Formerly Utilized Sites Remedial
Action Program (FUSRAP)

Maywood Chemical Company Superfund Site

ADMINISTRATIVE RECORD

Document Number

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US Army Corps
of Engineers®

Formerly Utilized Sites Remedial Action Program (FUSRAP)
Contract No. DACW45-98-D-0028

Final Post-Remedial Action Report for 7 Hancock Street

Maywood, New Jersey

December 2001

US Army Corps of Engineers

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FINAL POST-REMEDIAL ACTION REPORT

FOR

7 HANCOCK STREET

IN

LODI, NEW JERSEY

AUGUST 2001

Prepared for

U.S. Army Corps of Engineers

Under Contract No. DACW45-98-D-0028

By

Bechtel National, Inc.

Oak Ridge, Tennessee

Bechtel Job No. 14501

CONTENTS

APPENDICES

TABLES

FIGURES

ACRONYMS

ANL	Argonne National Laboratory
ALARA	as low as reasonably achievable
BEIDMS	Bechtel Environmental Integrated Database Management System
BNI	Bechtel National, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DCG	derived concentration guide
DOE	U.S. Department of Energy
EE/CA	engineering evaluation/cost analysis
EPA	U.S. Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
IVC	independent verification contractor
MCW	Maywood Chemical Works
MISS	Maywood Interim Storage Site
MVP	Maywood Vicinity Property
ORNL	Oak Ridge National Laboratory
PIC	pressurized ionization chamber
PPE	personal protective equipment
QC	quality control
SEC	Safety and Ecology Corporation
USACE	U.S. Army Corps of Engineers

UNITS OF MEASURE

μCi	microcurie
μR	microroentgen
cm	centimeter
dpm	disintegrations per minute
ft	foot
g	gram
h	hour
in.	inch
km	kilometer
L	liter
m	meter
mL	milliliter
mrem	millirem
pCi	picocurie
yd	yard
y	year

1.0 INTRODUCTION

1.1 BACKGROUND

This report documents the remedial action conducted under the U.S. Army Corps of Engineers (USACE) Formerly Utilized Sites Remedial Action Program (FUSRAP) in1998 at 7 Hancock Street in Lodi, New Jersey. The purpose of this report is to document the compliance of areas remediated on the property with applicable federal radiological guidelines and to summarize and provide the results of final remediation data. Remedial action at 7 Hancock Street was conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in compliance with an engineering evaluation/cost analysis (EE/CA) (BNI 1995a).

During remediation of 7 Hancock Street, contamination was found to extend onto the adjacent property of 9 Hancock Street. Information on the remediation of 9 Hancock Street is provided in a separate post-remedial action report.

The property at 7 Hancock Street is part of the Maywood Interim Storage Site (MISS). The Maywood site is located in Bergen County, New Jersey, approximately 20 km (12 miles) north-northwest of New York City and 21 km (13 miles) northeast of Newark, New Jersey (Figure 1-1). It consists of MISS; the Stepan Chemical Company site; and 85 Maywood vicinity properties (MVPs) in the boroughs of Maywood and Lodi and the township of Rochelle Park. The properties are approximately 3.4 km (2.1 mile) from MISS (Figure 1-2). MISS and its vicinity properties are also included within FUSRAP.

FUSRAP was established in 1974 to identify and clean up, or otherwise control, sites where residual radioactive contamination remains from the early years of the nation's atomic energy program or where contamination remains from commercial operations that have caused conditions that Congress has authorized FUSRAP to remedy. The Maywood site was assigned to FUSRAP in 1984 after the cleanup was authorized by the U.S. Congress in the Energy and Water Appropriations Act.

The objectives of FUSRAP, as they apply to the Maywood site, are to

- remove or otherwise control contamination on sites identified as contaminated at levels exceeding current guidelines, and

- achieve and maintain compliance with applicable criteria for the protection of human health and the environment.

