. 1 soil were 1.58, 0.68, and 1.56 picocuries per gram (pCi/g), respectively.

### 1.5.3 Cluster No. 4 Removal Action

Cluster No. 4 consists of four properties located within the Borough of Lodi. The properties at 160 and 174 Essex Street are collectively called Property No. 04A and a portion of Interstate 80 Westbound (I-80W) right-of-way (ROW) is called Property No. 04B. In addition, the property at 150 Essex Street was subsequently incorporated into Cluster No. 4.

Property No. 04A consists of Block 186.01, Lot 1 (174 Essex Street) and Block 174, Lot 1.02 (160 Essex Street), located in a commercial area in the Borough of Lodi. The two parcels, which occupy an area of approximately 3.1 acres, were purchased by the Bank of New York in 1994. The property at 160 Essex Street is a partially paved parking lot located adjacent to and west of 174 Essex Street.

A chain link fence separates the two properties. A single story stucco office building (approximately 23,000 $ft^2$ or 2,137 $m^2$) is centrally located at 174 Essex Street. Most of the property surrounding the office building is paved. There is also a smaller storage building (approximately 2,500 $ft^2$ or 232 $m^2$) in the southern corner of 174 Essex Street. A Military Reserve Facility lies to the east of 174 Essex Street.

A commercial building and the I-80W ROW are west of 160 Essex Street. The I-80W ROW also runs south of 160 and 174 Essex Street.

Property No. 04B is located on the north side of I-80W in Lodi, New Jersey. The site is partly paved, and is approximately 1.2 acres (0.5 hectare) in size. Property No. 04A is located to the east. Several commercial properties on Essex Street are located north of the I-80W ROW. The I-80 Eastbound (I-80E) ROW is located to the south.

Although not originally included in Cluster No.4, the property at 150 Essex Street was added since radiological contamination was found to extend into this lot during the remediation of the adjacent property (160 Essex Street). This property includes a single-story building owned by the Bank of New York and a parking area. The I-80W ROW is located to the south.

Over the years, radiologically contaminated soil from the former MCW was transported downstream to the Cluster No. 4 properties via an open channel (i.e., Lodi Brook). After time, the open channel was diverted into a culvert that channels the Lodi Brook and local stormwater to the Saddle River. During the installation of the culvert at Cluster No. 4 properties, the contamination was spread unknowingly when the contaminated soil was used as backfill. In addition, residents were known to use the process waste generated by the former MCW as fill material. These were the major mechanisms for the distribution of radiologically impacted materials to off-site properties such as Cluster No. 4.

Site preparation activities at Cluster No. 4 began in May 2002. Remediation activities for Cluster No. 4 commenced in July 2002 and continued throughout the remainder of the year. An excavator was used to remove and load the soil into lined dump trucks. The dump trucks were covered with a tarp before proceeding to the MISS. Upon arrival at the MISS, the trucks were emptied and soil stockpiled using a front-end loader before placement into the fabric structure. At both the Cluster No. 4 properties and at the MISS, water sprays were used for dust suppression.

A total of approximately 5,232 tons of soil was excavated and transported by truck to the MISS for subsequent disposal during the year 2002. Approximately 5,025 tons of soil were excavated from the 160 Essex Street property and adjacent I-80W ROW. In addition, a small excavation of approximately 5 tons occurred at 174 Essex Street.

Three areas of excavation occurred at 150 Essex Street. One area of excavation was the adjacent area of I-80W ROW from which approximately 11.5 tons of soil was removed. The second area was part of the 150 Essex Street property and involved the excavation of approximately 141 tons of soil. The third area included part of 150 Essex Street and I-80W ROW from which approximately 49.5 tons of soil was removed. In Appendix B, **Figure B-3** shows selected photographs of the Cluster No. 4 removal action.

The average soil radionuclide concentrations for the excavated soil were determined from sampling that was conducted during the various load-outs at the MISS that included Cluster No. 4 soil. Composite samples were collected from the railcar soil stockpiles prior to loading. These samples were analyzed by gamma spectroscopy for Th, Ra, and U. The average radionuclide concentrations of Th-232, Ra-226, and U-238 obtained from the applicable soil load-outs were 4.75, 0.89, and 1.84 pCi/g, respectively.

### 1.5.4 Radiochemistry Laboratory Foundation Excavation

The construction of a radiochemistry laboratory at the MISS for the processing and radiological analysis of soil samples generated by remediation activities at the MISS and the surrounding vicinity properties was begun in 2002. Specifically, site preparation for the installation of the radiochemistry laboratory foundation began in June 2002 and was completed during August 2002. This work consisted of the removal of contaminated soil and the placement of “clean” structural backfill to support the foundation of the proposed laboratory.

Although the footprint of the proposed radiochemistry laboratory is approximately 40 by 40 feet (12 by 12 m), excavation was performed for an area approximately 106 feet (32 m) in width, 100 feet (30 m) in length and down to a maximum of approximately 11 feet (3.4 m) below the ground surface. The excavated area included additional soil removal to provide a protective buffer around the proposed laboratory structure for future excavation and remediation of the surrounding areas. A depth of 11 feet (3.4 m) was selected to ensure that suitable sub-grade materials are present and adequate compaction for the laboratory foundation can be achieved.

The soil was removed using an excavator and then stockpiled on the ground adjacent to the laboratory footprint. A front-end loader was used to transport approximately 2,205 tons of stockpiled soil to the fabric structure at the MISS for storage. In Appendix B, **Figure B-4** shows selected photographs of the site preparation for the radiochemistry laboratory foundation.

Soil samples were collected and radiological analyses performed for the soil generated by the laboratory foundation excavation. Specifically, composite soil samples were collected and analyzed by gamma spectroscopy for Th, Ra, and U. The average soil radionuclide concentrations of Th-232, Ra-226, and U-238 for the radiochemistry laboratory foundation excavation were 3.43, 1.35, and 1.77 pCi/g, respectively.

### 1.5.5 Stepan Company and Sears Railspurs Slope Cutbacks at the MISS

The Stepan Company and Sears railspurs traverse the MISS and are utilized for the various soil load-outs that are performed for the off-site disposal of the radiologically contaminated soils generated at the MISS and the vicinity properties (see Appendix A, **Figure A-3**). A project was undertaken and completed in September 2002 to reduce the slope of the embankment supporting the rail tracks primarily to enhance worker safety and to facilitate worker access to the rail cars during the soil load-outs.

The Stepan Company railspur slope cutback commenced at the track switch adjacent to NJ Route 17 and extended approximately 260 feet (79 m) to the soil load-out bins located on the north side of the tracks. On the south side of the Stepan Company railspur, the slope cutback extended approximately 340 feet (103.7 m). On each side of the tracks, the slopes were cutback over an approximate distance of 10 feet (3 m).

The Sears railspur slope cutback also started at the track switch adjacent to NJ Route 17 and extended approximately 500 feet (152.4 m). On each side of the tracks, the slopes were cutback over an approximate distance of 10 feet (3 m).

An excavator was utilized to cutback the slopes of the railspurs. The excavated soil was placed directly into a truck and transported to the fabric structure at the MISS. This action involved the excavation and transport of approximately 5,992 tons of soil. In Appendix B, **Figure B-5** shows selected photographs of the Stepan Company and Sears railspurs slope cutbacks.

Soil samples were collected and radiological analyses performed for the soil generated by the Stepan Company and Sears railspurs slope cutbacks. Specifically, composite soil samples were collected and analyzed by gamma spectroscopy for Th, Ra, and U. The average soil radionuclide concentrations of Th-232, Ra-226, and U-238 from the railspur slope cutbacks excavation were 68.69, 9.66, and 12.72 pCi/g, respectively.

### 1.5.6 Sewer Line Installation

Obstructions in the sewer line extending through the MISS had resulted in septic conditions in the up-gradient portions of the sewer line. An agreement was reached between the USACE and the Stepan Company to install a grinder pump system that will adequately manage wastewater from the FMSS bathroom trailers and Stepan Company's Building No. 78, the two primary sources of wastewater into this branch of the sewer line. The installation of the new sewer line and grinder pump manhole began in late September 2002 and was completed in October 2002.

The new sewer line extends from the Stepan Company property (between Buildings No. 4 and No. 67 at the base of the stack for the boiler plant) along the access road to the grinder pump manhole (located just past the security gate for the MISS) and then to the proposed radiochemistry laboratory foundation. Installation of the sewer line and grinder pump manhole involved the excavation of a trench approximately 310 feet (94.5 m) in length, 2.5 feet (0.8 m) in width, and 3.5 feet (1.1 m) in depth.

An excavator was used to dig the trench. The excavated soil was placed directly into a truck for transport to the fabric structure at the MISS. This action involved the excavation and transport of approximately 100 tons of soil. In Appendix B, **Figure B-6** shows selected photographs of the new sewer line installation.

Soil samples were collected and radiological analyses performed for the soil generated by the sewer line / grinder pump manhole. Specifically, composite soil samples were collected and analyzed by gamma spectroscopy for Th, Ra, and U. The average soil radionuclide concentrations of Th-232, Ra-226, and U-238 from the sewer line excavation were 41.09, 7.14, and 6.32 pCi/g, respectively.

### 1.5.7 In Situ Wind Erosion

The MISS and adjacent Stepan Company property (within the MISS fence line) consists of approximately 635,000 $ft^2$ (59,000 $m^2$) of contaminated areas that were potentially exposed to wind erosion throughout the year 2002. The surface characteristics of the northern portion of the MISS (north of the Stepan Company rail spur) did not change significantly during the year 2002.

The amount of bare soil present at the MISS, which has the greatest wind erosion potential, has decreased considerably from past years due to the placement of gravel / stone and a plastic liner over much of the area as well as the installation of a fabric structure for storage. At present, the approximate breakdown of the types of various surfaces found at the MISS and adjacent Stepan Company property (see Appendix A, **Figure A-3**) is the following: bare soil is 54,000 $ft^2$ (5,000 $m^2$), vegetation is 245,000 $ft^2$ (22,760 $m^2$), gravel / stone is 238,000 $ft^2$ (22,110 $m^2$), water basin is 8,000 $ft^2$ (740 $m^2$) and asphalt is 90,000 $ft^2$ (835 $m^2$).

Other than for bare soil, the wind erosion potential for the other surfaces at the MISS is negligible. It should be noted that any storage piles created as a result of construction activities or removal actions were covered with tarps and sandbags to prevent wind erosion. In addition, best management practices such as spraying water on dry soil were used during the year to reduce the potential for wind erosion. The wind erosion potential of radiologically contaminated particulates at the vicinity properties is minimal since significant ground cover is generally present and primarily subsurface contamination exists at these locations.

In order to assess the amount of wind erosion that occurred during the year 2002 at the MISS, it is necessary to determine the fastest 2-minute wind speeds over the course of the year and then compare them to the friction velocity most representative of bare soil as defined in EPA's AP-42 publication (Industrial Wind Erosion). The fastest 2-minute wind speed is the highest observed wind speed over a 2-minute averaging period as compared to a peak gust with an averaging time of a few seconds. The fastest 2-minute wind speed is typically on the order of 30 mph, while a peak gust can be 60 mph or more. The threshold friction velocity is that wind speed just above ground level that is capable of causing erodible particles to become airborne.

As mentioned previously, meteorological data from nearby Teterboro Airport was used to represent conditions at the MISS. The results of this analysis showed that the fastest 2-minute wind speeds obtained from Teterboro Airport for the year 2002 do not result in the threshold friction velocity being exceeded at any time during the year. The fastest 2-minute wind speed at 20 feet above ground level would need to be 41 mph or greater to exceed the threshold friction velocity while the highest observed value was 36 mph. Thus, by definition, no in situ wind erosion occurred at the MISS during the year 2002.

### 1.5.8 System Exhaust for Soil Sample Preparation Laboratory

The soil sample preparation laboratory is located in Building No. 76 (see Appendix A, **Figure A-3**). Soil samples collected for the various soil load-outs, Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspurs slope cutbacks at the MISS, and new sewer line installation were taken to this laboratory to prepare them for radiological analysis. Each sample was dried thoroughly to minimize the moisture content and then ground to create a homogeneous mixture. The presence of moisture, rocks, or void spaces in the prepared sample could lead to inaccurate radioanalytical laboratory results.

The laboratory operates two electric ovens to dry the samples. These ovens are vented directly to the main laboratory fume hood for the removal of waste heat. The grinding of the soil samples is performed in a bench grinder positioned under the main laboratory fume hood. Each soil sample is weighed before and after the grinding process. The grinding of the individual soil samples produces minimal particulate emissions as detailed below.

The fume hood operates anytime that the ovens or grinder are operational. Dust generated by the grinding process is collected by the fume hood and passed through a HEPA filter with a 99.97% removal efficiency before being discharged to the outside air. In Appendix B, **Figure B-7** shows selected photographs depicting operations at the soil sample preparation laboratory.

Approximately 1,200 “tuna can” style soil samples were prepared for radiological analysis from January 15 to December 17, 2002. The total time that grinding was performed during soil sample preparation was approximately 108 hours. The average weight of the soil samples prior to grinding was 332.1 grams (g). The average weight of the soil samples after grinding was 290.2 g. Thus, the average amount of “unrecovered” dried soil during the grinding process was approximately 42 g. At least 75% (31.5 g) of the “unrecovered” mass was subsequently recovered from the remaining soil not used to fill the “tuna can” and during the grinder decontamination process with no more than 25% (10.5 g) entering the hood ventilation system as particulate emissions.

Based on the above, the total amount of particulate emissions generated during the preparation of all the soil samples was approximately 12,600 g. However, after passage through the HEPA filter, the particulate emissions discharged to the outside air was less than 4 g; a miniscule amount compared to the total amount of particulates (6,067 g) that were emitted to the atmosphere from the other sources. The discharge of this miniscule amount of contaminated particulate to the atmosphere would have a negligible impact on the off-site radiological exposure; therefore, this source was not included in the CAP88-PC modeling analyses.

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# 2.0 AIR EMISSIONS DATA

The potential radionuclide particulate emission sources and controls for the year 2002 are summarized in **Table 2-1**.

**Table 2-1**
**Description of Radionuclide Particulate Emissions Sources**

| Point Sources | Type Control | Efficiency |
|---|---|---|
| Soil Sample Preparation Laboratory | HEPA Filter | 99.97% |
| **Non-Point Sources** | **Type Controls** | **Efficiency** |
| In situ soil | Gravel / Stone<br>Vegetative Cover<br>Bare Soil | 99%<br>99%<br>0% |
| Soil Load-outs | Water sprays for dust suppression. Use of lined rail cars to prevent soil loss. | No credit taken for dust controls |
| Cluster Nos. 1 and 4 Removal Actions | Water sprays for dust suppression. Use of lined containers / dump trucks with tarps when transporting soil to the fabric structure at the MISS. | No credit taken for dust controls |
| Radiochemistry Laboratory Foundation Excavation | Water sprays for dust suppression. | No credit taken for dust controls |
| Stepan Company and Sears Railspurs Slope Cutbacks | Water sprays for dust suppression. Use of lined dump trucks with tarps when transporting soil to the fabric structure at the MISS. | No credit taken for dust controls |
| Sewer Line / Grinder Pump Manhole Installation | Water Sprays for Dust Suppression. Use of lined dump trucks with tarps when transporting soil to the fabric structure at the MISS. | No credit taken for dust controls |

Radionuclide emission rates are based on the particulate release rates and average radionuclide source concentrations determined from sample measurements. The radioactive particulate release rates from in situ wind erosion, various soil load-outs, Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspurs slope cutbacks at the MISS, and new sewer line installation are calculated using EPA's Compilation of Air Pollutant Emission Factors – Volume 1: Stationary Point and Area Sources known as AP-42.

Source concentration for isotopes of Th-232, Ra-226, and U-238 are based on average values determined for the excavated soils resulting from the various soil load-outs, Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspurs slope cutbacks at the MISS, and new sewer line installation. Unknown radionuclide source concentrations are based on the known source concentrations assuming secular equilibrium in the decay chains. The radionuclide emissions for the year 2002 from each of the above emission sources, with the exception of the soil sample preparation laboratory, are shown in **Table 2-2**.

## Table 2-2
## Year 2002 – Airborne Radionuclide Emissions from Various Source Operations (Ci/yr)[1, 2]

| Source Radionuclides | In Situ Soil[3] | Soil Load-Outs | Cluster No. 1 Removal Action | Cluster No. 4 Removal Action | Rad. Lab. Site Work Excavation | Railspurs Slope Cutback | New Sewer Line Excavation |
|---|---|---|---|---|---|---|---|
| U-238 | 0 | 9.62E-09 | 4.02E-10 | 6.86E-10 | 5.56E-10 | 5.43E-09 | 4.50E-11 |
| Th-234 | 0 | 9.62E-09 | 4.02E-10 | 6.86E-10 | 5.56E-10 | 5.43E-09 | 4.50E-11 |
| Pa-234m | 0 | 9.62E-09 | 4.02E-10 | 6.86E-10 | 5.56E-10 | 5.43E-09 | 4.50E-11 |
| Pa-234 | 0 | 1.25E-11 | 5.23E-13 | 8.92E-13 | 7.23E-13 | 7.06E-12 | 5.86E-14 |
| U-234 | 0 | 1.03E-08 | 4.30E-10 | 7.34E-10 | 5.95E-10 | 5.81E-09 | 4.82E-11 |
| Th-230 | 0 | 1.03E-08 | 4.30E-10 | 7.34E-10 | 5.95E-10 | 5.81E-09 | 4.82E-11 |
| Ra-226 | 0 | 6.41E-09 | 1.75E-10 | 3.32E-10 | 4.24E-10 | 4.13E-09 | 5.09E-11 |
| Po-218 | 0 | 6.41E-09 | 1.75E-10 | 3.32E-10 | 4.24E-10 | 4.13E-09 | 5.09E-11 |
| Pb-214 | 0 | 4.06E-09 | 1.75E-10 | 3.32E-10 | 4.24E-10 | 4.12E-09 | 5.09E-11 |
| Bi-214 | 0 | 4.06E-09 | 1.75E-10 | 3.32E-10 | 4.24E-10 | 4.13E-09 | 5.09E-11 |
| Po-214 | 0 | 4.06E-09 | 1.75E-10 | 3.32E-10 | 4.24E-10 | 4.12E-09 | 5.09E-11 |
| Pb-210 | 0 | 4.06E-09 | 1.75E-10 | 3.32E-10 | 4.24E-10 | 4.13E-09 | 5.09E-11 |
| Bi-210 | 0 | 4.06E-09 | 1.75E-10 | 3.32E-10 | 4.24E-10 | 4.13E-09 | 5.09E-11 |
| Po-210 | 0 | 4.06E-09 | 1.75E-10 | 3.32E-10 | 4.24E-10 | 4.13E-09 | 5.09E-11 |
| U-235 | 0 | 4.50E-10 | 1.88E-11 | 3.21E-11 | 2.60E-11 | 2.54E-10 | 2.11E-12 |
| Th-231 | 0 | 4.50E-10 | 1.88E-11 | 3.21E-11 | 2.60E-11 | 2.54E-10 | 2.11E-12 |
| Pa-231 | 0 | 4.50E-10 | 1.88E-11 | 3.21E-11 | 2.60E-11 | 2.54E-10 | 2.11E-12 |
| Ac-227 | 0 | 4.50E-10 | 1.88E-11 | 3.21E-11 | 2.60E-11 | 2.54E-10 | 2.11E-12 |
| Th-227 | 0 | 4.44E-10 | 1.86E-11 | 3.17E-11 | 2.57E-11 | 2.51E-10 | 2.08E-12 |
| Fr-223 | 0 | 6.21E-12 | 2.60E-13 | 4.43E-13 | 3.59E-13 | 3.51E-12 | 2.91E-14 |
| Ra-223 | 0 | 4.50E-10 | 1.88E-11 | 3.21E-11 | 2.60E-11 | 2.54E-10 | 2.11E-12 |
| Po-215 | 0 | 4.50E-10 | 1.88E-11 | 3.21E-11 | 2.60E-11 | 2.54E-10 | 2.11E-12 |
| Pb-211 | 0 | 4.50E-10 | 1.88E-11 | 3.21E-11 | 2.60E-11 | 2.54E-10 | 2.11E-12 |
| Bi-211 | 0 | 4.50E-10 | 1.88E-11 | 3.21E-11 | 2.60E-11 | 2.54E-10 | 2.11E-12 |
| Po-211 | 0 | 1.23E-12 | 5.14E-14 | 8.77E-14 | 7.11E-14 | 6.94E-13 | 5.76E-15 |
| Tl-207 | 0 | 4.49E-10 | 1.88E-11 | 3.20E-11 | 2.60E-11 | 2.54E-10 | 2.10E-12 |
| Th-232 | 0 | 2.40E-08 | 4.07E-10 | 1.77E-09 | 1.08E-09 | 2.93E-08 | 2.93E-10 |
| Ra-228 | 0 | 2.40E-08 | 4.07E-10 | 1.77E-09 | 1.08E-09 | 2.93E-08 | 2.93E-10 |
| Ac-228 | 0 | 2.40E-08 | 4.07E-10 | 1.77E-09 | 1.08E-09 | 2.93E-08 | 2.93E-10 |
| Th-228 | 0 | 2.40E-08 | 4.07E-10 | 1.77E-09 | 1.08E-09 | 2.93E-08 | 2.93E-10 |
| Ra-224 | 0 | 2.40E-08 | 4.07E-10 | 1.77E-09 | 1.08E-09 | 2.93E-08 | 2.93E-10 |
| Po-216 | 0 | 2.40E-08 | 4.07E-10 | 1.77E-09 | 1.08E-09 | 2.93E-08 | 2.93E-10 |
| Pb-212 | 0 | 2.40E-08 | 4.07E-10 | 1.77E-09 | 1.08E-09 | 2.93E-08 | 2.93E-10 |
| Bi-212 | 0 | 2.40E-08 | 4.07E-10 | 1.77E-09 | 1.08E-09 | 2.93E-08 | 2.93E-10 |
| Po-212 | 0 | 1.54E-08 | 2.61E-10 | 1.13E-09 | 6.91E-10 | 1.88E-08 | 1.88E-10 |
| Tl-208 | 0 | 8.61E-09 | 1.46E-10 | 6.36E-10 | 3.87E-10 | 1.05E-08 | 1.05E-10 |

Notes:
1. Ci/yr = curies per year.
2. Soil sample preparation laboratory is not considered a source due to the miniscule amount of particulates released to the atmosphere.
3. The in situ soil emissions are zero as the fastest 2-min wind speeds at Teterboro Airport for the year 2002 do not result in the threshold friction velocity being exceeded at any time.

# 3.0 DOSE ASSESSMENTS

## 3.1 DESCRIPTION OF DOSE MODEL

The effective dose equivalent for the collective population and for the hypothetical maximally exposed individual were calculated in a two-step process. The first step was to model the release of particulates from the site using the methodology given in the EPA's "Estimation of Air Impacts from Area Sources of Particulate Matter Emissions at Superfund Sites" (EPA-451/R-93-004). Particulate emissions were determined based on the number of times the soil was disturbed (e.g., excavated, stockpiled, loaded into trucks / containers / rail cars, unloaded, moved) at both the source and at the MISS. The second step was to input these particulate release rates, along with local population and meteorological data, into the CAP88-PC program (EPA 402-B-92-001).

The model was used to predict the annual effective dose at numerous receptors resulting from the combined impacts of radiologically contaminated particulate emissions from the various soil load-outs, Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspurs slope cutbacks, and new sewer line installation. Although the emission of radon (Rn) gas is not considered in this analysis, the daughters of Rn gas generated by the decay of Ra-226 in dust off-site is accounted for by the model in the computation of the effective dose equivalents for the various internal and external exposure pathways.

The CAP88-PC model uses a modified Gaussian plume equation to estimate the average dispersion of radionuclides released from a site. Assessments are done for a circular grid of distances and directions for a radius of 50 mi (80 km) around the site. The program computes radionuclide concentrations in air, rates of deposition on ground surfaces, concentrations in food, and intake rates to people from ingestion of food produced in the assessment area.

By coupling the output of the atmospheric transport models with the terrestrial food chain models from the U.S. Nuclear Regulatory Commission Regulatory Guide 1.109 ("Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I"), the program estimates the radionuclide concentrations in produce, leafy vegetables, milk, and meat consumed by humans. The population distribution array used in the computer model was calculated from known land uses surrounding the site and year 2000 census figures.

CAP88-PC also uses a modified version of DARTAB (ORNL5692) and a database of dose and risk factors generated by RADRISK (ORNL7105 and ORNL7745) for estimating dose and risk. Dose and risk factors are provided for the pathways of: ingestion and inhalation intake; ground level immersion; and ground surface irradiation. For assessments where Rn-222 decay products are not considered, the dose estimates are made by combining the inhalation and ingestion intake rates as well as the air and ground surface concentrations with the appropriate dose conversion factors.

## 3.2 SUMMARY OF INPUT PARAMETERS

- Average Annual Temperature for year 2002: 55.2°F (12.9°C)
- Total Annual Precipitation for year 2002: 44.1 in. (112.0 cm)
- Wind Speed and Direction: Teterboro Airport, NJ STAR Data (1989-1999)
- Population Distribution: calculated from the year 2000 census data
- Annual Radionuclide Emission Rates (see **Table 2-2**)

- Surface areas of Emission Points
- Distances to Individual Resident and Worker Receptor Locations

## 3.3 COMPLIANCE ASSESSMENT

The maximum annual effective dose to residents and workers resulting from each of the key sources during the year 2002 (various soil load-outs, Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears railspurs slope cutbacks, and new sewer line installation) as determined by the CAP88-PC modeling analyses are shown in **Table 3-1**. The annual effective dose to the maximally exposed resident and worker, as well as the collective population dose, resulting from total site activities during the year 2002 are the following:

- Resident located 344 feet (105 m) WSW of the MISS (100% occupancy): $4.75 \times 10^{-6}$ millisievert per year (mSv/yr) or $4.75 \times 10^{-4}$ mrem/yr
- Employee located 525 feet (160 m) N of the MISS (27% occupancy): $1.63 \times 10^{-6}$ mSv/yr ($1.63 \times 10^{-4}$ mrem/yr)
- Annual effective dose to the public within 50 mi (80 km) of the MISS: $2.64 \times 10^{-3}$ person-rem/year

Although exposures from other directions and distances may be reported in the model output, only those directions/distances corresponding to a potential receptor are reported here. All calculated exposures were on a similar order of magnitude of those reported above (much less than 1 mrem/yr).

The maximum annual effective dose to the residents and workers are well below the Subpart H NESHAP standard of 10 mrem/yr (40 CFR 61.92). The maximum annual effective doses are almost entirely the result of the internal doses received from the inhalation of dust particles with a small contribution from the ingestion of plant borne dust. Air immersion in the dust plume and ground surface irradiation contribute a negligible amount to the total dose.

## Table 3-1
## Maximum Annual Effective Dose Equivalents

| Source | Location of Maximum Impact[1] | Annual Dose Rate (mrem/yr) | Occupancy Factor (%) | Annual Effective Dose (mrem/yr) |
|---|---|---|---|---|
| MISS Soil Load-outs | | | | |
| • Population (person-rem/yr)[3] | N/A | 1.20E-03 | N/A | 1.20E-03 |
| • Maximally Exposed Resident | 235 m NE | 1.70E-04 | 100 | 1.70E-04 |
| • Maximally Exposed Worker | 160 m N | 3.40E-04 | 27 | 9.18E-05 |
| Cluster No. 1 | | | | |
| • Population (person-rem/yr) | N/A | 2.87E-05 | N/A | 2.87E-05 |
| • Maximally Exposed Resident | 40 m N | 9.50E-05 | 100 | 9.50E-05 |
| • Maximally Exposed Worker | 30 m NE | 1.70E-04 | 27 | 4.59E-05 |
| Cluster No. 4 | | | | |
| • Population (person-rem/yr) | N/A | 8.78E-05 | N/A | 8.78E-05 |
| • Maximally Exposed Resident | 205 m S | 2.20E-05 | 100 | 2.20E-05 |
| • Maximally Exposed Worker | 30 m N | 4.55E-04 | 27 | 1.23E-04 |
| Radiochemistry Lab | | | | |
| • Population (person-rem/yr) | N/A | 5.87E-05 | N/A | 5.87E-05 |
| • Maximally Exposed Resident | 120 m NE | 3.00E-05 | 100 | 3.00E-05 |
| • Maximally Exposed Worker | 60 m S | 1.30E-04 | 27 | 3.51E-05 |
| Rail Spur Slope Cutbacks | | | | |
| • Population (person-rem/yr) | N/A | 1.25E-03 | N/A | 1.25E-03 |
| • Maximally Exposed Resident | 105 m WSW | 3.10E-04 | 100 | 3.10E-04 |
| • Maximally Exposed Worker | 105 m WSW | 3.10E-04 | 27 | 8.37E-05 |
| New Sewer Line | | | | |
| • Population (person-rem/yr) | N/A | 1.22E-05 | N/A | 1.22E-05 |
| • Maximally Exposed Resident | 140 m NE | 5.60E-06 | 100 | 5.60E-06 |
| • Maximally Exposed Worker | 20 m S | 2.20E-04 | 27 | 5.94E-05 |
| Total Site[2] | | | | |
| • Population (person-rem/yr) | N/A | 2.64E-03 | N/A | 2.64E-03 |
| • Maximally Exposed Resident | 105 m WSW | 4.75E-04 | 100 | 4.75E-04 |
| • Maximally Exposed Worker | 160 m N | 6.02E-04 | 27 | 1.63E-04 |

Notes:
1. Although exposures from other directions and distances may be reported in the model output, only those directions/distances corresponding to a potential receptor are reported here. Note: all calculated exposures were on a similar order of magnitude of those reported here (much less than 1 mrem/yr).
2. The total site doses for the maximally exposed resident and worker represent the combined impacts of radiologically contaminated particulate emissions from the various soil load-outs, Cluster Nos. 1 and 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears rail spurs slope cutbacks at the MISS, and new sewer line installation at the specified locations. The location of the "total site" maximally exposed resident is relative to the rail spur slope cutbacks while the "total site" maximally exposed worker location is relative to the MISS soil load-out area.
3. The collective population dose is the total dose received by the public living within 50 mi (80 km) of the MISS.

## 3.4 CERTIFICATION

I certify under penalty of law that I have personally examined, and am familiar with, the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment (see 18 U.S.C. 1001).

Name / Title: ______________________________________________

Signature: ___________________________ Date: ____________

# 4.0 RADON-222 FLUX MONITORING

Rn-222 flux monitoring is typically performed to determine compliance with 40 CFR Part 61, Subpart Q for stockpiles that are present for a significant period of time such as 6 months or greater. Although this was not the case at the MISS during the year 2002, it was decided to perform flux monitoring since the soil is now stored inside a fabric structure instead of in the open air. Furthermore, soil was being stockpiled / loaded-out on a fairly continuous basis during 2002. Thus, it was deemed prudent to perform Rn-222 flux monitoring for the soil stockpiles to assess regulatory compliance.

Rn-222 flux monitoring was performed on November 20-21, 2002 to determine compliance with 40 CFR Part 61, Subpart Q. To determine the Rn flux from the storage pile, charcoal canisters were placed on the stockpile inside the fabric structure at three locations. In addition, charcoal canisters were placed on the ground at both of the entrances / exits to the fabric structure. The Rn-222 flux measurement locations are shown in Appendix A on **Figure A-4**.

The results of the Rn-222 flux monitoring are presented in **Table 4-1**. The Rn-222 concentrations obtained from the flux monitoring were below the minimum detected activity at all of the sampling locations. Thus, the measured concentrations from the storage piles inside the fabric structure were well in compliance with the 20 picocuries per square meter per second (pCi/$m^2$/s) Rn-222 flux standard specified in 40 CFR Part 61, Subpart Q.

**Table 4-1**
**Year 2002 – Rn Flux Monitoring Results for**
**Soil Stockpiles Inside the Fabric Structure at the MISS**

| Sample ID[1] | Date Collected | Date Analyzed | Analyte | Result (pCi/$m^2$/s) | Error (pCi/$m^2$/s) | MDA[2] (pCi/$m^2$/s) |
|---|---|---|---|---|---|---|
| RC-1 | 11/21/02 | 11/22/02 | Rn-222 | 2.98E-02 | 1.84E-02 | 5.14E-02 |
| RC-2 | 11/21/02 | 11/22/02 | Rn-222 | 3.41E-02 | 2.55E-02 | 5.82E-02 |
| RC-3 | 11/21/02 | 11/22/02 | Rn-222 | 2.67E-02 | 2.57E-02 | 5.86E-02 |
| RC-6 | 11/21/02 | 11/22/02 | Rn-222 | 2.99E-02 | 2.83E-02 | 6.57E-02 |
| RC-7 | 11/21/02 | 11/22/02 | Rn-222 | 4.47E-02 | 2.17E-02 | 5.84E-02 |

Notes: 1. All monitoring locations for the storage piles are shown on **Figure A-4**.
2. Minimum Detected Activity (MDA).

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# APPENDIX A
# SELECTED FUSRAP MAYWOOD SUPERFUND SITE MAPS

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# APPENDIX A
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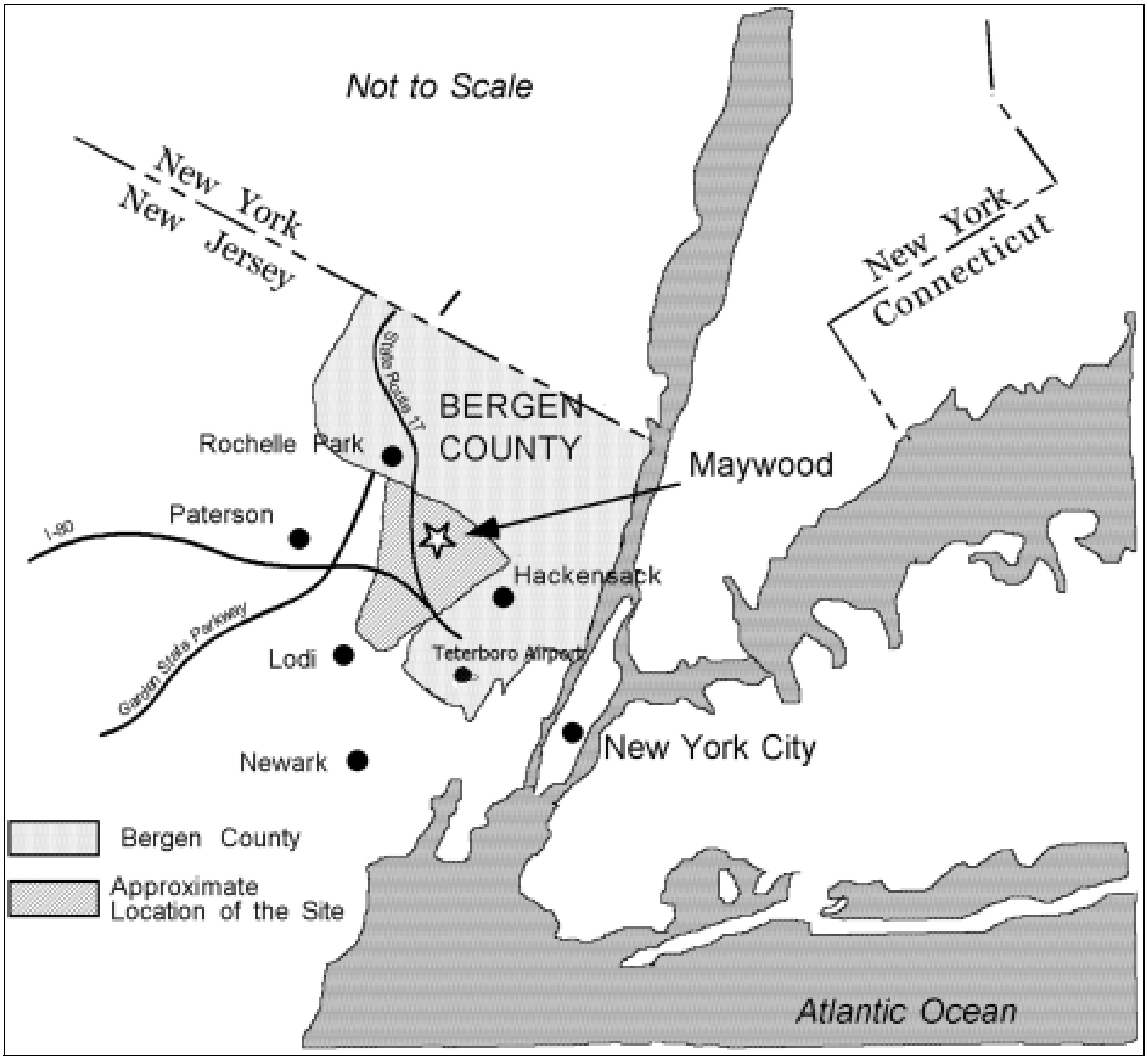


**Figure A-1**
**FMSS and MISS General Location Map**

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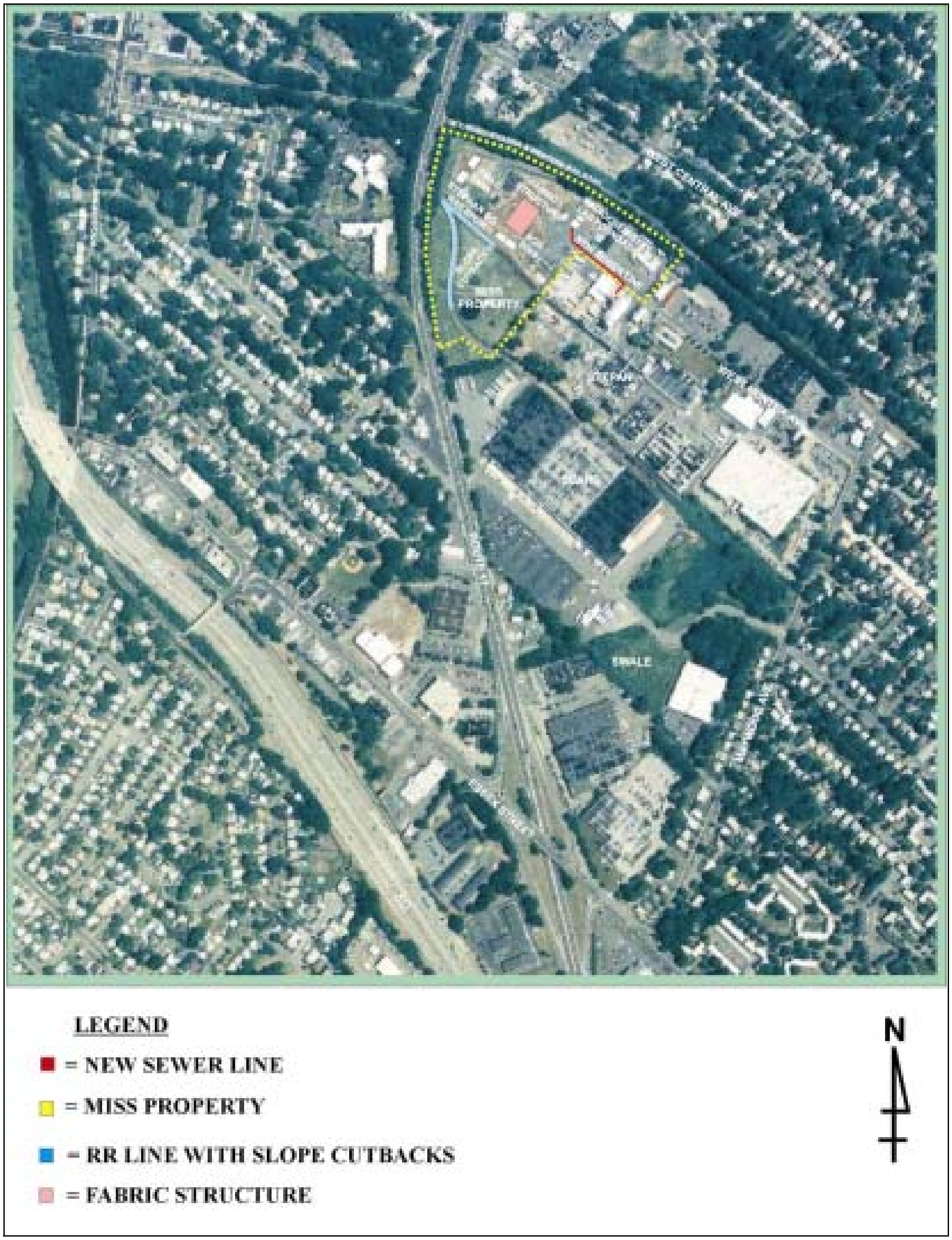


**Figure A-2**
**Aerial View of MISS and Adjacent Properties**

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FUSRAP MAYWOOD SUPERFUND SITE
MAYWOOD, LODI AND ROCHELLE PARK
NEW JERSEY
PROJECT NUMBER: 085750207

FIGURE A-3
SITE LOCATION PLAN

STONE & WEBSTER ENVIRONMENTAL TECHNOLOGY & SERVICES
BOSTON, MASSACHUSETTS

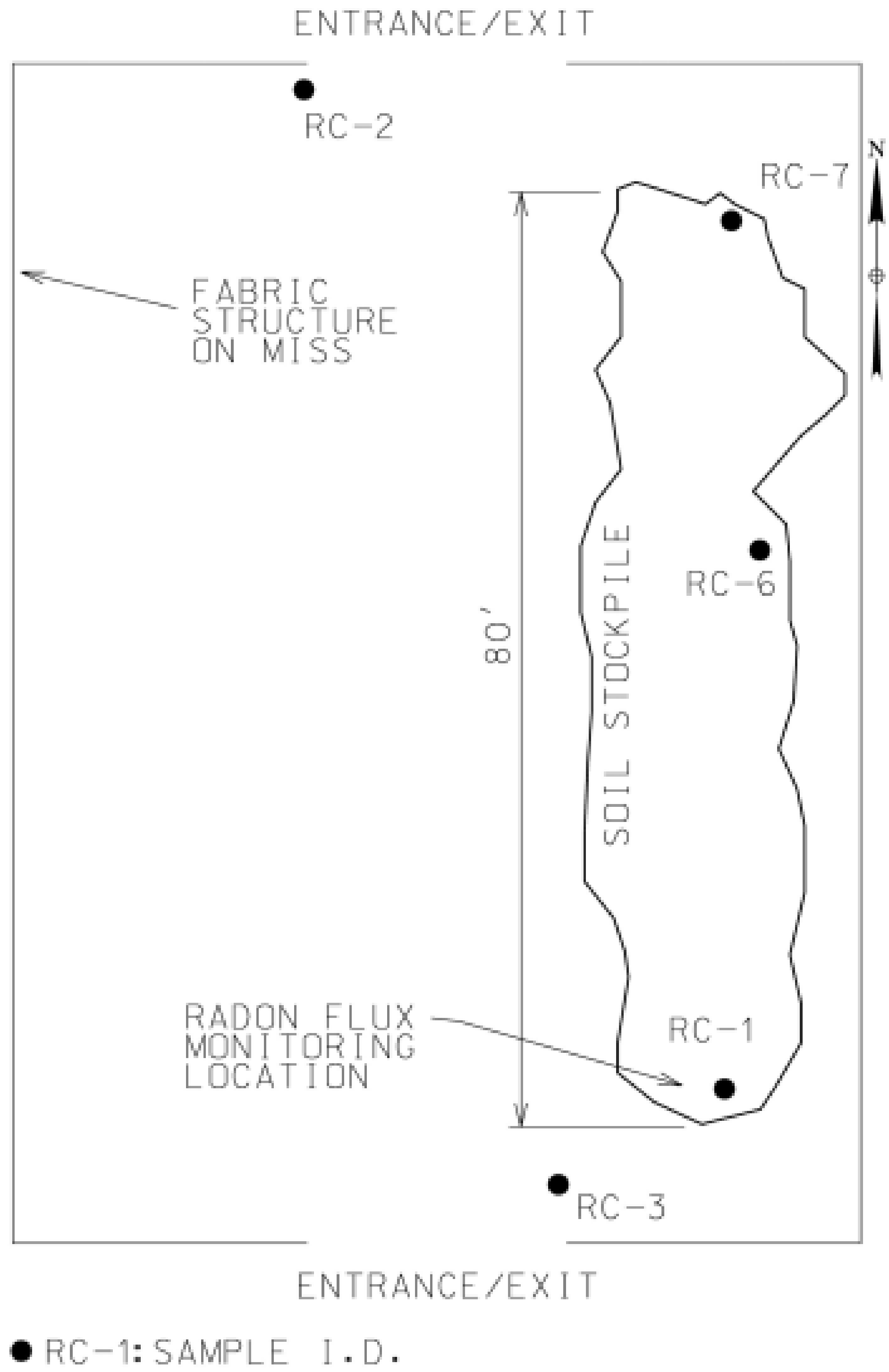


**Figure A-4**
**Location of Radon Flux Monitors inside the Fabric Structure at the MISS**

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# APPENDIX B
# SELECTED PHOTOGRAPHS

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# APPENDIX B
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Soil stockpile stored inside fabric structure at MISS prior to start of load-out activities.

Front-end loader is use to transport soil from inside fabric structure to load-out bins near rail cars.

Excavator removing soil from load-out bins and placing into rail cars. Water spray used for dust control.

Excavators loading soil into rail cars from storage bins for shipment to off-site disposal facility.

View of partially loaded rail car. When full, the liner will be closed and tied to prevent soil loss during shipping.

View of empty fabric structure at MISS after completion of successful soil load-out.

**Figure B-1**
**Soil Load-Out Activities at MISS**

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Excavator removing overburden on culvert. Exposed culvert shown near fence in background.

Looking south toward Rt. 46. Money Street is on the right. Excavator placing soil into roll-off container.

View towards Kennedy Park. Excavation visible adjacent to roll-off container. Soil sampling being performed.

View from Sidney Street. Underground storage tank discovered during excavation at Cluster No. 1.

View from Rte. 46 looking North towards Kennedy Park. The exposed 3'x5' culvert is seen along the right (east).

Bulldozer is backfilling the excavated areas at Cluster No. 1.

**Figure B-2**
**Cluster No. 1 Removal Action**

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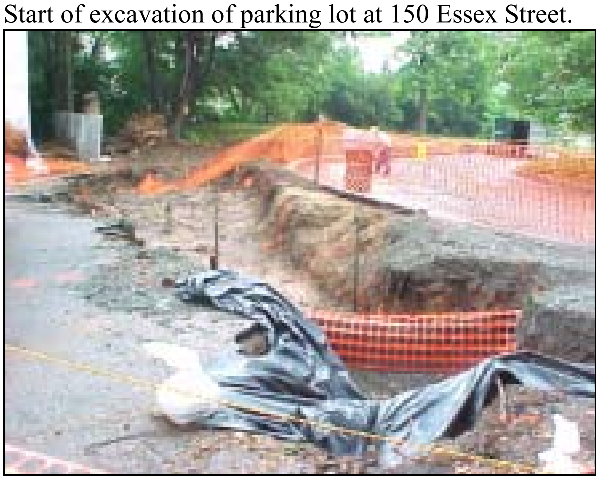
Excavator removing contaminated soil at 160 Essex Street and adjacent I-80 right-of-way.

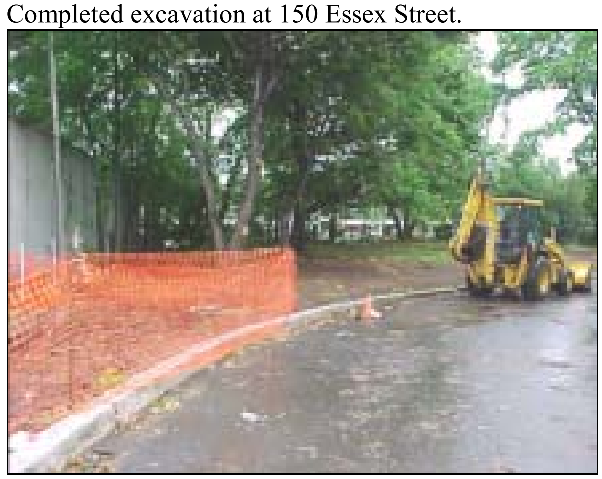
Repositioning loading pad for trucks to continue excavation at 160 Essex Street.

Start of excavation of parking lot at 150 Essex Street.

Completed excavation at 150 Essex Street.



Excavated area along I-80 right-of-way.



View of I-80 right-of-way after completion of the removal action.

**Figure B-3**
**Cluster No. 4 Removal Action**

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Start of excavation. Excavated soil is transported by front-end loader to fabric structure at MISS.

Excavation continues. Water spray was used for dust control.

Excavation revealed the presence of white chalky deposits from former retention pond.

Hay bales were used to reduce storm water run-on and soil erosion during site preparation.

The dimensions of the excavated area was approximately 106 feet in length, 100 feet in width, and 11 feet (max) in depth.

Roller used to compact the “clean” backfill material. Fill material was installed in lifts and compacted.

**Figure B-4**
**Site Preparation for Radiochemistry Laboratory Foundation Excavation**

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Excavator is removing soil to reduce the slope of the embankment for the rail banks along the railspur.


Gamma scans indicated elevated radiological readings for excavated soil generated by slope cutback.


White chalky deposits found in excavated soil for slope cutback similar to material found during lab excavation.


Removing soil along the rail spur for safer access to the cars.

Workers spreading gravel adjacent to the Stepan Company railspur at the MISS. .


View of Sears railspur at the MISS upon completion of slope cutback.

**Figure B-5**
**Stepan Company and Sears Railspurs Slope Cutbacks at the MISS**

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Trench excavation using backhoe between Stepan Company Buildings Nos. 4 and 67 adjacent to the stack.

View of trench looking east toward Stepan Company's Building No. 67. Water spray being used in background.

Front end loader placing "clean" fill in trench. The parking area for the FMSS trailers in the distance.

Laying geo-textile fabric and installing HDPE pipe. The SEC trailer and fabric structure are visible in the distance.

Sewer line entering the security gate at MISS. The grinder pump manhole is located to the left just past gate.

Establishing connection of sewer line to grinder pump manhole at MISS.

**Figure B-6**
**Installation of New Sewer Line and Grinder Pump Manhole**

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Building 76 on MISS – Location of Soil Sample Preparation Laboratory.

Electric ovens are used to dry the soil samples prior to grinding.

Grinding of soil sample is performed under the fume hood, which exhausts to the HEPA filter.

Exhaust fan and HEPA filter in rear of lab. Air monitor is stored in cat carrier for protection from elements.

**Figure B-7**
**Soil Sample Preparation Laboratory**

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# APPENDIX C
# CALCULATIONS

*Note: Appendix C also contains an MS-Excel Spreadsheet on CD-ROM.*

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# STONE & WEBSTER ENGINEERING CORPORATION
## CALCULATION TITLE PAGE

| CLIENT & PROJECT: U.S. ARMY CORPS OF ENGINEERS/FUSRAP-MISS | PAGE 1 of 145<br>Total Pages:<br>w/attachments pages 157 |
|---|---|
| CALCULATION TITLE: MISS 2002 Annual NESHAPS Calculation | QA CATEGORY (✓)<br>☐ I ☐ III<br>☐ II |

| CALCULATION IDENTIFICATION NUMBER | | | | OPTIONAL WORK PACKAGE NO. |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CURRENT CALC NO | OPTIONAL TASK CODE | |
| 610041-0107 | E(B) | 10 | | |

| APPROVALS - SIGNATURE & DATE | | | REVISION NO. OR NEW CALCULATION NO. | SUPERSEDES CALCULATION NO. OR REVISON NO. | CONFIRMATION REQUIRED (✓) | |
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**CALCULATION SHEET**

| CALCULATION IDENTIFICATION NUMBER | | | | |
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| JOB ORDER NO.<br>610041-0107<br>08575.0207 | DISCIPLINE<br>E(B) | CALCULATION NO.<br>10 | REVISION NUMBER<br>0 | PAGE<br>2 OF145 |

## CHANGE HISTORY PAGE

| REVISION NO. | DESCRIPTION OF CHANGES | PAGES REVISED | PAGES ADDED | PAGES REPLACED |
|---|---|---|---|---|
| 0 | N/A | N/A | N/A | N/A |

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## 1. OBJECTIVE

To estimate the annual effective dose to nearby residents and workers from airborne radioactivity releases at the Maywood Interim Storage Site (MISS) and vicinity properties generated during calendar year 2002. The activities generating these releases include: in situ wind erosion; soil load-out operations at the MISS; the removal action at Cluster No. 1; the removal action at Cluster No. 4; excavation for the proposed radiochemistry laboratory foundation at MISS; excavation for the Stepan Company and Sears railspurs slope cutbacks at the MISS; and installation of a new sewer line extending from the Stepan Company property (between Buildings Nos. 4 and 67) to the proposed radiochemistry laboratory foundation at MISS.