The Department of Energy (DOE) administered FUSRAP until October 1997, when management of the program was transferred to USACE. Bechtel National, Inc. (BNI), the project management contractor, assisted USACE in the planning, management, and implementation of the cleanup of 7 Hancock Street. Oak Ridge National Laboratory (ORNL) was the independent verification contractor (IVC) assigned by USACE to provide autonomous assurance that site conditions after completion of the remedial action met the radiological cleanup criteria.

1.2 HISTORY

1.2.1 Prior Remedial Actions

From 1916 to 1959, the former Maywood Chemical Works (MCW) extracted radioactive thorium and rare earths from monazite sand for use in manufacturing industrial products such as mantles for gas lanterns. Slurry that contained waste from the thorium-processing operations was pumped to earthen-diked areas. Nearby properties became contaminated when some process wastes, along with tea and coca leaves from other MCW operations, were removed from the MCW property and used as mulch and fill. Additional waste apparently migrated from the MCW property through natural drainage associated with the former Lodi Brook. In all, 87 commercial, governmental, and residential vicinity properties became radioactively contaminated by these transport mechanisms. A comprehensive history can be found in the CERCLA EE/CA documentation prepared for this activity (BNI 1995a).

Twenty-five residential properties and the Ballod property were remediated during 1984–85, and a property at 90 Avenue C was partially remediated during that period. Remediation of five residential properties, including 90 Avenue C, was completed during 1995. The MISS pile was removed in 1996, and material was transported to an offsite disposal facility. Additionally, eight other residential properties (7 Branca Court, 11 Redstone Lane, and 16, 18, 20, 22, 24, and 26 Long Valley Road) were remediated during 1996, and three more (5 and 7 Shady Lane, and 34 Long Valley Road) were completed in 1997. USACE remediation of 7 Hancock Street was part of the remediation of 23 MVPs and 5 additional properties in Lodi and Maywood during 1997 through 1999.

1.2 2 Characterization Before Current Remedial Action

Initial radiological characterization of 7 Hancock Street to determine if the property should be included in FUSRAP was performed by ORNL in 1987 (ORNL 1989). Because sampling results exceeded applicable federal guidelines, the property was designated for inclusion in the program. Subsequent radiological testing occurred in 1986, 1995, and prior to the start of cleanup activity.

In 1986, testing was performed to locate the horizontal and vertical boundaries of contamination (BNI 1989). The contamination was primarily subsurface contamination ranging from a depth of 0.6 m (2 ft) to 1.5 m (5 ft) and appeared to extend beneath the residence.

In 1995, supplemental radiological sampling was performed to determine if radiological contamination existed beneath the house (BNI 1995b). A borehole was drilled in the back portion of the house. Gamma radiation readings were taken from within the borehole at 6-inch intervals and documented in a radiation log. Sample 38R, collected from a depth of 0.75 m (2.5 ft) to 1.05 m (3.5 ft) was found to be contaminated.

Prior to remediation, an additional survey was performed in 1998 to further define the extent of contamination. Based on initial walkover surface scans, two boreholes were drilled in areas showing the highest gamma readings. Gamma radiation readings were taken from within each borehole at 6-inch intervals and documented in a radiation log. A sample from each borehole was collected from the depth showing the highest gamma reading and was analyzed for radionuclides. The results indicated that samples (MVP0800 and MVP0801) from two boreholes were not contaminated (BNI 1998a). Section 2.4.3 provides details on how compliance with radiological cleanup criteria was assessed.

Figure 1-3 shows the approximate area of subsurface contamination estimated by 1986, 1995, and 1998 radiological characterization activities. Characterization results indicated contamination ranging from 0.6 to 1.5 m (2 to 5 ft) deep, based on the results of borehole logs and sample data. The data was then extrapolated to define the approximate boundaries of contamination.

Details on post-remedial action surveys and sampling results are provided in Section 4.0.