## 2. METHODOLOGY

During the calendar year 2002, the potential sources of airborne emissions at MISS and nearby properties were:

1. In situ, contaminated areas totaling approximately 59,000 $m^2$ (635,000 $ft^2$) of MISS and the adjacent Stepan Company property (within the MISS fence line) were potentially exposed to wind erosion during the year 2002;

2. The performance of soil load-out, transportation and disposal operations at the MISS during the year 2002. Specifically, five soil load-out operations were performed during the year 2002. The various soil stockpiles consisted of soil and debris that had been transported to the MISS from the following sources: Cluster No. 1 removal action; Cluster No. 4 removal action; site preparation for installation of the foundation for the proposed radiochemistry laboratory; the Stepan Company and Sears rail spur slope cutbacks at MISS; installation of the new sewer line; and the repair of the Transco gas pipeline. These five actions involved the load-out of approximately 16,446 tons of material which was placed into rail cars for transport to a disposal facility in Utah;

3. The performance of the removal action at Cluster No. 1 which is comprised of two lots within the Borough of Lodi: Block 164, Lots 1 and 5. Over the years, radiologically contaminated soil from the former Maywood Chemical Works was transported downstream via the Lodi Brook to the Cluster No. 1 properties. This remedial action involved the excavation of approximately 3,016 tons of soil which was loaded into roll-off containers for transport by truck to the MISS;

4. The performance of the removal action at Cluster No. 4 which is comprised of three properties within the Borough of Lodi: 160 and 174 Essex Street and Interstate 80 Westbound right-of-way. The property at 150 Essex Street was subsequently added to Cluster No. 4 since contamination was also found at this site. Over the years, radiologically contaminated soil was transported downstream to the Cluster No. 4 properties via the Lodi Brook. This removal action involved the excavation of approximately 5,232 tons of soil which was loaded into trucks for transport to the MISS.

5. Excavation performed as part of the site preparation for the proposed radiochemistry laboratory at the MISS. The work consisted of the removal of contaminated soil and placement of clean structural backfill to support the foundation of the proposed laboratory. Excavation was performed for an area approximately 106 feet in width, 100 feet in length, and down to a maximum depth of approximately 11 feet. Excavated soils were transported to the fabric structure at the MISS for storage and subsequent disposal. This action involved the excavation of approximately 2,205 tons of soil which was transported to the fabric structure at the MISS.

6. Excavation performed for the Stepan Company and Sears rail spur slope cutbacks at the MISS. This action was undertaken primarily to enhance worker safety during soil load-outs by reducing the slope of the ground adjacent to both of the rail spurs. This activity involved the excavation of approximately 5,992 tons of soil which was placed into tucks for transport to the fabric structure at the MISS.

7. The installation of a new sewer line extending from the Stepan Company property (between Buildings No. 4 and No. 67 adjacent to the stack for the boiler plant) along the access road to the grinder pump manhole (located just past the security gate for the MISS) and then to the proposed radiochemistry laboratory foundation. Obstructions in the sewer line had resulted in septic conditions in the up-gradient portions of the sewer line; thus, a new sewer line was deemed necessary. This action involved the excavation of approximately 100 tons of soil which was loaded into trucks for transport to the fabric structure at the MISS.

8. The operation of the exhaust system for the soil sample preparation laboratory located in Building No. 76. Soil samples collected from the various soil load-outs and construction activities at the MISS as well as the removal actions at the vicinity properties were brought to this laboratory to prepare the samples for radiological analysis. The individual soil samples were dried and then ground before placing the soil into sealed containers. The grinding operations, which generated very small amounts of dust, were performed under a laboratory hood. Air from the exhaust hood is passed through a high efficiency particulate air (HEPA) filter prior to discharge to the ambient air.

The calculation is performed using the U.S. Environmental Protection Agency (EPA) Clean Air Act Assessment Package - 1988 (CAP88-PC) model (Ref. 9.1) to estimate air doses to the population and hypothetical maximally exposed individuals. The radioactive particulate release rates from in situ wind erosion and the other load-out and remediation/excavation activities are calculated using EPA's Compilation of Air Pollutant Emission Factors - Volume 1:Stationary Point and Area Sources, also known as AP-42 (Ref. 9.2). The AP-42 expressions used to perform these calculations are provided in the "Equations" section of this calculation. The actual calculations are performed using an Excel spreadsheet, the results of which are provided in Attachment A.

Radionuclide emission rates are based on the particulate release rates and average radionuclide source concentrations based on sample measurements. Source concentrations for isotopes of uranium ($U_{238}$), radium ($Ra_{226}$), and thorium ($Th_{232}$) are based on average values for in situ soil (Ref. 9.7) and average values measured during the load-out and remediation/excavation activities. Unknown radionuclide source concentrations are based on the known source concentrations assuming secular equilibrium in the decay chains (Ref. 9.4).

The CAP88-PC computer model is a set of computer programs, databases, and associated utility programs developed by the EPA for estimation of dose and risk from radionuclide emissions to air. CAP88-PC is used for the purpose of demonstrating compliance with Subpart H of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) as codified in 40 CFR 61.93a. CAP88-PC performs dose and risk assessments for both collective populations and maximally-exposed individuals.

This computer code estimates the annual average dispersion of radionuclides released from up to six sources. The sources may be either elevated stacks or uniform area sources. All sources are modeled as if located at the same point. Uniform contamination is assumed for area sources. Plume rise can be calculated assuming either a momentum or buoyancy driven plume. Assessments are done for a circular grid of distances and directions with a radius of 80 kilometers around the facility. The program computes radionuclide concentrations in air, rates of deposition on ground surfaces, concentrations in food, and intake rates to people from ingestion of food produced in the assessment area.

CAP88-PC uses a modified version of the AIRDOS-EPA (Mo79) program to calculate environmental transport. Plume dispersion is based on the Gaussian plume equation of Pasquill as modified by Gifford, using sector-average concentrations. Plume rise is calculated using either Rupp's equation for momentum dominated plume rise or Briggs equation for buoyancy dominated plume rise. Dry deposition is handled using a proportionality constant applied to the ground-level concentration of the radionuclide and wet deposition is based on a scavenging coefficient related to the rainfall rate. Radionuclides are depleted from the plume by precipitation scavenging, dry deposition, and radioactive decay.

CAP88-PC also uses a modified version of DARTAB (ORNL5692) and a database of dose and risk factors generated by RADRISK (ORNL7105 and ORNL7745) for estimating dose and risk. Dose and risk factors are provided for the pathways of: ingestion and inhalation intake; ground level immersion; and ground surface irradiation. For assessments where Rn-222 decay products are not considered, doses are estimated combining the inhalation and ingestion intake rates as well as the air and ground surface concentrations with the appropriate dose conversion factors. CAP88-PC calculates dose to the gonads, breast, lungs, red marrow, thyroid, and endosteum in addition to the 50-year effective dose equivalent. Doses can be tabulated as a function of radionuclide, pathway, location, and organ.

For a given distance, the CAP88-PC model computes the annual effective dose equivalent for all compass directions. Specifically, the model computes the annual dose at a user-defined distance for all 22.5-degree compass point sectors (i.e., N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, NNW). The CAP88-PC model computes an average sector concentration; thus, the annual dose computed for receptors at a given distance within a sector will be the same.

A review of land use surrounding the site and the prevailing wind directions was performed to select the appropriate receptors for inclusion in the modeling analyses. Analyses were performed separately for the soil load-outs, Cluster No. 1 and No. 4 removal actions, radiochemistry laboratory foundation excavation, Stepan Company and Sears rail spur slope cutbacks, and new sewer line installation given the differences in receptor locations most affected by each of these areas. The in situ wind erosion emissions and the exhaust hood emissions were found to be negligible and thus, these sources were not included in the modeling analyses. Where individual receptors are affected by more than one emission source, doses caused by those sources are added.

The individual (i.e., worker and resident) corresponding to the maximum effective dose equivalent is identified as the hypothetical maximally exposed individual. Because the dose received from airborne emissions is dependent on prevailing wind direction in addition to the proximity to the site, the hypothetical maximally exposed individual is not necessarily the person nearest the site. The model was used to predict the annual effective dose at numerous receptors resulting from the combined impact of the above sources. Although the model determined the annual effective dose at numerous receptors, only the hypothetical maximally exposed resident and worker are discussed in this report.

Based on this information, residences and commercial properties located to the north, northeast and east of the MISS along West Central Avenue were selected as the receptors of most concern for the MISS activities. Receptor locations in other compass directions such as west and west-southwest of the MISS (i.e., west of State Route 17) were also selected, along with commercial receptors south and southeast of the MISS. The residential receptors relative to Cluster No. 1 are closest in the northern quadrant while commercial receptors are found in essentially all directions. For Cluster No. 4 activities, the residential receptors are congregated to the southwest of the cluster on the other side of I-80. The commercial receptors are mainly located along Essex Street. These receptor locations were used to establish the downwind distances that were input into the model to capture the maximally exposed individual (see Assumptions sections below for specific receptor locations).

## 3. ASSUMPTIONS

**3.1** The contamination is uniformly distributed over a symmetrical land area with the concentration in respirable particles (PM-10) equaling the bulk contamination concentration in the surface material.

**3.2** The erodibility classification of the site is “limited reservoir” characterized by a finite availability of erodible particles impregnated with non-erodible elements.

**3.3** Emissions due to wind erosion and mechanical entrainment processes are continuous and steady state.

**3.4** The locations of potential maximally exposed individuals (i.e., nearest residents and off-site workers) are based on a central point representative of each of the MISS site and nearby property emissions (Ref. 9.10) as follows:

| **Area** | **Distance** (meters) | **Direction** |
|---|---|---|
| MISS Soil Load-outs | | |
| Residents: | 135 | West |
| | 145 | West-southwest |
| | 155 | West-northwest |
| | 185 | Southwest |
| | 215 | East-northeast |
| | 235 | South-southwest |
| | 235 | North-northeast |
| | 235 | Northeast |
| | 270 | East |
| Workers: | 135 | West |
| | 145 | West-southwest |
| | 155 | West-northwest |
| | 160 | North |
| | 165 | Northeast |
| | 165 | East-southeast |
| | 165 | Southeast |
| | 190 | North-northeast |
| | 225 | South-southeast |
| | 235 | North-northwest |
| | 250 | East |
| | 255 | South |
| Cluster No. 1 | | |
| Residents: | 30 | West-northwest |
| | 30 | Northwest |
| | 40 | North |
| | 45 | North-northwest |
| | 70 | North-northeast |
| | 115 | South-southwest |
| | 120 | Southwest |

| Area | Distance (meters) | Direction |
|---|---|---|
| Workers: | 30 | West |
| | 30 | Northeast |
| | 30 | East-northeast |
| | 35 | West-northwest |
| | 40 | East |
| | 40 | East-southeast |
| | 40 | South-east |
| | 60 | Northwest |
| | 70 | East-southeast |
| | 80 | South-southwest |
| | 80 | South |
| Cluster No. 4 | | |
| **I-80 Row & 160 Essex St.** | | |
| Residents: | 140 | Southwest |
| | 155 | West-southwest |
| | 180 | West |
| | 200 | South-southwest |
| | 205 | South |
| Workers: | 30 | North-northwest |
| | 30 | North |
| | 55 | Northwest |
| | 55 | Southeast |
| | 60 | East-southeast |
| | 60 | South-southeast |
| | 65 | East |
| | 80 | Northeast |
| | 80 | North-northeast |
| | 115 | East-northeast |
| **174 Essex St.** | | |
| Residents: | 145 | Southwest |
| | 145 | South-southwest |
| | 170 | West |
| | 180 | West-southwest |
| | 230 | West-northwest |
| Workers: | 25 | Northwest |
| | 25 | North-northwest |
| | 25 | North |
| | 25 | East-southeast |
| | 30 | Southeast |
| | 30 | East |
| | 30 | East-southeast |
| | 40 | East-northeast |
| | 40 | Northeast |
| | 40 | North-northeast |

| Area | Distance (meters) | Direction |
|---|---|---|
| | 80 | South-southeast |
| **I-80 Row** | | |
| Residents: | 145 | West-southwest |
| | 150 | Southwest |
| | 155 | South-southwest |
| | 155 | South |
| | 190 | West |
| Workers: | 10 | North |
| | 10 | North-northeast |
| | 10 | Northeast |
| | 10 | East-northeast |
| | 12 | North-northwest |
| | 20 | East |
| | 20 | East-southeast |
| | 50 | Northwest |
| **I-80 Row & 150 Essex Street** | | |
| Residents: | 150 | Southwest |
| | 150 | South-southwest |
| | 160 | West-southwest |
| | 185 | West |
| | 200 | North-northwest |
| | 200 | North-northeast |
| Workers: | 10 | North |
| | 10 | North-northwest |
| | 20 | East-southeast |
| | 30 | Southeast |
| | 35 | East-northeast |
| | 60 | South-southeast |
| Radiochemistry Laboratory Foundation Excavation | | |
| Residents: | 120 | Northeast |
| | 135 | East-northeast |
| | 185 | East |
| | 250 | West |
| | 260 | West-southwest |
| | 285 | West-northwest |
| Workers: | 60 | South |
| | 60 | South-southeast |
| | 75 | Southeast |
| | 105 | North |
| | 135 | East-southeast |
| | 175 | North-northwest |
| | 220 | Northwest |

| | | |
|---|---|---|
| | 250 | West |
| | 260 | West-southwest |
| **Area** | **Distance** (meters) | **Direction** |

Rail Spur Slope Cutbacks at the MISS

| | | |
|---|---|---|
| Residents: | 100 | West |
| | 105 | West-southwest |
| | 120 | West-northwest |
| | 125 | Southwest |
| | 160 | South-southwest |
| | 255 | East-northeast |
| | 255 | Northeast |
| | 270 | South |
| | 315 | East |
| Workers: | 100 | West |
| | 105 | West-southwest |
| | 120 | West-northwest |
| | 150 | Southeast |
| | 165 | East-southeast |
| | 180 | North |
| | 180 | North-northeast |
| | 210 | Northeast |
| | 220 | North-northwest |
| | 225 | South-southeast |

New Sewer Line

| | | |
|---|---|---|
| Residents: | 140 | Northeast |
| | 140 | East-northeast |
| | 140 | North-northeast |
| | 220 | East |
| | 295 | West |
| | 295 | West-southwest |
| | 315 | West-northwest |
| Workers: | 15 | South-southeast |
| | 20 | South |
| | 20 | Southeast |
| | 30 | South-southwest |
| | 30 | Southwest |
| | 80 | East-southeast |
| | 90 | East |
| | 150 | North |
| | 240 | North-northwest |
| | 240 | Northwest |

**3.5** The occupancy factor for the residents is 100 percent and 24 percent for workers (i.e., 40-hour work-week x 52 weeks per year = 2080 hours/8760 hours).

The number of disturbances relative to wind erosion of in situ soil is 3 times per week for the entire year for a total of 156 disturbances per year. The highest fastest mile wind speed for each week is conservatively used for the 3 disturbances per week. A separate calculation is performed for soils covered by vegetation/gravel and for bare soils.

**3.6** Daughters in the decay chain of radionuclides are considered to be in secular equilibrium with their parents until a radionuclide in the chain is encountered with a measured concentration whereupon the measured concentration is used (Ref. 9.4). Although the direct emission of radon gas is not considered in the analysis, the daughters of radon generated by the decay of Ra-226 in dust offsite is accounted for by the model in the computation of the effective dose equivalents for the various internal and external exposure pathways.

## 4. EQUATIONS

**4.1 In Situ Wind Erosion Emissions**: (Ref. 9.2, Section 13.2.5, "Industrial Wind Erosion")

The wind speed profile in the surface boundary layer is found to follow a logarithmic distribution:

$$u(z) = \frac{u^*}{0.4} \ln\frac{z}{z_o} \qquad (z > z_o) \tag{1}$$

where:

- $u$ = wind speed (cm/s)
- $u^*$ = friction velocity (cm/s)
- $z$ = height above test surface (cm)
- $z_o$ = roughness height (cm)
- 0.4 = von Karman's constant (dimensionless)

The friction velocity ($u^*$) is a measure of wind shear stress on the erodible surface, as determined from the slope of the logarithmic velocity profile. The roughness height ($z_o$) is a measure of the roughness of the exposed surface as determined from the y intercept of the velocity profile (i.e., the height at which the wind speed is zero).

Emissions generated by wind erosion are also dependent on the frequency of disturbance of the erodible surface because each time that a surface is disturbed, its erosion potential is restored. A disturbance is defined as an action that results in the exposure of fresh surface material. On a storage pile, this would occur whenever aggregate material is either added to or removed from the old surface. A disturbance of an exposed area may also result from the turning of surface material to a depth exceeding the size of the largest pieces of material present.

The emission factor for wind-generated particulate emissions from mixtures of erodible and nonerodible surface material subject to disturbance may be expressed in units of grams per square meter ($g/m^2$) per year as follows:

$$\text{Emission factor} = k \sum_{i=1}^{N} P_i \tag{2}$$

where:

- $k$ = particle size multiplier
- $N$ = number of disturbances per year
- $P_i$ = erosion potential corresponding to the observed (or probable) fastest mile of wind for the ith period between disturbances ($g/m^2$)

The particle size multiplier (k) for Equation 2 varies with aerodynamic particle size as follows:

| Aerodynamic Particle Size Multipliers For Equation 2 | | | |
|---|---|---|---|
| 30 µm | <15 µm | <10 µm | <2.5 µm |
| 1.0 | 0.6 | 0.5 | 0.2 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
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This distribution of particle size within the under 30 micrometer (μm) fraction is comparable to the distributions reported for other fugitive dust sources where wind speed is a factor. This is illustrated, for example, in the distributions for batch and continuous drop operations encompassing a number of test aggregate materials (see AP-42 Section 13.2.4).

In calculating emission factors, each area of an erodible surface that is subject to a different frequency of disturbance should be treated separately. For a surface disturbed daily, N = 365 per year and for a surface disturbance once every 6 months, N = 2 per year.

The erosion potential function for a dry, exposed surface is:

$$P = 58\,(u^* - u_t^*)^2 + 25(u^* - u_t^*)$$

$$P = 0 \text{ for } u^* \le u_t^* \qquad (3)$$

where:

$u^*$ = friction velocity (m/s)
$u_t$ = threshold friction velocity (m/s)

Because of the nonlinear form of the erosion potential function, each erosion event must be treated separately. Equations 2 and 3 apply only to dry, exposed materials with limited erosion potential. The resulting calculation is valid only for a time period as long or longer than the period between disturbances.

Threshold friction velocities for several surface types have been determined by field measurements with a portable wind tunnel. These values are presented below:

THRESHOLD FRICTION VELOCITIES

| Material | Threshold Friction Velocity (m/s) | Roughness Height (cm) | Threshold Wind Velocity At 10 m (m/s) | |
|---|---|---|---|---|
| | | | $z_o$ = Act | $z_o$ = 0.5 cm |
| Overburden[a] | 1.02 | 0.3 | 21 | 19 |
| Scoria (roadbed material)[a] | 1.33 | 0.3 | 27 | 25 |
| Ground coal (surrounding coal pile)[a] | 0.55 | 0.01 | 16 | 10 |
| Uncrusted coal pile[a] | 1.12 | 0.3 | 23 | 21 |
| Scraper tracks on coal pile[a,b] | 0.62 | 0.06 | 15 | 12 |
| Fine coal dust on concrete pad[c] | 0.54 | 0.2 | 11 | 10 |

[a] Western surface coal mine.
[b] Lightly crusted.

[c] Eastern power plant.

The fastest mile of wind for the periods between disturbances may be obtained from the monthly LCD summaries for the nearest reporting weather station that is representative of the site in question. These summaries report actual fastest mile values for each day of a given month. Because the erosion potential is a highly nonlinear function of the fastest mile, mean values of the fastest mile are inappropriate. The anemometer heights of reporting weather should be corrected to a 10-m reference height using Equation 1.

To convert the fastest mile of wind ($u^+$) from a reference anemometer height of 10 m to the equivalent friction velocity ($u^*$), the logarithmic wind speed profile may be used to yield the following equation:

$$u^* = 0.053\ u^+_{10} \qquad (4)$$

where:

$u^*$ = friction velocity (m/s)
$u^+_{10}$ = fastest mile of reference anemometer for period between disturbances (m/s)

This assumes a typical roughness height of 0.5 cm for open terrain. Equation 4 is restricted to large relatively flat piles or exposed areas with little penetration into the surface wind layer.

Implementation of the above procedure is carried out in the following steps:

1. Determine threshold friction velocity for erodible material of interest (see above table or determine from mode of aggregate size distribution).

2. Divide the exposed surface area into subareas of constant frequency of disturbance (N).

3. Tabulate fastest mile values ($u^+$) for each frequency of disturbance and correct them to 10 m ($u^+$) using Equation 1

4. Convert fastest mile values ($u_{10}$) to equivalent friction velocities ($u^*$), taking into account (a) the uniform wind exposure of nonelevated surfaces, using Equation 4.

5. Multiply the resulting emission factor for each subarea by the size of the subarea, and add the emission contributions of all subareas. Note that the highest 24-hour (hr) emissions would be expected to occur on the windiest day of the year. Maximum emissions are calculated assuming a single event with the highest fastest mile value for the annual period.

**4.2 Drop Operations Emissions**: (Ref. 9.2, Section 13.2.4, "Aggregate Handling and Storage Piles")

$$E = k\ (0.0032)[U/5]^{1.3} / [M/2]^{1.4} \qquad (5)$$

where:

E = emission factor (lb/ton)
k = particle size multiplier (dimensionless)
U = mean wind speed, miles per hour (mph)
M = material moisture content (%)

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:

| Aerodynamic Particle Size Multiplier (k) For Equation 5 | | | | |
|---|---|---|---|---|
| < 30 μm | < 15 μm | < 10 μm | < 5 μm | < 2.5 μm |
| 0.74 | 0.48 | 0.35 | 0.20 | 0.11 |

### 4.3 Radionuclide Emission Rates

The radionuclide source concentrations (S) for isotopes of uranium ($U_{238}$), radium ($Ra_{226}$), and thorium ($Th_{232}$) are based on average values for in situ soil (Ref. 9.7) and average values measured during soil transfers and excavations. These values are as follows:

| Emission Source | $S_{U238}$ (pCi/g) | $S_{Ra226}$ (pCi/g) ) | $S_{Th232}$ (pCi/g) |
|---|---|---|---|
| • In situ soil | 27.5 | 4.30 | 24.80 |
| • MISS Soil Load-outs | | | |
| - No. 1 | 1.56 | 0.68 | 1.58 |
| - No. 2 | 2.47 | 0.87 | 5.16 |
| - No. 3 | 1.69 | 0.73 | 3.39 |
| - No. 4 | 2.20 | 0.90 | 7.40 |
| - No. 5 | 2.38 | 1.43 | 7.29 |
| • Cluster No. 1 | 1.56 | 0.68 | 1.58 |
| • Cluster No. 4 | 1.84 | 0.89 | 4.75 |
| • Radiochemistry Lab | 1.77 | 1.35 | 3.43 |
| • Rail Spur Slope Cutbacks | 12.72 | 9.66 | 68.69 |
| • New Sewer Line | 6.32 | 7.14 | 41.09 |

Ratios of uranium isotopes are calculated from the percentage of activity of $U_{238}$, $U_{234}$, and $U_{235}$ in natural uranium as these components make up total uranium. The percentage (P) of each isotope comprising total uranium activity (Ref. 9.8) is:

| Emission Source | $P_{U238}$ | $P_{U234}$ | $P_{U235}$ |
|---|---|---|---|
| All sources (%) | 47.249 | 50.539 | 2.212 |

The source concentrations (S) of total uranium, $U_{234}$, and $U_{235}$ are then given by:

$S_{Utot} = (S_{U238}/ P_{U238}) = (27.5/0.47249) = \underline{58.2\ pCi/g}$ (In situ soil)
$S_{U234} = (S_{Utot} \times P_{U234}) = (58.2\ pCi/g) \times 0.50539 = \underline{29.4\ pCi/g}$ (In situ soil)
$S_{U235} = (S_{Utot} \times P_{U235}) = (58.2\ pCi/g) \times 0.02212 = \underline{1.29\ pCi/g}$ (In situ soil)

The annual radionuclide emissions (R) are then the individual radionuclide source concentrations (S) multiplied by the annual particulate emissions rate (E) for the in situ wind erosion and the other load-out and remediation/excavation activities (R = S x E). Unknown radionuclide source emission rates are based on the known source emission rates assuming secular equilibrium in the decay chains (Ref. 9.4) as follows:

| $U_{238}$ | $U_{234}$ | $Ra_{226}$ | $U_{235}$ | $Th_{232}$ |
|---|---|---|---|---|
| $R_{Th234} = R_{U238}$ | $R_{Th230} = R_{U234}$ | $R_{Po218} = R_{Ra226}$ | $R_{Th231} = R_{U235}$ | $R_{Ra228} = R_{Th232}$ |
| $R_{Pa234m} = R_{U238}$ | | $R_{Pb214} = 0.9998R_{Po218}$ | $R_{Pa231} = R_{Th231}$ | $R_{Ac228} = R_{Ra228}$ |
| $R_{Pa234} = 0.0013R_{Pa234m}$ | | $R_{Bi214} = R_{Po218}$ | $R_{Ac227} = R_{Pa231}$ | $R_{Th228} = R_{Ac228}$ |
| | | $R_{Po214} = 0.99979R_{Bi214}$ | $R_{Th227} = 0.9862R_{Ac227}$ | $R_{Ra224} = R_{Th228}$ |
| | | $R_{Pb210} = R_{Bi214}$ | $R_{Fr223} = 0.0138R_{Ac227}$ | $R_{Po216} = R_{Ra224}$ |
| | | $R_{Bi210} = R_{Pb210}$ | $R_{Ra223} = R_{Ac227}$ | $R_{Pb212} = R_{Po216}$ |
| | | $R_{Po210} = 0.9999987R_{Bi210}$ | $R_{Po215} = R_{Ra223}$ | $R_{Bi212} = R_{Pb212}$ |
| | | | $R_{Pb211} = 0.9999977R_{Po215}$ | $R_{Po212} = 0.6407R_{Bi212}$ |
| | | | $R_{Bi211} = R_{Po215}$ | $R_{Tl208} = 0.3593R_{Bi212}$ |
| | | | $R_{Po211} = 0.00273R_{Bi211}$ | |
| | | | $R_{Tl207} = R_{Bi211}$ | |

Secular equilibrium is a condition in which the parent species in a radioactive series has a much longer half-life than its succeeding species, such that there is no significant change in its concentration during the time interval over which the shorter-lived species attain their equilibria, whereupon all species appear to decay at the same rate.

Although the direct emission of radon gas is not considered in this analysis, the daughters of radon generated by the decay of Ra-226 in dust offsite is accounted for by the model in the computation of the effective dose equivalents for the various internal and external exposure pathways.

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 17 OF145 |

# 5. INPUT DATA

## 5.1 In Situ Soil Wind Erosion Emissions:

- k =0.50 (PM-10) - (Ref. 9.2, Section 13.2.5)
- No. of Disturbances = 156 per year (See Assumption 3.6)
- Surface Area of MISS vegetative soil = 22,760 $m^2$ (Ref. 9.10)
- Surface Area of MISS bare soil = 5,000 $m^2$ (Ref. 9.10)
- Surface Area of gravel/crushed stone = 22,110 $m^2$ (Ref. 9.10)
- $u^*$ = 1.02 m/sec - (Ref. 9.2, Section 13.2.5 – value for "overburden" from page 9)
- Anemometer Height = 6.1 m (Ref. 9.3)

| Month | Week | Fastest Mile Wind Speed (mph)[1] |
|---|---|---|
| Jan. | 1 | 20 |
| | 2 | 29 |
| | 3 | 24 |
| | 4 | 23 |
| Feb. | 1 | 31 |
| | 2 | 30 |
| | 3 | 22 |
| | 4 | 25 |
| Mar. | 1 | 30 |
| | 2 | 35 |
| | 3 | 29 |
| | 4 | 30 |
| | 5 | 22 |
| Apr. | 1 | 26 |
| | 2 | 26 |
| | 3 | 32 |
| | 4 | 23 |
| May | 1 | 30 |
| | 2 | 30 |
| | 3 | 25 |
| | 4 | 22 |
| Jun. | 1 | 25 |
| | 2 | 23 |
| | 3 | 26 |
| | 4 | 26 |
| Jul. | 1 | 21 |
| | 2 | 24 |
| | 3 | 25 |
| | 4 | 25 |
| | 5 | 21 |
| Aug. | 1 | 23 |
| | 2 | 17 |
| | 3 | 36 |
| | 4 | 16 |
| | 5 | 20 |

| | | |
|---|---|---|
| Sept. | 1 | 16 |
| | 2 | 36 |
| | 3 | 22 |
| | 4 | 18 |
| Oct. | 1 | 21 |
| | 2 | 21 |
| | 3 | 23 |
| | 4 | 17 |
| Nov. | 1 | 25 |
| | 2 | 21 |
| | 3 | 25 |
| | 4 | 29 |
| Dec. | 1 | 30 |
| | 2 | 24 |
| | 3 | 28 |
| | 4 | 25 |

1. Fastest mile wind speed required by the AP-42 methodology is represented by the maximum 2-minute wind speed from Ref. 9.3. A maximum 2-minute wind speed of 41 mph, measured at a height of 20 feet above ground level, is required to exceed the threshold friction velocity of 1.02 m/sec at ground level.

**5.2 Drop Operations Emissions**:

- k=0.35 (PM-10) - (Ref. 9.2, Section 13.2.4)
- U = 7.6 mph - (Ref. 9.3)
- M =12.0 % - (Ref. 9.2, Section 13.2.4)

| | Soil Moved (tons) | No. Times Dropped | Soil Handled (tons) | Surface Area ($m^2$) |
|---|---|---|---|---|
| • MISS Soil Load-outs | | | | |
| - No. 1 | 3,016 | 4 | 12,064 | 163.5 |
| - No. 2 | 3,187 | 4 | 12,748 | 163.5 |
| - No. 3 | 3,182 | 4 | 12,728 | 163.5 |
| - No. 4 | 5,682 | 4 | 22,728 | 163.5 |
| - No. 5 | 1,379 | 4 | 5,516 | 163.5 |
| • Cluster No. 1 | 3,016 | 1.2 | 3,619 | 913.8 |
| • Cluster No. 4 | | | | |
| - I-80 Row/160 Essex St. | 5,025 | 1 | 5,025 | 1,850 |
| - 174 Essex St. | 5 | 1 | 5 | 29.5 |
| - I80 Row | 11.5 | 1 | 11.5 | 27.7 |
| - I80 Row/150 Essex St. | 190.5 | 1 | 190.5 | 482.7 |
| • Radiochemistry Lab | 2,205 | 2 | 4,410 | 984.8 |
| • Rail Spur Slope Cutbacks | 5,992 | 1 | 5,992 | 1,476 |
| • New Sewer Line | 100 | 1 | 100 | 72.0 |

The activities listed above involved various soil transfers which were depicted by the "number of times dropped". For example, at Cluster No. 4, the excavated soil was placed into a roll-off container/truck for transport to the MISS and thus, was represented by one drop. Upon arrival at the MISS, the soil in the roll-off container was emptied (first drop) and then placed inside the fabric structure (second drop). During load-outs, the soil inside the fabric structure was plced into the load-out bins for temporary storage (third drop) before placement into the lined rail cars for offsite disposal (fourth drop). Thus, the soil load-out activities were represented by four drops to account for the entire soil transfer process at the MISS.

For the Cluster No. 1 soil handling activities, the "number of times dropped" is represented by 1.2 since approximately 80 % of the excavated soil was placed directly into the roll-off container for transport to the MISS while approximately 20% of the soil was stockpiled on the ground before placement into a roll-off container/truck.

The soil-handled amounts account for the total tonnage of soil that is moved and the number of times that it is dropped. For example, the total amount of soil moved during the MISS soil load-out No. 1 was 3,016 tons but it was handled or dropped 4 times for a total amount handled of 4 x 3,016 tons or 12,064 tons.

### 5.3 CAP88-PC Input Data

- Meteorological Data (1989-1999 Teterboro, NJ data, Ref. 9.9):

  - Annual average temperature = 55.2 $^{o}$F (12.9 $^{o}$C) – Ref. 9.3
  - Annual precipitation = 44.1 inches (112.0 cm) – Ref. 9.3

ARITHMETIC AVERAGE WIND SPEEDS (WIND TOWARDS)

| | Pasquill Stability Class | | | | | | |
|---|---|---|---|---|---|---|---|
| Dir | A | B | C | D | E | F | G |
| N | 2.572 | 3.108 | 4.093 | 4.718 | 3.300 | 2.295 | 0.000 |
| NNW | 2.572 | 3.188 | 4.226 | 4.923 | 3.134 | 2.235 | 0.000 |
| NW | 2.572 | 3.117 | 3.970 | 4.515 | 2.980 | 2.224 | 0.000 |
| WNW | 2.058 | 3.353 | 3.918 | 3.929 | 2.883 | 2.145 | 0.000 |
| W | 2.503 | 3.084 | 4.002 | 4.245 | 2.916 | 2.116 | 0.000 |
| WSW | 2.508 | 3.186 | 4.004 | 4.383 | 3.045 | 2.135 | 0.000 |
| SW | 2.572 | 3.061 | 3.786 | 4.346 | 3.141 | 2.270 | 0.000 |
| SSW | 2.572 | 2.925 | 3.915 | 4.789 | 3.387 | 2.309 | 0.000 |
| S | 2.460 | 3.095 | 3.933 | 4.955 | 3.585 | 2.265 | 0.000 |
| SSE | 2.572 | 3.241 | 4.362 | 5.782 | 3.989 | 2.333 | 0.000 |
| SE | 2.572 | 3.347 | 4.585 | 6.192 | 4.068 | 2.408 | 0.000 |
| ESE | 2.572 | 3.481 | 4.509 | 6.238 | 4.044 | 2.403 | 0.000 |
| E | 2.572 | 3.359 | 4.464 | 5.809 | 3.858 | 2.363 | 0.000 |
| ENE | 2.572 | 3.412 | 4.413 | 5.407 | 3.763 | 2.401 | 0.000 |
| NE | 2.337 | 3.236 | 4.159 | 4.694 | 3.384 | 2.293 | 0.000 |
| NNE | 2.494 | 3.357 | 4.068 | 4.362 | 3.415 | 2.265 | 0.000 |

FREQUENCIES OF STABILITY CLASSES (WIND TOWARDS)

Pasquill Stability Class

| Dir | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| N | 0.0030 | 0.0319 | 0.1169 | 0.5521 | 0.1757 | 0.1205 | 0.0000 |
| NNW | 0.0030 | 0.0424 | 0.1054 | 0.6320 | 0.1212 | 0.0960 | 0.0000 |
| NW | 0.0066 | 0.0512 | 0.1076 | 0.6499 | 0.0996 | 0.0851 | 0.0000 |
| WNW | 0.0079 | 0.0634 | 0.1156 | 0.6526 | 0.0943 | 0.0662 | 0.0000 |
| W | 0.0075 | 0.0531 | 0.0937 | 0.7203 | 0.0624 | 0.0630 | 0.0000 |
| WSW | 0.0069 | 0.0438 | 0.0734 | 0.7476 | 0.0578 | 0.0705 | 0.0000 |
| SW | 0.0008 | 0.0461 | 0.0977 | 0.6544 | 0.0923 | 0.1088 | 0.0000 |
| SSW | 0.0014 | 0.0337 | 0.1052 | 0.6373 | 0.1114 | 0.1108 | 0.0000 |
| S | 0.0015 | 0.0339 | 0.1039 | 0.5371 | 0.1580 | 0.1657 | 0.0000 |
| SSE | 0.0016 | 0.0272 | 0.1025 | 0.5851 | 0.1759 | 0.1077 | 0.0000 |
| SE | 0.0025 | 0.0267 | 0.0997 | 0.6255 | 0.1680 | 0.0777 | 0.0000 |
| ESE | 0.0025 | 0.0330 | 0.1023 | 0.6281 | 0.1589 | 0.0752 | 0.0000 |
| E | 0.0026 | 0.0367 | 0.1156 | 0.5691 | 0.1690 | 0.1070 | 0.0000 |
| ENE | 0.0030 | 0.0427 | 0.1109 | 0.5468 | 0.1922 | 0.1044 | 0.0000 |
| NE | 0.0028 | 0.0343 | 0.1175 | 0.4804 | 0.2024 | 0.1626 | 0.0000 |
| NNE | 0.0032 | 0.0334 | 0.1027 | 0.4707 | 0.2223 | 0.1678 | 0.0000 |
| TOT | 0.0029 | 0.0361 | 0.1053 | 0.5857 | 0.1555 | 0.1144 | 0.0000 |

- Radionuclide Emission Rates:

  - See Attachment A (Excel spreadsheet)

- Population Data based on 2000 Census (Ref. 9.11):

  - 1990 population distribution adjusted for the 8.4 percent increase from 1990 to 2000 for the New York-Northern New Jersey-Long Island, NY-NJ-CT-PA Metropolitan Statistical Area/Consolidated Metropolitan Statistical Area (see page 30)

- Individual Receptors:

| Area | Distance (meters) | Direction |
|---|---|---|
| MISS Soil Load-outs | | |
| Residents: | 135 | West |
| | 145 | West-southwest |
| | 155 | West-northwest |
| | 185 | Southwest |
| | 215 | East-northeast |
| | 235 | South-southwest |
| | 235 | North-northeast |
| | 235 | Northeast |
| | 270 | East |

| | | |
|---|---|---|
| Workers: | 135 | West |
| | 145 | West-southwest |
| | 155 | West-northwest |
| | 160 | North |
| | 165 | Northeast |
| | 165 | East-southeast |
| | 165 | Southeast |
| | 190 | North-northeast |
| | 225 | South-southeast |
| | 235 | North-northwest |
| | 250 | East |
| | 255 | South |

Cluster No. 1

| | | |
|---|---|---|
| Residents: | 30 | West-northwest |
| | 30 | Northwest |
| | 40 | North |
| | 45 | North-northwest |
| | 70 | North-northeast |
| | 115 | South-southwest |
| | 120 | Southwest |

| **Area** | **Distance** (meters) | **Direction** |
|---|---|---|
| Workers: | 30 | West |
| | 30 | Northeast |
| | 30 | East-northeast |
| | 35 | West-northwest |
| | 40 | East |
| | 40 | East-southeast |
| | 40 | South-east |
| | 60 | Northwest |
| | 70 | East-southeast |
| | 80 | South-southwest |
| | 80 | South |

Cluster No. 4

**I-80 Row & 160 Essex St.**

| | | |
|---|---|---|
| Residents: | 140 | Southwest |
| | 155 | West-southwest |
| | 180 | West |
| | 200 | South-southwest |
| | 205 | South |
| Workers: | 30 | North-northwest |
| | 30 | North |

| Area | Distance (meters) | Direction |
|---|---|---|
| | 55 | Northwest |
| | 55 | Southeast |
| | 60 | East-southeast |
| | 60 | South-southeast |
| | 65 | East |
| | 80 | Northeast |
| | 80 | North-northeast |
| | 115 | East-northeast |
| **174 Essex St.** | | |
| Residents: | 145 | Southwest |
| | 145 | South-southwest |
| | 170 | West |
| | 180 | West-southwest |
| | 230 | West-northwest |
| Workers: | 25 | Northwest |
| | 25 | North-northwest |
| | 25 | North |
| | 25 | East-southeast |
| | 30 | Southeast |
| | 30 | East |
| | 30 | East-southeast |
| | 40 | East-northeast |
| | 40 | Northeast |
| | 40 | North-northeast |
| | 80 | South-southeast |
| **Area** | **Distance** (meters) | **Direction** |
| **I-80 Row** | | |
| Residents: | 145 | West-southwest |
| | 150 | Southwest |
| | 155 | South-southwest |
| | 155 | South |
| | 190 | West |
| Workers: | 10 | North |
| | 10 | North-northeast |
| | 10 | Northeast |
| | 10 | East-northeast |
| | 12 | North-northwest |
| | 20 | East |
| | 20 | East-southeast |
| | 50 | Northwest |
| **I80 Row & 150 Essex Street** | | |
| Residents: | 150 | Southwest |
| | 150 | South-southwest |
| | 160 | West-southwest |
| | 185 | West |

| | | |
|---|---|---|
| | 200 | North-northwest |
| | 200 | North-northeast |
| Workers: | 10 | North |
| | 10 | North-northwest |
| | 20 | East-southeast |
| | 30 | Southeast |
| | 35 | East-northeast |
| | 60 | South-southeast |

Radiochemistry Laboratory Excavation

| | | |
|---|---|---|
| Residents: | 120 | Northeast |
| | 135 | East-northeast |
| | 185 | East |
| | 250 | West |
| | 260 | West-southwest |
| | 285 | West-northwest |
| Workers: | 60 | South |
| | 60 | South-southeast |
| | 75 | Southeast |
| | 105 | North |
| | 135 | East-southeast |
| | 175 | North-northwest |
| | 220 | Northwest |
| | 250 | West |
| | 260 | West-southwest |

| **Area** | **Distance** (meters) | **Direction** |
|---|---|---|

Railspur Slope Cutbacks at the MISS

| | | |
|---|---|---|
| Residents: | 100 | West |
| | 105 | West-southwest |
| | 120 | West-northwest |
| | 125 | Southwest |
| | 160 | South-southwest |
| | 255 | East-northeast |
| | 255 | Northeast |
| | 270 | South |
| | 315 | East |
| Workers: | 100 | West |
| | 105 | West-southwest |
| | 120 | West-northwest |
| | 150 | Southeast |
| | 165 | East-southeast |
| | 180 | North |
| | 180 | North-northeast |
| | 210 | Northeast |
| | 220 | North-northwest |

| | | |
|---|---|---|
| | 225 | South-southeast |
| New Sewer Line | | |
| Residents: | 140 | Northeast |
| | 140 | East-northeast |
| | 140 | North-northeast |
| | 220 | East |
| | 295 | West |
| | 295 | West-southwest |
| | 315 | West-northwest |
| Workers: | 15 | South-southeast |
| | 20 | South |
| | 20 | Southeast |
| | 30 | South-southwest |
| | 30 | Southwest |
| | 80 | East-southeast |
| | 90 | East |
| | 150 | North |
| | 240 | North-northwest |
| | 240 | Northwest |

## 6. CALCULATION

The actual radionuclide emission rate calculations are performed using an Excel spreadsheet, a printout of which is provided in Attachment A. The dose calculations are performed by the CAP88-PC model, the output of which is provided on pages 29-145.

## 7. RESULTS

The CAP88-PC output for the annual doses to the maximally exposed individuals (MEI) and population (POP) within 80 km of MISS is provided on pages 29-145 as follows:

| **Release Area** | **Page Numbers** | |
|---|---|---|
| | MEI | POP |
| MISS Soil Load-outs | 29 - 35 | 92 - 100 |
| Cluster No. 1 | 36 - 42 | 101 - 109 |
| Cluster No. 4 | 43 - 70 | 110 - 118 |
| Radiochemistry Lab | 71 - 77 | 119 - 127 |
| Rail Spur Slope Cutbacks | 78 - 84 | 128 - 136 |
| New Sewer | 85 - 91 | 137 - 145 |

As stated earlier, analyses are performed separately for the various release areas given the differences in receptor locations most affected by each of these areas. Where individual receptors are affected by more than one emission source, doses caused by those sources are added.

The maximum annual effective doses are summarized below first by individual activities and then for all activities combined. The maximum total site doses are the result of the combination of doses from the individual activities causing the highest dose at a particular receptor.

| Receptor | Location | Annual Dose (mrem/yr) | Occupancy Factor (%) | Annual Effective Dose (mrem/yr) |
|---|---|---|---|---|
| MISS Soil Load-outs | | | | |
| • Population (person-rem/yr) | N/A | 1.20E-03 | N/A | 1.20E-03 |
| • Maximally Exposed Resident | 235 m NE | 1.70E-04 | 100 | 1.70E-04 |
| • Maximally Exposed Worker | 160 m N | 3.40E-04 | 24 | 8.16E-05 |
| Cluster No. 1 | | | | |
| • Population (person-rem/yr) | N/A | 2.87E-05 | N/A | 2.87E-05 |
| • Maximally Exposed Resident | 40 m N | 9.50E-05 | 100 | 9.50E-05 |
| • Maximally Exposed Worker | 30 m NE | 1.70E-04 | 24 | 4.08E-05 |
| Cluster No. 4 | | | | |
| • Population (person-rem/yr) | N/A | 8.78E-05 | N/A | 8.78E-05 |
| • Maximally Exposed Resident | 205 m S* | 2.20E-05 | 100 | 2.20E-05 |
| • Maximally Exposed Worker | 30 m N* | 4.55E-04 | 24 | 1.09E-04 |
| Radiochemistry Lab | | | | |
| • Population (person-rem/yr) | N/A | 5.87E-05 | N/A | 5.87E-05 |
| • Maximally Exposed Resident | 120 m NE | 3.00E-05 | 100 | 3.00E-05 |
| • Maximally Exposed Worker | 60 m S | 1.30E-04 | 24 | 3.12E-05 |
| Rail Spur Slope Cutbacks | | | | |
| • Population (person-rem/yr) | N/A | 1.25E-03 | N/A | 1.25E-03 |
| • Maximally Exposed Resident | 105 m WSW | 3.10E-04 | 100 | 3.10E-04 |
| • Maximally Exposed Worker | 105 m WSW | 3.10E-04 | 24 | 7.44E-05 |
| New Sewer Line | | | | |
| • Population (person-rem/yr) | N/A | 1.22E-05 | N/A | 1.22E-05 |
| • Maximally Exposed Resident | 140 m NE | 5.60E-06 | 100 | 5.60E-06 |
| • Maximally Exposed Worker | 20 m S | 2.20E-04 | 24 | 5.28E-05 |
| Total Site | | | | |
| • Population (person-rem/yr) | N/A | 2.64E-03 | N/A | 2.64E-03 |
| • Maximally Exposed Resident | 105 m WSW | 4.75E-04 | 100 | 4.75E-04 |
| • Maximally Exposed Worker | 160 m N | 6.02E-04 | 24 | 1.44E-04 |

* The locations of the maximally exposed resident and worker for Cluster No. 4 are relative to the I-80 Row/160 Essex St. properties. These properties are the dominant contributors to the total annual dose for Cluster No. 4 that includes the contributions from all Cluster No. 4 properties..

The maximum annual effective doses are almost entirely the result of the internal doses from the inhalation of dust particles and the ingestion of plant borne dust. The air immersion in the dust plume and ground surface irradiation from dust deposition pathways contribute a negligible amount to the total dose. The percent contribution of the various pathways to the total effective dose, based on the dose calculated for the maximally exposed individual from the MISS Soil Load-outs, is as follows :

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 7.84E-06 |
| INHALATION | 6.09E-04 |
| AIR IMMERSION | 1.22E-09 |
| GROUND SURFACE | 8.69E-08 |
| INTERNAL | 6.17E-04 |
| EXTERNAL | 8.82E-08 |
| TOTAL | 6.17E-04 |

## 8. CONCLUSIONS

The annual effective dose to the public within 80 km of MISS from airborne particulate releases during 2002 was **2.64E-03 person-rem/yr**. The annual effective dose to the maximally exposed resident (located west south-west of MISS was **4.75E-04 mrem/yr** while the annual effective dose to the maximally exposed worker (located north of MISS) was **1.44E-04 mrem/yr** during 2002. These annual effective doses are due primarily to inhalation of airborne particulate releases.

These doses are well below the NESHAPS standard of 10 mrem/yr (40 CFR 61.92).

## 9. REFERENCES


**9.1** Parks, Barry, "CAP88-PC Version 2.0 User's Guide". U.S. Department of Energy, ER-8/GTN, Germantown, Maryland, June, 1997. Stone & Webster Library Reference No. EN-293, V00, L00.

**9.2** U. S. Environmental Protection Agency, "Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources", 5th Edition, AP-42, January 1, 1995 (Sections 13.2.4 and 13.2.5).

**9.3** National Oceanic and Atmospheric Administration, National Environmental Satellite, Data, and Information Service, National Climatic Data Center. Unedited Local Climatological Data for January - December, 2002, Teterboro, NJ.

**9.4** Shlein, "The Health Physics and Radiological Health Handbook", Revised Edition, Scinta, Inc. Silver Springs, MD, 1992.

**9.5** U.S. Environmental Protection Agency, "Rapid Assessment of Exposure to Particulate Emissions from Surface Contaminated Sites". EPA Report No. EPA-600/8-85/002, Office of Health and Environmental Assessment, Washington, D.C., February, 1985.

**9.6** U.S. Environmental Protection Agency, "Estimation of Impacts from Area Sources of Particulate Matter Emissions at Superfund Sites". EPA Report No. EPA-451/R-93/004, Office of Air Quality Planning and Standards, Research Triangle Park, NC, April, 1993.

**9.7** Bechtel National, Inc. (BNI), "Characterization Report for the Maywood Interim Storage Site, Maywood, New Jersey". DOE/OR/20722-139, Oak Ridge, TN, June, 1987.

**9.8** Bechtel National, Inc. (BNI), "Natural Uranium Specific Activity", 14501-191-CV-005, Rev. 2, Oak Ridge, TN, 1995.

**9.9** 1989-1999 Stability Array (STAR) data for Teterboro, NJ supplied by the National Oceanic and Atmospheric Administration, National Climatic Data Center, Asheville, NC.

**9.10** Figure 3A - Site Location Plan, FUSRAP Maywood Superfund Site - Maywood, Lodi and Rochelle Park. Prepared by Stone & Webster Environmental Technology & Services, February 2003.

**9.11** U.S. Census Bureau, Census 2000 Redistricting Data (P.L. 94-171) Summary File and 1990 Census. Census 2000 PHC-T-3, Ranking Table for Metropolitan Areas: 1990 and 2000, Table 1: Metropolitan Areas and their Geographic Components in Alphabetical Sort, 1990 and 2000 Population and Numeric and Percent Population Change: 1990 to 2000.