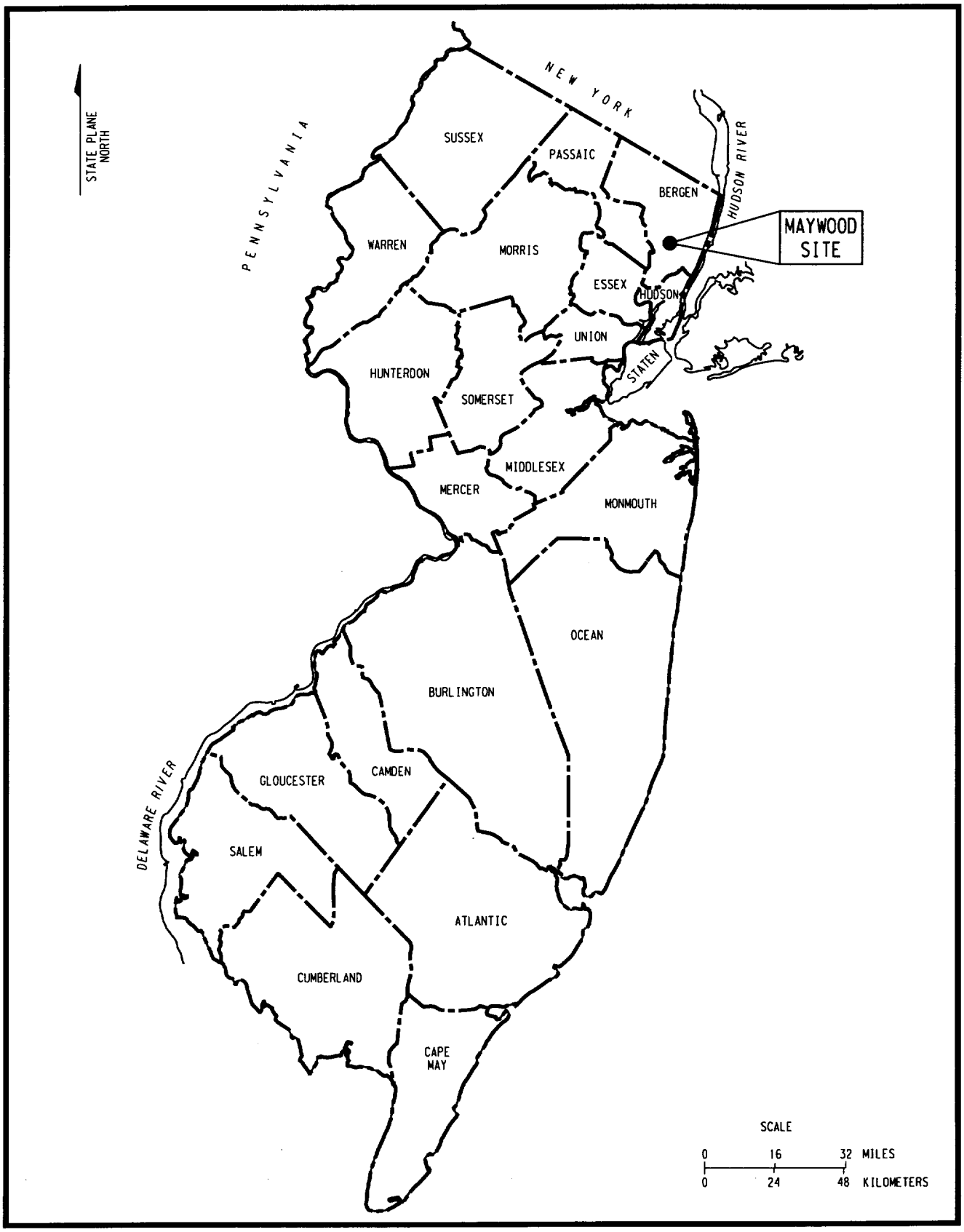

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Figure 1-1
Location of the Maywood Site
Bergen County, New Jersey

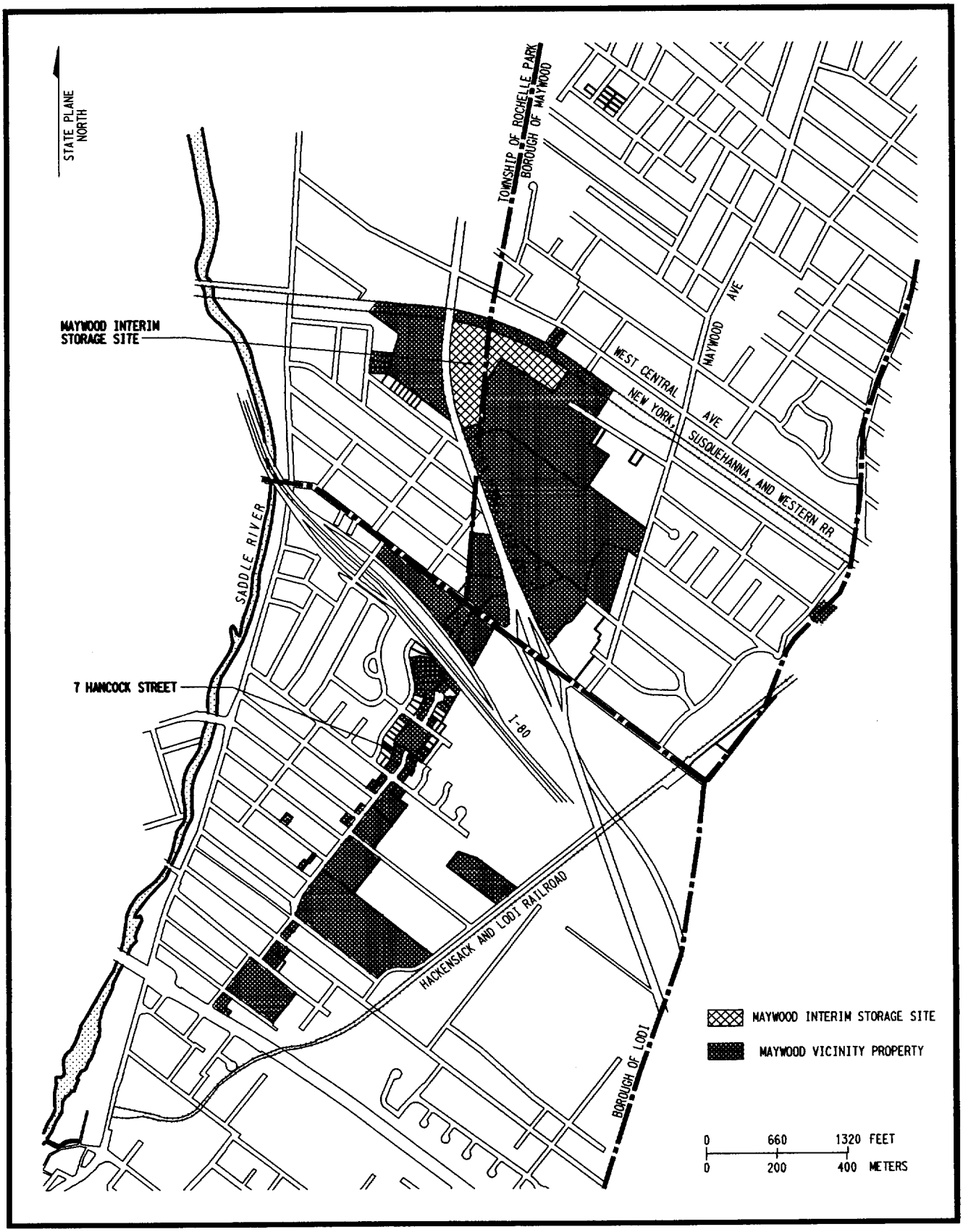

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Figure 1-2
Location of 7 Hancock Street