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 29 OF145 |

## 10. CAP88-PC OUTPUT

```
                         C A P 8 8 - P C

                          Version 2.00


              Clean Air Act Assessment Package - 1988


                   S Y N O P S I S   R E P O R T

                  Non-Radon Individual Assessment
                       Mar  11, 2003  12:37 pm


     Facility:  Maywood Interim Storage Site - MISS Soil Load-outs
      Address:  100 W. Hunter Avenue
         City:  Maywood
        State:  NJ          Zip:  07607-


     Source Category:  Particulate Emission w radon daughters
         Source Type:  Area
       Emission Year:  2002


     Comments:  Stone & Webster, Inc. for
                U.S. Army Corps of Engineers


                 Effective Dose Equivalent
                        (mrem/year)
                 _________________________

                         6.17E-04
                 _________________________


    At This Location:    135 Meters South

        Dataset Name:  MISS Load-outs
        Dataset Date:  Mar  10, 2003  04:58 pm
           Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
```

Mar 11, 2003 12:37 pm



MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 135 Meters South
Lifetime Fatal Cancer Risk: 7.00E-09

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 4.18E-06 |
| BREAST | 3.60E-06 |
| R MAR | 2.94E-04 |
| LUNGS | 3.88E-03 |
| THYROID | 3.50E-06 |
| ENDOST | 3.66E-03 |
| RMNDR | 1.80E-05 |
| | |
| EFFEC | 6.17E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107 08575.0207 | E(B) | 10 | 0 | 31 OF145 |

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SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | Source #2 Ci/y | Source #3 Ci/y | Source #4 Ci/y | Source #5 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|---|---|---|---|
| AC-227 | Y | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| AC-228 | Y | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| BI-211 | W | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| BI-212 | W | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| FR-223 | D | 1.00 | 8.7E-13 | 1.4E-12 | 9.9E-13 | 2.3E-12 | 6.0E-13 | 6.2E-12 |
| PA-234M | Y | 1.00 | 1.3E-09 | 2.2E-09 | 1.5E-09 | 3.6E-09 | 9.4E-10 | 9.6E-09 |
| PA-231 | Y | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| PB-211 | D | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| PO-211 | - | 0.00 | 1.7E-13 | 2.9E-13 | 2.0E-13 | 4.6E-13 | 1.2E-13 | 1.2E-12 |
| PO-216 | W | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| PB-212 | D | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| PO-212 | W | 1.00 | 8.7E-10 | 3.0E-09 | 2.0E-09 | 7.7E-09 | 1.8E-09 | 1.5E-08 |
| PO-215 | W | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| RA-223 | W | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| RA-224 | W | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| TH-232 | Y | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| TH-228 | Y | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| TH-231 | Y | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| TH-227 | Y | 1.00 | 6.2E-11 | 1.0E-10 | 7.1E-11 | 1.6E-10 | 4.3E-11 | 4.4E-10 |
| TL-208 | D | 1.00 | 4.9E-10 | 1.7E-09 | 1.1E-09 | 4.3E-09 | 1.0E-09 | 8.6E-09 |
| U-235 | Y | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| TL-207 | D | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| U-238 | Y | 1.00 | 1.3E-09 | 2.2E-09 | 1.5E-09 | 3.6E-09 | 9.4E-10 | 9.6E-09 |
| TH-234 | Y | 1.00 | 1.3E-09 | 2.2E-09 | 1.5E-09 | 3.6E-09 | 9.4E-10 | 9.6E-09 |
| PA-234 | Y | 1.00 | 1.7E-12 | 2.9E-12 | 2.0E-12 | 4.6E-12 | 1.2E-12 | 1.2E-11 |
| U-234 | Y | 1.00 | 1.4E-09 | 2.4E-09 | 1.6E-09 | 3.8E-09 | 1.0E-09 | 1.0E-08 |
| TH-230 | Y | 1.00 | 1.4E-09 | 2.4E-09 | 1.6E-09 | 3.8E-09 | 1.0E-09 | 1.0E-08 |
| RA-226 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 3.8E-09 | 5.6E-10 | 6.4E-09 |
| PO-218 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 3.8E-09 | 5.6E-10 | 6.4E-09 |
| PB-214 | D | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| BI-214 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| PO-214 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| PB-210 | D | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| BI-210 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| PO-210 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| RA-228 | W | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

Mar 11, 2003 12:37 pm



SOURCE INFORMATION

| Source Number: | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Source Height (m): | 0. | 0. | 0. | 0. | 0. |
| Area (sq m): | 164. | 164. | 164. | 164. | 164. |

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

135 145 155 160 165 185 190 215 225 235
250 255 270

Mar 11, 2003 12:37 pm



ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 4.18E-06 |
| BREAST | 3.60E-06 |
| R MAR | 2.94E-04 |
| LUNGS | 3.88E-03 |
| THYROID | 3.50E-06 |
| ENDOST | 3.66E-03 |
| RMNDR | 1.80E-05 |
| | |
| EFFEC | 6.17E-04 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 7.84E-06 |
| INHALATION | 6.09E-04 |
| AIR IMMERSION | 1.22E-09 |
| GROUND SURFACE | 8.69E-08 |
| INTERNAL | 6.17E-04 |
| EXTERNAL | 8.82E-08 |
| | |
| TOTAL | 6.17E-04 |

Mar 11, 2003 12:37 pm

SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 8.61E-06 |
| AC-228 | 6.17E-08 |
| BI-211 | 1.12E-11 |
| BI-212 | 2.41E-08 |
| FR-223 | 4.94E-13 |
| PA-234M | 1.90E-12 |
| PA-231 | 6.58E-06 |
| PB-211 | 1.26E-10 |
| PO-211 | 1.53E-30 |
| PO-216 | 0.00E+00 |
| PB-212 | 1.20E-07 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 1.16E-07 |
| RA-224 | 2.51E-06 |
| TH-232 | 2.56E-04 |
| TH-228 | 1.80E-04 |
| TH-231 | 1.34E-11 |
| TH-227 | 1.55E-07 |
| TL-208 | 5.08E-10 |
| U-235 | 1.69E-06 |
| TL-207 | 1.14E-13 |
| U-238 | 3.39E-05 |
| TH-234 | 1.48E-08 |
| PA-234 | 1.15E-12 |
| U-234 | 4.08E-05 |
| TH-230 | 7.64E-05 |
| RA-226 | 2.37E-06 |
| PO-218 | 8.27E-12 |
| PB-214 | 1.30E-10 |
| BI-214 | 1.67E-10 |
| PO-214 | 0.00E+00 |
| PB-210 | 3.44E-06 |
| BI-210 | 2.35E-08 |
| PO-210 | 1.54E-06 |
| RA-228 | 3.02E-06 |
| TOTAL | 6.17E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 35 OF145 |

Mar 11, 2003 12:37 pm

SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| Direction | Distance (m) 135 | 145 | 155 | 160 | 165 | 185 | 190 |
|---|---|---|---|---|---|---|---|
| N | 4.6E-04 | 4.0E-04 | 3.6E-04 | 3.4E-04 | 3.2E-04 | 2.6E-04 | 2.5E-04 |
| NNW | 1.8E-04 | 1.5E-04 | 1.4E-04 | 1.3E-04 | 1.2E-04 | 1.0E-04 | 9.5E-05 |
| NW | 1.0E-04 | 9.1E-05 | 8.1E-05 | 7.6E-05 | 7.2E-05 | 6.0E-05 | 5.7E-05 |
| WNW | 8.7E-05 | 7.6E-05 | 6.8E-05 | 6.5E-05 | 6.1E-05 | 5.1E-05 | 4.9E-05 |
| W | 1.6E-04 | 1.4E-04 | 1.2E-04 | 1.1E-04 | 1.1E-04 | 8.9E-05 | 8.5E-05 |
| WSW | 1.8E-04 | 1.6E-04 | 1.4E-04 | 1.4E-04 | 1.3E-04 | 1.0E-04 | 1.0E-04 |
| SW | 2.5E-04 | 2.2E-04 | 2.0E-04 | 1.9E-04 | 1.8E-04 | 1.4E-04 | 1.4E-04 |
| SSW | 3.3E-04 | 2.9E-04 | 2.6E-04 | 2.4E-04 | 2.3E-04 | 1.9E-04 | 1.8E-04 |
| S | 6.2E-04 | 5.4E-04 | 4.8E-04 | 4.5E-04 | 4.2E-04 | 3.4E-04 | 3.3E-04 |
| SSE | 3.6E-04 | 3.2E-04 | 2.8E-04 | 2.6E-04 | 2.5E-04 | 2.0E-04 | 1.9E-04 |
| SE | 3.2E-04 | 2.8E-04 | 2.5E-04 | 2.3E-04 | 2.2E-04 | 1.8E-04 | 1.7E-04 |
| ESE | 2.4E-04 | 2.1E-04 | 1.9E-04 | 1.8E-04 | 1.7E-04 | 1.4E-04 | 1.3E-04 |
| E | 3.2E-04 | 2.8E-04 | 2.5E-04 | 2.4E-04 | 2.2E-04 | 1.8E-04 | 1.7E-04 |
| ENE | 2.6E-04 | 2.3E-04 | 2.0E-04 | 1.9E-04 | 1.8E-04 | 1.5E-04 | 1.4E-04 |
| NE | 4.8E-04 | 4.2E-04 | 3.7E-04 | 3.5E-04 | 3.3E-04 | 2.7E-04 | 2.6E-04 |
| NNE | 4.4E-04 | 3.9E-04 | 3.4E-04 | 3.2E-04 | 3.1E-04 | 2.5E-04 | 2.4E-04 |

| Direction | Distance (m) 215 | 225 | 235 | 250 | 255 | 270 |
|---|---|---|---|---|---|---|
| N | 2.0E-04 | 1.8E-04 | 1.7E-04 | 1.5E-04 | 1.4E-04 | 1.3E-04 |
| NNW | 7.7E-05 | 7.1E-05 | 6.6E-05 | 5.9E-05 | 5.7E-05 | 5.2E-05 |
| NW | 4.6E-05 | 4.3E-05 | 4.0E-05 | 3.7E-05 | 3.5E-05 | 3.2E-05 |
| WNW | 4.0E-05 | 3.7E-05 | 3.5E-05 | 3.1E-05 | 3.1E-05 | 2.8E-05 |
| W | 6.9E-05 | 6.3E-05 | 5.9E-05 | 5.3E-05 | 5.1E-05 | 4.7E-05 |
| WSW | 8.1E-05 | 7.5E-05 | 6.9E-05 | 6.2E-05 | 6.0E-05 | 5.5E-05 |
| SW | 1.1E-04 | 1.0E-04 | 9.4E-05 | 8.4E-05 | 8.1E-05 | 7.4E-05 |
| SSW | 1.4E-04 | 1.3E-04 | 1.2E-04 | 1.1E-04 | 1.0E-04 | 9.5E-05 |
| S | 2.6E-04 | 2.4E-04 | 2.2E-04 | 2.0E-04 | 1.9E-04 | 1.7E-04 |
| SSE | 1.5E-04 | 1.4E-04 | 1.3E-04 | 1.2E-04 | 1.1E-04 | 1.0E-04 |
| SE | 1.4E-04 | 1.3E-04 | 1.2E-04 | 1.1E-04 | 1.0E-04 | 9.2E-05 |
| ESE | 1.0E-04 | 9.7E-05 | 9.0E-05 | 8.0E-05 | 7.8E-05 | 7.0E-05 |
| E | 1.4E-04 | 1.3E-04 | 1.2E-04 | 1.1E-04 | 1.0E-04 | 9.2E-05 |
| ENE | 1.1E-04 | 1.0E-04 | 9.6E-05 | 8.6E-05 | 8.3E-05 | 7.5E-05 |
| NE | 2.0E-04 | 1.9E-04 | 1.7E-04 | 1.5E-04 | 1.5E-04 | 1.3E-04 |
| NNE | 1.9E-04 | 1.7E-04 | 1.6E-04 | 1.4E-04 | 1.4E-04 | 1.2E-04 |

C A P 8 8 - P C

Version 2.00

Clean Air Act Assessment Package - 1988

S Y N O P S I S   R E P O R T

Non-Radon Individual Assessment
Mar 11, 2003 12:37 pm

```
Facility:  Maywood Interim Storage Site - Cluster No. 1
 Address:  100 W. Hunter Avenue
    City:  Maywood
   State:  NJ          Zip:  07607-


Source Category:  Particulate Emission w radon daughters
    Source Type:  Area
  Emission Year:  2002


Comments:  Stone & Webster, Inc. for
           U.S. Army Corps of Engineers
```

Effective Dose Equivalent
(mrem/year)

---

1.92E-04

---

```
At This Location:     30 Meters North Northeast

    Dataset Name:  MISS CLUSTER #1
    Dataset Date:  Mar 10, 2003  05:12 pm
       Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
```

Mar 11, 2003 12:37 pm



MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 30 Meters North Northeast
Lifetime Fatal Cancer Risk: 2.13E-09

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 1.41E-06 |
| BREAST | 1.09E-06 |
| R MAR | 9.45E-05 |
| LUNGS | 1.19E-03 |
| THYROID | 1.05E-06 |
| ENDOST | 1.18E-03 |
| RMNDR | 7.95E-06 |
| | |
| EFFEC | 1.92E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 38 OF145 |

Mar 11, 2003 12:37 pm

SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| AC-228 | Y | 1.00 | 4.1E-10 | 4.1E-10 |
| BI-211 | W | 1.00 | 1.9E-11 | 1.9E-11 |
| BI-212 | W | 1.00 | 4.1E-10 | 4.1E-10 |
| FR-223 | D | 1.00 | 2.6E-13 | 2.6E-13 |
| PA-234M | Y | 1.00 | 4.0E-10 | 4.0E-10 |
| PA-231 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| PB-211 | D | 1.00 | 1.9E-11 | 1.9E-11 |
| PO-211 | - | 0.00 | 5.1E-14 | 5.1E-14 |
| PO-216 | W | 1.00 | 4.1E-10 | 4.1E-10 |
| PB-212 | D | 1.00 | 4.1E-10 | 4.1E-10 |
| PO-212 | W | 1.00 | 2.6E-10 | 2.6E-10 |
| PO-215 | W | 1.00 | 1.9E-11 | 1.9E-11 |
| RA-223 | W | 1.00 | 1.9E-11 | 1.9E-11 |
| RA-224 | W | 1.00 | 4.1E-10 | 4.1E-10 |
| TH-232 | Y | 1.00 | 4.1E-10 | 4.1E-10 |
| TH-228 | Y | 1.00 | 4.1E-10 | 4.1E-10 |
| TH-231 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| TH-227 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| TL-208 | D | 1.00 | 1.5E-10 | 1.5E-10 |
| U-235 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| TL-207 | D | 1.00 | 1.9E-11 | 1.9E-11 |
| U-238 | Y | 1.00 | 4.0E-10 | 4.0E-10 |
| TH-234 | Y | 1.00 | 4.0E-10 | 4.0E-10 |
| PA-234 | Y | 1.00 | 5.2E-13 | 5.2E-13 |
| U-234 | Y | 1.00 | 4.3E-10 | 4.3E-10 |
| TH-230 | Y | 1.00 | 4.3E-10 | 4.3E-10 |
| RA-226 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PO-218 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PB-214 | D | 1.00 | 1.8E-10 | 1.8E-10 |
| BI-214 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PO-214 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PB-210 | D | 1.00 | 1.8E-10 | 1.8E-10 |
| BI-210 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PO-210 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| RA-228 | W | 1.00 | 4.1E-10 | 4.1E-10 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 39 OF145 |

Mar 11, 2003 12:37 pm



SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 914.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

30 35 40 45 60 70 80 115 120

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 40 OF145 |

Mar 11, 2003 12:37 pm

SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 1.41E-06 |
| BREAST | 1.09E-06 |
| R MAR | 9.45E-05 |
| LUNGS | 1.19E-03 |
| THYROID | 1.05E-06 |
| ENDOST | 1.18E-03 |
| RMNDR | 7.95E-06 |
| EFFEC | 1.92E-04 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 3.17E-06 |
| INHALATION | 1.89E-04 |
| AIR IMMERSION | 3.38E-10 |
| GROUND SURFACE | 3.92E-08 |
| INTERNAL | 1.92E-04 |
| EXTERNAL | 3.95E-08 |
| TOTAL | 1.92E-04 |

Mar 11, 2003 12:37 pm



NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 4.67E-06 |
| AC-228 | 1.36E-08 |
| BI-211 | 7.65E-12 |
| BI-212 | 5.36E-09 |
| FR-223 | 2.75E-13 |
| PA-234M | 1.53E-12 |
| PA-231 | 3.57E-06 |
| PB-211 | 6.95E-11 |
| PO-211 | 1.54E-20 |
| PO-216 | 2.55E-24 |
| PB-212 | 2.65E-08 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 6.27E-08 |
| RA-224 | 5.53E-07 |
| TH-232 | 5.65E-05 |
| TH-228 | 3.96E-05 |
| TH-231 | 7.30E-12 |
| TH-227 | 8.41E-08 |
| TL-208 | 1.31E-10 |
| U-235 | 9.15E-07 |
| TL-207 | 6.91E-14 |
| U-238 | 1.84E-05 |
| TH-234 | 7.92E-09 |
| PA-234 | 6.25E-13 |
| U-234 | 2.21E-05 |
| TH-230 | 4.15E-05 |
| RA-226 | 8.25E-07 |
| PO-218 | 3.45E-12 |
| PB-214 | 7.44E-11 |
| BI-214 | 9.58E-11 |
| PO-214 | 0.00E+00 |
| PB-210 | 1.87E-06 |
| BI-210 | 1.32E-08 |
| PO-210 | 8.47E-07 |
| RA-228 | 6.49E-07 |
| TOTAL | 1.92E-04 |

Mar 11, 2003 12:37 pm

SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 30 | 35 | 40 | 45 | 60 | 70 | 80 |
| N | 1.5E-04 | 1.2E-04 | 9.5E-05 | 7.8E-05 | 4.9E-05 | 3.9E-05 | 3.2E-05 |
| NNW | 9.9E-05 | 7.3E-05 | 5.5E-05 | 4.3E-05 | 2.4E-05 | 1.7E-05 | 1.3E-05 |
| NW | 4.9E-05 | 3.7E-05 | 2.9E-05 | 2.3E-05 | 1.4E-05 | 1.1E-05 | 8.6E-06 |
| WNW | 4.6E-05 | 3.4E-05 | 2.6E-05 | 2.1E-05 | 1.2E-05 | 9.4E-06 | 7.6E-06 |
| W | 5.8E-05 | 4.5E-05 | 3.5E-05 | 2.9E-05 | 1.8E-05 | 1.4E-05 | 1.2E-05 |
| WSW | 8.0E-05 | 6.0E-05 | 4.7E-05 | 3.8E-05 | 2.2E-05 | 1.7E-05 | 1.4E-05 |
| SW | 1.1E-04 | 7.9E-05 | 6.2E-05 | 5.0E-05 | 3.0E-05 | 2.3E-05 | 1.8E-05 |
| SSW | 1.6E-04 | 1.2E-04 | 9.3E-05 | 7.3E-05 | 4.1E-05 | 3.0E-05 | 2.3E-05 |
| S | 1.9E-04 | 1.5E-04 | 1.2E-04 | 9.9E-05 | 6.4E-05 | 5.1E-05 | 4.2E-05 |
| SSE | 1.8E-04 | 1.3E-04 | 1.0E-04 | 7.9E-05 | 4.4E-05 | 3.3E-05 | 2.5E-05 |
| SE | 1.3E-04 | 9.6E-05 | 7.5E-05 | 6.1E-05 | 3.7E-05 | 2.8E-05 | 2.3E-05 |
| ESE | 1.2E-04 | 8.9E-05 | 6.8E-05 | 5.4E-05 | 3.0E-05 | 2.2E-05 | 1.8E-05 |
| E | 1.2E-04 | 8.8E-05 | 7.0E-05 | 5.7E-05 | 3.6E-05 | 2.8E-05 | 2.3E-05 |
| ENE | 1.4E-04 | 1.1E-04 | 8.0E-05 | 6.3E-05 | 3.4E-05 | 2.5E-05 | 1.9E-05 |
| NE | 1.7E-04 | 1.3E-04 | 1.0E-04 | 8.4E-05 | 5.2E-05 | 4.1E-05 | 3.3E-05 |
| NNE | 1.9E-04 | 1.4E-04 | 1.1E-04 | 8.9E-05 | 5.2E-05 | 3.9E-05 | 3.1E-05 |

| | Distance (m) | |
|---|---|---|
| Direction | 115 | 120 |
| N | 1.7E-05 | 1.6E-05 |
| NNW | 7.9E-06 | 7.5E-06 |
| NW | 5.5E-06 | 5.3E-06 |
| WNW | 5.0E-06 | 4.8E-06 |
| W | 7.2E-06 | 6.9E-06 |
| WSW | 8.2E-06 | 7.7E-06 |
| SW | 1.0E-05 | 9.8E-06 |
| SSW | 1.3E-05 | 1.2E-05 |
| S | 2.2E-05 | 2.1E-05 |
| SSE | 1.4E-05 | 1.3E-05 |
| SE | 1.3E-05 | 1.2E-05 |
| ESE | 1.0E-05 | 9.5E-06 |
| E | 1.3E-05 | 1.2E-05 |
| ENE | 1.1E-05 | 1.0E-05 |
| NE | 1.8E-05 | 1.7E-05 |
| NNE | 1.7E-05 | 1.6E-05 |

C A P 8 8 - P C

Version 2.00

Clean Air Act Assessment Package - 1988

S Y N O P S I S   R E P O R T

Non-Radon Individual Assessment
Mar 12, 2003 11:37 am

Facility: Maywood Interim Storage Site - Cluster 4-I80/160
Address: 100 W. Hunter Avenue
City: Maywood
State: NJ          Zip: 07607-

Source Category: Particulate Emission w radon daughters
Source Type: Area
Emission Year: 2002

Comments: Stone & Webster, Inc. for
U.S. Army Corps of Engineers

Effective Dose Equivalent
(mrem/year)

5.38E-04

At This Location: 30 Meters North Northeast

Dataset Name: MISS C4 I80/160
Dataset Date: Mar 12, 2003 09:43 am
Wind File: C:\DATA\CAP88PC2\WNDFILES\TET1358.WND

Mar 12, 2003 11:37 am

SYNOPSIS
Page 1

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 30 Meters North Northeast
Lifetime Fatal Cancer Risk: 6.12E-09

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 3.24E-06 |
| BREAST | 2.76E-06 |
| R MAR | 2.54E-04 |
| LUNGS | 3.39E-03 |
| THYROID | 2.68E-06 |
| ENDOST | 3.16E-03 |
| RMNDR | 1.37E-05 |
| | |
| EFFEC | 5.38E-04 |

Mar 12, 2003 11:37 am

SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 3.1E-11 | 3.1E-11 |
| AC-228 | Y | 1.00 | 1.7E-09 | 1.7E-09 |
| BI-211 | W | 1.00 | 3.1E-11 | 3.1E-11 |
| BI-212 | W | 1.00 | 1.7E-09 | 1.7E-09 |
| FR-223 | D | 1.00 | 4.3E-13 | 4.3E-13 |
| PA-234M | Y | 1.00 | 6.6E-10 | 6.6E-10 |
| PA-231 | Y | 1.00 | 3.1E-11 | 3.1E-11 |
| PB-211 | D | 1.00 | 3.1E-11 | 3.1E-11 |
| PO-211 | - | 0.00 | 8.4E-14 | 8.4E-14 |
| PO-216 | W | 1.00 | 1.7E-09 | 1.7E-09 |
| PB-212 | D | 1.00 | 1.7E-09 | 1.7E-09 |
| PO-212 | W | 1.00 | 1.1E-09 | 1.1E-09 |
| PO-215 | W | 1.00 | 3.1E-11 | 3.1E-11 |
| RA-223 | W | 1.00 | 3.1E-11 | 3.1E-11 |
| RA-224 | W | 1.00 | 1.7E-09 | 1.7E-09 |
| TH-232 | Y | 1.00 | 1.7E-09 | 1.7E-09 |
| TH-228 | Y | 1.00 | 1.7E-09 | 1.7E-09 |
| TH-231 | Y | 1.00 | 3.1E-11 | 3.1E-11 |
| TH-227 | Y | 1.00 | 3.0E-11 | 3.0E-11 |
| TL-208 | D | 1.00 | 6.1E-10 | 6.1E-10 |
| U-235 | Y | 1.00 | 3.1E-11 | 3.1E-11 |
| TL-207 | D | 1.00 | 3.1E-11 | 3.1E-11 |
| U-238 | Y | 1.00 | 6.6E-10 | 6.6E-10 |
| TH-234 | Y | 1.00 | 6.6E-10 | 6.6E-10 |
| PA-234 | Y | 1.00 | 8.6E-13 | 8.6E-13 |
| U-234 | Y | 1.00 | 7.1E-10 | 7.1E-10 |
| TH-230 | Y | 1.00 | 7.1E-10 | 7.1E-10 |
| RA-226 | W | 1.00 | 3.2E-10 | 3.2E-10 |
| PO-218 | W | 1.00 | 3.2E-10 | 3.2E-10 |
| PB-214 | D | 1.00 | 3.2E-10 | 3.2E-10 |
| BI-214 | W | 1.00 | 3.2E-10 | 3.2E-10 |
| PO-214 | W | 1.00 | 3.2E-10 | 3.2E-10 |
| PB-210 | D | 1.00 | 3.2E-10 | 3.2E-10 |
| BI-210 | W | 1.00 | 3.2E-10 | 3.2E-10 |
| PO-210 | W | 1.00 | 3.2E-10 | 3.2E-10 |
| RA-228 | W | 1.00 | 1.7E-09 | 1.7E-09 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

Mar 12, 2003 11:37 am



SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 1850.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

30 55 60 65 80 115 140 155 180 200
205

Mar 12, 2003 11:37 am



ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 3.24E-06 |
| BREAST | 2.76E-06 |
| R MAR | 2.54E-04 |
| LUNGS | 3.39E-03 |
| THYROID | 2.68E-06 |
| ENDOST | 3.16E-03 |
| RMNDR | 1.37E-05 |
| | |
| EFFEC | 5.38E-04 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 4.25E-06 |
| INHALATION | 5.34E-04 |
| AIR IMMERSION | 1.17E-09 |
| GROUND SURFACE | 6.81E-08 |
| INTERNAL | 5.38E-04 |
| EXTERNAL | 6.93E-08 |
| | |
| TOTAL | 5.38E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 48 OF145 |

Mar 12, 2003 11:37 am

SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 7.30E-06 |
| AC-228 | 5.46E-08 |
| BI-211 | 1.20E-11 |
| BI-212 | 2.15E-08 |
| FR-223 | 4.32E-13 |
| PA-234M | 2.41E-12 |
| PA-231 | 5.56E-06 |
| PB-211 | 1.09E-10 |
| PO-211 | 3.28E-20 |
| PO-216 | 2.23E-23 |
| PB-212 | 1.06E-07 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 9.70E-08 |
| RA-224 | 2.21E-06 |
| TH-232 | 2.26E-04 |
| TH-228 | 1.59E-04 |
| TH-231 | 1.15E-11 |
| TH-227 | 1.32E-07 |
| TL-208 | 5.29E-10 |
| U-235 | 1.43E-06 |
| TL-207 | 1.09E-13 |
| U-238 | 2.87E-05 |
| TH-234 | 1.12E-08 |
| PA-234 | 9.81E-13 |
| U-234 | 3.46E-05 |
| TH-230 | 6.52E-05 |
| RA-226 | 1.31E-06 |
| PO-218 | 6.04E-12 |
| PB-214 | 1.30E-10 |
| BI-214 | 1.67E-10 |
| PO-214 | 0.00E+00 |
| PB-210 | 2.70E-06 |
| BI-210 | 2.30E-08 |
| PO-210 | 1.32E-06 |
| RA-228 | 2.23E-06 |
| TOTAL | 5.38E-04 |

Mar 12, 2003 11:37 am

SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

Distance (m)

| Direction | 30 | 55 | 60 | 65 | 80 | 115 | 140 |
|---|---|---|---|---|---|---|---|
| N | 4.5E-04 | 1.5E-04 | 1.3E-04 | 1.1E-04 | 8.2E-05 | 4.6E-05 | 3.3E-05 |
| NNW | 3.2E-04 | 8.9E-05 | 7.4E-05 | 6.3E-05 | 4.0E-05 | 1.9E-05 | 1.4E-05 |
| NW | 1.9E-04 | 4.6E-05 | 3.9E-05 | 3.3E-05 | 2.3E-05 | 1.2E-05 | 9.1E-06 |
| WNW | 1.6E-04 | 4.2E-05 | 3.5E-05 | 3.0E-05 | 2.0E-05 | 1.0E-05 | 8.0E-06 |
| W | 1.8E-04 | 5.6E-05 | 4.8E-05 | 4.2E-05 | 3.0E-05 | 1.7E-05 | 1.3E-05 |
| WSW | 2.5E-04 | 7.5E-05 | 6.4E-05 | 5.5E-05 | 3.7E-05 | 2.0E-05 | 1.4E-05 |
| SW | 3.5E-04 | 1.0E-04 | 8.5E-05 | 7.3E-05 | 5.0E-05 | 2.6E-05 | 1.9E-05 |
| SSW | 4.8E-04 | 1.5E-04 | 1.3E-04 | 1.1E-04 | 7.0E-05 | 3.4E-05 | 2.4E-05 |
| S | 5.2E-04 | 1.9E-04 | 1.6E-04 | 1.4E-04 | 1.1E-04 | 6.1E-05 | 4.3E-05 |
| SSE | 5.2E-04 | 1.6E-04 | 1.4E-04 | 1.2E-04 | 7.6E-05 | 3.7E-05 | 2.6E-05 |
| SE | 4.3E-04 | 1.2E-04 | 1.0E-04 | 8.9E-05 | 6.1E-05 | 3.3E-05 | 2.3E-05 |
| ESE | 3.8E-04 | 1.1E-04 | 9.2E-05 | 7.8E-05 | 5.1E-05 | 2.5E-05 | 1.8E-05 |
| E | 3.8E-04 | 1.1E-04 | 9.6E-05 | 8.4E-05 | 5.9E-05 | 3.3E-05 | 2.3E-05 |
| ENE | 4.5E-04 | 1.3E-04 | 1.1E-04 | 9.1E-05 | 5.9E-05 | 2.7E-05 | 1.9E-05 |
| NE | 5.1E-04 | 1.6E-04 | 1.4E-04 | 1.2E-04 | 8.7E-05 | 4.8E-05 | 3.4E-05 |
| NNE | 5.4E-04 | 1.8E-04 | 1.5E-04 | 1.3E-04 | 8.8E-05 | 4.5E-05 | 3.1E-05 |

Distance (m)

| Direction | 155 | 180 | 200 | 205 |
|---|---|---|---|---|
| N | 2.7E-05 | 2.1E-05 | 1.8E-05 | 1.7E-05 |
| NNW | 1.2E-05 | 9.7E-06 | 8.4E-06 | 8.2E-06 |
| NW | 8.0E-06 | 6.7E-06 | 6.0E-06 | 5.8E-06 |
| WNW | 7.1E-06 | 6.0E-06 | 5.4E-06 | 5.3E-06 |
| W | 1.1E-05 | 8.8E-06 | 7.8E-06 | 7.5E-06 |
| WSW | 1.2E-05 | 1.0E-05 | 8.7E-06 | 8.5E-06 |
| SW | 1.6E-05 | 1.3E-05 | 1.1E-05 | 1.1E-05 |
| SSW | 2.0E-05 | 1.6E-05 | 1.4E-05 | 1.3E-05 |
| S | 3.6E-05 | 2.8E-05 | 2.3E-05 | 2.2E-05 |
| SSE | 2.2E-05 | 1.7E-05 | 1.5E-05 | 1.4E-05 |
| SE | 2.0E-05 | 1.6E-05 | 1.3E-05 | 1.3E-05 |
| ESE | 1.6E-05 | 1.2E-05 | 1.1E-05 | 1.0E-05 |
| E | 2.0E-05 | 1.6E-05 | 1.3E-05 | 1.3E-05 |
| ENE | 1.7E-05 | 1.3E-05 | 1.1E-05 | 1.1E-05 |
| NE | 2.9E-05 | 2.2E-05 | 1.9E-05 | 1.8E-05 |
| NNE | 2.6E-05 | 2.1E-05 | 1.7E-05 | 1.7E-05 |

```
                  C A P 8 8 - P C

                   Version 2.00


      Clean Air Act Assessment Package - 1988


            S Y N O P S I S   R E P O R T

          Non-Radon Individual Assessment
               Mar  12, 2003  12:05 pm



 Facility:  Maywood Interim Storage Site - Cluster #4-174
  Address:  100 W. Hunter Avenue
     City:  Maywood
    State:  NJ          Zip:  07607-


 Source Category:  Particulate Emission w radon daughters
     Source Type:  Area
   Emission Year:  2002


 Comments:  Stone & Webster, Inc. for
            U.S. Army Corps of Engineers


             Effective Dose Equivalent
                    (mrem/year)
             _________________________

                     9.98E-07
             _________________________


At This Location:      25 Meters South

    Dataset Name:  MISS CLST4 174
    Dataset Date:  Mar  12, 2003  12:05 pm
       Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
```

Mar 12, 2003 12:05 pm

SYNOPSIS
Page 1

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 25 Meters South
Lifetime Fatal Cancer Risk: 1.13E-11

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 6.01E-09 |
| BREAST | 5.12E-09 |
| R MAR | 4.71E-07 |
| LUNGS | 6.29E-06 |
| THYROID | 4.97E-09 |
| ENDOST | 5.86E-06 |
| RMNDR | 2.54E-08 |
| EFFEC | 9.98E-07 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 52 OF145 |

Mar 12, 2003 12:05 pm

SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 3.1E-14 | 3.1E-14 |
| AC-228 | Y | 1.00 | 1.7E-12 | 1.7E-12 |
| BI-211 | W | 1.00 | 3.1E-14 | 3.1E-14 |
| BI-212 | W | 1.00 | 1.7E-12 | 1.7E-12 |
| FR-223 | D | 1.00 | 4.2E-16 | 4.2E-16 |
| PA-234M | Y | 1.00 | 6.6E-13 | 6.6E-13 |
| PA-231 | Y | 1.00 | 3.1E-14 | 3.1E-14 |
| PB-211 | D | 1.00 | 3.1E-14 | 3.1E-14 |
| PO-211 | - | 0.00 | 8.4E-17 | 8.4E-17 |
| PO-216 | W | 1.00 | 1.7E-12 | 1.7E-12 |
| PB-212 | D | 1.00 | 1.7E-12 | 1.7E-12 |
| PO-212 | W | 1.00 | 1.1E-12 | 1.1E-12 |
| PO-215 | W | 1.00 | 3.1E-14 | 3.1E-14 |
| RA-223 | W | 1.00 | 3.1E-14 | 3.1E-14 |
| RA-224 | W | 1.00 | 1.7E-12 | 1.7E-12 |
| TH-232 | Y | 1.00 | 1.7E-12 | 1.7E-12 |
| TH-228 | Y | 1.00 | 1.7E-12 | 1.7E-12 |
| TH-231 | Y | 1.00 | 3.1E-14 | 3.1E-14 |
| TH-227 | Y | 1.00 | 3.0E-14 | 3.0E-14 |
| TL-208 | D | 1.00 | 6.1E-13 | 6.1E-13 |
| U-235 | Y | 1.00 | 3.1E-14 | 3.1E-14 |
| TL-207 | D | 1.00 | 3.1E-14 | 3.1E-14 |
| U-238 | Y | 1.00 | 6.6E-13 | 6.6E-13 |
| TH-234 | Y | 1.00 | 6.6E-13 | 6.6E-13 |
| PA-234 | Y | 1.00 | 8.5E-16 | 8.5E-16 |
| U-234 | Y | 1.00 | 7.0E-13 | 7.0E-13 |
| TH-230 | Y | 1.00 | 7.0E-13 | 7.0E-13 |
| RA-226 | W | 1.00 | 3.2E-13 | 3.2E-13 |
| PO-218 | W | 1.00 | 3.2E-13 | 3.2E-13 |
| PB-214 | D | 1.00 | 3.2E-13 | 3.2E-13 |
| BI-214 | W | 1.00 | 3.2E-13 | 3.2E-13 |
| PO-214 | W | 1.00 | 3.2E-13 | 3.2E-13 |
| PB-210 | D | 1.00 | 3.2E-13 | 3.2E-13 |
| BI-210 | W | 1.00 | 3.2E-13 | 3.2E-13 |
| PO-210 | W | 1.00 | 3.2E-13 | 3.2E-13 |
| RA-228 | W | 1.00 | 1.7E-12 | 1.7E-12 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 53 OF145 |

Mar 12, 2003 12:05 pm



SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 30.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

25 30 40 80 145 170 180 230

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 54 OF145 |

Mar 12, 2003 12:05 pm

SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 6.01E-09 |
| BREAST | 5.12E-09 |
| R MAR | 4.71E-07 |
| LUNGS | 6.29E-06 |
| THYROID | 4.97E-09 |
| ENDOST | 5.86E-06 |
| RMNDR | 2.54E-08 |
| EFFEC | 9.98E-07 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 7.91E-09 |
| INHALATION | 9.90E-07 |
| AIR IMMERSION | 2.18E-12 |
| GROUND SURFACE | 1.26E-10 |
| INTERNAL | 9.98E-07 |
| EXTERNAL | 1.28E-10 |
| TOTAL | 9.98E-07 |

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 1.36E-08 |
| AC-228 | 1.01E-10 |
| BI-211 | 2.25E-14 |
| BI-212 | 3.99E-11 |
| FR-223 | 8.03E-16 |
| PA-234M | 4.52E-15 |
| PA-231 | 1.03E-08 |
| PB-211 | 2.03E-13 |
| PO-211 | 1.72E-22 |
| PO-216 | 7.57E-25 |
| PB-212 | 1.97E-10 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 1.80E-10 |
| RA-224 | 4.10E-09 |
| TH-232 | 4.20E-07 |
| TH-228 | 2.94E-07 |
| TH-231 | 2.13E-14 |
| TH-227 | 2.45E-10 |
| TL-208 | 9.85E-13 |
| U-235 | 2.65E-09 |
| TL-207 | 2.03E-16 |
| U-238 | 5.34E-08 |
| TH-234 | 2.08E-11 |
| PA-234 | 1.82E-15 |
| U-234 | 6.41E-08 |
| TH-230 | 1.21E-07 |
| RA-226 | 2.43E-09 |
| PO-218 | 1.12E-14 |
| PB-214 | 2.41E-13 |
| BI-214 | 3.11E-13 |
| PO-214 | 0.00E+00 |
| PB-210 | 5.01E-09 |
| BI-210 | 4.26E-11 |
| PO-210 | 2.45E-09 |
| RA-228 | 4.14E-09 |
| TOTAL | 9.98E-07 |

Mar 12, 2003 12:05 pm

SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 25 | 30 | 40 | 80 | 145 | 170 | 180 |
| N | 7.4E-07 | 5.3E-07 | 3.2E-07 | 9.0E-08 | 3.3E-08 | 2.6E-08 | 2.4E-08 |
| NNW | 2.8E-07 | 2.0E-07 | 1.2E-07 | 3.7E-08 | 1.5E-08 | 1.3E-08 | 1.2E-08 |
| NW | 1.6E-07 | 1.2E-07 | 7.1E-08 | 2.3E-08 | 1.1E-08 | 9.5E-09 | 9.0E-09 |
| WNW | 1.3E-07 | 9.7E-08 | 6.0E-08 | 2.0E-08 | 1.0E-08 | 8.7E-09 | 8.4E-09 |
| W | 2.4E-07 | 1.7E-07 | 1.1E-07 | 3.3E-08 | 1.4E-08 | 1.2E-08 | 1.1E-08 |
| WSW | 2.8E-07 | 2.1E-07 | 1.3E-07 | 3.8E-08 | 1.6E-08 | 1.3E-08 | 1.2E-08 |
| SW | 4.0E-07 | 2.9E-07 | 1.7E-07 | 5.1E-08 | 2.0E-08 | 1.6E-08 | 1.5E-08 |
| SSW | 5.3E-07 | 3.8E-07 | 2.3E-07 | 6.6E-08 | 2.5E-08 | 2.0E-08 | 1.8E-08 |
| S | 1.0E-06 | 7.2E-07 | 4.3E-07 | 1.2E-07 | 4.2E-08 | 3.3E-08 | 3.0E-08 |
| SSE | 5.8E-07 | 4.2E-07 | 2.5E-07 | 7.2E-08 | 2.7E-08 | 2.1E-08 | 2.0E-08 |
| SE | 5.1E-07 | 3.7E-07 | 2.2E-07 | 6.4E-08 | 2.4E-08 | 1.9E-08 | 1.8E-08 |
| ESE | 3.8E-07 | 2.8E-07 | 1.7E-07 | 4.9E-08 | 1.9E-08 | 1.6E-08 | 1.5E-08 |
| E | 5.2E-07 | 3.7E-07 | 2.2E-07 | 6.4E-08 | 2.4E-08 | 1.9E-08 | 1.8E-08 |
| ENE | 4.2E-07 | 3.0E-07 | 1.8E-07 | 5.3E-08 | 2.1E-08 | 1.7E-08 | 1.5E-08 |
| NE | 7.8E-07 | 5.6E-07 | 3.4E-07 | 9.5E-08 | 3.4E-08 | 2.7E-08 | 2.4E-08 |
| NNE | 7.2E-07 | 5.2E-07 | 3.1E-07 | 8.7E-08 | 3.2E-08 | 2.5E-08 | 2.3E-08 |

| | Distance (m) |
|---|---|
| Direction | 230 |
| N | 1.7E-08 |
| NNW | 9.5E-09 |
| NW | 7.6E-09 |
| WNW | 7.2E-09 |
| W | 8.9E-09 |
| WSW | 9.7E-09 |
| SW | 1.1E-08 |
| SSW | 1.3E-08 |
| S | 2.1E-08 |
| SSE | 1.4E-08 |
| SE | 1.3E-08 |
| ESE | 1.1E-08 |
| E | 1.3E-08 |
| ENE | 1.2E-08 |
| NE | 1.7E-08 |
| NNE | 1.6E-08 |

```
                    C A P 8 8 - P C

                     Version 2.00


      Clean Air Act Assessment Package - 1988


               S Y N O P S I S   R E P O R T

             Non-Radon Individual Assessment
                 Mar  12, 2003  11:38 am



   Facility:  Maywood Interim Storage Site - Cluster #4-I80 Row
    Address:  100 W. Hunter Avenue
       City:  Maywood
      State:  NJ          Zip:  07607-


   Source Category:  Particulate Emission w radon daughters
       Source Type:  Area
     Emission Year:  2002


   Comments:  Stone & Webster, Inc. for
              U.S. Army Corps of Engineers


               Effective Dose Equivalent
                      (mrem/year)
               _________________________

                        1.18E-05
               _________________________


  At This Location:     10 Meters South

      Dataset Name:  MISS CLUS4 I80R
      Dataset Date:  Mar  12, 2003  11:24 am
         Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
```

Mar 12, 2003 11:38 am

SYNOPSIS
Page 1

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 10 Meters South
Lifetime Fatal Cancer Risk: 1.35E-10

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 7.03E-08 |
| BREAST | 5.97E-08 |
| R MAR | 5.58E-06 |
| LUNGS | 7.47E-05 |
| THYROID | 5.79E-08 |
| ENDOST | 6.94E-05 |
| RMNDR | 2.94E-07 |
| EFFEC | 1.18E-05 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 59 OF145 |

Mar 12, 2003 11:38 am

SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 7.1E-14 | 7.1E-14 |
| AC-228 | Y | 1.00 | 3.9E-12 | 3.9E-12 |
| BI-211 | W | 1.00 | 7.1E-14 | 7.1E-14 |
| BI-212 | W | 1.00 | 3.9E-12 | 3.9E-12 |
| FR-223 | D | 1.00 | 9.7E-16 | 9.7E-16 |
| PA-234M | Y | 1.00 | 1.5E-12 | 1.5E-12 |
| PA-231 | Y | 1.00 | 7.1E-14 | 7.1E-14 |
| PB-211 | D | 1.00 | 7.1E-14 | 7.1E-14 |
| PO-211 | - | 0.00 | 1.9E-16 | 1.9E-16 |
| PO-216 | W | 1.00 | 3.9E-12 | 3.9E-12 |
| PB-212 | D | 1.00 | 3.9E-12 | 3.9E-12 |
| PO-212 | W | 1.00 | 2.5E-12 | 2.5E-12 |
| PO-215 | W | 1.00 | 7.1E-14 | 7.1E-14 |
| RA-223 | W | 1.00 | 7.1E-14 | 7.1E-14 |
| RA-224 | W | 1.00 | 3.9E-12 | 3.9E-12 |
| TH-232 | Y | 1.00 | 3.9E-12 | 3.9E-12 |
| TH-228 | Y | 1.00 | 3.9E-12 | 3.9E-12 |
| TH-231 | Y | 1.00 | 7.1E-14 | 7.1E-14 |
| TH-227 | Y | 1.00 | 7.0E-14 | 7.0E-14 |
| TL-208 | D | 1.00 | 1.4E-12 | 1.4E-12 |
| U-235 | Y | 1.00 | 7.1E-14 | 7.1E-14 |
| TL-207 | D | 1.00 | 7.1E-14 | 7.1E-14 |
| U-238 | Y | 1.00 | 1.5E-12 | 1.5E-12 |
| TH-234 | Y | 1.00 | 1.5E-12 | 1.5E-12 |
| PA-234 | Y | 1.00 | 2.0E-15 | 2.0E-15 |
| U-234 | Y | 1.00 | 1.6E-12 | 1.6E-12 |
| TH-230 | Y | 1.00 | 1.6E-12 | 1.6E-12 |
| RA-226 | W | 1.00 | 7.3E-13 | 7.3E-13 |
| PO-218 | W | 1.00 | 7.3E-13 | 7.3E-13 |
| PB-214 | D | 1.00 | 7.3E-13 | 7.3E-13 |
| BI-214 | W | 1.00 | 7.3E-13 | 7.3E-13 |
| PO-214 | W | 1.00 | 7.3E-13 | 7.3E-13 |
| PB-210 | D | 1.00 | 7.3E-13 | 7.3E-13 |
| BI-210 | W | 1.00 | 7.3E-13 | 7.3E-13 |
| PO-210 | W | 1.00 | 7.3E-13 | 7.3E-13 |
| RA-228 | W | 1.00 | 3.9E-12 | 3.9E-12 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

Mar 12, 2003 11:38 am

SYNOPSIS
Page 3

SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 28.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

10 12 20 50 145 150 155 190

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 61 OF145 |

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ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 7.03E-08 |
| BREAST | 5.97E-08 |
| R MAR | 5.58E-06 |
| LUNGS | 7.47E-05 |
| THYROID | 5.79E-08 |
| ENDOST | 6.94E-05 |
| RMNDR | 2.94E-07 |
| | |
| EFFEC | 1.18E-05 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 8.62E-08 |
| INHALATION | 1.17E-05 |
| AIR IMMERSION | 2.62E-11 |
| GROUND SURFACE | 1.49E-09 |
| INTERNAL | 1.18E-05 |
| EXTERNAL | 1.52E-09 |
| | |
| TOTAL | 1.18E-05 |

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 1.61E-07 |
| AC-228 | 1.20E-09 |
| BI-211 | 2.76E-13 |
| BI-212 | 4.74E-10 |
| FR-223 | 9.55E-15 |
| PA-234M | 5.70E-14 |
| PA-231 | 1.22E-07 |
| PB-211 | 2.41E-12 |
| PO-211 | 9.35E-20 |
| PO-216 | 1.60E-18 |
| PB-212 | 2.34E-09 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 2.13E-09 |
| RA-224 | 4.87E-08 |
| TH-232 | 4.98E-06 |
| TH-228 | 3.49E-06 |
| TH-231 | 2.53E-13 |
| TH-227 | 2.90E-09 |
| TL-208 | 1.20E-11 |
| U-235 | 3.14E-08 |
| TL-207 | 2.44E-15 |
| U-238 | 6.33E-07 |
| TH-234 | 2.43E-10 |
| PA-234 | 2.16E-14 |
| U-234 | 7.59E-07 |
| TH-230 | 1.43E-06 |
| RA-226 | 2.83E-08 |
| PO-218 | 1.37E-13 |
| PB-214 | 2.87E-12 |
| BI-214 | 3.70E-12 |
| PO-214 | 0.00E+00 |
| PB-210 | 5.75E-08 |
| BI-210 | 5.05E-10 |
| PO-210 | 2.85E-08 |
| RA-228 | 4.79E-08 |
| TOTAL | 1.18E-05 |

Mar 12, 2003 11:38 am

SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

Distance (m)

| Direction | 10 | 12 | 20 | 50 | 145 | 150 | 155 |
|---|---|---|---|---|---|---|---|
| N | 8.8E-06 | 6.3E-06 | 2.6E-06 | 5.3E-07 | 1.2E-07 | 1.1E-07 | 1.1E-07 |
| NNW | 3.3E-06 | 2.4E-06 | 9.8E-07 | 2.3E-07 | 7.7E-08 | 7.5E-08 | 7.4E-08 |
| NW | 1.9E-06 | 1.4E-06 | 5.8E-07 | 1.5E-07 | 6.7E-08 | 6.6E-08 | 6.5E-08 |
| WNW | 1.5E-06 | 1.1E-06 | 4.9E-07 | 1.4E-07 | 6.4E-08 | 6.4E-08 | 6.3E-08 |
| W | 2.8E-06 | 2.0E-06 | 8.5E-07 | 2.1E-07 | 7.4E-08 | 7.3E-08 | 7.2E-08 |
| WSW | 3.3E-06 | 2.4E-06 | 1.0E-06 | 2.4E-07 | 7.8E-08 | 7.7E-08 | 7.5E-08 |
| SW | 4.7E-06 | 3.4E-06 | 1.4E-06 | 3.1E-07 | 8.8E-08 | 8.6E-08 | 8.4E-08 |
| SSW | 6.2E-06 | 4.5E-06 | 1.8E-06 | 3.9E-07 | 9.9E-08 | 9.6E-08 | 9.3E-08 |
| S | 1.2E-05 | 8.6E-06 | 3.5E-06 | 6.9E-07 | 1.4E-07 | 1.3E-07 | 1.3E-07 |
| SSE | 6.9E-06 | 5.0E-06 | 2.0E-06 | 4.2E-07 | 1.0E-07 | 1.0E-07 | 9.7E-08 |
| SE | 6.1E-06 | 4.4E-06 | 1.8E-06 | 3.8E-07 | 9.7E-08 | 9.5E-08 | 9.2E-08 |
| ESE | 4.6E-06 | 3.3E-06 | 1.3E-06 | 3.0E-07 | 8.6E-08 | 8.4E-08 | 8.2E-08 |
| E | 6.2E-06 | 4.5E-06 | 1.8E-06 | 3.8E-07 | 9.7E-08 | 9.5E-08 | 9.2E-08 |
| ENE | 5.0E-06 | 3.6E-06 | 1.5E-06 | 3.2E-07 | 8.9E-08 | 8.7E-08 | 8.5E-08 |
| NE | 9.3E-06 | 6.7E-06 | 2.7E-06 | 5.5E-07 | 1.2E-07 | 1.2E-07 | 1.1E-07 |
| NNE | 8.5E-06 | 6.1E-06 | 2.5E-06 | 5.1E-07 | 1.1E-07 | 1.1E-07 | 1.1E-07 |

Distance (m)

| Direction | 190 |
|---|---|
| N | 9.1E-08 |
| NNW | 6.7E-08 |
| NW | 6.1E-08 |
| WNW | 6.0E-08 |
| W | 6.6E-08 |
| WSW | 6.8E-08 |
| SW | 7.4E-08 |
| SSW | 8.1E-08 |
| S | 1.0E-07 |
| SSE | 8.3E-08 |
| SE | 8.0E-08 |
| ESE | 7.3E-08 |
| E | 8.0E-08 |
| ENE | 7.5E-08 |
| NE | 9.3E-08 |
| NNE | 9.0E-08 |

```
                      C A P 8 8 - P C

                       Version 2.00

          Clean Air Act Assessment Package - 1988


               S Y N O P S I S   R E P O R T

              Non-Radon Individual Assessment
                 Mar  12, 2003  11:38 am


 Facility:  Maywood Interim Storage Site - Cluster #4-I80/150
  Address:  100 W. Hunter Avenue
     City:  Maywood
    State:  NJ          Zip:  07607-


 Source Category:  Particulate Emission w radon daughters
     Source Type:  Area
   Emission Year:  2002


 Comments:  Stone & Webster, Inc. for
            U.S. Army Corps of Engineers


            Effective Dose Equivalent
                   (mrem/year)
          _________________________

                    1.72E-04
          _________________________


At This Location:     10 Meters Northeast

    Dataset Name:  MISS CL4 I80/150
    Dataset Date:  Mar  12, 2003  11:35 am
       Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
```

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 10 Meters Northeast
Lifetime Fatal Cancer Risk: 1.95E-09

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 1.02E-06 |
| BREAST | 8.70E-07 |
| R MAR | 8.10E-05 |
| LUNGS | 1.08E-03 |
| THYROID | 8.44E-07 |
| ENDOST | 1.01E-03 |
| RMNDR | 4.29E-06 |
| | |
| EFFEC | 1.72E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 66 OF145 |

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SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 1.2E-12 | 1.2E-12 |
| AC-228 | Y | 1.00 | 6.5E-11 | 6.5E-11 |
| BI-211 | W | 1.00 | 1.2E-12 | 1.2E-12 |
| BI-212 | W | 1.00 | 6.5E-11 | 6.5E-11 |
| FR-223 | D | 1.00 | 1.6E-14 | 1.6E-14 |
| PA-234M | Y | 1.00 | 2.5E-11 | 2.5E-11 |
| PA-231 | Y | 1.00 | 1.2E-12 | 1.2E-12 |
| PB-211 | D | 1.00 | 1.2E-12 | 1.2E-12 |
| PO-211 | - | 0.00 | 3.2E-15 | 3.2E-15 |
| PO-216 | W | 1.00 | 6.5E-11 | 6.5E-11 |
| PB-212 | D | 1.00 | 6.5E-11 | 6.5E-11 |
| PO-212 | W | 1.00 | 4.1E-11 | 4.1E-11 |
| PO-215 | W | 1.00 | 1.2E-12 | 1.2E-12 |
| RA-223 | W | 1.00 | 1.2E-12 | 1.2E-12 |
| RA-224 | W | 1.00 | 6.5E-11 | 6.5E-11 |
| TH-232 | Y | 1.00 | 6.5E-11 | 6.5E-11 |
| TH-228 | Y | 1.00 | 6.5E-11 | 6.5E-11 |
| TH-231 | Y | 1.00 | 1.2E-12 | 1.2E-12 |
| TH-227 | Y | 1.00 | 1.2E-12 | 1.2E-12 |
| TL-208 | D | 1.00 | 2.3E-11 | 2.3E-11 |
| U-235 | Y | 1.00 | 1.2E-12 | 1.2E-12 |
| TL-207 | D | 1.00 | 1.2E-12 | 1.2E-12 |
| U-238 | Y | 1.00 | 2.5E-11 | 2.5E-11 |
| TH-234 | Y | 1.00 | 2.5E-11 | 2.5E-11 |
| PA-234 | Y | 1.00 | 3.3E-14 | 3.3E-14 |
| U-234 | Y | 1.00 | 2.7E-11 | 2.7E-11 |
| TH-230 | Y | 1.00 | 2.7E-11 | 2.7E-11 |
| RA-226 | W | 1.00 | 1.2E-11 | 1.2E-11 |
| PO-218 | W | 1.00 | 1.2E-11 | 1.2E-11 |
| PB-214 | D | 1.00 | 1.2E-11 | 1.2E-11 |
| BI-214 | W | 1.00 | 1.2E-11 | 1.2E-11 |
| PO-214 | W | 1.00 | 1.2E-11 | 1.2E-11 |
| PB-210 | D | 1.00 | 1.2E-11 | 1.2E-11 |
| BI-210 | W | 1.00 | 1.2E-11 | 1.2E-11 |
| PO-210 | W | 1.00 | 1.2E-11 | 1.2E-11 |
| RA-228 | W | 1.00 | 6.5E-11 | 6.5E-11 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 483.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

10 20 30 35 60 150 160 185 200

Mar 12, 2003 11:38 am

SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 1.02E-06 |
| BREAST | 8.70E-07 |
| R MAR | 8.10E-05 |
| LUNGS | 1.08E-03 |
| THYROID | 8.44E-07 |
| ENDOST | 1.01E-03 |
| RMNDR | 4.29E-06 |
| | |
| EFFEC | 1.72E-04 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 1.28E-06 |
| INHALATION | 1.70E-04 |
| AIR IMMERSION | 3.80E-10 |
| GROUND SURFACE | 2.16E-08 |
| INTERNAL | 1.72E-04 |
| EXTERNAL | 2.20E-08 |
| | |
| TOTAL | 1.72E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 69 OF145 |

Mar 12, 2003 11:38 am



NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 2.33E-06 |
| AC-228 | 1.74E-08 |
| BI-211 | 4.03E-12 |
| BI-212 | 6.87E-09 |
| FR-223 | 1.38E-13 |
| PA-234M | 8.36E-13 |
| PA-231 | 1.78E-06 |
| PB-211 | 3.50E-11 |
| PO-211 | 2.73E-18 |
| PO-216 | 1.55E-16 |
| PB-212 | 3.39E-08 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 3.10E-08 |
| RA-224 | 7.06E-07 |
| TH-232 | 7.22E-05 |
| TH-228 | 5.07E-05 |
| TH-231 | 3.67E-12 |
| TH-227 | 4.19E-08 |
| TL-208 | 1.75E-10 |
| U-235 | 4.56E-07 |
| TL-207 | 3.55E-14 |
| U-238 | 9.17E-06 |
| TH-234 | 3.53E-09 |
| PA-234 | 3.13E-13 |
| U-234 | 1.10E-05 |
| TH-230 | 2.08E-05 |
| RA-226 | 4.13E-07 |
| PO-218 | 1.99E-12 |
| PB-214 | 4.17E-11 |
| BI-214 | 5.37E-11 |
| PO-214 | 0.00E+00 |
| PB-210 | 8.42E-07 |
| BI-210 | 7.33E-09 |
| PO-210 | 4.16E-07 |
| RA-228 | 6.99E-07 |
| TOTAL | 1.72E-04 |

Mar 12, 2003 11:38 am

SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 10 | 20 | 30 | 35 | 60 | 150 | 160 |
| N | 1.4E-04 | 3.5E-05 | 1.8E-05 | 1.4E-05 | 6.4E-06 | 1.8E-06 | 1.7E-06 |
| NNW | 1.3E-04 | 2.4E-05 | 1.1E-05 | 7.9E-06 | 2.9E-06 | 1.2E-06 | 1.1E-06 |
| NW | 1.0E-04 | 1.2E-05 | 5.7E-06 | 4.4E-06 | 2.0E-06 | 1.0E-06 | 9.8E-07 |
| WNW | 8.3E-05 | 1.1E-05 | 5.2E-06 | 4.0E-06 | 1.8E-06 | 9.7E-07 | 9.5E-07 |
| W | 8.0E-05 | 1.4E-05 | 7.0E-06 | 5.5E-06 | 2.6E-06 | 1.1E-06 | 1.1E-06 |
| WSW | 1.1E-04 | 1.9E-05 | 9.1E-06 | 7.0E-06 | 3.0E-06 | 1.2E-06 | 1.1E-06 |
| SW | 1.4E-04 | 2.5E-05 | 1.2E-05 | 9.2E-06 | 3.8E-06 | 1.3E-06 | 1.3E-06 |
| SSW | 1.5E-04 | 3.9E-05 | 1.8E-05 | 1.3E-05 | 4.8E-06 | 1.5E-06 | 1.4E-06 |
| S | 1.6E-04 | 4.3E-05 | 2.3E-05 | 1.8E-05 | 8.4E-06 | 2.1E-06 | 2.0E-06 |
| SSE | 1.7E-04 | 4.2E-05 | 1.9E-05 | 1.4E-05 | 5.2E-06 | 1.6E-06 | 1.5E-06 |
| SE | 1.7E-04 | 3.0E-05 | 1.5E-05 | 1.1E-05 | 4.6E-06 | 1.5E-06 | 1.4E-06 |
| ESE | 1.7E-04 | 2.8E-05 | 1.3E-05 | 9.8E-06 | 3.7E-06 | 1.3E-06 | 1.3E-06 |
| E | 1.6E-04 | 2.7E-05 | 1.4E-05 | 1.1E-05 | 4.7E-06 | 1.5E-06 | 1.4E-06 |
| ENE | 1.7E-04 | 3.4E-05 | 1.5E-05 | 1.1E-05 | 3.9E-06 | 1.4E-06 | 1.3E-06 |
| NE | 1.7E-04 | 3.9E-05 | 2.0E-05 | 1.6E-05 | 6.7E-06 | 1.8E-06 | 1.7E-06 |
| NNE | 1.6E-04 | 4.5E-05 | 2.1E-05 | 1.6E-05 | 6.2E-06 | 1.8E-06 | 1.6E-06 |

| | Distance (m) | |
|---|---|---|
| Direction | 185 | 200 |
| N | 1.5E-06 | 1.4E-06 |
| NNW | 1.0E-06 | 1.0E-06 |
| NW | 9.4E-07 | 9.2E-07 |
| WNW | 9.2E-07 | 9.0E-07 |
| W | 1.0E-06 | 9.9E-07 |
| WSW | 1.1E-06 | 1.0E-06 |
| SW | 1.2E-06 | 1.1E-06 |
| SSW | 1.3E-06 | 1.2E-06 |
| S | 1.7E-06 | 1.6E-06 |
| SSE | 1.3E-06 | 1.2E-06 |
| SE | 1.3E-06 | 1.2E-06 |
| ESE | 1.1E-06 | 1.1E-06 |
| E | 1.3E-06 | 1.2E-06 |
| ENE | 1.2E-06 | 1.1E-06 |
| NE | 1.5E-06 | 1.4E-06 |
| NNE | 1.4E-06 | 1.4E-06 |

C A P 8 8 - P C

Version 2.00

Clean Air Act Assessment Package - 1988

S Y N O P S I S   R E P O R T

Non-Radon Individual Assessment
Mar 11, 2003 12:36 pm

Facility: Maywood Interim Storage Site - Radiochemistry Lab
Address: 100 W. Hunter Avenue
City: Maywood
State: NJ   Zip: 07607-

Source Category: Particulate Emission w radon daughters
Source Type: Area
Emission Year: 2002

Comments: Stone & Webster, Inc. for
U.S. Army Corps of Engineers

Effective Dose Equivalent
(mrem/year)

1.25E-04

At This Location: 60 Meters South

Dataset Name: MISS RADIOCHEM
Dataset Date: Mar 11, 2003 11:47 am
Wind File: C:\DATA\CAP88PC2\WNDFILES\TET1358.WND

Mar 11, 2003 12:36 pm



MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 60 Meters South
Lifetime Fatal Cancer Risk: 1.41E-09

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 8.67E-07 |
| BREAST | 7.31E-07 |
| R MAR | 5.98E-05 |
| LUNGS | 7.82E-04 |
| THYROID | 7.08E-07 |
| ENDOST | 7.45E-04 |
| RMNDR | 4.51E-06 |
| | |
| EFFEC | 1.25E-04 |

Mar 11, 2003 12:36 pm

SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| AC-228 | Y | 1.00 | 1.1E-09 | 1.1E-09 |
| BI-211 | W | 1.00 | 2.6E-11 | 2.6E-11 |
| BI-212 | W | 1.00 | 1.1E-09 | 1.1E-09 |
| FR-223 | D | 1.00 | 3.6E-13 | 3.6E-13 |
| PA-234M | Y | 1.00 | 5.6E-10 | 5.6E-10 |
| PA-231 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| PB-211 | D | 1.00 | 2.6E-11 | 2.6E-11 |
| PO-211 | - | 0.00 | 7.1E-14 | 7.1E-14 |
| PO-216 | W | 1.00 | 1.1E-09 | 1.1E-09 |
| PB-212 | D | 1.00 | 1.1E-09 | 1.1E-09 |
| PO-212 | W | 1.00 | 6.9E-10 | 6.9E-10 |
| PO-215 | W | 1.00 | 2.6E-11 | 2.6E-11 |
| RA-223 | W | 1.00 | 2.6E-11 | 2.6E-11 |
| RA-224 | W | 1.00 | 1.1E-09 | 1.1E-09 |
| TH-232 | Y | 1.00 | 1.1E-09 | 1.1E-09 |
| TH-228 | Y | 1.00 | 1.1E-09 | 1.1E-09 |
| TH-231 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| TH-227 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| TL-208 | D | 1.00 | 3.9E-10 | 3.9E-10 |
| U-235 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| TL-207 | D | 1.00 | 2.6E-11 | 2.6E-11 |
| U-238 | Y | 1.00 | 5.6E-10 | 5.6E-10 |
| TH-234 | Y | 1.00 | 5.6E-10 | 5.6E-10 |
| PA-234 | Y | 1.00 | 7.2E-13 | 7.2E-13 |
| U-234 | Y | 1.00 | 5.9E-10 | 5.9E-10 |
| TH-230 | Y | 1.00 | 5.9E-10 | 5.9E-10 |
| RA-226 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PO-218 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PB-214 | D | 1.00 | 4.2E-10 | 4.2E-10 |
| BI-214 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PO-214 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PB-210 | D | 1.00 | 4.2E-10 | 4.2E-10 |
| BI-210 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PO-210 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| RA-228 | W | 1.00 | 1.1E-09 | 1.1E-09 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 74 OF145 |

Mar 11, 2003 12:36 pm



SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 985.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

60 75 105 120 135 175 185 220 250 260
285

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 75 OF145 |

Mar 11, 2003 12:36 pm

SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 8.67E-07 |
| BREAST | 7.31E-07 |
| R MAR | 5.98E-05 |
| LUNGS | 7.82E-04 |
| THYROID | 7.08E-07 |
| ENDOST | 7.45E-04 |
| RMNDR | 4.51E-06 |
| EFFEC | 1.25E-04 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 1.43E-06 |
| INHALATION | 1.24E-04 |
| AIR IMMERSION | 2.74E-10 |
| GROUND SURFACE | 2.12E-08 |
| INTERNAL | 1.25E-04 |
| EXTERNAL | 2.15E-08 |
| TOTAL | 1.25E-04 |

Mar 11, 2003 12:36 pm

SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 2.05E-06 |
| AC-228 | 1.16E-08 |
| BI-211 | 3.16E-12 |
| BI-212 | 4.54E-09 |
| FR-223 | 1.21E-13 |
| PA-234M | 6.00E-13 |
| PA-231 | 1.56E-06 |
| PB-211 | 3.06E-11 |
| PO-211 | 9.34E-24 |
| PO-216 | 1.23E-34 |
| PB-212 | 2.25E-08 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 2.73E-08 |
| RA-224 | 4.68E-07 |
| TH-232 | 4.79E-05 |
| TH-228 | 3.36E-05 |
| TH-231 | 3.22E-12 |
| TH-227 | 3.71E-08 |
| TL-208 | 1.06E-10 |
| U-235 | 4.02E-07 |
| TL-207 | 2.96E-14 |
| U-238 | 8.08E-06 |
| TH-234 | 3.18E-09 |
| PA-234 | 2.76E-13 |
| U-234 | 9.73E-06 |
| TH-230 | 1.83E-05 |
| RA-226 | 5.84E-07 |
| PO-218 | 2.55E-12 |
| PB-214 | 5.73E-11 |
| BI-214 | 7.36E-11 |
| PO-214 | 0.00E+00 |
| PB-210 | 1.22E-06 |
| BI-210 | 1.02E-08 |
| PO-210 | 5.91E-07 |
| RA-228 | 4.78E-07 |
| TOTAL | 1.25E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 77 OF145 |

Mar 11, 2003 12:36 pm

SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 60 | 75 | 105 | 120 | 135 | 175 | 185 |
| N | 9.6E-05 | 6.7E-05 | 3.7E-05 | 2.9E-05 | 2.3E-05 | 1.5E-05 | 1.3E-05 |
| NNW | 4.5E-05 | 2.7E-05 | 1.4E-05 | 1.1E-05 | 9.2E-06 | 6.0E-06 | 5.5E-06 |
| NW | 2.4E-05 | 1.6E-05 | 8.5E-06 | 6.8E-06 | 5.7E-06 | 3.8E-06 | 3.6E-06 |
| WNW | 2.1E-05 | 1.3E-05 | 7.2E-06 | 5.8E-06 | 4.9E-06 | 3.4E-06 | 3.1E-06 |
| W | 3.3E-05 | 2.3E-05 | 1.3E-05 | 1.0E-05 | 8.2E-06 | 5.4E-06 | 5.0E-06 |
| WSW | 4.2E-05 | 2.7E-05 | 1.5E-05 | 1.2E-05 | 9.6E-06 | 6.3E-06 | 5.8E-06 |
| SW | 5.7E-05 | 3.8E-05 | 2.0E-05 | 1.6E-05 | 1.3E-05 | 8.4E-06 | 7.7E-06 |
| SSW | 8.1E-05 | 5.0E-05 | 2.6E-05 | 2.1E-05 | 1.7E-05 | 1.1E-05 | 9.7E-06 |
| S | 1.3E-04 | 9.0E-05 | 4.9E-05 | 3.8E-05 | 3.1E-05 | 1.9E-05 | 1.7E-05 |
| SSE | 8.8E-05 | 5.5E-05 | 2.9E-05 | 2.3E-05 | 1.8E-05 | 1.2E-05 | 1.1E-05 |
| SE | 7.1E-05 | 4.7E-05 | 2.6E-05 | 2.0E-05 | 1.6E-05 | 1.0E-05 | 9.5E-06 |
| ESE | 5.9E-05 | 3.7E-05 | 1.9E-05 | 1.5E-05 | 1.2E-05 | 8.0E-06 | 7.3E-06 |
| E | 6.9E-05 | 4.7E-05 | 2.6E-05 | 2.0E-05 | 1.6E-05 | 1.0E-05 | 9.5E-06 |
| ENE | 6.7E-05 | 4.0E-05 | 2.1E-05 | 1.7E-05 | 1.3E-05 | 8.6E-06 | 7.8E-06 |
| NE | 1.0E-04 | 7.1E-05 | 3.8E-05 | 3.0E-05 | 2.4E-05 | 1.5E-05 | 1.4E-05 |
| NNE | 1.0E-04 | 6.7E-05 | 3.5E-05 | 2.8E-05 | 2.2E-05 | 1.4E-05 | 1.3E-05 |

| | Distance (m) | | | |
|---|---|---|---|---|
| Direction | 220 | 250 | 260 | 285 |
| N | 9.8E-06 | 7.9E-06 | 7.4E-06 | 6.4E-06 |
| NNW | 4.2E-06 | 3.5E-06 | 3.4E-06 | 3.0E-06 |
| NW | 2.8E-06 | 2.4E-06 | 2.3E-06 | 2.1E-06 |
| WNW | 2.5E-06 | 2.2E-06 | 2.1E-06 | 1.9E-06 |
| W | 3.9E-06 | 3.2E-06 | 3.1E-06 | 2.7E-06 |
| WSW | 4.4E-06 | 3.7E-06 | 3.5E-06 | 3.1E-06 |
| SW | 5.8E-06 | 4.8E-06 | 4.5E-06 | 3.9E-06 |
| SSW | 7.3E-06 | 5.9E-06 | 5.6E-06 | 4.8E-06 |
| S | 1.3E-05 | 1.0E-05 | 9.6E-06 | 8.2E-06 |
| SSE | 7.9E-06 | 6.4E-06 | 6.0E-06 | 5.2E-06 |
| SE | 7.1E-06 | 5.8E-06 | 5.4E-06 | 4.7E-06 |
| ESE | 5.6E-06 | 4.6E-06 | 4.3E-06 | 3.8E-06 |
| E | 7.1E-06 | 5.8E-06 | 5.4E-06 | 4.7E-06 |
| ENE | 5.9E-06 | 4.9E-06 | 4.6E-06 | 4.0E-06 |
| NE | 1.0E-05 | 8.2E-06 | 7.7E-06 | 6.6E-06 |
| NNE | 9.4E-06 | 7.6E-06 | 7.1E-06 | 6.1E-06 |

C A P 8 8 - P C

Version 2.00

Clean Air Act Assessment Package - 1988

S Y N O P S I S   R E P O R T

Non-Radon Individual Assessment
Mar 11, 2003 12:36 pm

Facility: Maywood Interim Storage Site - Rail Spur Cutback
Address: 100 W. Hunter Avenue
City: Maywood
State: NJ          Zip: 07607-

Source Category: Particulate Emission w radon daughters
Source Type: Area
Emission Year: 2002

Comments: Stone & Webster, Inc. for
U.S. Army Corps of Engineers

Effective Dose Equivalent
(mrem/year)

1.13E-03

At This Location: 100 Meters South

Dataset Name: MISS RAIL SPUR
Dataset Date: Mar 11, 2003 12:07 pm
Wind File: C:\DATA\CAP88PC2\WNDFILES\TET1358.WND

Mar 11, 2003 12:36 pm

SYNOPSIS
Page 1

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 100 Meters South
Lifetime Fatal Cancer Risk: 1.31E-08

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 7.01E-06 |
| BREAST | 6.48E-06 |
| R MAR | 5.29E-04 |
| LUNGS | 7.19E-03 |
| THYROID | 6.34E-06 |
| ENDOST | 6.58E-03 |
| RMNDR | 2.73E-05 |
| | |
| EFFEC | 1.13E-03 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 80 OF145 |

Mar 11, 2003 12:36 pm

SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| AC-228 | Y | 1.00 | 2.9E-08 | 2.9E-08 |
| BI-211 | W | 1.00 | 2.5E-10 | 2.5E-10 |
| BI-212 | W | 1.00 | 2.9E-08 | 2.9E-08 |
| FR-223 | D | 1.00 | 3.5E-12 | 3.5E-12 |
| PA-234M | Y | 1.00 | 5.4E-09 | 5.4E-09 |
| PA-231 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| PB-211 | D | 1.00 | 2.5E-10 | 2.5E-10 |
| PO-211 | - | 0.00 | 6.9E-13 | 6.9E-13 |
| PO-216 | W | 1.00 | 2.9E-08 | 2.9E-08 |
| PB-212 | D | 1.00 | 2.9E-08 | 2.9E-08 |
| PO-212 | W | 1.00 | 1.9E-08 | 1.9E-08 |
| PO-215 | W | 1.00 | 2.5E-10 | 2.5E-10 |
| RA-223 | W | 1.00 | 2.5E-10 | 2.5E-10 |
| RA-224 | W | 1.00 | 2.9E-08 | 2.9E-08 |
| TH-232 | Y | 1.00 | 2.9E-08 | 2.9E-08 |
| TH-228 | Y | 1.00 | 2.9E-08 | 2.9E-08 |
| TH-231 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| TH-227 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| TL-208 | D | 1.00 | 1.0E-08 | 1.0E-08 |
| U-235 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| TL-207 | D | 1.00 | 2.5E-10 | 2.5E-10 |
| U-238 | Y | 1.00 | 5.4E-09 | 5.4E-09 |
| TH-234 | Y | 1.00 | 5.4E-09 | 5.4E-09 |
| PA-234 | Y | 1.00 | 7.1E-12 | 7.1E-12 |
| U-234 | Y | 1.00 | 5.8E-09 | 5.8E-09 |
| TH-230 | Y | 1.00 | 5.8E-09 | 5.8E-09 |
| RA-226 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PO-218 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PB-214 | D | 1.00 | 4.1E-09 | 4.1E-09 |
| BI-214 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PO-214 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PB-210 | D | 1.00 | 4.1E-09 | 4.1E-09 |
| BI-210 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PO-210 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| RA-228 | W | 1.00 | 2.9E-08 | 2.9E-08 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 81 OF145 |

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SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 1476.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 100 | 105 | 120 | 125 | 150 | 160 | 165 | 180 | 210 | 220 |
| 225 | 255 | 270 | 315 | | | | | | |

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 7.01E-06 |
| BREAST | 6.48E-06 |
| R MAR | 5.29E-04 |
| LUNGS | 7.19E-03 |
| THYROID | 6.34E-06 |
| ENDOST | 6.58E-03 |
| RMNDR | 2.73E-05 |
| EFFEC | 1.13E-03 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 1.04E-05 |
| INHALATION | 1.12E-03 |
| AIR IMMERSION | 2.64E-09 |
| GROUND SURFACE | 1.02E-07 |
| INTERNAL | 1.13E-03 |
| EXTERNAL | 1.05E-07 |
| TOTAL | 1.13E-03 |

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SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 8.59E-06 |
| AC-228 | 1.34E-07 |
| BI-211 | 1.21E-11 |
| BI-212 | 5.24E-08 |
| FR-223 | 4.99E-13 |
| PA-234M | 2.15E-12 |
| PA-231 | 6.55E-06 |
| PB-211 | 1.27E-10 |
| PO-211 | 4.15E-27 |
| PO-216 | 0.00E+00 |
| PB-212 | 2.60E-07 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 1.15E-07 |
| RA-224 | 5.42E-06 |
| TH-232 | 5.55E-04 |
| TH-228 | 3.89E-04 |
| TH-231 | 1.34E-11 |
| TH-227 | 1.55E-07 |
| TL-208 | 1.16E-09 |
| U-235 | 1.68E-06 |
| TL-207 | 1.19E-13 |
| U-238 | 3.38E-05 |
| TH-234 | 1.40E-08 |
| PA-234 | 1.15E-12 |
| U-234 | 4.07E-05 |
| TH-230 | 7.65E-05 |
| RA-226 | 2.56E-06 |
| PO-218 | 9.96E-12 |
| PB-214 | 2.37E-10 |
| BI-214 | 3.03E-10 |
| PO-214 | 0.00E+00 |
| PB-210 | 5.62E-06 |
| BI-210 | 4.23E-08 |
| PO-210 | 2.62E-06 |
| RA-228 | 6.03E-06 |
| TOTAL | 1.13E-03 |

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INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

Distance (m)

| Direction | 100 | 105 | 120 | 125 | 150 | 160 | 165 |
|---|---|---|---|---|---|---|---|
| N | 8.5E-04 | 7.7E-04 | 6.0E-04 | 5.6E-04 | 4.0E-04 | 3.5E-04 | 3.3E-04 |
| NNW | 3.2E-04 | 2.9E-04 | 2.3E-04 | 2.1E-04 | 1.5E-04 | 1.4E-04 | 1.3E-04 |
| NW | 1.8E-04 | 1.7E-04 | 1.3E-04 | 1.2E-04 | 9.0E-05 | 8.1E-05 | 7.7E-05 |
| WNW | 1.6E-04 | 1.4E-04 | 1.1E-04 | 1.0E-04 | 7.6E-05 | 6.8E-05 | 6.5E-05 |
| W | 2.8E-04 | 2.6E-04 | 2.0E-04 | 1.9E-04 | 1.3E-04 | 1.2E-04 | 1.1E-04 |
| WSW | 3.3E-04 | 3.1E-04 | 2.4E-04 | 2.2E-04 | 1.6E-04 | 1.4E-04 | 1.3E-04 |
| SW | 4.6E-04 | 4.2E-04 | 3.3E-04 | 3.1E-04 | 2.2E-04 | 2.0E-04 | 1.8E-04 |
| SSW | 6.1E-04 | 5.5E-04 | 4.3E-04 | 4.0E-04 | 2.9E-04 | 2.5E-04 | 2.4E-04 |
| S | 1.1E-03 | 1.0E-03 | 8.0E-04 | 7.4E-04 | 5.3E-04 | 4.7E-04 | 4.4E-04 |
| SSE | 6.6E-04 | 6.0E-04 | 4.7E-04 | 4.3E-04 | 3.1E-04 | 2.8E-04 | 2.6E-04 |
| SE | 5.8E-04 | 5.3E-04 | 4.2E-04 | 3.9E-04 | 2.8E-04 | 2.5E-04 | 2.3E-04 |
| ESE | 4.4E-04 | 4.0E-04 | 3.1E-04 | 2.9E-04 | 2.1E-04 | 1.9E-04 | 1.8E-04 |
| E | 5.9E-04 | 5.4E-04 | 4.2E-04 | 3.9E-04 | 2.8E-04 | 2.5E-04 | 2.3E-04 |
| ENE | 4.8E-04 | 4.4E-04 | 3.4E-04 | 3.1E-04 | 2.3E-04 | 2.0E-04 | 1.9E-04 |
| NE | 8.9E-04 | 8.1E-04 | 6.3E-04 | 5.8E-04 | 4.1E-04 | 3.7E-04 | 3.5E-04 |
| NNE | 8.2E-04 | 7.4E-04 | 5.8E-04 | 5.3E-04 | 3.8E-04 | 3.4E-04 | 3.2E-04 |

Distance (m)

| Direction | 180 | 210 | 220 | 225 | 255 | 270 | 315 |
|---|---|---|---|---|---|---|---|
| N | 2.8E-04 | 2.1E-04 | 2.0E-04 | 1.9E-04 | 1.5E-04 | 1.4E-04 | 1.0E-04 |
| NNW | 1.1E-04 | 8.4E-05 | 7.8E-05 | 7.5E-05 | 6.1E-05 | 5.5E-05 | 4.3E-05 |
| NW | 6.6E-05 | 5.1E-05 | 4.8E-05 | 4.6E-05 | 3.8E-05 | 3.5E-05 | 2.8E-05 |
| WNW | 5.6E-05 | 4.4E-05 | 4.1E-05 | 4.0E-05 | 3.3E-05 | 3.0E-05 | 2.5E-05 |
| W | 9.8E-05 | 7.5E-05 | 7.0E-05 | 6.7E-05 | 5.5E-05 | 5.0E-05 | 3.9E-05 |
| WSW | 1.2E-04 | 8.9E-05 | 8.2E-05 | 7.9E-05 | 6.4E-05 | 5.8E-05 | 4.6E-05 |
| SW | 1.6E-04 | 1.2E-04 | 1.1E-04 | 1.1E-04 | 8.6E-05 | 7.8E-05 | 6.0E-05 |
| SSW | 2.0E-04 | 1.6E-04 | 1.4E-04 | 1.4E-04 | 1.1E-04 | 1.0E-04 | 7.6E-05 |
| S | 3.8E-04 | 2.8E-04 | 2.6E-04 | 2.5E-04 | 2.0E-04 | 1.8E-04 | 1.4E-04 |
| SSE | 2.2E-04 | 1.7E-04 | 1.6E-04 | 1.5E-04 | 1.2E-04 | 1.1E-04 | 8.3E-05 |
| SE | 2.0E-04 | 1.5E-04 | 1.4E-04 | 1.3E-04 | 1.1E-04 | 9.7E-05 | 7.4E-05 |
| ESE | 1.5E-04 | 1.1E-04 | 1.1E-04 | 1.0E-04 | 8.2E-05 | 7.4E-05 | 5.8E-05 |
| E | 2.0E-04 | 1.5E-04 | 1.4E-04 | 1.3E-04 | 1.1E-04 | 9.7E-05 | 7.4E-05 |
| ENE | 1.6E-04 | 1.2E-04 | 1.1E-04 | 1.1E-04 | 8.8E-05 | 8.0E-05 | 6.2E-05 |
| NE | 3.0E-04 | 2.2E-04 | 2.0E-04 | 2.0E-04 | 1.6E-04 | 1.4E-04 | 1.1E-04 |
| NNE | 2.7E-04 | 2.0E-04 | 1.9E-04 | 1.8E-04 | 1.4E-04 | 1.3E-04 | 9.9E-05 |

C A P 8 8 - P C

Version 2.00

Clean Air Act Assessment Package - 1988

S Y N O P S I S   R E P O R T

Non-Radon Individual Assessment
Mar 11, 2003 12:35 pm

Facility: Maywood Interim Storage Site - New Sewer Line
Address: 100 W. Hunter Avenue
City: Maywood
State: NJ    Zip: 07607-

Source Category: Particulate Emission w radon daughters
Source Type: Area
Emission Year: 2002

Comments: Stone & Webster, Inc. for
U.S. Army Corps of Engineers

| Effective Dose Equivalent (mrem/year) |
|---|
| 3.61E-04 |

At This Location: 15 Meters South

Dataset Name: MISS NEW SEWER
Dataset Date: Mar 11, 2003 12:17 pm
Wind File: C:\DATA\CAP88PC2\WNDFILES\TET1358.WND

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 86 OF145 |

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SYNOPSIS
Page 1

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 15 Meters South
Lifetime Fatal Cancer Risk: 4.17E-09

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Dose Equivalent (mrem/y) |
|---|---|
| GONADS | 2.06E-06 |
| BREAST | 1.92E-06 |
| R MAR | 1.67E-04 |
| LUNGS | 2.30E-03 |
| THYROID | 1.88E-06 |
| ENDOST | 2.08E-03 |
| RMNDR | 8.05E-06 |
| | |
| EFFEC | 3.61E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 87 OF145 |

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SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| AC-228 | Y | 1.00 | 2.9E-10 | 2.9E-10 |
| BI-211 | W | 1.00 | 2.1E-12 | 2.1E-12 |
| BI-212 | W | 1.00 | 2.9E-10 | 2.9E-10 |
| FR-223 | D | 1.00 | 2.9E-14 | 2.9E-14 |
| PA-234M | Y | 1.00 | 4.5E-11 | 4.5E-11 |
| PA-231 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| PB-211 | D | 1.00 | 2.1E-12 | 2.1E-12 |
| PO-211 | - | 0.00 | 5.8E-15 | 5.8E-15 |
| PO-216 | W | 1.00 | 2.9E-10 | 2.9E-10 |
| PB-212 | D | 1.00 | 2.9E-10 | 2.9E-10 |
| PO-212 | W | 1.00 | 1.9E-10 | 1.9E-10 |
| PO-215 | W | 1.00 | 2.1E-12 | 2.1E-12 |
| RA-223 | W | 1.00 | 2.1E-12 | 2.1E-12 |
| RA-224 | W | 1.00 | 2.9E-10 | 2.9E-10 |
| TH-232 | Y | 1.00 | 2.9E-10 | 2.9E-10 |
| TH-228 | Y | 1.00 | 2.9E-10 | 2.9E-10 |
| TH-231 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| TH-227 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| TL-208 | D | 1.00 | 1.1E-10 | 1.1E-10 |
| U-235 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| TL-207 | D | 1.00 | 2.1E-12 | 2.1E-12 |
| U-238 | Y | 1.00 | 4.5E-11 | 4.5E-11 |
| TH-234 | Y | 1.00 | 4.5E-11 | 4.5E-11 |
| PA-234 | Y | 1.00 | 5.9E-14 | 5.9E-14 |
| U-234 | Y | 1.00 | 4.8E-11 | 4.8E-11 |
| TH-230 | Y | 1.00 | 4.8E-11 | 4.8E-11 |
| RA-226 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PO-218 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PB-214 | D | 1.00 | 5.1E-11 | 5.1E-11 |
| BI-214 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PO-214 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PB-210 | D | 1.00 | 5.1E-11 | 5.1E-11 |
| BI-210 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PO-210 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| RA-228 | W | 1.00 | 2.9E-10 | 2.9E-10 |

SITE INFORMATION

| | |
|---|---|
| Temperature: | 13 degrees C |
| Precipitation: | 112 cm/y |
| Mixing Height: | 1000 m |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 88 OF145 |

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SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 72.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Food Arrays were not generated for this run.
Default Values used.

DISTANCES (M) USED FOR MAXIMUM INDIVIDUAL ASSESSMENT

15 20 30 80 90 140 150 220 240 295
315

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 89 OF145 |

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) |
|---|---|
| GONADS | 2.06E-06 |
| BREAST | 1.92E-06 |
| R MAR | 1.67E-04 |
| LUNGS | 2.30E-03 |
| THYROID | 1.88E-06 |
| ENDOST | 2.08E-03 |
| RMNDR | 8.05E-06 |
| | |
| EFFEC | 3.61E-04 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) |
|---|---|
| INGESTION | 2.04E-06 |
| INHALATION | 3.59E-04 |
| AIR IMMERSION | 9.37E-10 |
| GROUND SURFACE | 3.21E-08 |
| INTERNAL | 3.61E-04 |
| EXTERNAL | 3.30E-08 |
| | |
| TOTAL | 3.61E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 90 OF145 |

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SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclide | Selected Individual (mrem/y) |
|---|---|
| AC-227 | 2.32E-06 |
| AC-228 | 4.38E-08 |
| BI-211 | 3.95E-12 |
| BI-212 | 1.73E-08 |
| FR-223 | 1.38E-13 |
| PA-234M | 8.06E-13 |
| PA-231 | 1.77E-06 |
| PB-211 | 3.49E-11 |
| PO-211 | 3.55E-19 |
| PO-216 | 9.77E-19 |
| PB-212 | 8.52E-08 |
| PO-212 | 0.00E+00 |
| PO-215 | 0.00E+00 |
| RA-223 | 3.07E-08 |
| RA-224 | 1.77E-06 |
| TH-232 | 1.81E-04 |
| TH-228 | 1.27E-04 |
| TH-231 | 3.66E-12 |
| TH-227 | 4.19E-08 |
| TL-208 | 4.31E-10 |
| U-235 | 4.54E-07 |
| TL-207 | 3.51E-14 |
| U-238 | 9.11E-06 |
| TH-234 | 3.37E-09 |
| PA-234 | 3.12E-13 |
| U-234 | 1.10E-05 |
| TH-230 | 2.07E-05 |
| RA-226 | 9.25E-07 |
| PO-218 | 4.58E-12 |
| PB-214 | 9.69E-11 |
| BI-214 | 1.25E-10 |
| PO-214 | 0.00E+00 |
| PB-210 | 1.81E-06 |
| BI-210 | 1.70E-08 |
| PO-210 | 9.27E-07 |
| RA-228 | 1.65E-06 |
| TOTAL | 3.61E-04 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO.<br>610041-0107<br>08575.0207 | DISCIPLINE<br>E(B) | CALCULATION NO.<br>10 | REVISION NUMBER<br>0 | PAGE<br>91 OF145 |

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SUMMARY
Page 5

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15 | 20 | 30 | 80 | 90 | 140 | 150 |
| N | 2.7E-04 | 1.6E-04 | 7.8E-05 | 1.3E-05 | 1.1E-05 | 5.4E-06 | 4.9E-06 |
| NNW | 1.0E-04 | 6.0E-05 | 3.0E-05 | 5.7E-06 | 4.8E-06 | 2.7E-06 | 2.5E-06 |
| NW | 5.7E-05 | 3.4E-05 | 1.7E-05 | 3.7E-06 | 3.2E-06 | 2.0E-06 | 1.9E-06 |
| WNW | 4.7E-05 | 2.9E-05 | 1.4E-05 | 3.3E-06 | 2.8E-06 | 1.8E-06 | 1.7E-06 |
| W | 8.5E-05 | 5.2E-05 | 2.6E-05 | 5.1E-06 | 4.3E-06 | 2.5E-06 | 2.3E-06 |
| WSW | 1.0E-04 | 6.2E-05 | 3.0E-05 | 5.9E-06 | 4.9E-06 | 2.8E-06 | 2.6E-06 |
| SW | 1.4E-04 | 8.7E-05 | 4.3E-05 | 7.8E-06 | 6.5E-06 | 3.4E-06 | 3.2E-06 |
| SSW | 1.9E-04 | 1.1E-04 | 5.6E-05 | 9.9E-06 | 8.2E-06 | 4.2E-06 | 3.8E-06 |
| S | 3.6E-04 | 2.2E-04 | 1.1E-04 | 1.8E-05 | 1.4E-05 | 6.9E-06 | 6.2E-06 |
| SSE | 2.1E-04 | 1.3E-04 | 6.1E-05 | 1.1E-05 | 8.8E-06 | 4.5E-06 | 4.0E-06 |
| SE | 1.8E-04 | 1.1E-04 | 5.4E-05 | 9.6E-06 | 7.9E-06 | 4.1E-06 | 3.7E-06 |
| ESE | 1.4E-04 | 8.3E-05 | 4.1E-05 | 7.5E-06 | 6.2E-06 | 3.3E-06 | 3.0E-06 |
| E | 1.9E-04 | 1.1E-04 | 5.5E-05 | 9.7E-06 | 8.0E-06 | 4.1E-06 | 3.7E-06 |
| ENE | 1.5E-04 | 9.0E-05 | 4.4E-05 | 8.0E-06 | 6.6E-06 | 3.5E-06 | 3.2E-06 |
| NE | 2.8E-04 | 1.7E-04 | 8.2E-05 | 1.4E-05 | 1.1E-05 | 5.6E-06 | 5.0E-06 |
| NNE | 2.6E-04 | 1.6E-04 | 7.6E-05 | 1.3E-05 | 1.1E-05 | 5.2E-06 | 4.7E-06 |

| | Distance (m) | | | |
|---|---|---|---|---|
| Direction | 220 | 240 | 295 | 315 |
| N | 2.9E-06 | 2.6E-06 | 2.1E-06 | 2.0E-06 |
| NNW | 1.8E-06 | 1.7E-06 | 1.5E-06 | 1.4E-06 |
| NW | 1.5E-06 | 1.4E-06 | 1.3E-06 | 1.3E-06 |
| WNW | 1.4E-06 | 1.4E-06 | 1.3E-06 | 1.2E-06 |
| W | 1.7E-06 | 1.6E-06 | 1.4E-06 | 1.4E-06 |
| WSW | 1.8E-06 | 1.7E-06 | 1.5E-06 | 1.4E-06 |
| SW | 2.1E-06 | 1.9E-06 | 1.7E-06 | 1.6E-06 |
| SSW | 2.4E-06 | 2.2E-06 | 1.8E-06 | 1.8E-06 |
| S | 3.5E-06 | 3.2E-06 | 2.5E-06 | 2.3E-06 |
| SSE | 2.5E-06 | 2.3E-06 | 1.9E-06 | 1.8E-06 |
| SE | 2.4E-06 | 2.2E-06 | 1.8E-06 | 1.7E-06 |
| ESE | 2.0E-06 | 1.9E-06 | 1.6E-06 | 1.6E-06 |
| E | 2.4E-06 | 2.2E-06 | 1.8E-06 | 1.7E-06 |
| ENE | 2.1E-06 | 2.0E-06 | 1.7E-06 | 1.6E-06 |
| NE | 3.0E-06 | 2.7E-06 | 2.2E-06 | 2.1E-06 |
| NNE | 2.8E-06 | 2.6E-06 | 2.1E-06 | 2.0E-06 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 92 OF145 |

```
                    C A P 8 8 - P C

                     Version 2.00


          Clean Air Act Assessment Package - 1988


               S Y N O P S I S   R E P O R T

              Non-Radon Population Assessment
                   Mar  11, 2003  01:00 pm


  Facility:  Maywood Interim Storage Site - MISS Soil Load-outs
   Address:  100 W. Hunter Avenue
      City:  Maywood
     State:  NJ          Zip:  07607-


  Source Category:  Particulate Emission w radon daughters
      Source Type:  Area
    Emission Year:  2002


  Comments:  Stone & Webster, Inc. for
             U.S. Army Corps of Engineers


              Effective Dose Equivalent
                     (mrem/year)
              _________________________

                      1.90E-04
              _________________________


 At This Location:    250 Meters South

     Dataset Name:  MISS SOIL LDOUTP
     Dataset Date:  Mar  11, 2003  01:00 pm
        Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
  Population File:  C:\DATA\CAP88PC2\POPFILES\MAYWOO~1.POP
```

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 93 OF145 |

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SYNOPSIS
Page 1

## MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 250 Meters South
Lifetime Fatal Cancer Risk: 2.17E-09

## ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 9.49E-07 | 6.53E-06 |
| BREAST | 7.82E-07 | 5.57E-06 |
| R MAR | 8.86E-05 | 5.62E-04 |
| LUNGS | 1.21E-03 | 7.61E-03 |
| THYROID | 7.51E-07 | 5.25E-06 |
| ENDOST | 1.10E-03 | 6.99E-03 |
| RMNDR | 3.33E-06 | 2.37E-05 |
| EFFEC | 1.90E-04 | 1.20E-03 |

## FREQUENCY DISTRIBUTION OF LIFETIME FATAL CANCER RISKS

| Risk Range | # of People | # of People in This Risk Range or Higher | Deaths/Year in This Risk Range | Deaths/Year in This Risk Range or Higher |
|---|---|---|---|---|
| 1.0E+00 TO 1.0E-01 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-01 TO 1.0E-02 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-02 TO 1.0E-03 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-03 TO 1.0E-04 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-04 TO 1.0E-05 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-05 TO 1.0E-06 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| LESS THAN 1.0E-06 | 19444635 | 19444635 | 1.93E-07 | 1.93E-07 |

Mar 11, 2003 01:00 pm

SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | Source #2 Ci/y | Source #3 Ci/y | Source #4 Ci/y | Source #5 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|---|---|---|---|
| AC-227 | Y | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| AC-228 | Y | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| BI-211 | W | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| BI-212 | W | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| FR-223 | D | 1.00 | 8.7E-13 | 1.4E-12 | 9.9E-13 | 2.3E-12 | 6.0E-13 | 6.2E-12 |
| PA-234M | Y | 1.00 | 1.3E-09 | 2.2E-09 | 1.5E-09 | 3.6E-09 | 9.4E-10 | 9.6E-09 |
| PA-231 | Y | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| PB-211 | D | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| PO-211 | - | 0.00 | 1.7E-13 | 2.9E-13 | 2.0E-13 | 4.6E-13 | 1.2E-13 | 1.2E-12 |
| PO-216 | W | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| PB-212 | D | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| PO-212 | W | 1.00 | 8.7E-10 | 3.0E-09 | 2.0E-09 | 7.7E-09 | 1.8E-09 | 1.5E-08 |
| PO-215 | W | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| RA-223 | W | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| RA-224 | W | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| TH-232 | Y | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| TH-228 | Y | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |
| TH-231 | Y | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| TH-227 | Y | 1.00 | 6.2E-11 | 1.0E-10 | 7.1E-11 | 1.6E-10 | 4.3E-11 | 4.4E-10 |
| TL-208 | D | 1.00 | 4.9E-10 | 1.7E-09 | 1.1E-09 | 4.3E-09 | 1.0E-09 | 8.6E-09 |
| U-235 | Y | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| TL-207 | D | 1.00 | 6.3E-11 | 1.1E-10 | 7.2E-11 | 1.7E-10 | 4.4E-11 | 4.5E-10 |
| U-238 | Y | 1.00 | 1.3E-09 | 2.2E-09 | 1.5E-09 | 3.6E-09 | 9.4E-10 | 9.6E-09 |
| TH-234 | Y | 1.00 | 1.3E-09 | 2.2E-09 | 1.5E-09 | 3.6E-09 | 9.4E-10 | 9.6E-09 |
| PA-234 | Y | 1.00 | 1.7E-12 | 2.9E-12 | 2.0E-12 | 4.6E-12 | 1.2E-12 | 1.2E-11 |
| U-234 | Y | 1.00 | 1.4E-09 | 2.4E-09 | 1.6E-09 | 3.8E-09 | 1.0E-09 | 1.0E-08 |
| TH-230 | Y | 1.00 | 1.4E-09 | 2.4E-09 | 1.6E-09 | 3.8E-09 | 1.0E-09 | 1.0E-08 |
| RA-226 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 3.8E-09 | 5.6E-10 | 6.4E-09 |
| PO-218 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 3.8E-09 | 5.6E-10 | 6.4E-09 |
| PB-214 | D | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| BI-214 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| PO-214 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| PB-210 | D | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| BI-210 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| PO-210 | W | 1.00 | 5.8E-10 | 7.9E-10 | 6.6E-10 | 1.5E-09 | 5.6E-10 | 4.1E-09 |
| RA-228 | W | 1.00 | 1.4E-09 | 4.7E-09 | 3.1E-09 | 1.2E-08 | 2.9E-09 | 2.4E-08 |

SITE INFORMATION

| | |
|---|---|
| Temperature: | 13 degrees C |
| Precipitation: | 112 cm/y |
| Mixing Height: | 1000 m |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 95 OF145 |

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SOURCE INFORMATION

| Source Number: | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Source Height (m): | 0. | 0. | 0. | 0. | 0. |
| Area (sq m): | 164. | 164. | 164. | 164. | 164. |

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

| | |
|---|---|
| Beef Cattle Density: | 4.25E-02 |
| Milk Cattle Density: | 3.29E-02 |
| Land Fraction Cultivated for Vegetable Crops: | 1.82E-02 |

POPULATION DATA

| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
|---|---|---|---|---|---|---|---|
| | Distance (m) | | | | | | |
| N | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| WNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 19528 |
| W | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| WSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| SW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17591 |
| SSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| S | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| SSE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 28091 |
| SE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ESE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| E | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ENE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |

| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
|---|---|---|---|---|---|---|---|
| | Distance (m) | | | | | | |
| N | 80798 | 65252 | 76762 | 32421 | 30759 | 35625 | 34311 |
| NNW | 86967 | 108564 | 41578 | 27967 | 34183 | 40397 | 44258 |
| NW | 80798 | 85308 | 115432 | 137220 | 52008 | 27730 | 34466 |
| WNW | 61467 | 70794 | 99111 | 47297 | 22710 | 26840 | 27148 |
| W | 69500 | 91150 | 51699 | 64974 | 51977 | 44409 | 32825 |
| WSW | 121661 | 181519 | 61189 | 64411 | 76208 | 642285 | 32256 |
| SW | 130148 | 246712 | 257716 | 159760 | 121585 | 85815 | 138721 |
| SSW | 154093 | 270126 | 307311 | 229696 | 166289 | 195532 | 418196 |
| S | 256284 | 386875 | 314462 | 29692 | 52912 | 109433 | 99211 |
| SSE | 582532 | 1056258 | 1213638 | 41383 | 0 | 0 | 0 |
| SE | 881708 | 735691 | 836989 | 393629 | 38016 | 0 | 0 |
| ESE | 907647 | 524419 | 302264 | 331780 | 302990 | 112269 | 55872 |
| E | 614558 | 315168 | 62296 | 158874 | 81945 | 96843 | 111743 |
| ENE | 91625 | 83008 | 86601 | 65130 | 59702 | 70558 | 81413 |
| NE | 70873 | 62256 | 111184 | 140795 | 174717 | 137656 | 155442 |
| NNE | 70955 | 32638 | 87309 | 136246 | 82725 | 41310 | 44223 |

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 9.49E-07 | 6.53E-06 |
| BREAST | 7.82E-07 | 5.57E-06 |
| R MAR | 8.86E-05 | 5.62E-04 |
| LUNGS | 1.21E-03 | 7.61E-03 |
| THYROID | 7.51E-07 | 5.25E-06 |
| ENDOST | 1.10E-03 | 6.99E-03 |
| RMNDR | 3.33E-06 | 2.37E-05 |
| EFFEC | 1.90E-04 | 1.20E-03 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| INGESTION | 3.91E-08 | 3.05E-06 |
| INHALATION | 1.90E-04 | 1.20E-03 |
| AIR IMMERSION | 3.54E-10 | 1.09E-09 |
| GROUND SURFACE | 2.77E-08 | 2.99E-07 |
| INTERNAL | 1.90E-04 | 1.20E-03 |
| EXTERNAL | 2.81E-08 | 3.00E-07 |
| TOTAL | 1.90E-04 | 1.20E-03 |

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SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclides | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| AC-227 | 2.64E-06 | 1.67E-05 |
| AC-228 | 1.92E-08 | 1.03E-07 |
| BI-211 | 2.81E-12 | 2.14E-12 |
| BI-212 | 7.44E-09 | 2.30E-08 |
| FR-223 | 1.50E-13 | 2.64E-13 |
| PA-234M | 4.11E-13 | 2.86E-13 |
| PA-231 | 2.00E-06 | 1.27E-05 |
| PB-211 | 3.87E-11 | 9.13E-11 |
| PO-211 | 0.00E+00 | 0.00E+00 |
| PO-216 | 0.00E+00 | 0.00E+00 |
| PB-212 | 3.74E-08 | 2.13E-07 |
| PO-212 | 0.00E+00 | 0.00E+00 |
| PO-215 | 0.00E+00 | 0.00E+00 |
| RA-223 | 3.44E-08 | 2.18E-07 |
| RA-224 | 7.76E-07 | 4.84E-06 |
| TH-232 | 7.96E-05 | 5.02E-04 |
| TH-228 | 5.59E-05 | 3.53E-04 |
| TH-231 | 4.19E-12 | 2.58E-11 |
| TH-227 | 4.81E-08 | 3.03E-07 |
| TL-208 | 1.35E-10 | 1.10E-10 |
| U-235 | 5.15E-07 | 3.31E-06 |
| TL-207 | 3.20E-14 | 2.93E-14 |
| U-238 | 1.03E-05 | 6.54E-05 |
| TH-234 | 3.21E-09 | 2.20E-08 |
| PA-234 | 3.61E-13 | 2.30E-12 |
| U-234 | 1.24E-05 | 7.87E-05 |
| TH-230 | 2.37E-05 | 1.49E-04 |
| RA-226 | 5.32E-07 | 3.63E-06 |
| PO-218 | 2.20E-12 | 1.80E-12 |
| PB-214 | 3.98E-11 | 7.92E-11 |
| BI-214 | 5.05E-11 | 8.51E-11 |
| PO-214 | 0.00E+00 | 0.00E+00 |
| PB-210 | 5.25E-07 | 3.94E-06 |
| BI-210 | 7.28E-09 | 4.55E-08 |
| PO-210 | 3.26E-07 | 2.24E-06 |
| RA-228 | 5.45E-07 | 3.91E-06 |
| TOTAL | 1.90E-04 | 1.20E-03 |

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SUMMARY
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INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 1.4E-04 | 1.8E-05 | 5.2E-06 | 2.2E-06 | 1.3E-06 | 8.7E-07 | 4.0E-07 |
| NNW | 5.3E-05 | 6.7E-06 | 2.0E-06 | 8.2E-07 | 4.8E-07 | 3.3E-07 | 1.5E-07 |
| NW | 3.0E-05 | 3.9E-06 | 1.1E-06 | 4.7E-07 | 2.7E-07 | 1.9E-07 | 8.4E-08 |
| WNW | 2.5E-05 | 3.2E-06 | 9.4E-07 | 3.9E-07 | 2.3E-07 | 1.5E-07 | 7.0E-08 |
| W | 4.7E-05 | 6.0E-06 | 1.8E-06 | 7.4E-07 | 4.3E-07 | 2.9E-07 | 1.3E-07 |
| WSW | 5.6E-05 | 7.2E-06 | 2.1E-06 | 8.8E-07 | 5.1E-07 | 3.5E-07 | 1.6E-07 |
| SW | 7.8E-05 | 9.9E-06 | 2.9E-06 | 1.2E-06 | 7.0E-07 | 4.8E-07 | 2.2E-07 |
| SSW | 1.0E-04 | 1.3E-05 | 3.8E-06 | 1.6E-06 | 9.2E-07 | 6.3E-07 | 2.8E-07 |
| S | 1.9E-04 | 2.4E-05 | 6.9E-06 | 2.9E-06 | 1.7E-06 | 1.1E-06 | 5.2E-07 |
| SSE | 1.1E-04 | 1.4E-05 | 4.1E-06 | 1.7E-06 | 1.0E-06 | 6.9E-07 | 3.1E-07 |
| SE | 9.9E-05 | 1.3E-05 | 3.7E-06 | 1.6E-06 | 9.1E-07 | 6.2E-07 | 2.9E-07 |
| ESE | 7.4E-05 | 9.4E-06 | 2.8E-06 | 1.2E-06 | 6.8E-07 | 4.6E-07 | 2.1E-07 |
| E | 9.9E-05 | 1.2E-05 | 3.6E-06 | 1.5E-06 | 8.9E-07 | 6.1E-07 | 2.8E-07 |
| ENE | 8.0E-05 | 1.0E-05 | 3.0E-06 | 1.2E-06 | 7.3E-07 | 5.0E-07 | 2.3E-07 |
| NE | 1.5E-04 | 1.8E-05 | 5.4E-06 | 2.3E-06 | 1.3E-06 | 9.0E-07 | 4.1E-07 |
| NNE | 1.4E-04 | 1.7E-05 | 4.9E-06 | 2.1E-06 | 1.2E-06 | 8.2E-07 | 3.7E-07 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 1.5E-07 | 6.6E-08 | 4.1E-08 | 2.8E-08 | 2.0E-08 | 1.3E-08 | 1.0E-08 |
| NNW | 5.3E-08 | 2.4E-08 | 1.5E-08 | 1.0E-08 | 7.1E-09 | 4.8E-09 | 3.8E-09 |
| NW | 3.0E-08 | 1.3E-08 | 8.3E-09 | 5.6E-09 | 4.0E-09 | 2.7E-09 | 2.2E-09 |
| WNW | 2.5E-08 | 1.1E-08 | 6.7E-09 | 4.6E-09 | 3.2E-09 | 2.2E-09 | 1.8E-09 |
| W | 4.6E-08 | 2.0E-08 | 1.2E-08 | 8.1E-09 | 5.7E-09 | 3.9E-09 | 3.1E-09 |
| WSW | 5.5E-08 | 2.4E-08 | 1.4E-08 | 9.7E-09 | 6.8E-09 | 4.7E-09 | 3.7E-09 |
| SW | 7.7E-08 | 3.4E-08 | 2.1E-08 | 1.4E-08 | 1.0E-08 | 6.7E-09 | 5.2E-09 |
| SSW | 1.0E-07 | 4.6E-08 | 2.8E-08 | 1.9E-08 | 1.4E-08 | 9.2E-09 | 7.2E-09 |
| S | 1.9E-07 | 8.5E-08 | 5.3E-08 | 3.6E-08 | 2.5E-08 | 1.6E-08 | 1.3E-08 |
| SSE | 1.2E-07 | 5.3E-08 | 3.3E-08 | 2.3E-08 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 1.1E-07 | 4.9E-08 | 3.1E-08 | 2.1E-08 | 1.5E-08 | 0.0E+00 | 0.0E+00 |
| ESE | 7.9E-08 | 3.6E-08 | 2.3E-08 | 1.6E-08 | 1.1E-08 | 8.0E-09 | 6.4E-09 |
| E | 1.0E-07 | 4.7E-08 | 3.0E-08 | 2.0E-08 | 1.5E-08 | 1.0E-08 | 7.9E-09 |
| ENE | 8.4E-08 | 3.9E-08 | 2.4E-08 | 1.7E-08 | 1.2E-08 | 8.4E-09 | 6.7E-09 |
| NE | 1.5E-07 | 6.8E-08 | 4.3E-08 | 2.9E-08 | 2.1E-08 | 1.4E-08 | 1.1E-08 |
| NNE | 1.4E-07 | 6.2E-08 | 3.9E-08 | 2.7E-08 | 1.9E-08 | 1.2E-08 | 9.7E-09 |

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SUMMARY
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COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 1.0E-05 | 3.9E-06 | 4.5E-06 | 3.2E-06 | 2.6E-06 | 2.3E-06 | 8.6E-06 |
| NNW | 3.9E-06 | 1.5E-06 | 1.7E-06 | 1.2E-06 | 9.7E-07 | 8.5E-07 | 3.2E-06 |
| NW | 2.2E-06 | 8.4E-07 | 9.8E-07 | 6.8E-07 | 5.5E-07 | 4.8E-07 | 1.8E-06 |
| WNW | 1.8E-06 | 7.0E-07 | 8.2E-07 | 5.7E-07 | 4.6E-07 | 4.0E-07 | 1.4E-06 |
| W | 3.4E-06 | 1.3E-06 | 1.5E-06 | 1.1E-06 | 8.6E-07 | 7.5E-07 | 2.3E-06 |
| WSW | 4.1E-06 | 1.6E-06 | 1.8E-06 | 1.3E-06 | 1.0E-06 | 9.0E-07 | 2.7E-06 |
| SW | 5.7E-06 | 2.2E-06 | 2.5E-06 | 1.8E-06 | 1.4E-06 | 1.2E-06 | 3.8E-06 |
| SSW | 7.4E-06 | 2.8E-06 | 3.3E-06 | 2.3E-06 | 1.9E-06 | 1.6E-06 | 6.2E-06 |
| S | 1.4E-05 | 5.1E-06 | 6.0E-06 | 4.2E-06 | 3.4E-06 | 3.0E-06 | 1.1E-05 |
| SSE | 8.1E-06 | 3.1E-06 | 3.6E-06 | 2.5E-06 | 2.0E-06 | 1.8E-06 | 8.8E-06 |
| SE | 7.2E-06 | 2.7E-06 | 3.2E-06 | 2.3E-06 | 1.8E-06 | 1.6E-06 | 6.2E-06 |
| ESE | 5.4E-06 | 2.1E-06 | 2.4E-06 | 1.7E-06 | 1.4E-06 | 1.2E-06 | 4.6E-06 |
| E | 7.2E-06 | 2.7E-06 | 3.2E-06 | 2.2E-06 | 1.8E-06 | 1.6E-06 | 6.1E-06 |
| ENE | 5.8E-06 | 2.2E-06 | 2.6E-06 | 1.8E-06 | 1.5E-06 | 1.3E-06 | 4.9E-06 |
| NE | 1.1E-05 | 4.0E-06 | 4.7E-06 | 3.3E-06 | 2.7E-06 | 2.3E-06 | 8.9E-06 |
| NNE | 9.9E-06 | 3.7E-06 | 4.3E-06 | 3.0E-06 | 2.4E-06 | 2.1E-06 | 8.1E-06 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 1.2E-05 | 4.3E-06 | 3.1E-06 | 9.1E-07 | 6.1E-07 | 4.7E-07 | 3.6E-07 |
| NNW | 4.6E-06 | 2.6E-06 | 6.1E-07 | 2.8E-07 | 2.4E-07 | 1.9E-07 | 1.7E-07 |
| NW | 2.4E-06 | 1.1E-06 | 9.5E-07 | 7.7E-07 | 2.1E-07 | 7.6E-08 | 7.5E-08 |
| WNW | 1.5E-06 | 7.8E-07 | 6.6E-07 | 2.2E-07 | 7.4E-08 | 6.0E-08 | 4.8E-08 |
| W | 3.2E-06 | 1.8E-06 | 6.2E-07 | 5.3E-07 | 3.0E-07 | 1.7E-07 | 1.0E-07 |
| WSW | 6.7E-06 | 4.4E-06 | 8.9E-07 | 6.3E-07 | 5.2E-07 | 3.0E-06 | 1.2E-07 |
| SW | 1.0E-05 | 8.4E-06 | 5.4E-06 | 2.3E-06 | 1.2E-06 | 5.7E-07 | 7.3E-07 |
| SSW | 1.6E-05 | 1.2E-05 | 8.7E-06 | 4.4E-06 | 2.3E-06 | 1.8E-06 | 3.0E-06 |
| S | 4.9E-05 | 3.3E-05 | 1.7E-05 | 1.1E-06 | 1.3E-06 | 1.8E-06 | 1.3E-06 |
| SSE | 6.7E-05 | 5.6E-05 | 4.0E-05 | 9.5E-07 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 9.3E-05 | 3.6E-05 | 2.6E-05 | 8.4E-06 | 5.8E-07 | 0.0E+00 | 0.0E+00 |
| ESE | 7.1E-05 | 1.9E-05 | 6.9E-06 | 5.3E-06 | 3.5E-06 | 9.0E-07 | 3.6E-07 |
| E | 6.3E-05 | 1.5E-05 | 1.8E-06 | 3.3E-06 | 1.2E-06 | 9.7E-07 | 8.9E-07 |
| ENE | 7.7E-06 | 3.2E-06 | 2.1E-06 | 1.1E-06 | 7.3E-07 | 5.9E-07 | 5.4E-07 |
| NE | 1.1E-05 | 4.2E-06 | 4.7E-06 | 4.1E-06 | 3.6E-06 | 1.9E-06 | 1.7E-06 |
| NNE | 9.8E-06 | 2.0E-06 | 3.4E-06 | 3.6E-06 | 1.6E-06 | 5.1E-07 | 4.3E-07 |

```
                         C A P 8 8 - P C

                           Version 2.00


              Clean Air Act Assessment Package - 1988


                    S Y N O P S I S   R E P O R T

                   Non-Radon Population Assessment
                        Mar  11, 2003  01:01 pm



     Facility:  Maywood Interim Storage Site - Cluster No. 1
      Address:  100 W. Hunter Avenue
         City:  Maywood
        State:  NJ          Zip:  07607-


     Source Category:  Particulate Emission w radon daughters
         Source Type:  Area
       Emission Year:  2002


     Comments:  Stone & Webster, Inc. for
                U.S. Army Corps of Engineers


                 Effective Dose Equivalent
                        (mrem/year)
                 _________________________

                         4.53E-06
                 _________________________


    At This Location:    250 Meters South

        Dataset Name:  MISS CLUST#1 POP
        Dataset Date:  Mar  11, 2003  01:01 pm
           Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
     Population File:  C:\DATA\CAP88PC2\POPFILES\MAYWOO~1.POP
```

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SYNOPSIS
Page 1

## MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 250 Meters South
Lifetime Fatal Cancer Risk: 5.07E-11

## ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 2.53E-08 | 1.75E-07 |
| BREAST | 1.80E-08 | 1.32E-07 |
| R MAR | 2.17E-06 | 1.38E-05 |
| LUNGS | 2.85E-05 | 1.80E-04 |
| THYROID | 1.70E-08 | 1.22E-07 |
| ENDOST | 2.71E-05 | 1.72E-04 |
| RMNDR | 1.08E-07 | 7.89E-07 |
| EFFEC | 4.53E-06 | 2.87E-05 |

## FREQUENCY DISTRIBUTION OF LIFETIME FATAL CANCER RISKS

| Risk Range | # of People | # of People in This Risk Range or Higher | Deaths/Year in This Risk Range | Deaths/Year in This Risk Range or Higher |
|---|---|---|---|---|
| 1.0E+00 TO 1.0E-01 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-01 TO 1.0E-02 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-02 TO 1.0E-03 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-03 TO 1.0E-04 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-04 TO 1.0E-05 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-05 TO 1.0E-06 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| LESS THAN 1.0E-06 | 19444635 | 19444635 | 4.53E-09 | 4.53E-09 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 103<br>OF145 |

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Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| AC-228 | Y | 1.00 | 4.1E-10 | 4.1E-10 |
| BI-211 | W | 1.00 | 1.9E-11 | 1.9E-11 |
| BI-212 | W | 1.00 | 4.1E-10 | 4.1E-10 |
| FR-223 | D | 1.00 | 2.6E-13 | 2.6E-13 |
| PA-234M | Y | 1.00 | 4.0E-10 | 4.0E-10 |
| PA-231 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| PB-211 | D | 1.00 | 1.9E-11 | 1.9E-11 |
| PO-211 | - | 0.00 | 5.1E-14 | 5.1E-14 |
| PO-216 | W | 1.00 | 4.1E-10 | 4.1E-10 |
| PB-212 | D | 1.00 | 4.1E-10 | 4.1E-10 |
| PO-212 | W | 1.00 | 2.6E-10 | 2.6E-10 |
| PO-215 | W | 1.00 | 1.9E-11 | 1.9E-11 |
| RA-223 | W | 1.00 | 1.9E-11 | 1.9E-11 |
| RA-224 | W | 1.00 | 4.1E-10 | 4.1E-10 |
| TH-232 | Y | 1.00 | 4.1E-10 | 4.1E-10 |
| TH-228 | Y | 1.00 | 4.1E-10 | 4.1E-10 |
| TH-231 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| TH-227 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| TL-208 | D | 1.00 | 1.5E-10 | 1.5E-10 |
| U-235 | Y | 1.00 | 1.9E-11 | 1.9E-11 |
| TL-207 | D | 1.00 | 1.9E-11 | 1.9E-11 |
| U-238 | Y | 1.00 | 4.0E-10 | 4.0E-10 |
| TH-234 | Y | 1.00 | 4.0E-10 | 4.0E-10 |
| PA-234 | Y | 1.00 | 5.2E-13 | 5.2E-13 |
| U-234 | Y | 1.00 | 4.3E-10 | 4.3E-10 |
| TH-230 | Y | 1.00 | 4.3E-10 | 4.3E-10 |
| RA-226 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PO-218 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PB-214 | D | 1.00 | 1.8E-10 | 1.8E-10 |
| BI-214 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PO-214 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PB-210 | D | 1.00 | 1.8E-10 | 1.8E-10 |
| BI-210 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| PO-210 | W | 1.00 | 1.8E-10 | 1.8E-10 |
| RA-228 | W | 1.00 | 4.1E-10 | 4.1E-10 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 104 OF145 |

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SYNOPSIS
Page 3

## SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 914.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

## AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Beef Cattle Density: 4.25E-02
Milk Cattle Density: 3.29E-02
Land Fraction Cultivated
for Vegetable Crops: 1.82E-02

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. 610041-0107 08575.0207 | DISCIPLINE E(B) | CALCULATION NO. 10 | REVISION NUMBER 0 | PAGE 105 OF145 |

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POPULATION DATA

Distance (m)

| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
|---|---|---|---|---|---|---|---|
| N | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| WNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 19528 |
| W | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| WSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| SW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17591 |
| SSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| S | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| SSE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 28091 |
| SE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ESE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| E | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ENE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |

Distance (m)

| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
|---|---|---|---|---|---|---|---|
| N | 80798 | 65252 | 76762 | 32421 | 30759 | 35625 | 34311 |
| NNW | 86967 | 108564 | 41578 | 27967 | 34183 | 40397 | 44258 |
| NW | 80798 | 85308 | 115432 | 137220 | 52008 | 27730 | 34466 |
| WNW | 61467 | 70794 | 99111 | 47297 | 22710 | 26840 | 27148 |
| W | 69500 | 91150 | 51699 | 64974 | 51977 | 44409 | 32825 |
| WSW | 121661 | 181519 | 61189 | 64411 | 76208 | 642285 | 32256 |
| SW | 130148 | 246712 | 257716 | 159760 | 121585 | 85815 | 138721 |
| SSW | 154093 | 270126 | 307311 | 229696 | 166289 | 195532 | 418196 |
| S | 256284 | 386875 | 314462 | 29692 | 52912 | 109433 | 99211 |
| SSE | 582532 | 1056258 | 1213638 | 41383 | 0 | 0 | 0 |
| SE | 881708 | 735691 | 836989 | 393629 | 38016 | 0 | 0 |
| ESE | 907647 | 524419 | 302264 | 331780 | 302990 | 112269 | 55872 |
| E | 614558 | 315168 | 62296 | 158874 | 81945 | 96843 | 111743 |
| ENE | 91625 | 83008 | 86601 | 65130 | 59702 | 70558 | 81413 |
| NE | 70873 | 62256 | 111184 | 140795 | 174717 | 137656 | 155442 |
| NNE | 70955 | 32638 | 87309 | 136246 | 82725 | 41310 | 44223 |

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 2.53E-08 | 1.75E-07 |
| BREAST | 1.80E-08 | 1.32E-07 |
| R MAR | 2.17E-06 | 1.38E-05 |
| LUNGS | 2.85E-05 | 1.80E-04 |
| THYROID | 1.70E-08 | 1.22E-07 |
| ENDOST | 2.71E-05 | 1.72E-04 |
| RMNDR | 1.08E-07 | 7.89E-07 |
| EFFEC | 4.53E-06 | 2.87E-05 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| INGESTION | 1.29E-09 | 1.01E-07 |
| INHALATION | 4.53E-06 | 2.86E-05 |
| AIR IMMERSION | 7.12E-12 | 2.06E-11 |
| GROUND SURFACE | 9.83E-10 | 1.06E-08 |
| INTERNAL | 4.53E-06 | 2.87E-05 |
| EXTERNAL | 9.90E-10 | 1.06E-08 |
| TOTAL | 4.53E-06 | 2.87E-05 |

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SUMMARY
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NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclides | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| AC-227 | 1.10E-07 | 6.97E-07 |
| AC-228 | 3.26E-10 | 1.74E-09 |
| BI-211 | 1.17E-13 | 8.92E-14 |
| BI-212 | 1.26E-10 | 3.91E-10 |
| FR-223 | 6.28E-15 | 1.11E-14 |
| PA-234M | 1.72E-14 | 1.20E-14 |
| PA-231 | 8.34E-08 | 5.29E-07 |
| PB-211 | 1.62E-12 | 3.81E-12 |
| PO-211 | 0.00E+00 | 0.00E+00 |
| PO-216 | 0.00E+00 | 0.00E+00 |
| PB-212 | 6.34E-10 | 3.62E-09 |
| PO-212 | 0.00E+00 | 0.00E+00 |
| PO-215 | 0.00E+00 | 0.00E+00 |
| RA-223 | 1.44E-09 | 9.10E-09 |
| RA-224 | 1.32E-08 | 8.21E-08 |
| TH-232 | 1.35E-06 | 8.52E-06 |
| TH-228 | 9.48E-07 | 5.98E-06 |
| TH-231 | 1.75E-13 | 1.08E-12 |
| TH-227 | 2.01E-09 | 1.27E-08 |
| TL-208 | 2.29E-12 | 1.87E-12 |
| U-235 | 2.15E-08 | 1.38E-07 |
| TL-207 | 1.34E-15 | 1.23E-15 |
| U-238 | 4.32E-07 | 2.74E-06 |
| TH-234 | 1.34E-10 | 9.19E-10 |
| PA-234 | 1.51E-14 | 9.61E-14 |
| U-234 | 5.20E-07 | 3.29E-06 |
| TH-230 | 9.90E-07 | 6.25E-06 |
| RA-226 | 1.45E-08 | 9.91E-08 |
| PO-218 | 6.00E-14 | 4.91E-14 |
| PB-214 | 1.72E-12 | 3.42E-12 |
| BI-214 | 2.18E-12 | 3.67E-12 |
| PO-214 | 0.00E+00 | 0.00E+00 |
| PB-210 | 2.26E-08 | 1.70E-07 |
| BI-210 | 3.14E-10 | 1.96E-09 |
| PO-210 | 1.40E-08 | 9.64E-08 |
| RA-228 | 9.25E-09 | 6.63E-08 |
| TOTAL | 4.53E-06 | 2.87E-05 |

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SUMMARY
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INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
|---|---|---|---|---|---|---|---|
| N | 3.4E-06 | 4.3E-07 | 1.2E-07 | 5.2E-08 | 3.0E-08 | 2.1E-08 | 9.5E-09 |
| NNW | 1.3E-06 | 1.6E-07 | 4.7E-08 | 2.0E-08 | 1.1E-08 | 7.8E-09 | 3.5E-09 |
| NW | 7.2E-07 | 9.2E-08 | 2.7E-08 | 1.1E-08 | 6.5E-09 | 4.4E-09 | 2.0E-09 |
| WNW | 6.0E-07 | 7.7E-08 | 2.3E-08 | 9.4E-09 | 5.5E-09 | 3.7E-09 | 1.7E-09 |
| W | 1.1E-06 | 1.4E-07 | 4.2E-08 | 1.8E-08 | 1.0E-08 | 6.9E-09 | 3.1E-09 |
| WSW | 1.3E-06 | 1.7E-07 | 5.0E-08 | 2.1E-08 | 1.2E-08 | 8.3E-09 | 3.7E-09 |
| SW | 1.9E-06 | 2.4E-07 | 6.9E-08 | 2.9E-08 | 1.7E-08 | 1.1E-08 | 5.2E-09 |
| SSW | 2.4E-06 | 3.1E-07 | 9.0E-08 | 3.8E-08 | 2.2E-08 | 1.5E-08 | 6.8E-09 |
| S | 4.5E-06 | 5.6E-07 | 1.6E-07 | 6.9E-08 | 4.0E-08 | 2.7E-08 | 1.2E-08 |
| SSE | 2.7E-06 | 3.3E-07 | 9.8E-08 | 4.1E-08 | 2.4E-08 | 1.6E-08 | 7.5E-09 |
| SE | 2.4E-06 | 3.0E-07 | 8.8E-08 | 3.7E-08 | 2.2E-08 | 1.5E-08 | 6.8E-09 |
| ESE | 1.8E-06 | 2.3E-07 | 6.6E-08 | 2.8E-08 | 1.6E-08 | 1.1E-08 | 5.1E-09 |
| E | 2.4E-06 | 3.0E-07 | 8.7E-08 | 3.7E-08 | 2.1E-08 | 1.5E-08 | 6.7E-09 |
| ENE | 1.9E-06 | 2.4E-07 | 7.1E-08 | 3.0E-08 | 1.7E-08 | 1.2E-08 | 5.4E-09 |
| NE | 3.5E-06 | 4.4E-07 | 1.3E-07 | 5.4E-08 | 3.1E-08 | 2.1E-08 | 9.8E-09 |
| NNE | 3.2E-06 | 4.0E-07 | 1.2E-07 | 4.9E-08 | 2.9E-08 | 2.0E-08 | 8.9E-09 |

Distance (m)

| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
|---|---|---|---|---|---|---|---|
| N | 3.5E-09 | 1.6E-09 | 9.8E-10 | 6.7E-10 | 4.8E-10 | 3.2E-10 | 2.5E-10 |
| NNW | 1.3E-09 | 5.7E-10 | 3.5E-10 | 2.4E-10 | 1.7E-10 | 1.2E-10 | 9.2E-11 |
| NW | 7.2E-10 | 3.2E-10 | 2.0E-10 | 1.4E-10 | 9.7E-11 | 6.6E-11 | 5.3E-11 |
| WNW | 5.9E-10 | 2.6E-10 | 1.6E-10 | 1.1E-10 | 7.9E-11 | 5.5E-11 | 4.4E-11 |
| W | 1.1E-09 | 4.8E-10 | 2.9E-10 | 2.0E-10 | 1.4E-10 | 9.5E-11 | 7.5E-11 |
| WSW | 1.3E-09 | 5.7E-10 | 3.5E-10 | 2.3E-10 | 1.6E-10 | 1.1E-10 | 8.9E-11 |
| SW | 1.9E-09 | 8.2E-10 | 5.0E-10 | 3.4E-10 | 2.4E-10 | 1.6E-10 | 1.3E-10 |
| SSW | 2.5E-09 | 1.1E-09 | 6.8E-10 | 4.6E-10 | 3.3E-10 | 2.2E-10 | 1.7E-10 |
| S | 4.6E-09 | 2.0E-09 | 1.3E-09 | 8.6E-10 | 6.1E-10 | 3.9E-10 | 3.1E-10 |
| SSE | 2.8E-09 | 1.3E-09 | 7.9E-10 | 5.5E-10 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 2.5E-09 | 1.2E-09 | 7.3E-10 | 5.1E-10 | 3.7E-10 | 0.0E+00 | 0.0E+00 |
| ESE | 1.9E-09 | 8.7E-10 | 5.5E-10 | 3.8E-10 | 2.8E-10 | 1.9E-10 | 1.5E-10 |
| E | 2.5E-09 | 1.1E-09 | 7.1E-10 | 4.9E-10 | 3.5E-10 | 2.4E-10 | 1.9E-10 |
| ENE | 2.0E-09 | 9.3E-10 | 5.9E-10 | 4.1E-10 | 2.9E-10 | 2.0E-10 | 1.6E-10 |
| NE | 3.6E-09 | 1.6E-09 | 1.0E-09 | 7.0E-10 | 5.0E-10 | 3.2E-10 | 2.6E-10 |
| NNE | 3.3E-09 | 1.5E-09 | 9.3E-10 | 6.4E-10 | 4.5E-10 | 2.9E-10 | 2.3E-10 |

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SUMMARY
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COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 2.5E-07 | 9.3E-08 | 1.1E-07 | 7.6E-08 | 6.2E-08 | 5.4E-08 | 2.1E-07 |
| NNW | 9.3E-08 | 3.5E-08 | 4.1E-08 | 2.8E-08 | 2.3E-08 | 2.0E-08 | 7.7E-08 |
| NW | 5.3E-08 | 2.0E-08 | 2.3E-08 | 1.6E-08 | 1.3E-08 | 1.2E-08 | 4.4E-08 |
| WNW | 4.4E-08 | 1.7E-08 | 2.0E-08 | 1.4E-08 | 1.1E-08 | 9.7E-09 | 3.3E-08 |
| W | 8.2E-08 | 3.1E-08 | 3.7E-08 | 2.5E-08 | 2.1E-08 | 1.8E-08 | 5.4E-08 |
| WSW | 9.8E-08 | 3.7E-08 | 4.4E-08 | 3.0E-08 | 2.5E-08 | 2.2E-08 | 6.5E-08 |
| SW | 1.4E-07 | 5.1E-08 | 6.0E-08 | 4.2E-08 | 3.4E-08 | 3.0E-08 | 9.1E-08 |
| SSW | 1.8E-07 | 6.7E-08 | 7.8E-08 | 5.5E-08 | 4.4E-08 | 3.9E-08 | 1.5E-07 |
| S | 3.3E-07 | 1.2E-07 | 1.4E-07 | 9.9E-08 | 8.1E-08 | 7.1E-08 | 2.7E-07 |
| SSE | 1.9E-07 | 7.3E-08 | 8.5E-08 | 6.0E-08 | 4.9E-08 | 4.3E-08 | 2.1E-07 |
| SE | 1.7E-07 | 6.6E-08 | 7.7E-08 | 5.4E-08 | 4.4E-08 | 3.9E-08 | 1.5E-07 |
| ESE | 1.3E-07 | 4.9E-08 | 5.7E-08 | 4.0E-08 | 3.3E-08 | 2.9E-08 | 1.1E-07 |
| E | 1.7E-07 | 6.5E-08 | 7.5E-08 | 5.3E-08 | 4.3E-08 | 3.8E-08 | 1.4E-07 |
| ENE | 1.4E-07 | 5.3E-08 | 6.1E-08 | 4.3E-08 | 3.5E-08 | 3.1E-08 | 1.2E-07 |
| NE | 2.6E-07 | 9.6E-08 | 1.1E-07 | 7.8E-08 | 6.4E-08 | 5.6E-08 | 2.1E-07 |
| NNE | 2.4E-07 | 8.8E-08 | 1.0E-07 | 7.1E-08 | 5.8E-08 | 5.1E-08 | 1.9E-07 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 2.8E-07 | 1.0E-07 | 7.5E-08 | 2.2E-08 | 1.5E-08 | 1.1E-08 | 8.6E-09 |
| NNW | 1.1E-07 | 6.2E-08 | 1.5E-08 | 6.8E-09 | 5.9E-09 | 4.7E-09 | 4.1E-09 |
| NW | 5.8E-08 | 2.7E-08 | 2.3E-08 | 1.9E-08 | 5.0E-09 | 1.8E-09 | 1.8E-09 |
| WNW | 3.6E-08 | 1.9E-08 | 1.6E-08 | 5.2E-09 | 1.8E-09 | 1.5E-09 | 1.2E-09 |
| W | 7.6E-08 | 4.4E-08 | 1.5E-08 | 1.3E-08 | 7.2E-09 | 4.2E-09 | 2.5E-09 |
| WSW | 1.6E-07 | 1.0E-07 | 2.1E-08 | 1.5E-08 | 1.3E-08 | 7.2E-08 | 2.9E-09 |
| SW | 2.4E-07 | 2.0E-07 | 1.3E-07 | 5.4E-08 | 2.9E-08 | 1.4E-08 | 1.8E-08 |
| SSW | 3.8E-07 | 3.0E-07 | 2.1E-07 | 1.1E-07 | 5.5E-08 | 4.3E-08 | 7.3E-08 |
| S | 1.2E-06 | 7.8E-07 | 4.0E-07 | 2.6E-08 | 3.2E-08 | 4.3E-08 | 3.1E-08 |
| SSE | 1.6E-06 | 1.3E-06 | 9.6E-07 | 2.3E-08 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 2.2E-06 | 8.6E-07 | 6.1E-07 | 2.0E-07 | 1.4E-08 | 0.0E+00 | 0.0E+00 |
| ESE | 1.7E-06 | 4.6E-07 | 1.7E-07 | 1.3E-07 | 8.3E-08 | 2.2E-08 | 8.6E-09 |
| E | 1.5E-06 | 3.6E-07 | 4.4E-08 | 7.8E-08 | 2.9E-08 | 2.3E-08 | 2.1E-08 |
| ENE | 1.8E-07 | 7.7E-08 | 5.1E-08 | 2.6E-08 | 1.7E-08 | 1.4E-08 | 1.3E-08 |
| NE | 2.6E-07 | 1.0E-07 | 1.1E-07 | 9.9E-08 | 8.7E-08 | 4.5E-08 | 4.0E-08 |
| NNE | 2.3E-07 | 4.9E-08 | 8.1E-08 | 8.7E-08 | 3.7E-08 | 1.2E-08 | 1.0E-08 |

```
                        C A P 8 8 - P C

                          Version 2.00


            Clean Air Act Assessment Package - 1988


                   S Y N O P S I S   R E P O R T

                Non-Radon Population Assessment
                     Mar  11, 2003  01:03 pm



     Facility:  Maywood Interim Storage Site - Cluster No. 4
      Address:  100 W. Hunter Avenue
         City:  Maywood
        State:  NJ          Zip:  07607-


     Source Category:  Particulate Emission w radon daughters
         Source Type:  Area
       Emission Year:  2002


     Comments:  Stone & Webster, Inc. for
                U.S. Army Corps of Engineers


                 Effective Dose Equivalent
                        (mrem/year)
                 _________________________

                         1.39E-05
                 _________________________


    At This Location:    250 Meters South

        Dataset Name:  MISS CLUST#4 POP
        Dataset Date:  Mar  11, 2003  01:02 pm
           Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
     Population File:  C:\DATA\CAP88PC2\POPFILES\MAYWOO~1.POP
```

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 111<br>OF145 |

Mar 11, 2003 01:03 pm



MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 250 Meters South
Lifetime Fatal Cancer Risk: 1.59E-10

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 6.89E-08 | 4.73E-07 |
| BREAST | 5.70E-08 | 4.05E-07 |
| R MAR | 6.47E-06 | 4.11E-05 |
| LUNGS | 8.82E-05 | 5.56E-04 |
| THYROID | 5.48E-08 | 3.82E-07 |
| ENDOST | 8.05E-05 | 5.11E-04 |
| RMNDR | 2.50E-07 | 1.78E-06 |
| EFFEC | 1.39E-05 | 8.78E-05 |

FREQUENCY DISTRIBUTION OF LIFETIME FATAL CANCER RISKS

| Risk Range | # of People | # of People in This Risk Range or Higher | Deaths/Year in This Risk Range | Deaths/Year in This Risk Range or Higher |
|---|---|---|---|---|
| 1.0E+00 TO 1.0E-01 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-01 TO 1.0E-02 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-02 TO 1.0E-03 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-03 TO 1.0E-04 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-04 TO 1.0E-05 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-05 TO 1.0E-06 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| LESS THAN 1.0E-06 | 19444635 | 19444635 | 1.41E-08 | 1.41E-08 |

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SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | Source #2 Ci/y | Source #3 Ci/y | Source #4 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|---|---|---|
| AC-227 | Y | 1.00 | 3.1E-11 | 3.1E-14 | 7.1E-14 | 1.2E-12 | 3.2E-11 |
| AC-228 | Y | 1.00 | 1.7E-09 | 1.7E-12 | 3.9E-12 | 6.5E-11 | 1.8E-09 |
| BI-211 | W | 1.00 | 3.1E-11 | 3.1E-14 | 7.1E-14 | 1.2E-12 | 3.2E-11 |
| BI-212 | W | 1.00 | 1.7E-09 | 1.7E-12 | 3.9E-12 | 6.5E-11 | 1.8E-09 |
| FR-223 | D | 1.00 | 4.3E-13 | 4.2E-16 | 9.7E-16 | 1.6E-14 | 4.4E-13 |
| PA-234M | Y | 1.00 | 6.6E-10 | 6.6E-13 | 1.5E-12 | 2.5E-11 | 6.9E-10 |
| PA-231 | Y | 1.00 | 3.1E-11 | 3.1E-14 | 7.1E-14 | 1.2E-12 | 3.2E-11 |
| PB-211 | D | 1.00 | 3.1E-11 | 3.1E-14 | 7.1E-14 | 1.2E-12 | 3.2E-11 |
| PO-211 | - | 0.00 | 8.4E-14 | 8.4E-17 | 1.9E-16 | 3.2E-15 | 8.8E-14 |
| PO-216 | W | 1.00 | 1.7E-09 | 1.7E-12 | 3.9E-12 | 6.5E-11 | 1.8E-09 |
| PB-212 | D | 1.00 | 1.7E-09 | 1.7E-12 | 3.9E-12 | 6.5E-11 | 1.8E-09 |
| PO-212 | W | 1.00 | 1.1E-09 | 1.1E-12 | 2.5E-12 | 4.1E-11 | 1.1E-09 |
| PO-215 | W | 1.00 | 3.1E-11 | 3.1E-14 | 7.1E-14 | 1.2E-12 | 3.2E-11 |
| RA-223 | W | 1.00 | 3.1E-11 | 3.1E-14 | 7.1E-14 | 1.2E-12 | 3.2E-11 |
| RA-224 | W | 1.00 | 1.7E-09 | 1.7E-12 | 3.9E-12 | 6.5E-11 | 1.8E-09 |
| TH-232 | Y | 1.00 | 1.7E-09 | 1.7E-12 | 3.9E-12 | 6.5E-11 | 1.8E-09 |
| TH-228 | Y | 1.00 | 1.7E-09 | 1.7E-12 | 3.9E-12 | 6.5E-11 | 1.8E-09 |
| TH-231 | Y | 1.00 | 3.1E-11 | 3.1E-14 | 7.0E-14 | 1.2E-12 | 3.2E-11 |
| TH-227 | Y | 1.00 | 3.0E-11 | 3.0E-14 | 7.0E-14 | 1.2E-12 | 3.2E-11 |
| TL-208 | D | 1.00 | 6.1E-10 | 6.1E-13 | 1.4E-12 | 2.3E-11 | 6.4E-10 |
| U-235 | Y | 1.00 | 3.1E-11 | 3.1E-14 | 7.1E-14 | 1.2E-12 | 3.2E-11 |
| TL-207 | D | 1.00 | 3.1E-11 | 3.1E-14 | 7.1E-14 | 1.2E-12 | 3.2E-11 |
| U-238 | Y | 1.00 | 6.6E-10 | 6.6E-13 | 1.5E-12 | 2.5E-11 | 6.9E-10 |
| TH-234 | Y | 1.00 | 6.6E-10 | 6.6E-13 | 1.5E-12 | 2.5E-11 | 6.9E-10 |
| PA-234 | Y | 1.00 | 5.2E-13 | 8.5E-16 | 2.0E-15 | 3.3E-14 | 5.6E-13 |
| U-234 | Y | 1.00 | 7.1E-10 | 7.0E-13 | 1.6E-12 | 2.7E-11 | 7.3E-10 |
| TH-230 | Y | 1.00 | 7.1E-10 | 7.0E-13 | 1.6E-12 | 2.7E-11 | 7.3E-10 |
| RA-226 | W | 1.00 | 3.2E-10 | 3.2E-13 | 7.3E-13 | 1.2E-11 | 3.3E-10 |
| PO-218 | W | 1.00 | 3.2E-10 | 3.2E-13 | 7.3E-13 | 1.2E-11 | 3.3E-10 |
| PB-214 | D | 1.00 | 3.2E-10 | 3.2E-13 | 7.3E-13 | 1.2E-11 | 3.3E-10 |
| BI-214 | W | 1.00 | 3.2E-10 | 3.2E-13 | 7.3E-13 | 1.2E-11 | 3.3E-10 |
| PO-214 | W | 1.00 | 3.2E-10 | 3.2E-13 | 7.3E-13 | 1.2E-11 | 3.3E-10 |
| PB-210 | D | 1.00 | 3.2E-10 | 3.2E-13 | 7.3E-13 | 1.2E-11 | 3.3E-10 |
| BI-210 | W | 1.00 | 3.2E-10 | 3.2E-13 | 7.3E-13 | 1.2E-11 | 3.3E-10 |
| PO-210 | W | 1.00 | 3.2E-10 | 3.2E-13 | 7.3E-13 | 1.2E-11 | 3.3E-10 |
| RA-228 | W | 1.00 | 1.7E-09 | 1.7E-12 | 3.9E-12 | 6.5E-11 | 1.8E-09 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

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SOURCE INFORMATION

| Source Number: | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Source Height (m): | 0. | 0. | 0. | 0. |
| Area (sq m): | 1850. | 30. | 28. | 483. |

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Beef Cattle Density: 4.25E-02
Milk Cattle Density: 3.29E-02
Land Fraction Cultivated
for Vegetable Crops: 1.82E-02

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SYNOPSIS
Page 4

POPULATION DATA

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| WNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 19528 |
| W | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| WSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| SW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17591 |
| SSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| S | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| SSE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 28091 |
| SE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ESE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| E | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ENE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 80798 | 65252 | 76762 | 32421 | 30759 | 35625 | 34311 |
| NNW | 86967 | 108564 | 41578 | 27967 | 34183 | 40397 | 44258 |
| NW | 80798 | 85308 | 115432 | 137220 | 52008 | 27730 | 34466 |
| WNW | 61467 | 70794 | 99111 | 47297 | 22710 | 26840 | 27148 |
| W | 69500 | 91150 | 51699 | 64974 | 51977 | 44409 | 32825 |
| WSW | 121661 | 181519 | 61189 | 64411 | 76208 | 642285 | 32256 |
| SW | 130148 | 246712 | 257716 | 159760 | 121585 | 85815 | 138721 |
| SSW | 154093 | 270126 | 307311 | 229696 | 166289 | 195532 | 418196 |
| S | 256284 | 386875 | 314462 | 29692 | 52912 | 109433 | 99211 |
| SSE | 582532 | 1056258 | 1213638 | 41383 | 0 | 0 | 0 |
| SE | 881708 | 735691 | 836989 | 393629 | 38016 | 0 | 0 |
| ESE | 907647 | 524419 | 302264 | 331780 | 302990 | 112269 | 55872 |
| E | 614558 | 315168 | 62296 | 158874 | 81945 | 96843 | 111743 |
| ENE | 91625 | 83008 | 86601 | 65130 | 59702 | 70558 | 81413 |
| NE | 70873 | 62256 | 111184 | 140795 | 174717 | 137656 | 155442 |
| NNE | 70955 | 32638 | 87309 | 136246 | 82725 | 41310 | 44223 |

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 6.89E-08 | 4.73E-07 |
| BREAST | 5.70E-08 | 4.05E-07 |
| R MAR | 6.47E-06 | 4.11E-05 |
| LUNGS | 8.82E-05 | 5.56E-04 |
| THYROID | 5.48E-08 | 3.82E-07 |
| ENDOST | 8.05E-05 | 5.11E-04 |
| RMNDR | 2.50E-07 | 1.78E-06 |
| EFFEC | 1.39E-05 | 8.78E-05 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| INGESTION | 2.87E-09 | 2.24E-07 |
| INHALATION | 1.39E-05 | 8.75E-05 |
| AIR IMMERSION | 2.65E-11 | 8.09E-11 |
| GROUND SURFACE | 1.86E-09 | 2.01E-08 |
| INTERNAL | 1.39E-05 | 8.77E-05 |
| EXTERNAL | 1.88E-09 | 2.01E-08 |
| TOTAL | 1.39E-05 | 8.78E-05 |

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SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclides | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| AC-227 | 1.88E-07 | 1.19E-06 |
| AC-228 | 1.42E-09 | 7.58E-09 |
| BI-211 | 2.00E-13 | 1.52E-13 |
| BI-212 | 5.49E-10 | 1.70E-09 |
| FR-223 | 1.07E-14 | 1.89E-14 |
| PA-234M | 2.94E-14 | 2.04E-14 |
| PA-231 | 1.42E-07 | 9.02E-07 |
| PB-211 | 2.76E-12 | 6.50E-12 |
| PO-211 | 0.00E+00 | 0.00E+00 |
| PO-216 | 0.00E+00 | 0.00E+00 |
| PB-212 | 2.76E-09 | 1.57E-08 |
| PO-212 | 0.00E+00 | 0.00E+00 |
| PO-215 | 0.00E+00 | 0.00E+00 |
| RA-223 | 2.45E-09 | 1.55E-08 |
| RA-224 | 5.73E-08 | 3.57E-07 |
| TH-232 | 5.87E-06 | 3.71E-05 |
| TH-228 | 4.12E-06 | 2.60E-05 |
| TH-231 | 2.98E-13 | 1.84E-12 |
| TH-227 | 3.42E-09 | 2.15E-08 |
| TL-208 | 9.97E-12 | 8.16E-12 |
| U-235 | 3.67E-08 | 2.36E-07 |
| TL-207 | 2.29E-15 | 2.09E-15 |
| U-238 | 7.38E-07 | 4.67E-06 |
| TH-234 | 2.30E-10 | 1.57E-09 |
| PA-234 | 1.61E-14 | 1.03E-13 |
| U-234 | 8.87E-07 | 5.62E-06 |
| TH-230 | 1.69E-06 | 1.07E-05 |
| RA-226 | 2.76E-08 | 1.88E-07 |
| PO-218 | 1.14E-13 | 9.31E-14 |
| PB-214 | 3.26E-12 | 6.48E-12 |
| BI-214 | 4.14E-12 | 6.97E-12 |
| PO-214 | 0.00E+00 | 0.00E+00 |
| PB-210 | 4.29E-08 | 3.23E-07 |
| BI-210 | 5.96E-10 | 3.72E-09 |
| PO-210 | 2.67E-08 | 1.83E-07 |
| RA-228 | 4.02E-08 | 2.88E-07 |
| TOTAL | 1.39E-05 | 8.78E-05 |

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SUMMARY
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INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 1.0E-05 | 1.3E-06 | 3.8E-07 | 1.6E-07 | 9.3E-08 | 6.4E-08 | 2.9E-08 |
| NNW | 3.9E-06 | 4.9E-07 | 1.4E-07 | 6.0E-08 | 3.5E-08 | 2.4E-08 | 1.1E-08 |
| NW | 2.2E-06 | 2.8E-07 | 8.2E-08 | 3.4E-08 | 2.0E-08 | 1.4E-08 | 6.1E-09 |
| WNW | 1.9E-06 | 2.4E-07 | 6.9E-08 | 2.9E-08 | 1.7E-08 | 1.1E-08 | 5.1E-09 |
| W | 3.4E-06 | 4.4E-07 | 1.3E-07 | 5.4E-08 | 3.1E-08 | 2.1E-08 | 9.5E-09 |
| WSW | 4.1E-06 | 5.3E-07 | 1.5E-07 | 6.4E-08 | 3.7E-08 | 2.5E-08 | 1.1E-08 |
| SW | 5.7E-06 | 7.2E-07 | 2.1E-07 | 8.8E-08 | 5.1E-08 | 3.5E-08 | 1.6E-08 |
| SSW | 7.5E-06 | 9.4E-07 | 2.8E-07 | 1.2E-07 | 6.7E-08 | 4.6E-08 | 2.1E-08 |
| S | 1.4E-05 | 1.7E-06 | 5.0E-07 | 2.1E-07 | 1.2E-07 | 8.3E-08 | 3.8E-08 |
| SSE | 8.1E-06 | 1.0E-06 | 3.0E-07 | 1.3E-07 | 7.3E-08 | 5.0E-08 | 2.3E-08 |
| SE | 7.2E-06 | 9.2E-07 | 2.7E-07 | 1.1E-07 | 6.6E-08 | 4.5E-08 | 2.1E-08 |
| ESE | 5.4E-06 | 6.9E-07 | 2.0E-07 | 8.5E-08 | 5.0E-08 | 3.4E-08 | 1.6E-08 |
| E | 7.2E-06 | 9.1E-07 | 2.7E-07 | 1.1E-07 | 6.5E-08 | 4.5E-08 | 2.0E-08 |
| ENE | 5.8E-06 | 7.4E-07 | 2.2E-07 | 9.1E-08 | 5.3E-08 | 3.6E-08 | 1.7E-08 |
| NE | 1.1E-05 | 1.3E-06 | 3.9E-07 | 1.6E-07 | 9.6E-08 | 6.5E-08 | 3.0E-08 |
| NNE | 1.0E-05 | 1.2E-06 | 3.6E-07 | 1.5E-07 | 8.8E-08 | 6.0E-08 | 2.7E-08 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 1.1E-08 | 4.8E-09 | 3.0E-09 | 2.0E-09 | 1.5E-09 | 9.7E-10 | 7.6E-10 |
| NNW | 3.9E-09 | 1.7E-09 | 1.1E-09 | 7.4E-10 | 5.2E-10 | 3.5E-10 | 2.8E-10 |
| NW | 2.2E-09 | 9.8E-10 | 6.0E-10 | 4.1E-10 | 2.9E-10 | 2.0E-10 | 1.6E-10 |
| WNW | 1.8E-09 | 8.0E-10 | 4.9E-10 | 3.3E-10 | 2.4E-10 | 1.6E-10 | 1.3E-10 |
| W | 3.3E-09 | 1.5E-09 | 8.8E-10 | 5.9E-10 | 4.2E-10 | 2.9E-10 | 2.3E-10 |
| WSW | 4.0E-09 | 1.8E-09 | 1.1E-09 | 7.1E-10 | 5.0E-10 | 3.4E-10 | 2.7E-10 |
| SW | 5.7E-09 | 2.5E-09 | 1.5E-09 | 1.0E-09 | 7.3E-10 | 4.9E-10 | 3.8E-10 |
| SSW | 7.5E-09 | 3.4E-09 | 2.1E-09 | 1.4E-09 | 1.0E-09 | 6.7E-10 | 5.3E-10 |
| S | 1.4E-08 | 6.2E-09 | 3.9E-09 | 2.6E-09 | 1.9E-09 | 1.2E-09 | 9.4E-10 |
| SSE | 8.5E-09 | 3.9E-09 | 2.4E-09 | 1.7E-09 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 7.7E-09 | 3.6E-09 | 2.2E-09 | 1.6E-09 | 1.1E-09 | 0.0E+00 | 0.0E+00 |
| ESE | 5.8E-09 | 2.7E-09 | 1.7E-09 | 1.2E-09 | 8.4E-10 | 5.9E-10 | 4.7E-10 |
| E | 7.5E-09 | 3.5E-09 | 2.2E-09 | 1.5E-09 | 1.1E-09 | 7.3E-10 | 5.8E-10 |
| ENE | 6.2E-09 | 2.8E-09 | 1.8E-09 | 1.2E-09 | 8.9E-10 | 6.1E-10 | 4.9E-10 |
| NE | 1.1E-08 | 5.0E-09 | 3.1E-09 | 2.1E-09 | 1.5E-09 | 9.9E-10 | 7.8E-10 |
| NNE | 1.0E-08 | 4.5E-09 | 2.8E-09 | 2.0E-09 | 1.4E-09 | 9.0E-10 | 7.1E-10 |

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SUMMARY
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COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 7.6E-07 | 2.8E-07 | 3.3E-07 | 2.3E-07 | 1.9E-07 | 1.7E-07 | 6.3E-07 |
| NNW | 2.8E-07 | 1.1E-07 | 1.2E-07 | 8.7E-08 | 7.1E-08 | 6.2E-08 | 2.3E-07 |
| NW | 1.6E-07 | 6.1E-08 | 7.1E-08 | 5.0E-08 | 4.1E-08 | 3.5E-08 | 1.3E-07 |
| WNW | 1.4E-07 | 5.2E-08 | 6.0E-08 | 4.2E-08 | 3.4E-08 | 3.0E-08 | 1.0E-07 |
| W | 2.5E-07 | 9.6E-08 | 1.1E-07 | 7.8E-08 | 6.3E-08 | 5.5E-08 | 1.6E-07 |
| WSW | 3.0E-07 | 1.1E-07 | 1.3E-07 | 9.3E-08 | 7.6E-08 | 6.6E-08 | 2.0E-07 |
| SW | 4.2E-07 | 1.6E-07 | 1.8E-07 | 1.3E-07 | 1.0E-07 | 9.1E-08 | 2.8E-07 |
| SSW | 5.4E-07 | 2.1E-07 | 2.4E-07 | 1.7E-07 | 1.4E-07 | 1.2E-07 | 4.5E-07 |
| S | 1.0E-06 | 3.8E-07 | 4.4E-07 | 3.0E-07 | 2.5E-07 | 2.2E-07 | 8.2E-07 |
| SSE | 5.9E-07 | 2.2E-07 | 2.6E-07 | 1.8E-07 | 1.5E-07 | 1.3E-07 | 6.4E-07 |
| SE | 5.3E-07 | 2.0E-07 | 2.4E-07 | 1.7E-07 | 1.3E-07 | 1.2E-07 | 4.5E-07 |
| ESE | 4.0E-07 | 1.5E-07 | 1.8E-07 | 1.2E-07 | 1.0E-07 | 8.9E-08 | 3.4E-07 |
| E | 5.3E-07 | 2.0E-07 | 2.3E-07 | 1.6E-07 | 1.3E-07 | 1.2E-07 | 4.4E-07 |
| ENE | 4.3E-07 | 1.6E-07 | 1.9E-07 | 1.3E-07 | 1.1E-07 | 9.5E-08 | 3.6E-07 |
| NE | 7.9E-07 | 2.9E-07 | 3.4E-07 | 2.4E-07 | 1.9E-07 | 1.7E-07 | 6.5E-07 |
| NNE | 7.3E-07 | 2.7E-07 | 3.1E-07 | 2.2E-07 | 1.8E-07 | 1.6E-07 | 5.9E-07 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 8.6E-07 | 3.1E-07 | 2.3E-07 | 6.6E-08 | 4.5E-08 | 3.5E-08 | 2.6E-08 |
| NNW | 3.4E-07 | 1.9E-07 | 4.5E-08 | 2.1E-08 | 1.8E-08 | 1.4E-08 | 1.2E-08 |
| NW | 1.8E-07 | 8.4E-08 | 7.0E-08 | 5.6E-08 | 1.5E-08 | 5.5E-09 | 5.5E-09 |
| WNW | 1.1E-07 | 5.7E-08 | 4.9E-08 | 1.6E-08 | 5.4E-09 | 4.4E-09 | 3.5E-09 |
| W | 2.3E-07 | 1.3E-07 | 4.6E-08 | 3.9E-08 | 2.2E-08 | 1.3E-08 | 7.4E-09 |
| WSW | 4.9E-07 | 3.2E-07 | 6.5E-08 | 4.6E-08 | 3.8E-08 | 2.2E-07 | 8.6E-09 |
| SW | 7.4E-07 | 6.2E-07 | 3.9E-07 | 1.7E-07 | 8.9E-08 | 4.2E-08 | 5.3E-08 |
| SSW | 1.2E-06 | 9.1E-07 | 6.4E-07 | 3.2E-07 | 1.7E-07 | 1.3E-07 | 2.2E-07 |
| S | 3.6E-06 | 2.4E-06 | 1.2E-06 | 7.8E-08 | 9.8E-08 | 1.3E-07 | 9.3E-08 |
| SSE | 4.9E-06 | 4.1E-06 | 2.9E-06 | 6.9E-08 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 6.8E-06 | 2.6E-06 | 1.9E-06 | 6.1E-07 | 4.3E-08 | 0.0E+00 | 0.0E+00 |
| ESE | 5.2E-06 | 1.4E-06 | 5.1E-07 | 3.8E-07 | 2.5E-07 | 6.6E-08 | 2.6E-08 |
| E | 4.6E-06 | 1.1E-06 | 1.3E-07 | 2.4E-07 | 8.8E-08 | 7.1E-08 | 6.5E-08 |
| ENE | 5.6E-07 | 2.4E-07 | 1.5E-07 | 8.1E-08 | 5.3E-08 | 4.3E-08 | 4.0E-08 |
| NE | 7.8E-07 | 3.1E-07 | 3.5E-07 | 3.0E-07 | 2.6E-07 | 1.4E-07 | 1.2E-07 |
| NNE | 7.2E-07 | 1.5E-07 | 2.5E-07 | 2.7E-07 | 1.1E-07 | 3.7E-08 | 3.1E-08 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 119<br>OF145 |

C A P 8 8 - P C

Version 2.00

Clean Air Act Assessment Package - 1988

S Y N O P S I S   R E P O R T

Non-Radon Population Assessment
Mar 11, 2003 01:05 pm

Facility: Maywood Interim Storage Site - Radiochemistry Lab
Address: 100 W. Hunter Avenue
City: Maywood
State: NJ Zip: 07607-

Source Category: Particulate Emission w radon daughters
Source Type: Area
Emission Year: 2002

Comments: Stone & Webster, Inc. for
U.S. Army Corps of Engineers

Effective Dose Equivalent
(mrem/year)

9.28E-06

At This Location: 250 Meters South

Dataset Name: MISS CHEMLAB POP
Dataset Date: Mar 11, 2003 01:05 pm
Wind File: C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
Population File: C:\DATA\CAP88PC2\POPFILES\MAYWOO~1.POP

Mar 11, 2003 01:05 pm

SYNOPSIS
Page 1

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 250 Meters South
Lifetime Fatal Cancer Risk: 1.05E-10

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 5.12E-08 | 3.56E-07 |
| BREAST | 4.15E-08 | 3.00E-07 |
| R MAR | 4.36E-06 | 2.77E-05 |
| LUNGS | 5.86E-05 | 3.70E-04 |
| THYROID | 3.97E-08 | 2.82E-07 |
| ENDOST | 5.43E-05 | 3.45E-04 |
| RMNDR | 2.23E-07 | 1.62E-06 |
| EFFEC | 9.28E-06 | 5.87E-05 |

FREQUENCY DISTRIBUTION OF LIFETIME FATAL CANCER RISKS

| Risk Range | # of People | # of People in This Risk Range or Higher | Deaths/Year in This Risk Range | Deaths/Year in This Risk Range or Higher |
|---|---|---|---|---|
| 1.0E+00 TO 1.0E-01 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-01 TO 1.0E-02 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-02 TO 1.0E-03 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-03 TO 1.0E-04 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-04 TO 1.0E-05 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-05 TO 1.0E-06 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| LESS THAN 1.0E-06 | 19444635 | 19444635 | 9.42E-09 | 9.42E-09 |

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SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| AC-228 | Y | 1.00 | 1.1E-09 | 1.1E-09 |
| BI-211 | W | 1.00 | 2.6E-11 | 2.6E-11 |
| BI-212 | W | 1.00 | 1.1E-09 | 1.1E-09 |
| FR-223 | D | 1.00 | 3.6E-13 | 3.6E-13 |
| PA-234M | Y | 1.00 | 5.6E-10 | 5.6E-10 |
| PA-231 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| PB-211 | D | 1.00 | 2.6E-11 | 2.6E-11 |
| PO-211 | - | 0.00 | 7.1E-14 | 7.1E-14 |
| PO-216 | W | 1.00 | 1.1E-09 | 1.1E-09 |
| PB-212 | D | 1.00 | 1.1E-09 | 1.1E-09 |
| PO-212 | W | 1.00 | 6.9E-10 | 6.9E-10 |
| PO-215 | W | 1.00 | 2.6E-11 | 2.6E-11 |
| RA-223 | W | 1.00 | 2.6E-11 | 2.6E-11 |
| RA-224 | W | 1.00 | 1.1E-09 | 1.1E-09 |
| TH-232 | Y | 1.00 | 1.1E-09 | 1.1E-09 |
| TH-228 | Y | 1.00 | 1.1E-09 | 1.1E-09 |
| TH-231 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| TH-227 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| TL-208 | D | 1.00 | 3.9E-10 | 3.9E-10 |
| U-235 | Y | 1.00 | 2.6E-11 | 2.6E-11 |
| TL-207 | D | 1.00 | 2.6E-11 | 2.6E-11 |
| U-238 | Y | 1.00 | 5.6E-10 | 5.6E-10 |
| TH-234 | Y | 1.00 | 5.6E-10 | 5.6E-10 |
| PA-234 | Y | 1.00 | 7.2E-13 | 7.2E-13 |
| U-234 | Y | 1.00 | 5.9E-10 | 5.9E-10 |
| TH-230 | Y | 1.00 | 5.9E-10 | 5.9E-10 |
| RA-226 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PO-218 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PB-214 | D | 1.00 | 4.2E-10 | 4.2E-10 |
| BI-214 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PO-214 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PB-210 | D | 1.00 | 4.2E-10 | 4.2E-10 |
| BI-210 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| PO-210 | W | 1.00 | 4.2E-10 | 4.2E-10 |
| RA-228 | W | 1.00 | 1.1E-09 | 1.1E-09 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

Mar 11, 2003 01:05 pm

SYNOPSIS
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SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 985.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Beef Cattle Density: 4.25E-02
Milk Cattle Density: 3.29E-02
Land Fraction Cultivated
for Vegetable Crops: 1.82E-02

Mar 11, 2003 01:05 pm

SYNOPSIS
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POPULATION DATA

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| WNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 19528 |
| W | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| WSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| SW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17591 |
| SSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| S | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| SSE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 28091 |
| SE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ESE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| E | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ENE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 80798 | 65252 | 76762 | 32421 | 30759 | 35625 | 34311 |
| NNW | 86967 | 108564 | 41578 | 27967 | 34183 | 40397 | 44258 |
| NW | 80798 | 85308 | 115432 | 137220 | 52008 | 27730 | 34466 |
| WNW | 61467 | 70794 | 99111 | 47297 | 22710 | 26840 | 27148 |
| W | 69500 | 91150 | 51699 | 64974 | 51977 | 44409 | 32825 |
| WSW | 121661 | 181519 | 61189 | 64411 | 76208 | 642285 | 32256 |
| SW | 130148 | 246712 | 257716 | 159760 | 121585 | 85815 | 138721 |
| SSW | 154093 | 270126 | 307311 | 229696 | 166289 | 195532 | 418196 |
| S | 256284 | 386875 | 314462 | 29692 | 52912 | 109433 | 99211 |
| SSE | 582532 | 1056258 | 1213638 | 41383 | 0 | 0 | 0 |
| SE | 881708 | 735691 | 836989 | 393629 | 38016 | 0 | 0 |
| ESE | 907647 | 524419 | 302264 | 331780 | 302990 | 112269 | 55872 |
| E | 614558 | 315168 | 62296 | 158874 | 81945 | 96843 | 111743 |
| ENE | 91625 | 83008 | 86601 | 65130 | 59702 | 70558 | 81413 |
| NE | 70873 | 62256 | 111184 | 140795 | 174717 | 137656 | 155442 |
| NNE | 70955 | 32638 | 87309 | 136246 | 82725 | 41310 | 44223 |

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 5.12E-08 | 3.56E-07 |
| BREAST | 4.15E-08 | 3.00E-07 |
| R MAR | 4.36E-06 | 2.77E-05 |
| LUNGS | 5.86E-05 | 3.70E-04 |
| THYROID | 3.97E-08 | 2.82E-07 |
| ENDOST | 5.43E-05 | 3.45E-04 |
| RMNDR | 2.23E-07 | 1.62E-06 |
| EFFEC | 9.28E-06 | 5.87E-05 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| INGESTION | 2.66E-09 | 2.08E-07 |
| INHALATION | 9.27E-06 | 5.85E-05 |
| AIR IMMERSION | 1.84E-11 | 5.34E-11 |
| GROUND SURFACE | 1.66E-09 | 1.79E-08 |
| INTERNAL | 9.27E-06 | 5.87E-05 |
| EXTERNAL | 1.67E-09 | 1.80E-08 |
| TOTAL | 9.28E-06 | 5.87E-05 |

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SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclides | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| AC-227 | 1.52E-07 | 9.64E-07 |
| AC-228 | 8.64E-10 | 4.62E-09 |
| BI-211 | 1.62E-13 | 1.23E-13 |
| BI-212 | 3.35E-10 | 1.04E-09 |
| FR-223 | 8.68E-15 | 1.53E-14 |
| PA-234M | 2.38E-14 | 1.66E-14 |
| PA-231 | 1.15E-07 | 7.32E-07 |
| PB-211 | 2.24E-12 | 5.27E-12 |
| PO-211 | 0.00E+00 | 0.00E+00 |
| PO-216 | 0.00E+00 | 0.00E+00 |
| PB-212 | 1.68E-09 | 9.59E-09 |
| PO-212 | 0.00E+00 | 0.00E+00 |
| PO-215 | 0.00E+00 | 0.00E+00 |
| RA-223 | 1.99E-09 | 1.26E-08 |
| RA-224 | 3.49E-08 | 2.18E-07 |
| TH-232 | 3.58E-06 | 2.26E-05 |
| TH-228 | 2.52E-06 | 1.59E-05 |
| TH-231 | 2.42E-13 | 1.49E-12 |
| TH-227 | 2.78E-09 | 1.75E-08 |
| TL-208 | 6.06E-12 | 4.96E-12 |
| U-235 | 2.97E-08 | 1.91E-07 |
| TL-207 | 1.85E-15 | 1.70E-15 |
| U-238 | 5.98E-07 | 3.79E-06 |
| TH-234 | 1.86E-10 | 1.27E-09 |
| PA-234 | 2.09E-14 | 1.33E-13 |
| U-234 | 7.19E-07 | 4.56E-06 |
| TH-230 | 1.37E-06 | 8.65E-06 |
| RA-226 | 3.52E-08 | 2.40E-07 |
| PO-218 | 1.45E-13 | 1.19E-13 |
| PB-214 | 4.16E-12 | 8.28E-12 |
| BI-214 | 5.28E-12 | 8.89E-12 |
| PO-214 | 0.00E+00 | 0.00E+00 |
| PB-210 | 5.48E-08 | 4.12E-07 |
| BI-210 | 7.60E-10 | 4.75E-09 |
| PO-210 | 3.40E-08 | 2.34E-07 |
| RA-228 | 2.45E-08 | 1.76E-07 |
| TOTAL | 9.28E-06 | 5.87E-05 |

Mar 11, 2003 01:05 pm

SUMMARY
Page 6

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 6.9E-06 | 8.7E-07 | 2.5E-07 | 1.1E-07 | 6.2E-08 | 4.2E-08 | 1.9E-08 |
| NNW | 2.6E-06 | 3.3E-07 | 9.6E-08 | 4.0E-08 | 2.3E-08 | 1.6E-08 | 7.2E-09 |
| NW | 1.5E-06 | 1.9E-07 | 5.5E-08 | 2.3E-08 | 1.3E-08 | 9.1E-09 | 4.1E-09 |
| WNW | 1.2E-06 | 1.6E-07 | 4.6E-08 | 1.9E-08 | 1.1E-08 | 7.6E-09 | 3.4E-09 |
| W | 2.3E-06 | 2.9E-07 | 8.6E-08 | 3.6E-08 | 2.1E-08 | 1.4E-08 | 6.4E-09 |
| WSW | 2.7E-06 | 3.5E-07 | 1.0E-07 | 4.3E-08 | 2.5E-08 | 1.7E-08 | 7.6E-09 |
| SW | 3.8E-06 | 4.8E-07 | 1.4E-07 | 5.9E-08 | 3.4E-08 | 2.3E-08 | 1.1E-08 |
| SSW | 5.0E-06 | 6.3E-07 | 1.8E-07 | 7.7E-08 | 4.5E-08 | 3.1E-08 | 1.4E-08 |
| S | 9.3E-06 | 1.2E-06 | 3.3E-07 | 1.4E-07 | 8.2E-08 | 5.6E-08 | 2.5E-08 |
| SSE | 5.4E-06 | 6.8E-07 | 2.0E-07 | 8.4E-08 | 4.9E-08 | 3.4E-08 | 1.5E-08 |
| SE | 4.8E-06 | 6.2E-07 | 1.8E-07 | 7.6E-08 | 4.4E-08 | 3.0E-08 | 1.4E-08 |
| ESE | 3.6E-06 | 4.6E-07 | 1.4E-07 | 5.7E-08 | 3.3E-08 | 2.3E-08 | 1.0E-08 |
| E | 4.8E-06 | 6.1E-07 | 1.8E-07 | 7.5E-08 | 4.4E-08 | 3.0E-08 | 1.4E-08 |
| ENE | 3.9E-06 | 4.9E-07 | 1.4E-07 | 6.1E-08 | 3.5E-08 | 2.4E-08 | 1.1E-08 |
| NE | 7.2E-06 | 9.0E-07 | 2.6E-07 | 1.1E-07 | 6.4E-08 | 4.4E-08 | 2.0E-08 |
| NNE | 6.6E-06 | 8.3E-07 | 2.4E-07 | 1.0E-07 | 5.9E-08 | 4.0E-08 | 1.8E-08 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 7.1E-09 | 3.2E-09 | 2.0E-09 | 1.4E-09 | 9.7E-10 | 6.5E-10 | 5.1E-10 |
| NNW | 2.6E-09 | 1.2E-09 | 7.2E-10 | 4.9E-10 | 3.5E-10 | 2.4E-10 | 1.9E-10 |
| NW | 1.5E-09 | 6.6E-10 | 4.1E-10 | 2.8E-10 | 2.0E-10 | 1.4E-10 | 1.1E-10 |
| WNW | 1.2E-09 | 5.4E-10 | 3.3E-10 | 2.2E-10 | 1.6E-10 | 1.1E-10 | 9.0E-11 |
| W | 2.2E-09 | 9.8E-10 | 5.9E-10 | 4.0E-10 | 2.8E-10 | 1.9E-10 | 1.5E-10 |
| WSW | 2.7E-09 | 1.2E-09 | 7.1E-10 | 4.8E-10 | 3.4E-10 | 2.3E-10 | 1.8E-10 |
| SW | 3.8E-09 | 1.7E-09 | 1.0E-09 | 7.0E-10 | 4.9E-10 | 3.3E-10 | 2.6E-10 |
| SSW | 5.0E-09 | 2.2E-09 | 1.4E-09 | 9.5E-10 | 6.7E-10 | 4.5E-10 | 3.6E-10 |
| S | 9.3E-09 | 4.1E-09 | 2.6E-09 | 1.8E-09 | 1.2E-09 | 8.0E-10 | 6.3E-10 |
| SSE | 5.7E-09 | 2.6E-09 | 1.6E-09 | 1.1E-09 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 5.2E-09 | 2.4E-09 | 1.5E-09 | 1.0E-09 | 7.5E-10 | 0.0E+00 | 0.0E+00 |
| ESE | 3.8E-09 | 1.8E-09 | 1.1E-09 | 7.8E-10 | 5.6E-10 | 3.9E-10 | 3.2E-10 |
| E | 5.0E-09 | 2.3E-09 | 1.5E-09 | 1.0E-09 | 7.2E-10 | 4.9E-10 | 3.9E-10 |
| ENE | 4.1E-09 | 1.9E-09 | 1.2E-09 | 8.3E-10 | 6.0E-10 | 4.1E-10 | 3.3E-10 |
| NE | 7.4E-09 | 3.3E-09 | 2.1E-09 | 1.4E-09 | 1.0E-09 | 6.6E-10 | 5.2E-10 |
| NNE | 6.8E-09 | 3.0E-09 | 1.9E-09 | 1.3E-09 | 9.2E-10 | 6.0E-10 | 4.7E-10 |

COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

| Direction | Distance (m) 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
|---|---|---|---|---|---|---|---|
| N | 5.1E-07 | 1.9E-07 | 2.2E-07 | 1.5E-07 | 1.3E-07 | 1.1E-07 | 4.2E-07 |
| NNW | 1.9E-07 | 7.2E-08 | 8.3E-08 | 5.8E-08 | 4.7E-08 | 4.1E-08 | 1.6E-07 |
| NW | 1.1E-07 | 4.1E-08 | 4.8E-08 | 3.3E-08 | 2.7E-08 | 2.4E-08 | 8.9E-08 |
| WNW | 9.0E-08 | 3.4E-08 | 4.0E-08 | 2.8E-08 | 2.3E-08 | 2.0E-08 | 6.7E-08 |
| W | 1.7E-07 | 6.4E-08 | 7.5E-08 | 5.2E-08 | 4.2E-08 | 3.7E-08 | 1.1E-07 |
| WSW | 2.0E-07 | 7.7E-08 | 8.9E-08 | 6.2E-08 | 5.1E-08 | 4.4E-08 | 1.3E-07 |
| SW | 2.8E-07 | 1.1E-07 | 1.2E-07 | 8.6E-08 | 6.9E-08 | 6.1E-08 | 1.9E-07 |
| SSW | 3.6E-07 | 1.4E-07 | 1.6E-07 | 1.1E-07 | 9.1E-08 | 8.0E-08 | 3.0E-07 |
| S | 6.8E-07 | 2.5E-07 | 2.9E-07 | 2.0E-07 | 1.7E-07 | 1.5E-07 | 5.5E-07 |
| SSE | 4.0E-07 | 1.5E-07 | 1.7E-07 | 1.2E-07 | 1.0E-07 | 8.7E-08 | 4.3E-07 |
| SE | 3.5E-07 | 1.3E-07 | 1.6E-07 | 1.1E-07 | 9.0E-08 | 7.9E-08 | 3.0E-07 |
| ESE | 2.6E-07 | 1.0E-07 | 1.2E-07 | 8.3E-08 | 6.7E-08 | 5.9E-08 | 2.3E-07 |
| E | 3.5E-07 | 1.3E-07 | 1.5E-07 | 1.1E-07 | 8.8E-08 | 7.8E-08 | 3.0E-07 |
| ENE | 2.9E-07 | 1.1E-07 | 1.3E-07 | 8.8E-08 | 7.2E-08 | 6.3E-08 | 2.4E-07 |
| NE | 5.3E-07 | 2.0E-07 | 2.3E-07 | 1.6E-07 | 1.3E-07 | 1.1E-07 | 4.3E-07 |
| NNE | 4.9E-07 | 1.8E-07 | 2.1E-07 | 1.5E-07 | 1.2E-07 | 1.0E-07 | 4.0E-07 |

| Direction | Distance (m) 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
|---|---|---|---|---|---|---|---|
| N | 5.7E-07 | 2.1E-07 | 1.5E-07 | 4.4E-08 | 3.0E-08 | 2.3E-08 | 1.8E-08 |
| NNW | 2.3E-07 | 1.3E-07 | 3.0E-08 | 1.4E-08 | 1.2E-08 | 9.6E-09 | 8.3E-09 |
| NW | 1.2E-07 | 5.6E-08 | 4.7E-08 | 3.8E-08 | 1.0E-08 | 3.8E-09 | 3.7E-09 |
| WNW | 7.5E-08 | 3.8E-08 | 3.3E-08 | 1.1E-08 | 3.6E-09 | 3.0E-09 | 2.4E-09 |
| W | 1.6E-07 | 8.9E-08 | 3.1E-08 | 2.6E-08 | 1.5E-08 | 8.7E-09 | 5.1E-09 |
| WSW | 3.3E-07 | 2.1E-07 | 4.3E-08 | 3.1E-08 | 2.6E-08 | 1.5E-07 | 5.8E-09 |
| SW | 4.9E-07 | 4.1E-07 | 2.6E-07 | 1.1E-07 | 6.0E-08 | 2.8E-08 | 3.6E-08 |
| SSW | 7.7E-07 | 6.1E-07 | 4.3E-07 | 2.2E-07 | 1.1E-07 | 8.8E-08 | 1.5E-07 |
| S | 2.4E-06 | 1.6E-06 | 8.1E-07 | 5.2E-08 | 6.6E-08 | 8.8E-08 | 6.3E-08 |
| SSE | 3.3E-06 | 2.7E-06 | 2.0E-06 | 4.6E-08 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 4.5E-06 | 1.8E-06 | 1.3E-06 | 4.1E-07 | 2.9E-08 | 0.0E+00 | 0.0E+00 |
| ESE | 3.5E-06 | 9.4E-07 | 3.4E-07 | 2.6E-07 | 1.7E-07 | 4.4E-08 | 1.8E-08 |
| E | 3.1E-06 | 7.3E-07 | 9.0E-08 | 1.6E-07 | 5.9E-08 | 4.7E-08 | 4.4E-08 |
| ENE | 3.8E-07 | 1.6E-07 | 1.0E-07 | 5.4E-08 | 3.6E-08 | 2.9E-08 | 2.7E-08 |
| NE | 5.2E-07 | 2.1E-07 | 2.3E-07 | 2.0E-07 | 1.8E-07 | 9.1E-08 | 8.1E-08 |
| NNE | 4.8E-07 | 9.9E-08 | 1.7E-07 | 1.8E-07 | 7.6E-08 | 2.5E-08 | 2.1E-08 |

C A P 8 8 - P C

Version 2.00

Clean Air Act Assessment Package - 1988

S Y N O P S I S   R E P O R T

Non-Radon Population Assessment
Mar 11, 2003 01:06 pm

```
 Facility:  Maywood Interim Storage Site - Rail Spur Cutback
  Address:  100 W. Hunter Avenue
     City:  Maywood
    State:  NJ          Zip:  07607-

Source Category:  Particulate Emission w radon daughters
    Source Type:  Area
  Emission Year:  2002

 Comments:  Stone & Webster, Inc. for
            U.S. Army Corps of Engineers
```

Effective Dose Equivalent
(mrem/year)

1.98E-04

```
At This Location:    250 Meters South

    Dataset Name:  MISS RAILSPR POP
    Dataset Date:  Mar  11, 2003  01:06 pm
       Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
 Population File:  C:\DATA\CAP88PC2\POPFILES\MAYWOO~1.POP
```

Mar 11, 2003 01:06 pm

SYNOPSIS
Page 1

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 250 Meters South
Lifetime Fatal Cancer Risk: 2.28E-09

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 9.34E-07 | 6.40E-06 |
| BREAST | 8.48E-07 | 5.94E-06 |
| R MAR | 9.07E-05 | 5.75E-04 |
| LUNGS | 1.26E-03 | 7.96E-03 |
| THYROID | 8.22E-07 | 5.68E-06 |
| ENDOST | 1.13E-03 | 7.15E-03 |
| RMNDR | 3.16E-06 | 2.23E-05 |
| EFFEC | 1.98E-04 | 1.25E-03 |

FREQUENCY DISTRIBUTION OF LIFETIME FATAL CANCER RISKS

| Risk Range | # of People | # of People in This Risk Range or Higher | Deaths/Year in This Risk Range | Deaths/Year in This Risk Range or Higher |
|---|---|---|---|---|
| 1.0E+00 TO 1.0E-01 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-01 TO 1.0E-02 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-02 TO 1.0E-03 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-03 TO 1.0E-04 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-04 TO 1.0E-05 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-05 TO 1.0E-06 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| LESS THAN 1.0E-06 | 19444635 | 19444635 | 2.04E-07 | 2.04E-07 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 130<br>OF145 |

Mar 11, 2003 01:06 pm



RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| AC-228 | Y | 1.00 | 2.9E-08 | 2.9E-08 |
| BI-211 | W | 1.00 | 2.5E-10 | 2.5E-10 |
| BI-212 | W | 1.00 | 2.9E-08 | 2.9E-08 |
| FR-223 | D | 1.00 | 3.5E-12 | 3.5E-12 |
| PA-234M | Y | 1.00 | 5.4E-09 | 5.4E-09 |
| PA-231 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| PB-211 | D | 1.00 | 2.5E-10 | 2.5E-10 |
| PO-211 | - | 0.00 | 6.9E-13 | 6.9E-13 |
| PO-216 | W | 1.00 | 2.9E-08 | 2.9E-08 |
| PB-212 | D | 1.00 | 2.9E-08 | 2.9E-08 |
| PO-212 | W | 1.00 | 1.9E-08 | 1.9E-08 |
| PO-215 | W | 1.00 | 2.5E-10 | 2.5E-10 |
| RA-223 | W | 1.00 | 2.5E-10 | 2.5E-10 |
| RA-224 | W | 1.00 | 2.9E-08 | 2.9E-08 |
| TH-232 | Y | 1.00 | 2.9E-08 | 2.9E-08 |
| TH-228 | Y | 1.00 | 2.9E-08 | 2.9E-08 |
| TH-231 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| TH-227 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| TL-208 | D | 1.00 | 1.0E-08 | 1.0E-08 |
| U-235 | Y | 1.00 | 2.5E-10 | 2.5E-10 |
| TL-207 | D | 1.00 | 2.5E-10 | 2.5E-10 |
| U-238 | Y | 1.00 | 5.4E-09 | 5.4E-09 |
| TH-234 | Y | 1.00 | 5.4E-09 | 5.4E-09 |
| PA-234 | Y | 1.00 | 7.1E-12 | 7.1E-12 |
| U-234 | Y | 1.00 | 5.8E-09 | 5.8E-09 |
| TH-230 | Y | 1.00 | 5.8E-09 | 5.8E-09 |
| RA-226 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PO-218 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PB-214 | D | 1.00 | 4.1E-09 | 4.1E-09 |
| BI-214 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PO-214 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PB-210 | D | 1.00 | 4.1E-09 | 4.1E-09 |
| BI-210 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| PO-210 | W | 1.00 | 4.1E-09 | 4.1E-09 |
| RA-228 | W | 1.00 | 2.9E-08 | 2.9E-08 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 131<br>OF145 |

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SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 1476.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Beef Cattle Density: 4.25E-02
Milk Cattle Density: 3.29E-02
Land Fraction Cultivated
for Vegetable Crops: 1.82E-02

POPULATION DATA

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| WNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 19528 |
| W | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| WSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| SW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17591 |
| SSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| S | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| SSE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 28091 |
| SE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ESE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| E | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ENE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 80798 | 65252 | 76762 | 32421 | 30759 | 35625 | 34311 |
| NNW | 86967 | 108564 | 41578 | 27967 | 34183 | 40397 | 44258 |
| NW | 80798 | 85308 | 115432 | 137220 | 52008 | 27730 | 34466 |
| WNW | 61467 | 70794 | 99111 | 47297 | 22710 | 26840 | 27148 |
| W | 69500 | 91150 | 51699 | 64974 | 51977 | 44409 | 32825 |
| WSW | 121661 | 181519 | 61189 | 64411 | 76208 | 642285 | 32256 |
| SW | 130148 | 246712 | 257716 | 159760 | 121585 | 85815 | 138721 |
| SSW | 154093 | 270126 | 307311 | 229696 | 166289 | 195532 | 418196 |
| S | 256284 | 386875 | 314462 | 29692 | 52912 | 109433 | 99211 |
| SSE | 582532 | 1056258 | 1213638 | 41383 | 0 | 0 | 0 |
| SE | 881708 | 735691 | 836989 | 393629 | 38016 | 0 | 0 |
| ESE | 907647 | 524419 | 302264 | 331780 | 302990 | 112269 | 55872 |
| E | 614558 | 315168 | 62296 | 158874 | 81945 | 96843 | 111743 |
| ENE | 91625 | 83008 | 86601 | 65130 | 59702 | 70558 | 81413 |
| NE | 70873 | 62256 | 111184 | 140795 | 174717 | 137656 | 155442 |
| NNE | 70955 | 32638 | 87309 | 136246 | 82725 | 41310 | 44223 |

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 9.34E-07 | 6.40E-06 |
| BREAST | 8.48E-07 | 5.94E-06 |
| R MAR | 9.07E-05 | 5.75E-04 |
| LUNGS | 1.26E-03 | 7.96E-03 |
| THYROID | 8.22E-07 | 5.68E-06 |
| ENDOST | 1.13E-03 | 7.15E-03 |
| RMNDR | 3.16E-06 | 2.23E-05 |
| EFFEC | 1.98E-04 | 1.25E-03 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| INGESTION | 3.57E-08 | 2.78E-06 |
| INHALATION | 1.98E-04 | 1.25E-03 |
| AIR IMMERSION | 4.22E-10 | 1.31E-09 |
| GROUND SURFACE | 1.85E-08 | 2.00E-07 |
| INTERNAL | 1.98E-04 | 1.25E-03 |
| EXTERNAL | 1.89E-08 | 2.01E-07 |
| TOTAL | 1.98E-04 | 1.25E-03 |

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SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclides | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| AC-227 | 1.49E-06 | 9.41E-06 |
| AC-228 | 2.34E-08 | 1.25E-07 |
| BI-211 | 1.59E-12 | 1.21E-12 |
| BI-212 | 9.09E-09 | 2.81E-08 |
| FR-223 | 8.48E-14 | 1.49E-13 |
| PA-234M | 2.32E-13 | 1.62E-13 |
| PA-231 | 1.13E-06 | 7.15E-06 |
| PB-211 | 2.18E-11 | 5.15E-11 |
| PO-211 | 0.00E+00 | 0.00E+00 |
| PO-216 | 0.00E+00 | 0.00E+00 |
| PB-212 | 4.56E-08 | 2.60E-07 |
| PO-212 | 0.00E+00 | 0.00E+00 |
| PO-215 | 0.00E+00 | 0.00E+00 |
| RA-223 | 1.94E-08 | 1.23E-07 |
| RA-224 | 9.48E-07 | 5.91E-06 |
| TH-232 | 9.72E-05 | 6.13E-04 |
| TH-228 | 6.83E-05 | 4.31E-04 |
| TH-231 | 2.36E-12 | 1.46E-11 |
| TH-227 | 2.71E-08 | 1.71E-07 |
| TL-208 | 1.64E-10 | 1.35E-10 |
| U-235 | 2.90E-07 | 1.87E-06 |
| TL-207 | 1.81E-14 | 1.66E-14 |
| U-238 | 5.84E-06 | 3.70E-05 |
| TH-234 | 1.82E-09 | 1.24E-08 |
| PA-234 | 2.04E-13 | 1.30E-12 |
| U-234 | 7.02E-06 | 4.45E-05 |
| TH-230 | 1.34E-05 | 8.44E-05 |
| RA-226 | 3.43E-07 | 2.34E-06 |
| PO-218 | 1.42E-12 | 1.16E-12 |
| PB-214 | 4.05E-11 | 8.06E-11 |
| BI-214 | 5.14E-11 | 8.66E-11 |
| PO-214 | 0.00E+00 | 0.00E+00 |
| PB-210 | 5.34E-07 | 4.01E-06 |
| BI-210 | 7.41E-09 | 4.63E-08 |
| PO-210 | 3.31E-07 | 2.27E-06 |
| RA-228 | 6.66E-07 | 4.77E-06 |
| TOTAL | 1.98E-04 | 1.25E-03 |

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Page 6

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 1.5E-04 | 1.9E-05 | 5.4E-06 | 2.3E-06 | 1.3E-06 | 9.0E-07 | 4.1E-07 |
| NNW | 5.5E-05 | 7.0E-06 | 2.0E-06 | 8.6E-07 | 5.0E-07 | 3.4E-07 | 1.5E-07 |
| NW | 3.2E-05 | 4.0E-06 | 1.2E-06 | 4.9E-07 | 2.8E-07 | 1.9E-07 | 8.7E-08 |
| WNW | 2.6E-05 | 3.4E-06 | 9.8E-07 | 4.1E-07 | 2.4E-07 | 1.6E-07 | 7.3E-08 |
| W | 4.9E-05 | 6.3E-06 | 1.8E-06 | 7.7E-07 | 4.4E-07 | 3.0E-07 | 1.4E-07 |
| WSW | 5.8E-05 | 7.5E-06 | 2.2E-06 | 9.2E-07 | 5.3E-07 | 3.6E-07 | 1.6E-07 |
| SW | 8.1E-05 | 1.0E-05 | 3.0E-06 | 1.3E-06 | 7.3E-07 | 5.0E-07 | 2.2E-07 |
| SSW | 1.1E-04 | 1.3E-05 | 3.9E-06 | 1.6E-06 | 9.5E-07 | 6.5E-07 | 3.0E-07 |
| S | 2.0E-04 | 2.5E-05 | 7.1E-06 | 3.0E-06 | 1.7E-06 | 1.2E-06 | 5.4E-07 |
| SSE | 1.2E-04 | 1.5E-05 | 4.3E-06 | 1.8E-06 | 1.0E-06 | 7.1E-07 | 3.3E-07 |
| SE | 1.0E-04 | 1.3E-05 | 3.8E-06 | 1.6E-06 | 9.5E-07 | 6.5E-07 | 3.0E-07 |
| ESE | 7.7E-05 | 9.8E-06 | 2.9E-06 | 1.2E-06 | 7.1E-07 | 4.8E-07 | 2.2E-07 |
| E | 1.0E-04 | 1.3E-05 | 3.8E-06 | 1.6E-06 | 9.3E-07 | 6.3E-07 | 2.9E-07 |
| ENE | 8.3E-05 | 1.1E-05 | 3.1E-06 | 1.3E-06 | 7.6E-07 | 5.2E-07 | 2.4E-07 |
| NE | 1.5E-04 | 1.9E-05 | 5.6E-06 | 2.3E-06 | 1.4E-06 | 9.3E-07 | 4.2E-07 |
| NNE | 1.4E-04 | 1.8E-05 | 5.1E-06 | 2.1E-06 | 1.3E-06 | 8.5E-07 | 3.9E-07 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 1.5E-07 | 6.8E-08 | 4.2E-08 | 2.9E-08 | 2.1E-08 | 1.4E-08 | 1.1E-08 |
| NNW | 5.6E-08 | 2.5E-08 | 1.5E-08 | 1.0E-08 | 7.4E-09 | 5.0E-09 | 3.9E-09 |
| NW | 3.1E-08 | 1.4E-08 | 8.6E-09 | 5.8E-09 | 4.1E-09 | 2.8E-09 | 2.2E-09 |
| WNW | 2.6E-08 | 1.1E-08 | 7.0E-09 | 4.7E-09 | 3.3E-09 | 2.3E-09 | 1.8E-09 |
| W | 4.8E-08 | 2.1E-08 | 1.3E-08 | 8.4E-09 | 5.9E-09 | 4.1E-09 | 3.2E-09 |
| WSW | 5.7E-08 | 2.5E-08 | 1.5E-08 | 1.0E-08 | 7.1E-09 | 4.8E-09 | 3.8E-09 |
| SW | 8.1E-08 | 3.6E-08 | 2.2E-08 | 1.5E-08 | 1.0E-08 | 6.9E-09 | 5.4E-09 |
| SSW | 1.1E-07 | 4.8E-08 | 2.9E-08 | 2.0E-08 | 1.4E-08 | 9.5E-09 | 7.5E-09 |
| S | 2.0E-07 | 8.8E-08 | 5.5E-08 | 3.8E-08 | 2.6E-08 | 1.7E-08 | 1.3E-08 |
| SSE | 1.2E-07 | 5.5E-08 | 3.4E-08 | 2.4E-08 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 1.1E-07 | 5.1E-08 | 3.2E-08 | 2.2E-08 | 1.6E-08 | 0.0E+00 | 0.0E+00 |
| ESE | 8.2E-08 | 3.8E-08 | 2.4E-08 | 1.6E-08 | 1.2E-08 | 8.3E-09 | 6.6E-09 |
| E | 1.1E-07 | 4.9E-08 | 3.1E-08 | 2.1E-08 | 1.5E-08 | 1.0E-08 | 8.2E-09 |
| ENE | 8.8E-08 | 4.1E-08 | 2.5E-08 | 1.8E-08 | 1.3E-08 | 8.7E-09 | 6.9E-09 |
| NE | 1.6E-07 | 7.1E-08 | 4.4E-08 | 3.0E-08 | 2.2E-08 | 1.4E-08 | 1.1E-08 |
| NNE | 1.4E-07 | 6.5E-08 | 4.0E-08 | 2.8E-08 | 2.0E-08 | 1.3E-08 | 1.0E-08 |

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SUMMARY
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COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
|---|---|---|---|---|---|---|---|
| N | 1.1E-05 | 4.1E-06 | 4.7E-06 | 3.3E-06 | 2.7E-06 | 2.4E-06 | 9.0E-06 |
| NNW | 4.0E-06 | 1.5E-06 | 1.8E-06 | 1.2E-06 | 1.0E-06 | 8.8E-07 | 3.3E-06 |
| NW | 2.3E-06 | 8.7E-07 | 1.0E-06 | 7.1E-07 | 5.8E-07 | 5.0E-07 | 1.9E-06 |
| WNW | 1.9E-06 | 7.3E-07 | 8.5E-07 | 6.0E-07 | 4.8E-07 | 4.2E-07 | 1.4E-06 |
| W | 3.6E-06 | 1.4E-06 | 1.6E-06 | 1.1E-06 | 9.0E-07 | 7.8E-07 | 2.3E-06 |
| WSW | 4.3E-06 | 1.6E-06 | 1.9E-06 | 1.3E-06 | 1.1E-06 | 9.4E-07 | 2.8E-06 |
| SW | 5.9E-06 | 2.2E-06 | 2.6E-06 | 1.8E-06 | 1.5E-06 | 1.3E-06 | 4.0E-06 |
| SSW | 7.7E-06 | 2.9E-06 | 3.4E-06 | 2.4E-06 | 1.9E-06 | 1.7E-06 | 6.4E-06 |
| S | 1.4E-05 | 5.4E-06 | 6.2E-06 | 4.3E-06 | 3.5E-06 | 3.1E-06 | 1.2E-05 |
| SSE | 8.4E-06 | 3.2E-06 | 3.7E-06 | 2.6E-06 | 2.1E-06 | 1.9E-06 | 9.2E-06 |
| SE | 7.5E-06 | 2.9E-06 | 3.3E-06 | 2.4E-06 | 1.9E-06 | 1.7E-06 | 6.5E-06 |
| ESE | 5.6E-06 | 2.1E-06 | 2.5E-06 | 1.8E-06 | 1.4E-06 | 1.3E-06 | 4.8E-06 |
| E | 7.5E-06 | 2.8E-06 | 3.3E-06 | 2.3E-06 | 1.9E-06 | 1.7E-06 | 6.3E-06 |
| ENE | 6.1E-06 | 2.3E-06 | 2.7E-06 | 1.9E-06 | 1.5E-06 | 1.3E-06 | 5.1E-06 |
| NE | 1.1E-05 | 4.2E-06 | 4.8E-06 | 3.4E-06 | 2.8E-06 | 2.4E-06 | 9.2E-06 |
| NNE | 1.0E-05 | 3.8E-06 | 4.4E-06 | 3.1E-06 | 2.5E-06 | 2.2E-06 | 8.5E-06 |

Distance (m)

| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
|---|---|---|---|---|---|---|---|
| N | 1.2E-05 | 4.5E-06 | 3.3E-06 | 9.4E-07 | 6.4E-07 | 4.9E-07 | 3.7E-07 |
| NNW | 4.8E-06 | 2.7E-06 | 6.4E-07 | 2.9E-07 | 2.5E-07 | 2.0E-07 | 1.7E-07 |
| NW | 2.5E-06 | 1.2E-06 | 9.9E-07 | 8.0E-07 | 2.2E-07 | 7.8E-08 | 7.7E-08 |
| WNW | 1.6E-06 | 8.1E-07 | 6.9E-07 | 2.2E-07 | 7.6E-08 | 6.2E-08 | 5.0E-08 |
| W | 3.3E-06 | 1.9E-06 | 6.5E-07 | 5.5E-07 | 3.1E-07 | 1.8E-07 | 1.1E-07 |
| WSW | 7.0E-06 | 4.5E-06 | 9.2E-07 | 6.5E-07 | 5.4E-07 | 3.1E-06 | 1.2E-07 |
| SW | 1.0E-05 | 8.8E-06 | 5.6E-06 | 2.4E-06 | 1.3E-06 | 5.9E-07 | 7.5E-07 |
| SSW | 1.6E-05 | 1.3E-05 | 9.1E-06 | 4.6E-06 | 2.4E-06 | 1.9E-06 | 3.1E-06 |
| S | 5.1E-05 | 3.4E-05 | 1.7E-05 | 1.1E-06 | 1.4E-06 | 1.9E-06 | 1.3E-06 |
| SSE | 7.0E-05 | 5.8E-05 | 4.2E-05 | 9.8E-07 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 9.7E-05 | 3.7E-05 | 2.7E-05 | 8.7E-06 | 6.1E-07 | 0.0E+00 | 0.0E+00 |
| ESE | 7.4E-05 | 2.0E-05 | 7.2E-06 | 5.5E-06 | 3.6E-06 | 9.3E-07 | 3.7E-07 |
| E | 6.6E-05 | 1.5E-05 | 1.9E-06 | 3.4E-06 | 1.3E-06 | 1.0E-06 | 9.2E-07 |
| ENE | 8.0E-06 | 3.4E-06 | 2.2E-06 | 1.1E-06 | 7.6E-07 | 6.1E-07 | 5.6E-07 |
| NE | 1.1E-05 | 4.4E-06 | 4.9E-06 | 4.3E-06 | 3.8E-06 | 1.9E-06 | 1.7E-06 |
| NNE | 1.0E-05 | 2.1E-06 | 3.5E-06 | 3.8E-06 | 1.6E-06 | 5.3E-07 | 4.4E-07 |

C A P 8 8 - P C

Version 2.00

Clean Air Act Assessment Package - 1988

S Y N O P S I S   R E P O R T

Non-Radon Population Assessment
Mar 11, 2003 01:07 pm

```
 Facility:  Maywood Interim Storage Site - New Sewer Line
  Address:  100 W. Hunter Avenue
     City:  Maywood
    State:  NJ          Zip:  07607-


Source Category:  Particulate Emission w radon daughters
    Source Type:  Area
  Emission Year:  2002


 Comments:  Stone & Webster, Inc. for
            U.S. Army Corps of Engineers


             Effective Dose Equivalent
                    (mrem/year)
             _________________________

                     1.93E-06
             _________________________


At This Location:    250 Meters South

    Dataset Name:  MISS SEWER POP
    Dataset Date:  Mar  11, 2003  01:07 pm
       Wind File:  C:\DATA\CAP88PC2\WNDFILES\TET1358.WND
 Population File:  C:\DATA\CAP88PC2\POPFILES\MAYWOO~1.POP
```

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 138<br>OF145 |

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SYNOPSIS
Page 1

MAXIMALLY EXPOSED INDIVIDUAL

Location Of The Individual: 250 Meters South
Lifetime Fatal Cancer Risk: 2.23E-11

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 9.29E-09 | 6.40E-08 |
| BREAST | 8.61E-09 | 6.05E-08 |
| R MAR | 8.83E-07 | 5.60E-06 |
| LUNGS | 1.23E-05 | 7.78E-05 |
| THYROID | 8.36E-09 | 5.79E-08 |
| ENDOST | 1.10E-05 | 6.96E-05 |
| RMNDR | 3.31E-08 | 2.35E-07 |
| EFFEC | 1.93E-06 | 1.22E-05 |

FREQUENCY DISTRIBUTION OF LIFETIME FATAL CANCER RISKS

| Risk Range | # of People | # of People in This Risk Range or Higher | Deaths/Year in This Risk Range | Deaths/Year in This Risk Range or Higher |
|---|---|---|---|---|
| 1.0E+00 TO 1.0E-01 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-01 TO 1.0E-02 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-02 TO 1.0E-03 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-03 TO 1.0E-04 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-04 TO 1.0E-05 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| 1.0E-05 TO 1.0E-06 | 0 | 0 | 0.00E+00 | 0.00E+00 |
| LESS THAN 1.0E-06 | 19444635 | 19444635 | 1.99E-09 | 1.99E-09 |

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SYNOPSIS
Page 2

RADIONUCLIDE EMISSIONS DURING THE YEAR 2002

| Nuclide | Class | Size | Source #1 Ci/y | TOTAL Ci/y |
|---|---|---|---|---|
| AC-227 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| AC-228 | Y | 1.00 | 2.9E-10 | 2.9E-10 |
| BI-211 | W | 1.00 | 2.1E-12 | 2.1E-12 |
| BI-212 | W | 1.00 | 2.9E-10 | 2.9E-10 |
| FR-223 | D | 1.00 | 2.9E-14 | 2.9E-14 |
| PA-234M | Y | 1.00 | 4.5E-11 | 4.5E-11 |
| PA-231 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| PB-211 | D | 1.00 | 2.1E-12 | 2.1E-12 |
| PO-211 | - | 0.00 | 5.8E-15 | 5.8E-15 |
| PO-216 | W | 1.00 | 2.9E-10 | 2.9E-10 |
| PB-212 | D | 1.00 | 2.9E-10 | 2.9E-10 |
| PO-212 | W | 1.00 | 1.9E-10 | 1.9E-10 |
| PO-215 | W | 1.00 | 2.1E-12 | 2.1E-12 |
| RA-223 | W | 1.00 | 2.1E-12 | 2.1E-12 |
| RA-224 | W | 1.00 | 2.9E-10 | 2.9E-10 |
| TH-232 | Y | 1.00 | 2.9E-10 | 2.9E-10 |
| TH-228 | Y | 1.00 | 2.9E-10 | 2.9E-10 |
| TH-231 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| TH-227 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| TL-208 | D | 1.00 | 1.1E-10 | 1.1E-10 |
| U-235 | Y | 1.00 | 2.1E-12 | 2.1E-12 |
| TL-207 | D | 1.00 | 2.1E-12 | 2.1E-12 |
| U-238 | Y | 1.00 | 4.5E-11 | 4.5E-11 |
| TH-234 | Y | 1.00 | 4.5E-11 | 4.5E-11 |
| PA-234 | Y | 1.00 | 5.9E-14 | 5.9E-14 |
| U-234 | Y | 1.00 | 4.8E-11 | 4.8E-11 |
| TH-230 | Y | 1.00 | 4.8E-11 | 4.8E-11 |
| RA-226 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PO-218 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PB-214 | D | 1.00 | 5.1E-11 | 5.1E-11 |
| BI-214 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PO-214 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PB-210 | D | 1.00 | 5.1E-11 | 5.1E-11 |
| BI-210 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| PO-210 | W | 1.00 | 5.1E-11 | 5.1E-11 |
| RA-228 | W | 1.00 | 2.9E-10 | 2.9E-10 |

SITE INFORMATION

Temperature: 13 degrees C
Precipitation: 112 cm/y
Mixing Height: 1000 m

SOURCE INFORMATION

Source Number: 1

Source Height (m): 0.
Area (sq m): 72.

| Plume Rise Pasquill Cat: | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| Zero: | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

AGRICULTURAL DATA

| | Vegetable | Milk | Meat |
|---|---|---|---|
| Fraction Home Produced: | 0.076 | 0.000 | 0.008 |
| Fraction From Assessment Area: | 0.924 | 1.000 | 0.992 |
| Fraction Imported: | 0.000 | 0.000 | 0.000 |

Beef Cattle Density: 4.25E-02
Milk Cattle Density: 3.29E-02
Land Fraction Cultivated
for Vegetable Crops: 1.82E-02

POPULATION DATA

| Direction | Distance (m) 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
|---|---|---|---|---|---|---|---|
| N | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| WNW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 19528 |
| W | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| WSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17315 |
| SW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 17591 |
| SSW | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| S | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| SSE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 28091 |
| SE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ESE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| E | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| ENE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |
| NNE | 73 | 218 | 869 | 1449 | 2029 | 2609 | 21742 |

| Direction | Distance (m) 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
|---|---|---|---|---|---|---|---|
| N | 80798 | 65252 | 76762 | 32421 | 30759 | 35625 | 34311 |
| NNW | 86967 | 108564 | 41578 | 27967 | 34183 | 40397 | 44258 |
| NW | 80798 | 85308 | 115432 | 137220 | 52008 | 27730 | 34466 |
| WNW | 61467 | 70794 | 99111 | 47297 | 22710 | 26840 | 27148 |
| W | 69500 | 91150 | 51699 | 64974 | 51977 | 44409 | 32825 |
| WSW | 121661 | 181519 | 61189 | 64411 | 76208 | 642285 | 32256 |
| SW | 130148 | 246712 | 257716 | 159760 | 121585 | 85815 | 138721 |
| SSW | 154093 | 270126 | 307311 | 229696 | 166289 | 195532 | 418196 |
| S | 256284 | 386875 | 314462 | 29692 | 52912 | 109433 | 99211 |
| SSE | 582532 | 1056258 | 1213638 | 41383 | 0 | 0 | 0 |
| SE | 881708 | 735691 | 836989 | 393629 | 38016 | 0 | 0 |
| ESE | 907647 | 524419 | 302264 | 331780 | 302990 | 112269 | 55872 |
| E | 614558 | 315168 | 62296 | 158874 | 81945 | 96843 | 111743 |
| ENE | 91625 | 83008 | 86601 | 65130 | 59702 | 70558 | 81413 |
| NE | 70873 | 62256 | 111184 | 140795 | 174717 | 137656 | 155442 |
| NNE | 70955 | 32638 | 87309 | 136246 | 82725 | 41310 | 44223 |

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SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

| Organ | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| GONADS | 9.29E-09 | 6.40E-08 |
| BREAST | 8.61E-09 | 6.05E-08 |
| R MAR | 8.83E-07 | 5.60E-06 |
| LUNGS | 1.23E-05 | 7.78E-05 |
| THYROID | 8.36E-09 | 5.79E-08 |
| ENDOST | 1.10E-05 | 6.96E-05 |
| RMNDR | 3.31E-08 | 2.35E-07 |
| EFFEC | 1.93E-06 | 1.22E-05 |

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

| Pathway | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| INGESTION | 3.77E-10 | 2.93E-08 |
| INHALATION | 1.93E-06 | 1.22E-05 |
| AIR IMMERSION | 4.32E-12 | 1.32E-11 |
| GROUND SURFACE | 1.81E-10 | 1.96E-09 |
| INTERNAL | 1.93E-06 | 1.22E-05 |
| EXTERNAL | 1.85E-10 | 1.97E-09 |
| TOTAL | 1.93E-06 | 1.22E-05 |

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SUMMARY
Page 2

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

| Nuclides | Selected Individual (mrem/y) | Collective Population (person-rem/y) |
|---|---|---|
| AC-227 | 1.24E-08 | 7.82E-08 |
| AC-228 | 2.34E-10 | 1.25E-09 |
| BI-211 | 1.32E-14 | 1.00E-14 |
| BI-212 | 9.09E-11 | 2.81E-10 |
| FR-223 | 7.03E-16 | 1.24E-15 |
| PA-234M | 1.93E-15 | 1.34E-15 |
| PA-231 | 9.36E-09 | 5.94E-08 |
| PB-211 | 1.81E-13 | 4.28E-13 |
| PO-211 | 0.00E+00 | 0.00E+00 |
| PO-216 | 0.00E+00 | 0.00E+00 |
| PB-212 | 4.56E-10 | 2.60E-09 |
| PO-212 | 0.00E+00 | 0.00E+00 |
| PO-215 | 0.00E+00 | 0.00E+00 |
| RA-223 | 1.61E-10 | 1.02E-09 |
| RA-224 | 9.48E-09 | 5.91E-08 |
| TH-232 | 9.72E-07 | 6.13E-06 |
| TH-228 | 6.83E-07 | 4.31E-06 |
| TH-231 | 1.96E-14 | 1.21E-13 |
| TH-227 | 2.25E-10 | 1.41E-09 |
| TL-208 | 1.64E-12 | 1.35E-12 |
| U-235 | 2.41E-09 | 1.55E-08 |
| TL-207 | 1.50E-16 | 1.38E-16 |
| U-238 | 4.84E-08 | 3.06E-07 |
| TH-234 | 1.51E-11 | 1.03E-10 |
| PA-234 | 1.69E-15 | 1.08E-14 |
| U-234 | 5.83E-08 | 3.69E-07 |
| TH-230 | 1.11E-07 | 7.00E-07 |
| RA-226 | 4.23E-09 | 2.88E-08 |
| PO-218 | 1.74E-14 | 1.43E-14 |
| PB-214 | 4.99E-13 | 9.94E-13 |
| BI-214 | 6.34E-13 | 1.07E-12 |
| PO-214 | 0.00E+00 | 0.00E+00 |
| PB-210 | 6.58E-09 | 4.95E-08 |
| BI-210 | 9.13E-11 | 5.71E-10 |
| PO-210 | 4.08E-09 | 2.80E-08 |
| RA-228 | 6.66E-09 | 4.77E-08 |
| TOTAL | 1.93E-06 | 1.22E-05 |

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 1.4E-06 | 1.8E-07 | 5.3E-08 | 2.2E-08 | 1.3E-08 | 8.8E-09 | 4.0E-09 |
| NNW | 5.4E-07 | 6.8E-08 | 2.0E-08 | 8.3E-09 | 4.8E-09 | 3.3E-09 | 1.5E-09 |
| NW | 3.1E-07 | 3.9E-08 | 1.1E-08 | 4.8E-09 | 2.8E-09 | 1.9E-09 | 8.5E-10 |
| WNW | 2.6E-07 | 3.3E-08 | 9.6E-09 | 4.0E-09 | 2.3E-09 | 1.6E-09 | 7.1E-10 |
| W | 4.8E-07 | 6.1E-08 | 1.8E-08 | 7.5E-09 | 4.3E-09 | 2.9E-09 | 1.3E-09 |
| WSW | 5.7E-07 | 7.3E-08 | 2.1E-08 | 8.9E-09 | 5.2E-09 | 3.5E-09 | 1.6E-09 |
| SW | 7.9E-07 | 1.0E-07 | 2.9E-08 | 1.2E-08 | 7.1E-09 | 4.8E-09 | 2.2E-09 |
| SSW | 1.0E-06 | 1.3E-07 | 3.8E-08 | 1.6E-08 | 9.3E-09 | 6.3E-09 | 2.9E-09 |
| S | 1.9E-06 | 2.4E-07 | 7.0E-08 | 2.9E-08 | 1.7E-08 | 1.2E-08 | 5.3E-09 |
| SSE | 1.1E-06 | 1.4E-07 | 4.2E-08 | 1.8E-08 | 1.0E-08 | 7.0E-09 | 3.2E-09 |
| SE | 1.0E-06 | 1.3E-07 | 3.8E-08 | 1.6E-08 | 9.2E-09 | 6.3E-09 | 2.9E-09 |
| ESE | 7.5E-07 | 9.6E-08 | 2.8E-08 | 1.2E-08 | 6.9E-09 | 4.7E-09 | 2.2E-09 |
| E | 1.0E-06 | 1.3E-07 | 3.7E-08 | 1.6E-08 | 9.0E-09 | 6.2E-09 | 2.8E-09 |
| ENE | 8.1E-07 | 1.0E-07 | 3.0E-08 | 1.3E-08 | 7.4E-09 | 5.0E-09 | 2.3E-09 |
| NE | 1.5E-06 | 1.9E-07 | 5.4E-08 | 2.3E-08 | 1.3E-08 | 9.1E-09 | 4.1E-09 |
| NNE | 1.4E-06 | 1.7E-07 | 5.0E-08 | 2.1E-08 | 1.2E-08 | 8.3E-09 | 3.8E-09 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 1.5E-09 | 6.7E-10 | 4.1E-10 | 2.8E-10 | 2.0E-10 | 1.3E-10 | 1.1E-10 |
| NNW | 5.4E-10 | 2.4E-10 | 1.5E-10 | 1.0E-10 | 7.2E-11 | 4.9E-11 | 3.9E-11 |
| NW | 3.1E-10 | 1.4E-10 | 8.4E-11 | 5.7E-11 | 4.1E-11 | 2.8E-11 | 2.2E-11 |
| WNW | 2.5E-10 | 1.1E-10 | 6.8E-11 | 4.6E-11 | 3.3E-11 | 2.3E-11 | 1.8E-11 |
| W | 4.6E-10 | 2.0E-10 | 1.2E-10 | 8.2E-11 | 5.8E-11 | 4.0E-11 | 3.1E-11 |
| WSW | 5.6E-10 | 2.4E-10 | 1.5E-10 | 9.9E-11 | 6.9E-11 | 4.7E-11 | 3.7E-11 |
| SW | 7.9E-10 | 3.5E-10 | 2.1E-10 | 1.4E-10 | 1.0E-10 | 6.8E-11 | 5.3E-11 |
| SSW | 1.0E-09 | 4.7E-10 | 2.9E-10 | 2.0E-10 | 1.4E-10 | 9.3E-11 | 7.3E-11 |
| S | 1.9E-09 | 8.6E-10 | 5.4E-10 | 3.7E-10 | 2.6E-10 | 1.7E-10 | 1.3E-10 |
| SSE | 1.2E-09 | 5.4E-10 | 3.4E-10 | 2.3E-10 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 1.1E-09 | 5.0E-10 | 3.1E-10 | 2.2E-10 | 1.6E-10 | 0.0E+00 | 0.0E+00 |
| ESE | 8.0E-10 | 3.7E-10 | 2.3E-10 | 1.6E-10 | 1.2E-10 | 8.1E-11 | 6.5E-11 |
| E | 1.0E-09 | 4.8E-10 | 3.0E-10 | 2.1E-10 | 1.5E-10 | 1.0E-10 | 8.0E-11 |
| ENE | 8.6E-10 | 4.0E-10 | 2.5E-10 | 1.7E-10 | 1.2E-10 | 8.5E-11 | 6.8E-11 |
| NE | 1.5E-09 | 6.9E-10 | 4.3E-10 | 3.0E-10 | 2.1E-10 | 1.4E-10 | 1.1E-10 |
| NNE | 1.4E-09 | 6.3E-10 | 3.9E-10 | 2.7E-10 | 1.9E-10 | 1.2E-10 | 9.8E-11 |

| CALCULATION IDENTIFICATION NUMBER | | | | |
|---|---|---|---|---|
| JOB ORDER NO. | DISCIPLINE | CALCULATION NO. | REVISION NUMBER | PAGE |
| 610041-0107<br>08575.0207 | E(B) | 10 | 0 | 145<br>OF145 |



COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 250 | 750 | 1500 | 2500 | 3500 | 4500 | 7500 |
| N | 1.1E-07 | 4.0E-08 | 4.6E-08 | 3.2E-08 | 2.6E-08 | 2.3E-08 | 8.7E-08 |
| NNW | 3.9E-08 | 1.5E-08 | 1.7E-08 | 1.2E-08 | 9.8E-09 | 8.6E-09 | 3.3E-08 |
| NW | 2.3E-08 | 8.5E-09 | 9.9E-09 | 6.9E-09 | 5.6E-09 | 4.9E-09 | 1.9E-08 |
| WNW | 1.9E-08 | 7.2E-09 | 8.3E-09 | 5.8E-09 | 4.7E-09 | 4.1E-09 | 1.4E-08 |
| W | 3.5E-08 | 1.3E-08 | 1.6E-08 | 1.1E-08 | 8.8E-09 | 7.7E-09 | 2.3E-08 |
| WSW | 4.2E-08 | 1.6E-08 | 1.9E-08 | 1.3E-08 | 1.1E-08 | 9.2E-09 | 2.7E-08 |
| SW | 5.8E-08 | 2.2E-08 | 2.5E-08 | 1.8E-08 | 1.4E-08 | 1.3E-08 | 3.9E-08 |
| SSW | 7.6E-08 | 2.9E-08 | 3.3E-08 | 2.3E-08 | 1.9E-08 | 1.7E-08 | 6.3E-08 |
| S | 1.4E-07 | 5.2E-08 | 6.0E-08 | 4.2E-08 | 3.4E-08 | 3.0E-08 | 1.1E-07 |
| SSE | 8.2E-08 | 3.1E-08 | 3.6E-08 | 2.5E-08 | 2.1E-08 | 1.8E-08 | 9.0E-08 |
| SE | 7.3E-08 | 2.8E-08 | 3.3E-08 | 2.3E-08 | 1.9E-08 | 1.6E-08 | 6.3E-08 |
| ESE | 5.5E-08 | 2.1E-08 | 2.4E-08 | 1.7E-08 | 1.4E-08 | 1.2E-08 | 4.7E-08 |
| E | 7.3E-08 | 2.8E-08 | 3.2E-08 | 2.3E-08 | 1.8E-08 | 1.6E-08 | 6.2E-08 |
| ENE | 5.9E-08 | 2.2E-08 | 2.6E-08 | 1.8E-08 | 1.5E-08 | 1.3E-08 | 5.0E-08 |
| NE | 1.1E-07 | 4.1E-08 | 4.7E-08 | 3.3E-08 | 2.7E-08 | 2.4E-08 | 9.0E-08 |
| NNE | 1.0E-07 | 3.7E-08 | 4.3E-08 | 3.0E-08 | 2.5E-08 | 2.2E-08 | 8.3E-08 |

| | Distance (m) | | | | | | |
|---|---|---|---|---|---|---|---|
| Direction | 15000 | 25000 | 35000 | 45000 | 55000 | 65000 | 75000 |
| N | 1.2E-07 | 4.4E-08 | 3.2E-08 | 9.2E-09 | 6.2E-09 | 4.8E-09 | 3.6E-09 |
| NNW | 4.7E-08 | 2.6E-08 | 6.2E-09 | 2.9E-09 | 2.5E-09 | 2.0E-09 | 1.7E-09 |
| NW | 2.5E-08 | 1.2E-08 | 9.7E-09 | 7.8E-09 | 2.1E-09 | 7.7E-10 | 7.6E-10 |
| WNW | 1.5E-08 | 7.9E-09 | 6.7E-09 | 2.2E-09 | 7.4E-10 | 6.1E-10 | 4.9E-10 |
| W | 3.2E-08 | 1.9E-08 | 6.3E-09 | 5.4E-09 | 3.0E-09 | 1.8E-09 | 1.0E-09 |
| WSW | 6.8E-08 | 4.4E-08 | 9.0E-09 | 6.4E-09 | 5.3E-09 | 3.0E-08 | 1.2E-09 |
| SW | 1.0E-07 | 8.6E-08 | 5.5E-08 | 2.3E-08 | 1.2E-08 | 5.8E-09 | 7.4E-09 |
| SSW | 1.6E-07 | 1.3E-07 | 8.8E-08 | 4.5E-08 | 2.3E-08 | 1.8E-08 | 3.1E-08 |
| S | 5.0E-07 | 3.3E-07 | 1.7E-07 | 1.1E-08 | 1.4E-08 | 1.8E-08 | 1.3E-08 |
| SSE | 6.9E-07 | 5.7E-07 | 4.1E-07 | 9.6E-09 | 0.0E+00 | 0.0E+00 | 0.0E+00 |
| SE | 9.4E-07 | 3.7E-07 | 2.6E-07 | 8.5E-08 | 5.9E-09 | 0.0E+00 | 0.0E+00 |
| ESE | 7.3E-07 | 1.9E-07 | 7.0E-08 | 5.3E-08 | 3.5E-08 | 9.1E-09 | 3.6E-09 |
| E | 6.4E-07 | 1.5E-07 | 1.9E-08 | 3.3E-08 | 1.2E-08 | 9.8E-09 | 9.0E-09 |
| ENE | 7.8E-08 | 3.3E-08 | 2.1E-08 | 1.1E-08 | 7.4E-09 | 6.0E-09 | 5.5E-09 |
| NE | 1.1E-07 | 4.3E-08 | 4.8E-08 | 4.2E-08 | 3.7E-08 | 1.9E-08 | 1.7E-08 |
| NNE | 1.0E-07 | 2.1E-08 | 3.4E-08 | 3.7E-08 | 1.6E-08 | 5.1E-09 | 4.3E-09 |

# ATTACHMENT A

**RADIONUCLIDE SOURCE TERM EMISSIONS CALCULATIONS**

**FUSRAP - MISS**

**YEAR 2002**

**IN SITU SOIL WIND EROSION EMISSIONS** (AP-42, Chapter 13.2.5, "Industrial Wind Erosion", 01/95)

| INPUT PARAMETERS: | | | | | Vegetative Cover/Gravel TSP | Vegetative Cover/Gravel PM-10 | Bare Soil TSP | Bare Soil PM-10 |
|---|---|---|---|---|---|---|---|---|
| Particle Size Multiplier (k) | | | | | 1 | 0.5 | 1 | 0.5 |
| Number of Disturbances per Period | (Assumption) | | | | 3 | 3 | 3 | 3 |
| Surface Area of Soil (m^2) | (Assumption) | | | | 44870 | 44870 | 2000 | 2000 |
| Threshold Friction Velocity (m/s) | (Table 13.2.5-2) | Overburden | | | 1.02 | 1.02 | 1.02 | 1.02 |
| Anemometer Height (m) | (Teterboro LCD) | | | | 6.10 | 6.10 | 6.10 | 6.10 |
| Roughness Height (m) | (Table 13.2.5-2) | Overburden | | | 0.003 | 0.003 | 0.003 | 0.003 |
| Fastest Mile Wind Speed (mph) | (Teterboro LCD) | | | Week | | | | |
| | January | | | 1 | 20 | 20 | 20 | 20 |
| | | | | 2 | 29 | 29 | 29 | 29 |
| | | | | 3 | 24 | 24 | 24 | 24 |
| | | | | 4 | 23 | 23 | 23 | 23 |
| | February | | | 1 | 31 | 31 | 31 | 31 |
| | | | | 2 | 30 | 30 | 30 | 30 |
| | | | | 3 | 22 | 22 | 22 | 22 |
| | | | | 4 | 25 | 25 | 25 | 25 |
| | March | | | 1 | 30 | 30 | 30 | 30 |
| | | | | 2 | 35 | 35 | 35 | 35 |
| | | | | 3 | 29 | 29 | 29 | 29 |
| | | | | 4 | 30 | 30 | 30 | 30 |
| | | | | 5 | 22 | 22 | 22 | 22 |
| | April | | | 1 | 26 | 26 | 26 | 26 |
| | | | | 2 | 26 | 26 | 26 | 26 |
| | | | | 3 | 32 | 32 | 32 | 32 |
| | | | | 4 | 23 | 23 | 23 | 23 |
| | May | | | 1 | 30 | 30 | 30 | 30 |
| | | | | 2 | 30 | 30 | 30 | 30 |
| | | | | 3 | 25 | 25 | 25 | 25 |
| | | | | 4 | 22 | 22 | 22 | 22 |
| | | | | 5 | 22 | 22 | 22 | 22 |
| | June | | | 1 | 25 | 25 | 25 | 25 |
| | | | | 2 | 23 | 23 | 23 | 23 |
| | | | | 3 | 26 | 26 | 26 | 26 |
| | | | | 4 | 26 | 26 | 26 | 26 |
| | July | | | 1 | 21 | 21 | 21 | 21 |
| | | | | 2 | 24 | 24 | 24 | 24 |
| | | | | 3 | 25 | 25 | 25 | 25 |
| | | | | 4 | 25 | 25 | 25 | 25 |
| | | | | 5 | 21 | 21 | 21 | 21 |
| | August | | | 1 | 23 | 23 | 23 | 23 |
| | | | | 2 | 17 | 17 | 17 | 17 |
| | | | | 3 | 36 | 36 | 36 | 36 |
| | | | | 4 | 16 | 16 | 16 | 16 |
| | | | | 5 | 20 | 20 | 20 | 20 |
| | September | | | 1 | 16 | 16 | 16 | 16 |
| | | | | 2 | 36 | 36 | 36 | 36 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 3 | 22 | 22 | 22 | 22 |
| | | 4 | 18 | 18 | 18 | 18 |
| | October | 1 | 21 | 21 | 21 | 21 |
| | | 2 | 21 | 21 | 21 | 21 |
| | | 3 | 23 | 23 | 23 | 23 |
| | | 4 | 17 | 17 | 17 | 17 |
| | November | 1 | 25 | 25 | 25 | 25 |
| | | 2 | 21 | 21 | 21 | 21 |
| | | 3 | 25 | 25 | 25 | 25 |
| | | 4 | 29 | 29 | 29 | 29 |
| | December | 1 | 30 | 30 | 30 | 30 |
| | | 2 | 24 | 24 | 24 | 24 |
| | | 3 | 28 | 28 | 28 | 28 |
| | | 4 | 25 | 25 | 25 | 25 |
| Friction Velocity (m/s) | | | | | | |
| | January | 1 | 0.50 | 0.50 | 0.50 | 0.50 |
| | | 2 | 0.73 | 0.73 | 0.73 | 0.73 |
| | | 3 | 0.61 | 0.61 | 0.61 | 0.61 |
| | | 4 | 0.58 | 0.58 | 0.58 | 0.58 |
| | | 5 | 0.78 | 0.78 | 0.78 | 0.78 |
| | February | 1 | 0.76 | 0.76 | 0.76 | 0.76 |
| | | 2 | 0.56 | 0.56 | 0.56 | 0.56 |
| | | 3 | 0.63 | 0.63 | 0.63 | 0.63 |
| | | 4 | 0.78 | 0.78 | 0.78 | 0.78 |
| | March | 1 | 0.76 | 0.76 | 0.76 | 0.76 |
| | | 2 | 0.88 | 0.88 | 0.88 | 0.88 |
| | | 3 | 0.73 | 0.73 | 0.73 | 0.73 |
| | | 4 | 0.76 | 0.76 | 0.76 | 0.76 |
| | | 5 | 0.56 | 0.56 | 0.56 | 0.56 |
| | April | 1 | 0.66 | 0.66 | 0.66 | 0.66 |
| | | 2 | 0.66 | 0.66 | 0.66 | 0.66 |
| | | 3 | 0.81 | 0.81 | 0.81 | 0.81 |
| | | 4 | 0.58 | 0.58 | 0.58 | 0.58 |
| | May | 1 | 0.76 | 0.76 | 0.76 | 0.76 |
| | | 2 | 0.76 | 0.76 | 0.76 | 0.76 |
| | | 3 | 0.63 | 0.63 | 0.63 | 0.63 |
| | | 4 | 0.56 | 0.56 | 0.56 | 0.56 |
| | June | 1 | 0.63 | 0.63 | 0.63 | 0.63 |
| | | 2 | 0.58 | 0.58 | 0.58 | 0.58 |
| | | 3 | 0.66 | 0.66 | 0.66 | 0.66 |
| | | 4 | 0.66 | 0.66 | 0.66 | 0.66 |
| | July | 1 | 0.53 | 0.53 | 0.53 | 0.53 |
| | | 2 | 0.61 | 0.61 | 0.61 | 0.61 |
| | | 3 | 0.63 | 0.63 | 0.63 | 0.63 |
| | | 4 | 0.63 | 0.63 | 0.63 | 0.63 |
| | | 5 | 0.53 | 0.53 | 0.53 | 0.53 |
| | August | 1 | 0.58 | 0.58 | 0.58 | 0.58 |
| | | 2 | 0.43 | 0.43 | 0.43 | 0.43 |
| | | 3 | 0.91 | 0.91 | 0.91 | 0.91 |
| | | 4 | 0.40 | 0.40 | 0.40 | 0.40 |
| | | 5 | 0.50 | 0.50 | 0.50 | 0.50 |
| | September | 1 | 0.40 | 0.40 | 0.40 | 0.40 |
| | | 2 | 0.91 | 0.91 | 0.91 | 0.91 |
| | | 3 | 0.56 | 0.56 | 0.56 | 0.56 |
| | | 4 | 0.45 | 0.45 | 0.45 | 0.45 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| October | | 1 | 0.43 | 0.43 | | 0.43 | 0.43 | |
| | | 2 | 0.63 | 0.63 | | 0.63 | 0.63 | |
| | | 3 | 0.53 | 0.53 | | 0.53 | 0.53 | |
| | | 4 | 0.63 | 0.63 | | 0.63 | 0.63 | |
| November | | 1 | 0.73 | 0.73 | | 0.73 | 0.73 | |
| | | 2 | 0.76 | 0.76 | | 0.76 | 0.76 | |
| | | 3 | 0.61 | 0.61 | | 0.61 | 0.61 | |
| | | 4 | 0.71 | 0.71 | | 0.71 | 0.71 | |
| December | | 1 | 0.63 | 0.63 | | 0.63 | 0.63 | |
| | | 2 | 0.00 | 0.00 | | 0.00 | 0.00 | |
| | | 3 | 0.01 | 0.01 | | 0.01 | 0.01 | |
| | | 4 | 0.02 | 0.02 | | 0.02 | 0.02 | |
| | Vegetative Cover | Bare Soil | | | | | | |
| CONTROL EFFICIENCY (%)- | 99 | 0 | | | | | | |
| EMISSION FACTOR -E (g/m^2): | | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| January | 1-4 | 0.00 | 0.00 | 2.52 | 0.00 | 0.00 | 2.52 |
| February | 1-4 | 0.00 | 0.00 | -2.66 | 0.00 | 0.00 | -2.66 |
| March | 1-4 | 0.00 | 0.00 | -2.56 | 0.00 | 0.00 | -2.56 |
| April | 1 | 0.00 | 0.00 | -1.41 | 0.00 | 0.00 | -1.41 |
| | 2 | 0.00 | 0.00 | -1.41 | 0.00 | 0.00 | -1.41 |
| | 3 | 0.00 | 0.00 | -2.69 | 0.00 | 0.00 | -2.69 |
| | 4 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.22 |
| May | 1 | 0.00 | 0.00 | -2.56 | 0.00 | 0.00 | -2.56 |
| | 2 | 0.00 | 0.00 | -2.56 | 0.00 | 0.00 | -2.56 |
| | 3 | 0.00 | 0.00 | -0.94 | 0.00 | 0.00 | -0.94 |
| | 4 | 0.00 | 0.00 | 0.92 | 0.00 | 0.00 | 0.92 |
| June | 1 | 0.00 | 0.00 | -0.94 | 0.00 | 0.00 | -0.94 |
| | 2 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.22 |
| | 3 | 0.00 | 0.00 | -1.41 | 0.00 | 0.00 | -1.41 |
| | 4 | 0.00 | 0.00 | -1.41 | 0.00 | 0.00 | -1.41 |
| July | 1 | 0.00 | 0.00 | 1.68 | 0.00 | 0.00 | 1.68 |
| | 2 | 0.00 | 0.00 | -0.40 | 0.00 | 0.00 | -0.40 |
| | 3 | 0.00 | 0.00 | -0.94 | 0.00 | 0.00 | -0.94 |
| | 4 | 0.00 | 0.00 | -0.94 | 0.00 | 0.00 | -0.94 |
| | 5 | 0.00 | 0.00 | 1.68 | 0.00 | 0.00 | 1.68 |
| August | 1 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 | 0.22 |
| | 2 | 0.00 | 0.00 | 5.49 | 0.00 | 0.00 | 5.49 |
| | 3 | 0.00 | 0.00 | -2.07 | 0.00 | 0.00 | -2.07 |
| | 4 | 0.00 | 0.00 | 6.62 | 0.00 | 0.00 | 6.62 |
| | 5 | 0.00 | 0.00 | 2.52 | 0.00 | 0.00 | 2.52 |
| September | 1 | 0.00 | 0.00 | 6.62 | 0.00 | 0.00 | 6.62 |
| | 2 | 0.00 | 0.00 | -2.07 | 0.00 | 0.00 | -2.07 |
| | 3 | 0.00 | 0.00 | 0.92 | 0.00 | 0.00 | 0.92 |
| | 4 | 0.00 | 0.00 | 4.43 | 0.00 | 0.00 | 4.43 |
| October | 1-4 | 0.00 | 0.00 | 5.49 | 0.00 | 0.00 | 5.49 |
| November | 1-4 | 0.00 | 0.00 | -2.39 | 0.00 | 0.00 | -2.39 |
| December | 1-4 | 0.00 | 0.00 | -0.94 | 0.00 | 0.00 | -0.94 |

| ANNUAL EMISSIONS (grams/year): | Vegetative Cover/Gravel | Bare Soil | Total Emissions |
|---|---|---|---|
| E (TSP) = | 0.00 | 0.00 | 0.00 |
| E (PM-10) = | 0.00 | 0.00 | 0.00 |

**RADIONUCLIDE** AVERAGE DETECTED ACTIVITY (MEASURED)

**SOURCE CONCENTRATION**

| INPUT PARAMETERS: | U238 | U234 | U235 | Ra226 | Th232 |
|---|---|---|---|---|---|
| Activity Concentration (S) - pCi/g | 2.06 | N/A | N/A | 0.92 | 4.96 |
| Isotope Contribution to Total Uranium (P) - % | 47.249 | 50.539 | 2.212 | N/A | N/A |

ANNUAL RADIOACTIVITY EMISSION RATES (Ci/yr)

| | |
|---|---|
| U238 | 0.00E+00 |
| Th234 | 0.00E+00 |
| Pa234m | 0.00E+00 |
| Pa234 | 0.00E+00 |
| U234 | 0.00E+00 |
| Th230 | 0.00E+00 |
| Ra226 | 0.00E+00 |
| Po218 | 0.00E+00 |
| Pb214 | 0.00E+00 |
| Bi214 | 0.00E+00 |
| Po214 | 0.00E+00 |
| Pb210 | 0.00E+00 |
| Bi210 | 0.00E+00 |
| Po210 | 0.00E+00 |
| U235 | 0.00E+00 |
| Th231 | 0.00E+00 |
| Pa231 | 0.00E+00 |
| Ac227 | 0.00E+00 |
| Th227 | 0.00E+00 |
| Fr-223 | 0.00E+00 |
| Ra223 | 0.00E+00 |
| Po215 | 0.00E+00 |
| Pb211 | 0.00E+00 |
| Bi211 | 0.00E+00 |
| Po211 | 0.00E+00 |
| Tl207 | 0.00E+00 |
| Th232 | 0.00E+00 |
| Ra228 | 0.00E+00 |
| Ac228 | 0.00E+00 |
| Th228 | 0.00E+00 |
| Ra224 | 0.00E+00 |
| Po216 | 0.00E+00 |
| Pb212 | 0.00E+00 |
| Bi212 | 0.00E+00 |
| Po212 | 0.00E+00 |
| Tl208 | 0.00E+00 |

**MISS SOIL LOAD-OUT EMISSIONS**

EQUATION: E = k(0.0032)(U/5)^1.3/(M/2)^1.4 (AP-42, Chapter 13.2.4, "Aggregate Handling and Storage Piles", 01/95)

| | | Load-out No. 1 | | Load-out No. 2 | | Load-out No. 3 | | Loa |
|---|---|---|---|---|---|---|---|---|
| INPUT PARAMETERS: | | TSP | PM-10 | TSP | PM-10 | TSP | PM-10 | TSP |
| Particle Size Multiplier (k) | | 0.74 | 0.35 | 0.74 | 0.35 | 0.74 | 0.35 | 0.74 |
| Mean Wind Speed - U (mph) | (Teterboro, LCD) | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 |
| Material Moisture Content - M (%) | | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Tons of Material Dropped | | 12064 | 12064 | 12748 | 12748 | 12728 | 12728 | 22728 |

| EMISSION FACTOR -E (lb/ton): | Load-out No. 1 | Load-out No. 2 | Load-out No. 3 | Load-out No. 4 | Load-out No. 5 |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| E (TSP) = | 3.32E-04 | 3.32E-04 | 3.32E-04 | 3.32E-04 | 3.32E-04 |
| E (PM-10) = | 1.57E-04 | 1.57E-04 | 1.57E-04 | 1.57E-04 | 1.57E-04 |
| CONTROL EFFICIENCY (%)- | 0 | 0 | 0 | 0 | 0 |
| ANNUAL EMISSIONS (grams/year): | | | | | |
| E (TSP) = | 1817.7 | 1920.8 | 1917.8 | 3424.5 | 831.1 |
| E (PM-10) = | 859.7 | 908.5 | 907.1 | 1619.7 | 393.1 |

**RADIONUCLIDE SOURCE CONCENTRATIONS**

AVERAGE DETECTED ACTIVITY (MEASURED)

| INPUT PARAMETERS: | | U238 | U234 | U235 | Ra226 | Th232 |
|---|---|---|---|---|---|---|
| Activity Concentration (S) - pCi/g | (Load-out No. 1) | 1.56 | N/A | N/A | 0.68 | 1.58 |
| Activity Concentration (S) - pCi/g | (Load-out No. 2) | 2.47 | N/A | N/A | 0.87 | 5.16 |
| Activity Concentration (S) - pCi/g | (Load-out No. 3) | 1.69 | N/A | N/A | 0.73 | 3.39 |
| Activity Concentration (S) - pCi/g | (Load-out No. 4) | 2.20 | N/A | N/A | 0.90 | 7.40 |
| Activity Concentration (S) - pCi/g | (Load-out No. 5) | 2.38 | N/A | N/A | 1.43 | 7.29 |
| Isotope Contribution to Total Uranium (P) - % | | 47.249 | 50.539 | 2.212 | N/A | N/A |

ANNUAL RADIOACTIVITY EMISSION RATES (Ci/yr)

| | Load-out No. 1 | Load-out No. 2 | Load-out No. 3 | Load-out No. 4 | Load-out No. 5 | Total |
|---|---|---|---|---|---|---|
| U238 | 1.34E-09 | 2.24E-09 | 1.53E-09 | 3.56E-09 | 9.36E-10 | 9.62E-09 |
| Th234 | 1.34E-09 | 2.24E-09 | 1.53E-09 | 3.56E-09 | 9.36E-10 | 9.62E-09 |
| Pa234m | 1.34E-09 | 2.24E-09 | 1.53E-09 | 3.56E-09 | 9.36E-10 | 9.62E-09 |
| Pa234 | 1.74E-12 | 2.92E-12 | 1.99E-12 | 4.63E-12 | 1.22E-12 | 1.25E-11 |
| U234 | 1.43E-09 | 2.40E-09 | 1.64E-09 | 3.81E-09 | 1.00E-09 | 1.03E-08 |
| Th230 | 1.43E-09 | 2.40E-09 | 1.64E-09 | 3.81E-09 | 1.00E-09 | 1.03E-08 |
| Ra226 | 5.85E-10 | 7.90E-10 | 6.62E-10 | 3.81E-09 | 5.62E-10 | 6.41E-09 |
| Po218 | 5.85E-10 | 7.90E-10 | 6.62E-10 | 3.81E-09 | 5.62E-10 | 6.41E-09 |
| Pb214 | 5.85E-10 | 7.90E-10 | 6.62E-10 | 1.46E-09 | 5.62E-10 | 4.06E-09 |
| Bi214 | 5.85E-10 | 7.90E-10 | 6.62E-10 | 1.46E-09 | 5.62E-10 | 4.06E-09 |
| Po214 | 5.85E-10 | 7.90E-10 | 6.62E-10 | 1.46E-09 | 5.62E-10 | 4.06E-09 |
| Pb210 | 5.85E-10 | 7.90E-10 | 6.62E-10 | 1.46E-09 | 5.62E-10 | 4.06E-09 |
| Bi210 | 5.85E-10 | 7.90E-10 | 6.62E-10 | 1.46E-09 | 5.62E-10 | 4.06E-09 |
| Po210 | 5.85E-10 | 7.90E-10 | 6.62E-10 | 1.46E-09 | 5.62E-10 | 4.06E-09 |
| U235 | 6.28E-11 | 1.05E-10 | 7.18E-11 | 1.67E-10 | 4.38E-11 | 4.50E-10 |
| Th231 | 6.28E-11 | 1.05E-10 | 7.18E-11 | 1.67E-10 | 4.38E-11 | 4.50E-10 |
| Pa231 | 6.28E-11 | 1.05E-10 | 7.18E-11 | 1.67E-10 | 4.38E-11 | 4.50E-10 |
| Ac227 | 6.28E-11 | 1.05E-10 | 7.18E-11 | 1.67E-10 | 4.38E-11 | 4.50E-10 |
| Th227 | 6.19E-11 | 1.04E-10 | 7.08E-11 | 1.65E-10 | 4.32E-11 | 4.44E-10 |
| Fr-223 | 8.66E-13 | 1.45E-12 | 9.90E-13 | 2.30E-12 | 6.04E-13 | 6.21E-12 |
| Ra223 | 6.28E-11 | 1.05E-10 | 7.18E-11 | 1.67E-10 | 4.38E-11 | 4.50E-10 |
| Po215 | 6.28E-11 | 1.05E-10 | 7.18E-11 | 1.67E-10 | 4.38E-11 | 4.50E-10 |
| Pb211 | 6.28E-11 | 1.05E-10 | 7.18E-11 | 1.67E-10 | 4.38E-11 | 4.50E-10 |
| Bi211 | 6.28E-11 | 1.05E-10 | 7.18E-11 | 1.67E-10 | 4.38E-11 | 4.50E-10 |
| Po211 | 1.71E-13 | 2.87E-13 | 1.96E-13 | 4.55E-13 | 1.20E-13 | 1.23E-12 |
| Tl207 | 6.26E-11 | 1.05E-10 | 7.16E-11 | 1.66E-10 | 4.37E-11 | 4.49E-10 |
| Th232 | 1.36E-09 | 4.69E-09 | 3.07E-09 | 1.20E-08 | 2.87E-09 | 2.40E-08 |
| Ra228 | 1.36E-09 | 4.69E-09 | 3.07E-09 | 1.20E-08 | 2.87E-09 | 2.40E-08 |
| Ac228 | 1.36E-09 | 4.69E-09 | 3.07E-09 | 1.20E-08 | 2.87E-09 | 2.40E-08 |
| Th228 | 1.36E-09 | 4.69E-09 | 3.07E-09 | 1.20E-08 | 2.87E-09 | 2.40E-08 |
| Ra224 | 1.36E-09 | 4.69E-09 | 3.07E-09 | 1.20E-08 | 2.87E-09 | 2.40E-08 |
| Po216 | 1.36E-09 | 4.69E-09 | 3.07E-09 | 1.20E-08 | 2.87E-09 | 2.40E-08 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pb212 | 1.36E-09 | 4.69E-09 | 3.07E-09 | 1.20E-08 | 2.87E-09 | 2.40E-08 |
| Bi212 | 1.36E-09 | 4.69E-09 | 3.07E-09 | 1.20E-08 | 2.87E-09 | 2.40E-08 |
| Po212 | 8.70E-10 | 3.00E-09 | 1.97E-09 | 7.68E-09 | 1.84E-09 | 1.54E-08 |
| Tl208 | 4.88E-10 | 1.68E-09 | 1.10E-09 | 4.31E-09 | 1.03E-09 | 8.61E-09 |

**CLUSTER NO. 1 EXCAVATION EMISSIONS**

EQUATION: E = k(0.0032)(U/5)^1.3/(M/2)^1.4 (AP-42, Chapter 13.2.4, "Aggregate Handling and Storage Piles", 01/95)

| INPUT PARAMETERS: | | Cluster No. 1 TSP | Cluster No. 1 PM-10 |
|---|---|---|---|
| Particle Size Multiplier (k) | | 0.74 | 0.35 |
| Mean Wind Speed - U (mph) | (Teterboro, LCD) | 7.6 | 7.6 |
| Material Moisture Content - M (%) | | 12.0 | 12.0 |
| Tons of Material Dropped | | 3619 | 3619 |

| EMISSION FACTOR -E (lb/ton): | Cluster No. 1 |
|---|---|
| E (TSP) = | 3.32E-04 |
| E (PM-10) = | 1.57E-04 |

CONTROL EFFICIENCY (%)- 0

| ANNUAL EMISSIONS (grams/year): | |
|---|---|
| E (TSP) = | 545.3 |
| E (PM-10) = | 257.9 |

**RADIONUCLIDE SOURCE CONCENTRATIONS**

AVERAGE DETECTED ACTIVITY (MEASURED)

| INPUT PARAMETERS: | U238 | U234 | U235 | Ra226 | Th232 |
|---|---|---|---|---|---|
| Activity Concentration (S) - pCi/g | 1.56 | N/A | N/A | 0.68 | 1.58 |
| Isotope Contribution to Total Uranium (P) - % | 47.249 | 50.539 | 2.212 | N/A | N/A |

ANNUAL RADIOACTIVITY EMISSION RATES (Ci/yr)

| | Cluster No. 1 |
|---|---|
| U238 | 4.02E-10 |
| Th234 | 4.02E-10 |
| Pa234m | 4.02E-10 |
| Pa234 | 5.23E-13 |
| U234 | 4.30E-10 |
| Th230 | 4.30E-10 |
| Ra226 | 1.75E-10 |
| Po218 | 1.75E-10 |
| Pb214 | 1.75E-10 |
| Bi214 | 1.75E-10 |
| Po214 | 1.75E-10 |
| Pb210 | 1.75E-10 |
| Bi210 | 1.75E-10 |
| Po210 | 1.75E-10 |
| U235 | 1.88E-11 |
| Th231 | 1.88E-11 |
| Pa231 | 1.88E-11 |
| Ac227 | 1.88E-11 |
| Th227 | 1.86E-11 |
| Fr-223 | 2.60E-13 |

| | |
|---|---|
| Ra223 | 1.88E-11 |
| Po215 | 1.88E-11 |
| Pb211 | 1.88E-11 |
| Bi211 | 1.88E-11 |
| Po211 | 5.14E-14 |
| Tl207 | 1.88E-11 |
| Th232 | 4.07E-10 |
| Ra228 | 4.07E-10 |
| Ac228 | 4.07E-10 |
| Th228 | 4.07E-10 |
| Ra224 | 4.07E-10 |
| Po216 | 4.07E-10 |
| Pb212 | 4.07E-10 |
| Bi212 | 4.07E-10 |
| Po212 | 2.61E-10 |
| Tl208 | 1.46E-10 |

**CLUSTER NO. 4 EXCAVATION EMISSIONS**

EQUATION: E = k(0.0032)(U/5)^1.3/(M/2)^1.4 (AP-42, Chapter 13.2.4, "Aggregate Handling and Storage Piles", 01/95)

| INPUT PARAMETERS: | | I-80 Row/160 Essex St. TSP | I-80 Row/160 Essex St. PM-10 | 174 Essex St. TSP | 174 Essex St. PM-10 | I-80 Row TSP | I-80 Row PM-10 | I-80 R TSP |
|---|---|---|---|---|---|---|---|---|
| Particle Size Multiplier (k) | | 0.74 | 0.35 | 0.74 | 0.35 | 0.74 | 0.35 | 0.74 |
| Mean Wind Speed - U (mph) | (Teterboro, LCD) | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 |
| Material Moisture Content - M (%) | | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 | 12.0 |
| Tons of Material Dropped | (Assumption) | 5025 | 5025 | 5 | 5 | 11.5 | 11.5 | 190.5 |

| EMISSION FACTOR -E (lb/ton): | I-80 Row/160 Essex S | 174 Essex St. | I-80 Row. | I-80 Row/150 Essex St. |
|---|---|---|---|---|
| E (TSP) = | 3.32E-04 | 3.32E-04 | 3.32E-04 | 3.32E-04 |
| E (PM-10) = | 1.57E-04 | 1.57E-04 | 1.57E-04 | 1.57E-04 |
| CONTROL EFFICIENCY (%)- | 0 | 0 | 0 | 0 |
| ANNUAL EMISSIONS (grams/year): | | | | |
| E (TSP) = | 757.1 | 0.8 | 1.7 | 28.7 |
| E (PM-10) = | 358.1 | 0.4 | 0.8 | 13.6 |

**RADIONUCLIDE SOURCE CONCENTRATIONS**

AVERAGE DETECTED ACTIVITY (MEASURED)

| INPUT PARAMETERS: | | U238 | U234 | U235 | Ra226 | Th232 |
|---|---|---|---|---|---|---|
| Activity Concentration (S) - pCi/g | (I-80 Row/160 Essex St.) | 1.84 | N/A | N/A | 0.89 | 4.75 |
| Activity Concentration (S) - pCi/g | (174 essex St.) | 1.84 | N/A | N/A | 0.89 | 4.75 |
| Activity Concentration (S) - pCi/g | (I-80 Row) | 1.84 | N/A | N/A | 0.89 | 4.75 |
| Activity Concentration (S) - pCi/g | (I-80 Row/150 Essex St.) | 1.84 | N/A | N/A | 0.89 | 4.75 |
| Isotope Contribution to Total Uranium (P) - % | | 47.249 | 50.539 | 2.212 | N/A | N/A |

| ANNUAL RADIOACTIVITY EMISSION RATES (Ci/yr) | I-80 Row/160 Essex S | 174 Essex St. | I-80 Row | I-80 Row/150 Essex S | Total |
|---|---|---|---|---|---|
| U238 | 6.59E-10 | 6.56E-13 | 1.51E-12 | 2.50E-11 | 6.86E-10 |
| Th234 | 6.59E-10 | 6.56E-13 | 1.51E-12 | 2.50E-11 | 6.86E-10 |
| Pa234m | 6.59E-10 | 6.56E-13 | 1.51E-12 | 2.50E-11 | 6.86E-10 |
| Pa234 | 8.57E-13 | 8.52E-16 | 1.96E-15 | 3.25E-14 | 8.92E-13 |
| U234 | 7.05E-10 | 7.01E-13 | 1.61E-12 | 2.67E-11 | 7.34E-10 |
| Th230 | 7.05E-10 | 7.01E-13 | 1.61E-12 | 2.67E-11 | 7.34E-10 |

| | | | | | |
|---|---|---|---|---|---|
| Ra226 | 3.19E-10 | 3.17E-13 | 7.29E-13 | 1.21E-11 | 3.32E-10 |
| Po218 | 3.19E-10 | 3.17E-13 | 7.29E-13 | 1.21E-11 | 3.32E-10 |
| Pb214 | 3.19E-10 | 3.17E-13 | 7.29E-13 | 1.21E-11 | 3.32E-10 |
| Bi214 | 3.19E-10 | 3.17E-13 | 7.29E-13 | 1.21E-11 | 3.32E-10 |
| Po214 | 3.19E-10 | 3.17E-13 | 7.29E-13 | 1.21E-11 | 3.32E-10 |
| Pb210 | 3.19E-10 | 3.17E-13 | 7.29E-13 | 1.21E-11 | 3.32E-10 |
| Bi210 | 3.19E-10 | 3.17E-13 | 7.29E-13 | 1.21E-11 | 3.32E-10 |
| Po210 | 3.19E-10 | 3.17E-13 | 7.29E-13 | 1.21E-11 | 3.32E-10 |
| U235 | 3.08E-11 | 3.07E-14 | 7.06E-14 | 1.17E-12 | 3.21E-11 |
| Th231 | 3.08E-11 | 3.07E-14 | 7.06E-14 | 1.17E-12 | 3.21E-11 |
| Pa231 | 3.08E-11 | 3.07E-14 | 7.06E-14 | 1.17E-12 | 3.21E-11 |
| Ac227 | 3.08E-11 | 3.07E-14 | 7.06E-14 | 1.17E-12 | 3.21E-11 |
| Th227 | 3.04E-11 | 3.03E-14 | 6.96E-14 | 1.15E-12 | 3.17E-11 |
| Fr-223 | 4.26E-13 | 4.24E-16 | 9.74E-16 | 1.61E-14 | 4.43E-13 |
| Ra223 | 3.08E-11 | 3.07E-14 | 7.06E-14 | 1.17E-12 | 3.21E-11 |
| Po215 | 3.08E-11 | 3.07E-14 | 7.06E-14 | 1.17E-12 | 3.21E-11 |
| Pb211 | 3.08E-11 | 3.07E-14 | 7.06E-14 | 1.17E-12 | 3.21E-11 |
| Bi211 | 3.08E-11 | 3.07E-14 | 7.06E-14 | 1.17E-12 | 3.21E-11 |
| Po211 | 8.42E-14 | 8.38E-17 | 1.93E-16 | 3.19E-15 | 8.77E-14 |
| Tl207 | 3.08E-11 | 3.06E-14 | 7.04E-14 | 1.17E-12 | 3.20E-11 |
| Th232 | 1.70E-09 | 1.69E-12 | 3.89E-12 | 6.45E-11 | 1.77E-09 |
| Ra228 | 1.70E-09 | 1.69E-12 | 3.89E-12 | 6.45E-11 | 1.77E-09 |
| Ac228 | 1.70E-09 | 1.69E-12 | 3.89E-12 | 6.45E-11 | 1.77E-09 |
| Th228 | 1.70E-09 | 1.69E-12 | 3.89E-12 | 6.45E-11 | 1.77E-09 |
| Ra224 | 1.70E-09 | 1.69E-12 | 3.89E-12 | 6.45E-11 | 1.77E-09 |
| Po216 | 1.70E-09 | 1.69E-12 | 3.89E-12 | 6.45E-11 | 1.77E-09 |
| Pb212 | 1.70E-09 | 1.69E-12 | 3.89E-12 | 6.45E-11 | 1.77E-09 |
| Bi212 | 1.70E-09 | 1.69E-12 | 3.89E-12 | 6.45E-11 | 1.77E-09 |
| Po212 | 1.09E-09 | 1.08E-12 | 2.49E-12 | 4.13E-11 | 1.13E-09 |
| Tl208 | 6.11E-10 | 6.08E-13 | 1.40E-12 | 2.32E-11 | 6.36E-10 |

**RADIOCHEMISTRY LAB EXCAVATION EMISSIONS**

EQUATION: E = k(0.0032)(U/5)^1.3/(M/2)^1.4 (AP-42, Chapter 13.2.4, "Aggregate Handling and Storage Piles", 01/95)

INPUT PARAMETERS:

| | | Radiochemistry Lab TSP | Radiochemistry Lab PM-10 |
|---|---|---|---|
| Particle Size Multiplier (k) | | 0.74 | 0.35 |
| Mean Wind Speed - U (mph) | (Teterboro, LCD) | 7.6 | 7.6 |
| Material Moisture Content - M (%) | | 12.0 | 12.0 |
| Tons of Material Dropped | | 4410 | 4410 |

EMISSION FACTOR -E (lb/ton): Radiochemistry Lab

E (TSP) = 3.32E-04
E (PM-10) = 1.57E-04

CONTROL EFFICIENCY (%)- 0

ANNUAL EMISSIONS (grams/year):

E (TSP) = 664.5
E (PM-10) = 314.3

**RADIONUCLIDE SOURCE CONCENTRATIONS**

AVERAGE DETECTED ACTIVITY (MEASURED)

INPUT PARAMETERS: U238 U234 U235 Ra226 Th232

| | | | | | | |
|---|---|---|---|---|---|---|
| Activity Concentration (S) - pCi/g | | 1.77 | N/A | N/A | 1.35 | 3.43 |
| Isotope Contribution to Total Uranium (P) - % | | 47.249 | 50.539 | 2.212 | N/A | N/A |

ANNUAL RADIOACTIVITY EMISSION RATES (Ci/yr)

| | Radiochemistry Lab |
|---|---|
| U238 | 5.56E-10 |
| Th234 | 5.56E-10 |
| Pa234m | 5.56E-10 |
| Pa234 | 7.23E-13 |
| U234 | 5.95E-10 |
| Th230 | 5.95E-10 |
| Ra226 | 4.24E-10 |
| Po218 | 4.24E-10 |
| Pb214 | 4.24E-10 |
| Bi214 | 4.24E-10 |
| Po214 | 4.24E-10 |
| Pb210 | 4.24E-10 |
| Bi210 | 4.24E-10 |
| Po210 | 4.24E-10 |
| U235 | 2.60E-11 |
| Th231 | 2.60E-11 |
| Pa231 | 2.60E-11 |
| Ac227 | 2.60E-11 |
| Th227 | 2.57E-11 |
| Fr-223 | 3.59E-13 |
| Ra223 | 2.60E-11 |
| Po215 | 2.60E-11 |
| Pb211 | 2.60E-11 |
| Bi211 | 2.60E-11 |
| Po211 | 7.11E-14 |
| Tl207 | 2.60E-11 |
| Th232 | 1.08E-09 |
| Ra228 | 1.08E-09 |
| Ac228 | 1.08E-09 |
| Th228 | 1.08E-09 |
| Ra224 | 1.08E-09 |
| Po216 | 1.08E-09 |
| Pb212 | 1.08E-09 |
| Bi212 | 1.08E-09 |
| Po212 | 6.91E-10 |
| Tl208 | 3.87E-10 |

**RAIL SPUR SLOPE CUTBACK EMISSIONS**

EQUATION: E = k(0.0032)(U/5)^1.3/(M/2)^1.4 (AP-42, Chapter 13.2.4, "Aggregate Handling and Storage Piles", 01/95)

INPUT PARAMETERS:

| | | Rail Spur Cutbacks | |
|---|---|---|---|
| | | TSP | PM-10 |
| Particle Size Multiplier (k) | | 0.74 | 0.35 |
| Mean Wind Speed - U (mph) | (Teterboro, LCD) | 7.6 | 7.6 |
| Material Moisture Content - M (%) | | 12.0 | 12.0 |
| Tons of Material Dropped | | 5992 | 5992 |

EMISSION FACTOR -E (lb/ton): Rail Spur Cutbacks

| | |
|---|---|
| E (TSP) = | 3.32E-04 |
| E (PM-10) = | 1.57E-04 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | CONTROL EFFICIENCY (%)- | 0 | | | | | |
| | ANNUAL EMISSIONS (grams/year): | | | | | | |
| | E (TSP) = | 902.8 | | | | | |
| | E (PM-10) = | 427.0 | | | | | |
| **RADIONUCLIDE SOURCE CONCENTRATIONS** | AVERAGE DETECTED ACTIVITY (MEASURED) | | | | | | |
| | INPUT PARAMETERS: | | U238 | U234 | U235 | Ra226 | Th232 |
| | Activity Concentration (S) - pCi/g | | 12.72 | N/A | N/A | 9.66 | 68.69 |
| | Isotope Contribution to Total Uranium (P) - % | | 47.249 | 50.539 | 2.212 | N/A | N/A |

ANNUAL RADIOACTIVITY EMISSION RATES (Ci/yr)

| | Rail Spur Cutbacks |
|---|---|
| U238 | 5.43E-09 |
| Th234 | 5.43E-09 |
| Pa234m | 5.43E-09 |
| Pa234 | 7.06E-12 |
| U234 | 5.81E-09 |
| Th230 | 5.81E-09 |
| Ra226 | 4.13E-09 |
| Po218 | 4.13E-09 |
| Pb214 | 4.12E-09 |
| Bi214 | 4.13E-09 |
| Po214 | 4.12E-09 |
| Pb210 | 4.13E-09 |
| Bi210 | 4.13E-09 |
| Po210 | 4.13E-09 |
| U235 | 2.54E-10 |
| Th231 | 2.54E-10 |
| Pa231 | 2.54E-10 |
| Ac227 | 2.54E-10 |
| Th227 | 2.51E-10 |
| Fr-223 | 3.51E-12 |
| Ra223 | 2.54E-10 |
| Po215 | 2.54E-10 |
| Pb211 | 2.54E-10 |
| Bi211 | 2.54E-10 |
| Po211 | 6.94E-13 |
| Tl207 | 2.54E-10 |
| Th232 | 2.93E-08 |
| Ra228 | 2.93E-08 |
| Ac228 | 2.93E-08 |
| Th228 | 2.93E-08 |
| Ra224 | 2.93E-08 |
| Po216 | 2.93E-08 |
| Pb212 | 2.93E-08 |
| Bi212 | 2.93E-08 |
| Po212 | 1.88E-08 |
| Tl208 | 1.05E-08 |

**NEW SEWER LINE CONSTRUCTION** EQUATION: E = k(0.0032)(U/5)^1.3/(M/2)^1.4 (AP-42, Chapter 13.2.4, "Aggregate Handling and Storage Piles", 01/95)

New Sewer Line

| | | | | |
|---|---|---|---|---|
| **EMISSIONS** | INPUT PARAMETERS: | | TSP | PM-10 |
| | Particle Size Multiplier (k) | | 0.74 | 0.35 |
| | Mean Wind Speed - U (mph) | (Teterboro, LCD) | 7.6 | 7.6 |
| | Material Moisture Content - M (%) | | 12.0 | 12.0 |
| | Tons of Material Dropped | | 100 | 100 |
| | EMISSION FACTOR -E (lb/ton): | New Sewer Line | | |
| | E (TSP) = | 3.32E-04 | | |
| | E (PM-10) = | 1.57E-04 | | |
| | CONTROL EFFICIENCY (%)- | 0 | | |
| | ANNUAL EMISSIONS (grams/year): | | | |
| | E (TSP) = | 15.1 | | |
| | E (PM-10) = | 7.1 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **RADIONUCLIDE SOURCE CONCENTRATIONS** | AVERAGE DETECTED ACTIVITY | (MEASURED) | | | | | |
| | INPUT PARAMETERS: | | U238 | U234 | U235 | Ra226 | Th232 |
| | Activity Concentration (S) - pCi/g | | 6.32 | N/A | N/A | 7.14 | 41.09 |
| | Isotope Contribution to Total Uranium (P) - % | | 47.249 | 50.539 | 2.212 | N/A | N/A |

ANNUAL RADIOACTIVITY EMISSION RATES (Ci/yr)

| | New Sewer Line |
|---|---|
| U238 | 4.50E-11 |
| Th234 | 4.50E-11 |
| Pa234m | 4.50E-11 |
| Pa234 | 5.86E-14 |
| U234 | 4.82E-11 |
| Th230 | 4.82E-11 |
| Ra226 | 5.09E-11 |
| Po218 | 5.09E-11 |
| Pb214 | 5.09E-11 |
| Bi214 | 5.09E-11 |
| Po214 | 5.09E-11 |
| Pb210 | 5.09E-11 |
| Bi210 | 5.09E-11 |
| Po210 | 5.09E-11 |
| U235 | 2.11E-12 |
| Th231 | 2.11E-12 |
| Pa231 | 2.11E-12 |
| Ac227 | 2.11E-12 |
| Th227 | 2.08E-12 |
| Fr-223 | 2.91E-14 |
| Ra223 | 2.11E-12 |
| Po215 | 2.11E-12 |
| Pb211 | 2.11E-12 |
| Bi211 | 2.11E-12 |

| | |
|---|---|
| Po211 | 5.76E-15 |
| Tl207 | 2.10E-12 |
| Th232 | 2.93E-10 |
| Ra228 | 2.93E-10 |
| Ac228 | 2.93E-10 |
| Th228 | 2.93E-10 |
| Ra224 | 2.93E-10 |
| Po216 | 2.93E-10 |
| Pb212 | 2.93E-10 |
| Bi212 | 2.93E-10 |
| Po212 | 1.88E-10 |
| Tl208 | 1.05E-10 |

# APPENDIX F
# GAMMA RADIATION CALCULATION DOSE FOR THE YEAR 2002

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# CALCULATION SHEET

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | CALC. NO. | 610041-0107-004 | REV. | 0 |
| ORIGINATOR | Maurice Hanashy | DATE | 2/18/03 | CHECKED | | DATE | |
| PROJECT | FUSRAP -MISS | | | JOB NO. | 6100410107 | SHEET | 1 of 3 |
| SUBJECT | MISS 2002 Hypothetical Maximum Gamma Radiation Dose | | | | | | |

**PURPOSE**

This calculation estimates the dose to the hypothetical maximally exposed individual from direct gamma radiation at the Maywood Interim Storage Site (MISS) in 2002.

**SCOPE**

This calculation models the site fence line as a line source to determine the dose to a hypothetical individual at a postulated distance from the fence line.

**REFERENCE**


Bechtel National, Inc. (BNI), 1991. " Evaluation of the Need for TETLD Face Calculation, " 14501-191-CV-011 rev 0, Oak Ridge, TN.

BNI, 1992. " Attenuation Factor for TLD Weather Housings, " 14501-191-CV-014 rev 0, Oak Ridge, TN.

Cember, H., 1989. Introduction to Health Physics, Pergamon Press, Elmford, NY.


**ASSUMPTION**

The dose rate to a given distance from the site fence line can be approximated by a dose rate at a distance from a line source. The line source dose rate is represented by t he average of the Tissue Equivalent Thermoluminescent Dosimeter (TETLD) results from locations on the fence line facing the individual. The length of the line source is represented by the length of the fence line facing the individual. The nearest individual is a worker (23% occupancy factor) 50 ft from the west fence line.

TETLD results are corrected for time, fade, housing attenuation, and background. The exposure time starts with the date of installation at the site and ends with the date of removal from the site. The fade factor is approximately one (BNI 1991) indicating that fade is not a major factor for the radiation levels measured on FUSRAP. The housing attenuation factor is estimated to be 1.075 (BNI 1992). Background is estimated as the average of the offsite TETLD results.

**CALCULATIONS**

The TETLD results (BNI 1998) shown in the attached table are converted to gamma radiation dose rates (d) using the following equation:

$$d = (mrem / yr) = \left( TETLD\,result \bullet \frac{number\ of\ days\ per\ year}{number\ of\ days\ \exp osed} \bullet fade \bullet attenuation \right) - background$$

The average of the dose rates at the TETLD location on the west side of the site as shown in the attached figures (i.e., location 21) is:

$$d_1 = \frac{723.6 + 757.0 + 678.2 + 713.2}{4} mrem / yr = 718.00 mrem / yr$$

The dose rate at any distance from a line source (Cember 1989) is:

$$\frac{d_2}{d_1} = \frac{h_1}{h_2} \frac{\tan^{-1} \frac{l}{h_2}}{\tan^{-1} \frac{l}{h_1}}$$

Where:

| | | |
|---|---|---|
| $h_1$ | = | distance of the TETLDs from the fence line (3 ft) |
| $h_2$ | = | distance of the individual from the fence line (50 ft) |
| l | = | half the length of the line source (133 ft) |
| $d_1$ | = | dose rate at the TELTDs location (718.00 mrem/yr.) |
| $d_2$ | = | dose rate at the individual's location |

Substituting known values into the equation and solving for the dose rate at the individual's location ($d_2$):

$$d_2 = 718.0 mrem / yr \frac{3}{50} \frac{\tan^{-1} \frac{133}{50}}{\tan^{-1} \frac{133}{3}} = 33.70 mrem / yr$$

Multiplying the dose rate by the time the individual occupied the location during 2001, the dose (D) is:

$$D_{worke} = 33.70 mrem / yr \bullet 23\% \bullet 1 yr = 7.751 mrem$$

**SUMMARY OF RESULTS**
The calculated dose to the hypothetical maximally exposed individual from direct gamma radiation at MISS in 2002 is 7.751 mrem. This calculated dose compares favorably to the measured dose at that location.

## TABLE 2
## 2002 External Gamma Radiation Dose Rates
## Maywood Interim Storage Site - 2002

| 1/24/2002 to 8/07/2002 TETLD[a] | | | 1/24/2002 to 2/3/03 TETLD[a] | | |
|---|---|---|---|---|---|
| **Monitoring Location**[b] | **Readings** (mrem) | **Corrected**[c] (mrem/yr) | **Monitoring Location**[b] | **Readings** (mrem) | **Corrected**[c] (mrem/yr) |
| MISS Perimeter | | | | | |
| 4 | 93.6 | 98.0 | 4 | 152.0 | 80.1 |
| | 85.4 | 81.5 | | 154.6 | 82.9 |
| 5 | 89.8 | 90.3 | 5 | 166.6 | 95.4 |
| | 94.8 | 100.4 | | 164.6 | 93.3 |
| 10 | 142.2 | 195.8 | 10 | 248.4 | 181.0 |
| | 138.0 | 187.3 | | 254.8 | 187.7 |
| 12 | 75.2 | 61.0 | 12 | 128.2 | 55.2 |
| | 73.4 | 57.3 | | 142.8 | 70.5 |
| 20 | 50.6 | 11.5 | 20 | 107.4 | 33.5 |
| | 60.6 | 31.6 | | 105.0 | 31.0 |
| 21 | 378.6 | 671.5 | 21 | 723.6 | 678.2 |
| | 379.8 | 673.9 | | 757.0 | 713.2 |
| 22 | 99.6 | 110.1 | 22 | 164.0 | 92.7 |
| | 103.2 | 117.3 | | 161.2 | 89.8 |
| 23 | 103.5 | 117.9 | 23 | * | |
| | 103.5 | 117.9 | | * | |
| 24 | 199.4 | 310.9 | 24 | 363.4 | 301.3 |
| | 203.0 | 318.1 | | 360.8 | 298.6 |
| 25 | 365.0 | 644.1 | 25 | 666.8 | 618.8 |
| | 383.2 | 680.7 | | 690.2 | 643.3 |
| 30 | 73.6 | 57.7 | 30 | 124.6 | 51.5 |
| | 73.8 | 58.2 | | 120.4 | 47.1 |
| 31 | 89.4 | 89.5 | 31 | 154.2 | 82.5 |
| | 87.6 | 85.9 | | 165.8 | 94.6 |
| 32 | 39.4 | - 11.1 | 32 | 72.8 | -2.7 |
| | 39.6 | - 10.7 | | 73.8 | -1.7 |
| 33 | 45.2 | 0.6 | 33 | 78.8 | 3.6 |
| | 44.6 | -0.6 | | * | |
| Background | 43.6 | avg. bkg | | 78.0 | avg. bkg |
| 19 | 46.2 | 90.3 | 19 | 72.8 | 78.9 |

[a] TETLD = Tissue-equivalent thermoluminescent dosimeter. There are two TETLDs per station.

[b] Monitoring locations are shown on Figure 2.

[c] All TETLD readings are corrected for shelter/absorption factor (s/a = 1.075) and are normalized to exactly one year's exposure. Average corrected background is then subtracted from all other corrected readings.

* TETLD was lost or damaged in Processing. Unable to report a reading.

# APPENDIX G
# QUALITY CONTROL SUMMARY REPORT

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# APPENDIX G
# QUALITY CONTROL SUMMARY REPORT (QCSR) FOR THE ANNUAL ENVIRONMENTAL MONITORING REPORT, 2002

## FUSRAP MAYWOOD SUPERFUND SITE
## MAYWOOD, NEW JERSEY

**SITE-SPECIFIC ENVIRONMENTAL RESTORATION**
**CONTRACT NO. DACW41-99-D-9001**
TASK ORDER 0002
WAD 01, WBS 07

*Submitted to:*

Department of the Army
U.S. Army Engineer District, New York
Corps of Engineers
FUSRAP Project Office
26 Federal Plaza
New York, New York 10278

Department of the Army
U.S. Army Engineer District, Kansas City
Corps of Engineers
700 Federal Building
Kansas City, Missouri 64106

*Submitted by:*

Stone & Webster, Inc.
100 West Hunter Avenue
Maywood, New Jersey 07607

June 2003

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# APPENDIX G
# QUALITY CONTROL SUMMARY REPORT (QCSR) FOR THE ANNUAL ENVIRONMENTAL MONITORING REPORT, 2002

## FUSRAP MAYWOOD SUPERFUND SITE
## MAYWOOD, NEW JERSEY

**SITE-SPECIFIC ENVIRONMENTAL RESTORATION**
**CONTRACT NO. DACW41-99-D-9001**
TASK ORDER 0002
WAD 01, WBS 07

*Submitted to:*

Department of the Army
U.S. Army Engineer District, New York
Corps of Engineers
FUSRAP Project Office
26 Federal Plaza
New York, New York 10278

Department of the Army
U.S. Army Engineer District, Kansas City
Corps of Engineers
700 Federal Building
Kansas City, Missouri 64106

*Submitted by:*

Stone & Webster, Inc.
100 West Hunter Avenue
Maywood, New Jersey 07607

June 2003

Prepared by: ______________________ Date: ____________

Brian Tucker
Project Chemist

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# TABLE OF CONTENTS

# LIST OF TABLES

# ATTACHMENTS



*Note:*
*Due to their size, the Radiological and Chemical Data Packages are included on CD-ROM.*

# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| aq | aqueous |
| CCV | continuing calibration verification |
| COC | chain-of—custody |
| CDQMP | Chemical Data Quality Management Plan |
| CLP | Contract Laboratory Program |
| CRI | Low-level standard check for the inductively-coupled plasma test method |
| %D | percent difference |
| dpm | disintegration per minute |
| Eh | oxidation / reduction potential |
| EPA | U.S. Environmental Protection Agency |
| FMSS | FUSRAP Maywood Superfund Site |
| FUSRAP | Formerly Utilized Sites Remedial Action Program |
| ICP | inductively-coupled plasma |
| ICSAB | Interference check standard containing both interfering elements (Al, Ca, Mg, and Fe) and target elements |
| IDL | Instrument Detection Limit |
| ISB | ICP interference check standard containing the noninterfering elements at concentrations typically between 0.1-1.0 mg/L |
| J | estimated value |
| L | liter |
| LCS | laboratory control sample |
| LCS/LCSD | laboratory control sample / laboratory control sample duplicate |
| LCSD | laboratory control sample duplicate |
| MDA | minimum detectable activity |
| MDL | Method Detection Limit |
| µg/L | micrograms per liter |
| mg/kg | milligrams per kilogram |
| mg/L | milligrams per liter |
| MISS | Maywood Interim Storage Site |
| mL | milliliter |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| MS/MSD | matrix spike / matrix spike duplicate |
| NAD | normalized absolute difference |
| PQL | Practical Quantitation Limit |
| QA | quality assurance |
| QAPP | Quality Assurance Project Plan |
| QC | quality control |
| QCSR | Quality Control Summary Report |
| R | rejected data |
| %R | percent recovery |
| Ra-226 | radium-226 |
| Ra-228 | radium-228 |
| ROC | radionuclide of concern |
| RPD | relative percent difference |

| | |
|---|---|
| RRF | relative response factor |
| %RSD | percent relative standard deviation |
| SDG | sample delivery group |
| SEC | Safety and Ecology Corporation |
| STL-CT | Severn Trent Laboratories, Inc. of Shelton, CT |
| STL-St. Louis | Severn Trent Laboratories, Inc. of St. Louis, MO |
| SVOC | semi-volatile organic compound |
| Th-228 | thorium-228 |
| Th-230 | thorium-230 |
| Th-232 | thorium-232 |
| TAL | target analyte list |
| TDS | total dissolved solids |
| U | undetected |
| U-234 | uranium-234 |
| U-235 | uranium-235 |
| U-238 | uranium-238 |
| UJ | estimated non-detect |
| USACE | U.S. Army Corps of Engineers |
| VOA | volatile organics analysis |
| VOC | volatile organic compound |

# 1.0 INTRODUCTION

Stone & Webster, Inc. (Stone & Webster) conducted environmental monitoring for year 2002 during the summer of 2002.

This Environmental Monitoring 2002 Quality Control Summary Report (QCSR) addresses data collected from analysis of groundwater, surface water, and sediment samples collected between July 1 and August 1, 2002. These samples were tested for radium (Ra)-226, Ra-228, thorium (Th)-228, Th-230, Th-232, uranium (U)-234, U-235 and U-238, gross alpha, gross beta, target analyte list (TAL) metals, boron and lithium, and volatile organic compounds (VOCs). This QCSR will only discuss deviations in quality control (QC) criteria for these FUSRAP Maywood Superfund Site (FMSS) parameters. A project QCSR will be prepared at the conclusion of the project. The Environmental Monitoring 2002 QCSR will support preparation of the project QCSR.

The Environmental Monitoring 2002 QCSR is organized into seven sections as follows:

- Section 1.0, Introduction
- Section 2.0, Data Collection
- Section 3.0, Data Analysis and Validation
- Section 4.0, Data Summaries
- Section 5.0, System Audits
- Section 6.0, Analytical and Quality Assurance / Quality Control (QA/QC) Problems Encountered
- Section 7.0, References

# 2.0 DATA COLLECTION

Environmental monitoring data collection procedures were evaluated for any deviations or modifications that may have occurred in the areas of sample handling and custody, equipment calibration and maintenance, and analytical methods. Within this report, the terms package and Sample Delivery Group (SDG) are synonymous. A SDG is a data report that contains the various test results of one or more sample batches plus associated QC data such as calibrations, blank and matrix spike (MS) results, blanks, etc.

## 2.1 SAMPLE HANDLING AND CUSTODY

There were no sample handling discrepancies noted by the off-site laboratory. All chains of custodies (COCs) received by the off-site laboratory were properly signed and dated with the following exceptions:

- In package F2G260301 (lithium), the COC was not properly signed and dated for the subcontracted lithium analyses. The second page was not properly signed and sample preservation information was not included.
- In packages F2G230129, F2G240128, F2G250141, F2H020124, and F2G020170, shipping signatures were not included on the custody documents.

In package F2G050145, the COC indicated that sample 12b-024660 was missing. The Maywood Sample Coordinator was notified. Since samples 12b-024646 and 12b-024660 are duplicate samples, the Sample Coordinator instructed the lab to label one of the 12b-024646 containers as 12b-024660.

For package 201523-elements, the COC indicated that equipment rinseate blank sample 12b-024721 was to be analyzed for TAL elements, boron, and lithium. The lab only analyzed this sample for lithium, iron, and manganese.

Custody seals were present on all sample coolers, except for samples in radiological batch F2G120140. Custody seals were not present on individual sample containers. For SDG 201328 (elements and VOCs) and 201523 (wet chemistry parameters), there was no indication as to whether or not custody seals were present. All condition upon receipt forms indicated that samples were properly preserved with the following exceptions:

For radiological batch F2G120140, the COC indicated that samples were preserved with sulfuric acid; however, the field crew used nitric acid for preservation.

Internal custody documentation was included with some of the sample batches.

## 2.2 EQUIPMENT CALIBRATION AND MAINTENANCE

### 2.2.1 Field Instrument Measurement and Calibration

There were no discrepancies observed in the area of field equipment calibration and maintenance for the Environmental Monitoring 2002 Program.

### 2.2.2 Off-site Laboratory

#### Radiological Analysis

For radiological analysis, all criteria were met for initial and continuing instrument calibrations.

#### Chemical Analysis in Data Package 201484

The relative response factor (RRF) for acetone was 0.046 in the initial calibration, and 0.046 and 0.036 in the two continuing calibrations. The minimum criterion is 0.05. Non-detected results for acetone were rejected (R) in samples 19a-024640, 19a-024641, 12b-024719, 12b-024718, 12b-021644, 12b-021647, and 12b-021643. Positive results for acetone were qualified as estimated J in samples 12b-021645, 12b-021648, and 12b-021646.

The initial calibration failed to meet the 15.0% relative standard deviation (%RSD) acceptance criterion for bromomethane, methylene chloride and 2-butanone. Results for bromomethane, methylene chloride, and 2-butanone were qualified as estimated J or non-detected estimated UJ in all samples.

The continuing calibration for 8/06/02 failed to meet the 20.0% difference (%D) criterion for 2-butanone. Results for 2-butanone were qualified as non-detected estimated UJ in associated samples 19a-024640, 12b-024719, 19a-024641, 12b-021644, 12b-021645, 12b-021646, 12b-021647, and 12b-021643.

The continuing calibration for 8/07/02 failed to meet the 20.0%D criteria for bromomethane, chloromethane, acetone, and 2-butanone. Results for bromomethane, chloromethane, acetone and 2-butanone were qualified as estimated J or non-detected estimated UJ in associated samples 12b-024718 and 12b-021648.

#### Chemical Analysis in Data Package 201523

For the volatile organic analysis, bromomethane and 2-butanone are qualified estimated non-detect, UJ, in all samples because of high %RSDs of 32 and 19%, respectively, in the initial calibration. Positive acetone results are reported as estimated J and non-detected acetone results are reported as rejected (R) because of a low RRF of 0.046 in the initial calibration. Positive methylene chloride results are reported as estimated J and non-detected results are reported as non-detected estimated UJ due to a high %RSD of 29% in the initial calibration. For the volatile organics analysis (VOA) continuing calibration, the non-detect results for chloromethane and bromomethane in samples 12b-024722 and 12b-024721 are qualified estimated non-detect UJ because the %D between the mean RRF of the initial calibration and the continuing calibration RRF is greater than 20%. The non-detect results for chloromethane and 2-butanone in sample 12b-024635 are qualified estimated non-detect UJ for the same reason. The acetone non-detect results in samples 12b-024722, 12b-024635 and 12b-024721 are qualified rejected, R, because the RRF is less than 0.05.

For the elements analysis, the lead result for 12b-024635 is reported as rejected (R). The low-level standard check for the inductively-coupled plasma (ICP) test method (CRI) lead standard recovery was 61%. False negative results are possible.

#### Chemical Analysis in Data Package 201362

For the volatile organic analysis, the RRFs for acetone in the 6/24 and 7/21/02 initial calibrations were 0.044 and 0.040, respectively. The required minimum RRF is 0.05. All non-detected acetone results within this SDG were qualified rejected, R; and all detected acetone results were qualified estimated J.

The 15% RSD acceptance criterion was exceeded in the 6/24/02 initial calibration for acetone, 4-methyl-2-pentanone, 2-hexanone, and bromoform. Acetone results were qualified as noted above. All 4-methyl-2-pentanone, 2-hexanone, and bromoform results for the samples run under the 6/24/02 calibration were non-detect, and were thus qualified estimated non-detect, UJ. The 15% RSD acceptance criterion was exceeded in the 7/21/02 initial calibration for acetone, methylene chloride, and 2-butanone. Acetone results were qualified as noted above; methylene chloride and 2-butanone results were qualified estimated non-detect UJ for non-detects, and estimated J for detects in all 13 samples associated with this calibration. For the two VOA continuing calibrations analyzed on 7/18 and 7/22/02, the minimum RRF of 0.05 was not met for acetone (0.0037 and 0.033). Qualifications for acetone are as noted previously in the initial calibration section. For the 7/18 calibration, the 20% maximum %D criterion was not met for 4-methyl-2-pentanone and 2-hexanone. Associated samples were all non-detect for these two analytes and were qualified estimated non-detect, UJ. For the 7/22 calibration, the 20% maximum %D criterion was not met for bromomethane, chloroethane, and methylene chloride. Associated samples were all non-detect for these three analytes and were qualified estimated non-detect, UJ.

For the metals analysis, all continuing calibration results met acceptance criteria except calcium and boron. The calcium recovery for the continuing calibration verification standard was 112% (limits 90-110%). The calcium results in the two samples associated with this continuing calibration verification (CCV), 12b-024662 and 12b-024664, were qualified estimated J. The boron recovery for another continuing calibration verification standard was 124%. However, no samples were associated with that CCV, so no sample results were qualified.

### Chemical Analysis in Data Package 201539

For the 1/27/02 calibration, acetone had a RRF of 0.046. All non-detected acetone results within this SDG were qualified rejected, R; and all detected acetone results were qualified estimated J. No additional qualifications were required for the initial calibration, or the continuing calibrations.

### Chemical Analysis in Data Package 201328

Two initial calibrations were submitted. For the first one, the %RSD for acetone, bromomethane, chloroethane and 2-butanone were greater than 15%. There were four samples associated with this initial calibration and bromomethane, chloroethane and 2-butanone results for the four samples are reported as non-detected estimated UJ. Also, positive acetone results are reported as estimated J and non-detected acetone results are reported as non-detected estimated UJ for the four samples. For the second initial calibration, bromomethane, 4-methyl-2-pentanone, 1,1-dichloroethene, carbon disulfide, 2-butanone, and 2-hexanone exceeded the 15% RSD criterion. All results for these parameters were non-detect in the seven samples associated with this initial calibration, and were therefore qualified estimated non-detect, UJ. There were two continuing calibrations. For the first one, the %D between the initial calibration mean RRF and the continuing calibration RRF exceeded 20% for chloromethane and 2-hexanone. The chloromethane and 2-hexanone results for the four samples associated with this continuing calibration are reported as non-detected estimated UJ. All criteria were met for the second continuing calibration, analyzed on 7/11/02.

## 2.3 ANALYTICAL METHODS

A total of four laboratories were employed, two for radiological analysis and two for chemical analysis.

### 2.3.1 Radiological Analysis

The on-site laboratory at the Maywood Interim Storage Site (MISS) operated by Safety and Ecology Corporation (SEC), a Subcontractor to Stone & Webster, performed the radiological analysis of routine air filter samples for the radionuclides of concern (ROCs) using a Protean liquid scintillation counter.

The off-site radiological laboratory, Severn Trent Laboratory, Inc. in St. Louis, Missouri (STL-St. Louis), performed the radiological analysis of all environmental monitoring samples. STL-St. Louis analyzed the samples using U.S. Environmental Protection Agency (EPA) Methods 903.0 modified for Ra-226, EPA Method 904.0 modified for Ra-228, National Academy of Sciences / Department of Energy (NAS/DOE) method Thorium-3004/RP for thorium isotopes, NAS/DOE method uranium-3050/RP for uranium isotopes, and EPA Method 9310 modified for gross alpha and gross beta analyses (EPA 1980, EPA 1997).

### 2.3.2 Chemical Analysis

The off-site laboratory, Severn Trent Laboratory, Inc. in Shelton, CT (STL-CT) performed the chemical analysis of samples for volatile organics and metals. STL-CT analyzed the samples using EPA Methods 8260B for volatiles and 6010B for metals (7470A/7471A for mercury) from SW-846.

Samples for lithium analysis were sent to STL-St. Louis and were analyzed by Method 6010B (EPA 1997).

There were no deviations / modifications in analytical methods from those specified in the Environmental Monitoring Work Plan.

## 2.4 MODIFICATIONS TO THE WORK PLAN

There were no modifications to the radiation measurement techniques described in the Work Plan.

# 3.0 DATA ANALYSIS AND VALIDATION

Diane Short & Associates, Inc. of Denver, CO and Kestrel Environmental Technologies, Inc. of Freeport, ME performed data evaluation of chemical and radiological data. They evaluated 100% of the off-site laboratory sample results. Data was evaluated using the USACE's *Kansas City and St. Louis District Radionuclide Data Evaluation Guidance for Alpha and Gamma Spectroscopy* and *CENWK-EC-EF Data Quality Evaluation Guidance*, as presented in Appendix F of the *Chemical Data Quality Management Plan* (CDQMP) *Quality Assurance Project Plan* (QAPP) (USACE 2001a, USACE 1999, USACE 2000). Treatment of outliers was performed in accordance with Section 3.1.3 of the CDQMP QAPP.

# 4.0 DATA SUMMARIES

Data summaries for the off-site laboratories' radiological and chemical data can be found in several tables within the *Annual Environmental Monitoring Report for the Year 2002* (USACE 2003).

# 5.0 SYSTEM AUDITS

Stone & Webster audited one of the off-site laboratories utilized for testing of samples, STL-St. Louis, in December 2001 (USACE 2001b). The MISS on-site laboratory audit was conducted in December 2002 (USACE 2002).

# 6.0 ANALYTICAL AND QUALITY ASSURANCE / QUALITY CONTROL (QA/QC) PROBLEMS ENCOUNTERED AT OFF-SITE LABORATORIES

The off-site laboratories analyzed all of the water, soil, and sediment field samples. Field measurements were made for dissolved oxygen, oxidation / reduction potential (Eh), turbidity, temperature, specific conductivity, and pH in 28 groundwater and 28 surface water and sediment samples. Radiological testing for isotopic uranium, thorium, and radium, and gross alpha / gross beta were made on 26 groundwater and 28 surface water and sediment samples, including field QC samples. Chemical testing of groundwater consisted of measurements for TAL metals and VOCs, while chemical tests for surface water and sediment consisted only of metals. Laboratories report results between the Method Detection Limit (MDL) and Practical Quantitation Limit (PQL) (organics) or Instrument Detection Limit (IDL) and 2 X IDL (inorganics) as estimated J. Such results are qualified due to uncertainty at these low concentration levels, and not because of QC exceedances. Therefore, qualifications of this type are not specifically mentioned within this document. All samples were analyzed for radiological parameters. The radiological samples were analyzed for Ra-226, Ra-228, Th-228, Th-230, and Th-232, U-234, U-235 and U-238, and gross alpha / gross beta. Since the radioisotopes of concern in aqueous matrices at the FMSS are Ra-226, Ra-228, total uranium (all uranium isotopes), and gross alpha / gross beta, this report focuses only on the quality concerns associated with these radiological parameters in groundwater and surface water. This report will also only focus on the quality concerns associated with Ra-226, Th-232, and U-238 for sediment results. All of the results from testing of these samples were validated. The validator noted the following general findings.

## 6.1 BLANK ANALYSES

### 6.1.1 Radiological Testing

Low-level activities of some or all ROCs were reported for laboratory preparation blanks in most SDGs. In accordance with USACE Radiological Data Evaluation Guidance, the Normalized Absolute Difference (NAD) was calculated for every sample relative to the blank level. Using this Guidance, several sample results were qualified estimated J because the NADs between a preparation blank result and an equipment rinseate or field sample result, or between an equipment rinseate result and a field sample result, were less than 2.58. A summary of the number of aqueous samples qualified estimated J for the various ROCs is provided in **Table G6-1**.

**Table G6-1**
**Number of Aqueous Samples Qualified Due to Blank Contamination**

| Parameter | Non-Blank Field Samples | Rinseate Blanks |
|---|---|---|
| Ra-226 | 2 | 0 |
| Ra-228 | 0 | 0 |
| U-234 | 4 | 1 |
| U-238 | 14 | 0 |
| Gross Alpha | 9 | 1 |
| Gross Beta | 7 | 1 |

Only two sediment samples were qualified due to blank contamination. The U-234 results for samples 23a-024698 and 22a-024709 were qualified estimated J due to method blank results.

### 6.1.2 Chemical Testing - Organics

For VOCs in data package 201362, methylene chloride was detected in both laboratory method blanks associated with sample analyses, causing results below the action levels to be reported as non-detected U for field samples 12b-024662, 12b-024663, 12b-024665, 12b-024666, 12b-024667, and 12b-024669. Chloroform was detected in one of the laboratory blanks, but no action was required because chloroform was non-detect in all associated samples. Acetone, methylene chloride, and toluene were detected in one or more of the trip blanks and in one or more of the equipment rinseate blanks associated with the samples. Chloroform and 2-butanone were detected in one or more of the trip blanks and carbon disulfide was detected in one or more of the equipment rinseate blanks submitted with the samples. Results for acetone were qualified as non-detected U for the following samples with positive results below the trip blank and/or equipment rinseate action levels: 12b-024648, 12b-024647, 12b-024651, 12b-024652, 12b-024636, and 12b-024630 (acetone results ended up being rejected due to low RRF values in the initial and continuing calibrations). Results for toluene were qualified as non-detected U for equipment rinseates 12b-024664 and 12b-024668 due to trip blank contamination.

For VOCs in data package 201539, acetone has been qualified non-detect U in sample 12b-024634 due to trip and equipment rinseate blank contamination.

For VOCs in data package 201484, there was no contamination in the method blanks. Methylene chloride and toluene were detected in both of the trip blanks submitted with the samples, causing results below the action levels to be reported as non-detected U for the affected samples. No action was required for methylene chloride, as it was not detected in any of the samples. Results for toluene were qualified as non-detected U in samples 12b-021645, 12b-021648, and 12b-021646, and in equipment blanks 12b-024718 and 12b-021643. Toluene was also detected in equipment rinseate 12b-024718, but no additional qualification beyond that incurred by the trip blank contamination was required.

For VOCs in package 201523, toluene was detected at low levels in several blanks, the highest of which was the method blank at 0.12 micrograms per liter (μg/L). No qualifications were required since all toluene results were above the action level of 0.60 μg/L. Methylene chloride was detected at 0.6 μg/L in trip blank 12b-024722. No results were qualified because the other two environmental monitoring samples in this package were non-detect for methylene chloride.

For VOCs in package 201328, methylene chloride was detected in trip blank 12b-024658 at 0.8 μg/L. Methylene chloride was not detected in the two field samples submitted with the trip blank, so no qualification was required. Trip blank 12b-024661 was submitted with samples 12b-024646, 12b-024660 and rinseate blank 12b-024659. Methylene chloride was detected in the trip blank sample at 0.7 μg/L and in the rinseate blank sample at 0.4 μg/L. Methylene chloride was not detected in either field sample so no qualification was required. Trip blank 12b-024657 was submitted with rinseate blank samples 12b-024654, 12b-024655, and 12b-024656. Methylene chloride was detected in this trip blank at 1.0 μg/L. As a result, the methylene chloride result of 0.3 μg/L in rinseate blank 12b-024654 was qualified non-detect, U.

Methylene chloride was detected in two of the four rinseate blanks in this package at 0.3 and 0.4 μg/L. Methylene chloride was not detected in any non-blank field samples so no qualification was required. 1,1,2,2-Tetrachloroethane was only detected in one rinseate blank at 0.7 μg/L, and was not detected in any field samples, so no qualifications were necessary. Acetone was detected in three of the four rinseate blanks, the highest concentration of which was 80 μg/L. As a result of this contamination, acetone is reported as non-detected U at the reported concentration in sample 20a-024645.

### 6.1.3 Chemical Testing - Metals

**Table G6-2**
**Number of Samples Qualified Non-Detect due to Contamination in Laboratory and Field Blanks**

| Metal | Pkg. No. | No. of Samples | Pkg. No. | No. of Samples | Pkg. No. | No. of Samples |
|---|---|---|---|---|---|---|
| Ca | 201402 | 1 | 201484 | 1 | --- | --- |
| Co | --- | --- | --- | --- | 201328 | 2 |
| Cu | 201539 | 1 | 201484 | 5 | 201328 | 4 |
| K | --- | --- | --- | --- | 201328 | 3 |
| Zn | --- | --- | 201484 | 6 | 201328 | 2 |
| B | --- | --- | 201484 | 4 | --- | --- |
| Li | F2G260301 (201413) | 7 | F2H080174 (201523) | 1(*) | F2H020245 (201484) | 9 (*) |

Note: *In package F2H080174, the lithium method blank was -8.9 µg/L. A negative bias is possible and the equipment rinseate sample 12b-024721 was qualified estimated non-detect, UJ. In package F2H020245, the aqueous preparation blank result was -8.5 µg/L. A negative bias is possible and for the nine samples associated with this blank, positive aqueous lithium results are reported as estimated J and non-detected aqueous results are reported as non-detected estimated UJ.

## 6.2 SAMPLE SPECIFIC CHEMICAL RECOVERIES (RADIOLOGICAL SAMPLES ONLY)

The laboratory did not tabulate the radioisotope quantities on a Form 3. The recoveries were presented on the data summary forms. The off-site laboratory acceptance criteria for chemical tracers and gravimetric tracers are 20 to 110%. The laboratory uses Barium-133 (Ba-133) as the radiotracer for the Ra-226 analyses. The radiotracer recovery is determined by gamma spectroscopy rather than gravimetric methods. The laboratory uses 100% for tracer recoveries greater than 100%; i.e., results are not corrected for Ba-133 tracer recoveries when the recovery >100%. All radiotracer recoveries were within the laboratory's acceptance criteria in all packages with the following exceptions:

- In package F2G170112, the Ra-228 chemical tracer for sample 12b-024673 was reported as 0.0%. The Ra-228 results are reported as rejected (R). Ra-228 results for samples with tracer recoveries less than 50% are reported as estimated J or non-detect estimated UJ. Ra-228 results for samples 12b-080009, 12b-050929 and 12b-050931 are reported as non-detect estimated UJ. Chemical tracer recoveries are 38, 47, and 28%, respectively. The Ra-226 result for sample 12b-050931 is reported as non-detect estimated UJ. The chemical recovery is 37%.
- In package F2G250141, Ra-228 tracer recoveries for samples 19a-024641 and 19a-024641DUP were 41 and 42%, respectively. Ra-228 results are reported as non-detect U for both samples.
- In package F2G100148, U-232 recoveries for samples 12b-024648 and 12b-024647 were 45 and 21%, respectively. The U-232 recovery for sample 12b-024647 is atypically low based upon recoveries from other Uranium isotope results. Based upon the U-232 recovery, U-235 and U-234 are reported as non-detect estimated UJ and U-238 is reported as estimated J for sample 12b-024647. The method for gross alpha and gross beta does not require radiotracers.

## 6. 3 MATRIX SPIKE (MS) AND MATRIX SPIKE / MATRIX SPIKE DUPLICATE (MS/MSD)

### 6.3.1 Radiological

For radiological samples, matrix spikes (MSs) were only performed for gross alpha and gross beta samples. No MS samples were analyzed for other radiological parameters. Matrix problems were determined from tracer recoveries (see Section 6.2).

In package F2G020170, the laboratory analyzed a non-Maywood sample as a MS sample and the gross alpha recovery was 175% (acceptance limits 63 to 139%) and no corrective action was taken. The gross alpha laboratory control sample (LCS) recovery was 92%. This SDG contained the results of three rinseate blanks. All gross alpha results were non-detect. Since the MS sample had high total dissolved solids (TDS), only 31 milliliters (mL) of the MS sample were prepared and analyzed. Since the LCS is more representative of method performance (the standard 200 mL was used for the LCS), no gross alpha results are qualified due to MS results.

In package F2H010128, the gross alpha MS recovery for sample 12b-024635MS was 154% and the acceptance criteria are 63 to 139%. No corrective action was taken. The gross alpha result for sample 12b-024635 is therefore qualified rejected, R. This sample had high dissolved solids as evidenced by the small sample aliquot of 11 mL used for this analysis. The other two samples are not of a matrix similar to 12b-024635, since they had low dissolved solids (sample volumes used were 200 mL each for these two samples). The gross alpha results for these two samples were not rejected for this reason.

In package F2G180113, sample 12a-024653 was analyzed as the MS sample for gross alpha and gross beta. The gross alpha spike recovery was 154% and the acceptance criteria are 63 to 139%. No explanation was given for this exceedance. All three gross alpha results in this package were therefore qualified rejected, R.

In package F2G110207, sample 12a-024651 was analyzed as the MS sample for gross alpha and gross beta. The gross alpha spike recovery was 165% and the acceptance criteria are 63 to 139%. No corrective actions were taken. All four gross alpha results in this package were therefore qualified rejected, R.

In package F2G230129, the gross alpha MS recovery for aqueous sample 23a-024684 was 155%. The lab took no corrective action. The gross alpha results for non-blank aqueous field samples 22a-024695, 22a-024693, 22a-024694, 23a-024684, 23a-024686, 23a-024685, 22a-024687, and 23a-024172 are reported as rejected (R). No MS was analyzed for soil gross alpha / gross beta. Due to the lack of MS information, all five soil gross alpha and gross beta results are qualified rejected, R.

In package F2G240128, no MS was analyzed for soil gross alpha / gross beta. Due to the lack of MS information, all five sediment gross alpha and gross beta results are qualified rejected, R.

### 6.3.2 Chemical

In package 201523, for elements, a non-Maywood sample was used as the MS sample because the field samplers did not specify a MS sample. All recoveries were within criteria except selenium, which was biased high. No qualifications were made since this was a non-Maywood sample.

In package 201539, for elements, there was no MS analysis results reported for potassium. There was no MS for elements in package 201484; LCS data was used to assess data accuracy. For 201484 VOCs, there was no designated Maywood matrix spike / matrix spike duplicate (MS/MSD). MS/MSD results from another client's sample were included in this package, and all recovery and relative percent difference (RPD) criteria were met.

In package 201362, for elements, sample 12b-024638 was analyzed as the MS sample. Results that exceeded the method acceptance criteria (75 to 125%) are summarized below.

**Table G6-3**
**Results Exceeding the Method Acceptance Criteria in Sample 12b-024638**

| Analyte | Spiked Sample Result | Sample Result | Spike Added µg/L | %R MS | Action |
|---|---|---|---|---|---|
| Barium | 1236 | 15.7 | 2000 | 61 | J |
| Lead | 17. U | 17. U | 20 | 48 | J |
| Selenium | 34.6 U | 34.6 U | 10 | 280 | J or UJ |

The actual sample and spiked sample results for lead and selenium were detected values but were detected at values less than the MDL so they were reported as non-detect. The detected values were, however, used to calculate the percent spike recovery. It is apparent from these results that the spiking levels for lead and selenium are too close to the corresponding MDLs for these elements. The laboratory analyzed a post-digestion spike for 12b-024638. The post-digestion spike recoveries for barium and lead were both 94%, and the post-digestion spike recovery for selenium was 138%. The post-digestion spike recovery for selenium confirms the positive matrix interference. Positive selenium results may be biased high. Low biases are indicated for barium and lead. Positive barium, lead, and selenium results were qualified as estimated J and non-detected results were reported as non-detected estimated UJ in all 14 samples within this SDG.

In package 201402, for elements, soil sample 22a-041183 was analyzed as the MS sample. Recoveries that exceed the 75 to 125% acceptance criteria are summarized below. Note that total solids is 30.5% for soil sample 22a-041183.

**Table G6-4**
**Recoveries Exceeding the Acceptance Criteria in Sample 22a-041183**

| Element | Reporting Limit | Sample Conc mg/kg | Spike Conc mg/kg | Spike Result mg/kg | % Recovery | PDS Recovery |
|---|---|---|---|---|---|---|
| Antimony | 33.5 mg/kg | 3.48 U | 290.1 | 151.6 | 52% | 99% |
| Cadmium | 9.1 mg/kg | 2.90 U | 2.90 | 5.14 | 177% | 189% |
| Zinc | 60.7 mg/kg | 620.7 | 290.1 | 828.4 | 72% | 85% |

Note that all soil LCS acceptance criteria were met.

The MS sample was not re-prepped or reanalyzed. The MS recoveries indicate a high bias for cadmium and low biases for antimony and zinc. The cadmium MS and post-digestion spike (PDS) results indicate that the high bias may be due to instrumental problems or matrix problems. Since the LCS criteria for cadmium were met, the high bias is likely due to matrix interference. Regardless, these recoveries indicate an out of control situation. All soil cadmium results are reported as rejected (R).

The antimony MS recovery indicates a low bias. The PDS result indicates that the instrumental analysis was within control. Sample matrix interferences and/or sample non-homogeneity is indicated. All antimony results are reported as non-detected estimated UJ. False negative antimony results are possible.

For package 201328, sample 12b-024646 was analyzed as the MS sample. Results that exceed the method acceptance criteria (75 to 125%) are summarized in **Table G6-5**.

**Table G6-5**
**Results Exceeding the Method Acceptance Criteria in Sample 12a-024646**

| Analyte | Spiked Sample (SS) | SampleResult | Spike Added | %R MS | Action |
|---|---|---|---|---|---|
| Potassium | 46956 | 12163.9 | 25000 | 139 | J |
| Selenium | 13.6 | 6.91 U | 10 | 135 | None |

The laboratory analyzed a post-digestion spike. Potassium and selenium post-digestion spike recoveries were 129 and 139% respectively, so positive matrix interferences were confirmed. All positive potassium results are reported as estimated J. Potassium results may be biased high. The laboratory reported all selenium results as non-detected U. Non-detected selenium results are not qualified due to the indicated high bias.

For the lithium packages, no results were qualified due to MS recovery exceedance. Most of the spike results were from non-Maywood samples, or the laboratory analyzed a laboratory control sample / laboratory control sample duplicate (LCS/LCSD) pair in lieu of the MS/MSD. All acceptance criteria were met.

## 6.4 LABORATORY CONTROL SAMPLES

### 6.4.1 Radiological

All LCS recoveries were within the laboratory's acceptance criteria of 80 to 120%. Because the U-235 spike concentration was always very near its minimum detectable concentration (MDC) (typically the spike concentration was two to three times the MDC), no U-235 results were reported in the LCS samples. Evaluation actions taken due to U-234 and U-238 results were applied to U-235 results.

For soil LCSs, Th-228 and Th-232 were not reported because Th-230 is the only certified isotope. This anomaly was discussed with USACE and they indicated that Th-230 LCS recoveries would provide an adequate indication of thorium isotope recoveries.

### 6.4.2 Chemical

For VOCs, the full analyte list was not spiked for the LCS. Only the short "Contract Laboratory Program (CLP) list" was spiked. All of the compounds could not be evaluated for accuracy. For lithium testing, all aqueous and soil LCS results were within acceptance criteria of 80 to 120%.

#### Package 201523

For elements, the silver aqueous LCS recovery was 14% and no corrective action was taken (acceptance criteria are 80 to 120%). The silver result for the one sample associated with that LCS, 12b-024635, was qualified rejected, R.

#### Package 201539

For elements, similar to 201523, the silver aqueous LCS recovery was 14% and no corrective action was taken. The silver result for the one sample associated with that LCS, 12b-024634, was qualified rejected, R.

### Package 201362

Two LCSs were submitted in this laboratory package. Similar to other packages, silver LCS recoveries exceeded the 80 to 120% acceptance criteria as given in **Table G6-6**.

**Table G6-6**
**LCS Recoveries Exceeding the Acceptance Criteria in Package 201362**

| Analyte | Batch ID | LCS µg/L | Spike Added µg/L | %R LCS | Action |
|---|---|---|---|---|---|
| Silver | 7192 | 158.1 | 300 | 53 | Reject All |
| Silver | 7235 | 51.0 | 300 | 17 | Reject All |

The laboratory made no corrective actions. All 14 silver results in this package are reported as rejected (R) except for 12b-024638. Sample 12b-024638 was the MS sample, and the MS recovery for silver was 97%.

### Package 201484

For elements, the mercury soil LCS recovery was 124% (acceptance criteria are 80 to 120%). No corrective action was taken so the two mercury results associated with this LCS were qualified rejected, R.

### Package 201402

The ICP LCS recoveries were within the laboratory acceptance criteria (80 to 120%) for aqueous samples except for silver. The silver recovery was 17%. Based upon the LCS recovery the silver result for aqueous equipment blank sample 12b-041191 was reported as rejected (R).

## 6.5 FIELD REPLICATE

### 6.5.1 Radiological

The following field replicate pairs were submitted.

**Table G6-7**
**Field Replicate Pairs Submitted**

| | | | |
|---|---|---|---|
| 22a-024691 / 22a-024716 aq | 22a-024702 / 22a-024717 soil | 23a-024684 / 23a-024712 aq | 23a-024699 / 23a-024713 soil |
| 12b-024631 / 12b-024682 aq | 12-024638 / 12b-024670 aq | 12b-024646 / 12b-024660 aq | 22a-041187 / 22a-041190 soil |

Note: aq = aqueous

All field replicate pair results were within USACE QC limits; i.e., within a factor of two for all aqueous replicate pairs and within a factor of four for all soil pairs (this applies to those pairs for which both results were positive, i.e., both greater than the MDA) except for the following:

In package F2G050145, aqueous field replicate results differed by a factor of 2.6 and 2.4 for Ra-226 and Th-232, respectively. Both NADs were less than 1.96 and the lab replicate precision was very good for Ra-226, with a 19%D. There were no other QC concerns for Th-232. Therefore, since data should not be qualified based upon field duplicate precision alone, no data was qualified due to the field replicate precision. The laboratory did report the Ra-226 and Th-232 results as estimated J because the results were between the MDC and the laboratory's reporting limits.

NADs were calculated for all pairs and were less than 1.96 in all cases.

### 6.5.2 Chemical

All field duplicate precision criteria were met.

## 6.6 LABORATORY REPLICATES

### 6.6.1 Radiological

The NAD for isotopes with activities less than or equal to five times the MDA are considered for data validation rather than the RPD. If the NAD calculated is between 1.96 and 3.29 the results for all samples have been qualified estimated J. If the NAD calculated were greater than 3.29 the results were rejected (R). If the NAD calculated was less than 1.96 no qualification was made. Where results were greater than five times the MDA, the RPD was considered for data validation.

Laboratory replicates or duplicates were performed on all sample batches for all isotopes reported. For all sample results, the laboratory replicate NADs were less than 1.96 or the RPDs were less than acceptance criteria with the following exceptions:

In package F2H020124, the gross alpha results for replicate samples 12b-024634 and 12b-024634LREP are qualified estimated J because the both activities were greater than five times the MDC and the RPD was greater than 25% (37.9%).

In package F2G090115, 12b-024632 was analyzed as the lab replicate for gross alpha and gross beta. The gross alpha results were $-3 \pm 19$, MDC = 0.31 for 12b-024632, and $47 \pm 26$, MDC = 36 for 12b-024632DUP. Although the NAD was less than 1.96, it is recommended that the positive gross alpha result be qualified J and the non-detect result UJ due to the high variability. The high variability is due to the small sample volume of 16 ml caused by the high total dissolved solids concentration.

Several data packages did not report lab replicate results for thorium isotopes. Based upon the field replicate precision and the chemical tracer recoveries no thorium results were qualified.

### 6.6.2 Chemical (Metals Only)

For metals package 201402, sample 22a-041183 was analyzed as the soil lab replicate. The relative percent difference (RPD) of replicate results for arsenic, chromium, and manganese were greater than the QC limit of 20%. Arsenic results were not qualified because the arsenic results were less than five times the reporting limit. All chromium and manganese soil results were reported as estimated J for all samples.

No laboratory replicates were analyzed on samples from lab SDG 201484. For lithium analysis, precision of aqueous samples was evaluated from the LCS/LCSD results (%Rs of 99.8 and 101%; RPD of 1.2%). For soils, an MS/MSD pair was used to evaluate precision (%Rs of 100 and 103%; RPD of 2.9%). All acceptance criteria were met for these measurements.

## 6.7 SURROGATE RECOVERIES (ORGANIC CHEMICAL ONLY)

All surrogate recoveries were within acceptance criteria.

## 6.8 INTERNAL STANDARD RECOVERIES (ORGANIC CHEMICAL ONLY)

All internal standard acceptance criteria were met for all samples.

## 6.9 MISCELLANEOUS METALS CRITERIA

For elements package 201402, all ICP interference check sample criteria were met except for selenium for the ICP interference check standard containing the non-interfering elements (ISB) sample. The initial recovery was 79% and the closing ISB recovery was 83%. Selenium soil results for the six soil samples comprising this package are reported as non-detected estimated UJ because a low bias is possible.

For package 201484, all ICP interference check sample criteria were met with the exception of thallium. Thallium recovery for the interference check standard AB (ICSAB) associated with the sediment samples was 125%. Control limits are 80 to 120%. Thallium results for both of these sediment samples were non-detect and no data qualifiers were applied.

## 6.10 RADIONUCLIDE QUANTITATION AND IMPLIED DETECTION LIMITS (RADIOLOGICAL ONLY)

The laboratory reported the results with analytical uncertainties. The laboratory used for analysis of environmental monitoring samples for radiological analysis, STL-St. Louis, reported positive results that were greater than the MDA and less than the laboratory's reporting limit (approximately three times the MDA) the as estimated J. The validator retained this qualifier unless the data was qualified U, UJ, or R for some other reason.

The laboratory noted that the MDCs for the gross alpha and gross beta were elevated in some instances. This is due to the smaller sample aliquot that must be used for gross alpha when the total dissolved solids (TDS) level is elevated.

Sample results that were either less than the associated uncertainty or MDA were evaluated to determine if the MDA values were unrealistically low. If either of those two conditions existed, and the 2 sigma error multiplied by 1.65 was greater than the reported MDA, the isotope was qualified UJ to indicate that the MDA is estimated. The estimated MDA value should be considered as unrealistically low. One or more sample results within the following packages were qualified for this reason.

**Table G6-8**
**Packages with Results Qualified UJ**

| | | | | |
|---|---|---|---|---|
| F2G240128 | F2H010128 | F2G170112 | F2G110207 | F2G230129 |
| F2G250141 | F2H020124 | F2G190108 | F2G180113 | F2G100148 |
| F2G030205 | F2G160107 | F2G120137 | F2G090115 | F2G050145 |
| F2G020170 | F2G120140 | | | |

If a net negative result had a 2 sigma uncertainty smaller than the absolute value of the result, the result was qualified rejected, R. None of the radiological packages were qualified in this manner.

If a negative result had a 2 sigma uncertainty larger than the absolute value of the result, the result was qualified non-detect, U (unless the 2 sigma uncertainty times 1.65 was greater than the MDA, in which case the result was qualified UJ; see UJ results in **Table G6-8**). The following radiological packages had one or more results that were qualified in this manner.

**Table G6-9**
**Packages with Results Qualified U**

| | | | | |
|---|---|---|---|---|
| F2G240128 | F2H010128 | F2G170112 | F2G110207 | F2G230129 |
| F2G250141 | F2H020124 | F2G190108 | F2G180113 | F2G100148 |
| F2G030205 | F2G160107 | F2G120137 | F2G090115 | F2G050145 |
| F2G020170 | F2G120140 | | | |

In package F2G160107, the Ra-228 result for sample 12b-024650 is reported as estimated J. The reported result is between the sigma uncertainty and the MDC, and the 2 sigma uncertainty X 1.65 is less than the MDC.

In package F2G120137, the U-235 result for sample 12b-024638 is reported as estimated J. The reported result is between the sigma uncertainty and the MDC and the 2 sigma uncertainty X 1.65 is less than the MDC. The U-235 result may be a non-detect. This MDC is unrealistically low.

## 6.11 CHEMICAL SEPARATION SPECIFICITY (RADIONUCLIDES ONLY)

The energy of the radionuclide of interest must be within 40 keV of the theoretical energy for that radionuclide. In package F2G120140 and F2G240128, several Th-228 and Th-230 energies for five soil samples (F2G120140) and six aqueous and sediment samples (F2G240128) exceeded this criterion. These results were rejected. However, for the purposes of this report, Th-228 and Th-230 are not ROCs. In addition, Th-232 in sample 22a-024709 (package F2G240128) was rejected for the same reason. All criteria were satisfied for all samples in all of the other packages.

## 6.12 TARGET RADIONUCLIDE LIST IDENTIFICATION (RADIONUCLIDES ONLY)

This criterion is applied to gamma spectroscopy test results only. All radiological environmental monitoring samples were analyzed by alpha spectroscopy.

## 6.13 HOLDING TIMES

All sample analyses holding time requirements were satisfied.

# 7.0 REFERENCES

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# ATTACHMENT A
# RADIOLOGICAL AND CHEMICAL DATA PACKAGES

*Note: Due to their size, the Radiological and Chemical Data Packages are included on CD-ROM.*

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