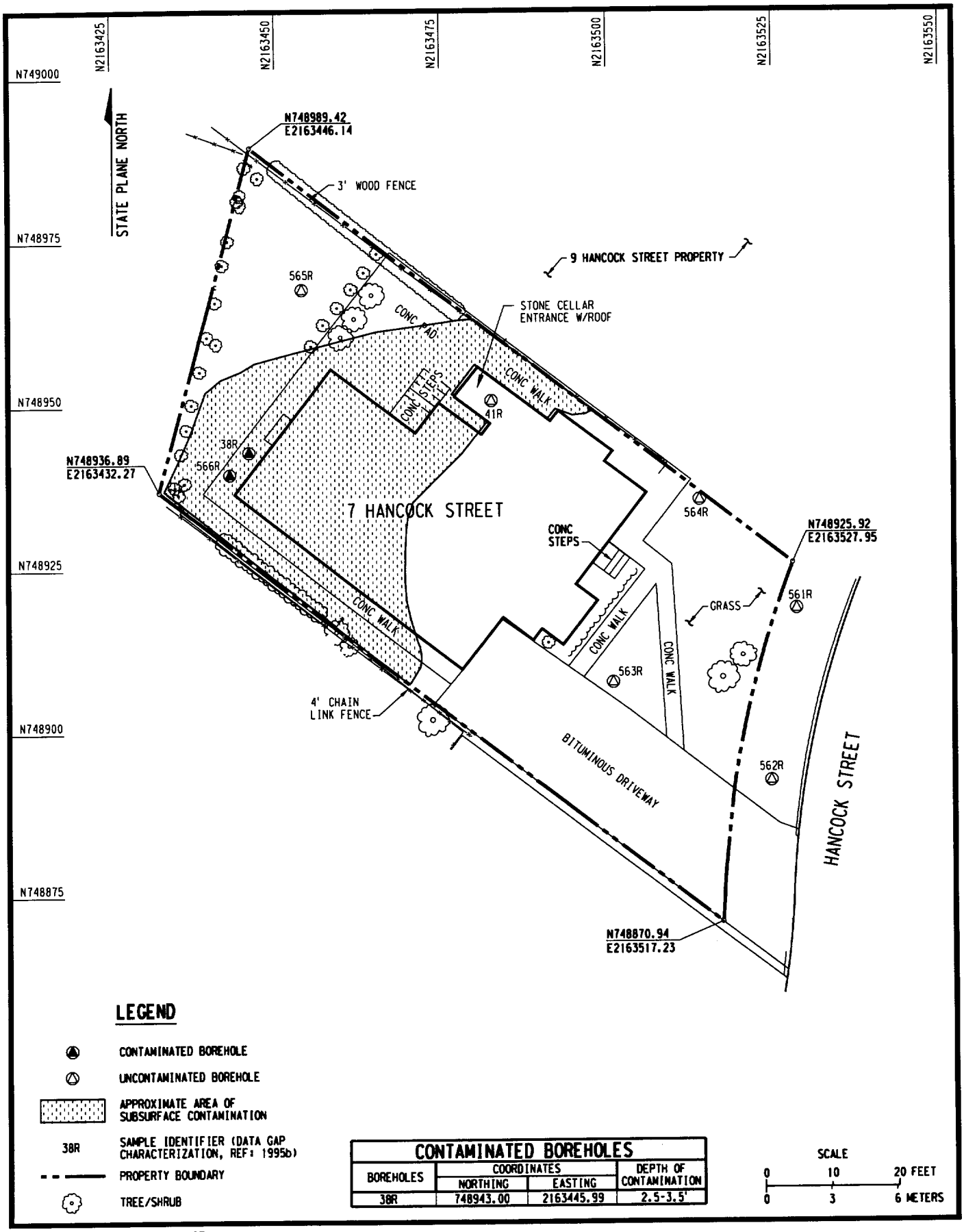

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Figure 1-3
Approximate Area of Subsurface Contamination
7 Hancock Street

2.0 REMEDIATION CRITERIA

Remediation activities at 7 Hancock Street were conducted in accordance with the federal cleanup criteria contained in the 1994 agreement between the U.S. Environmental Protection Agency (EPA) and DOE and in accordance with the remedy provided in the CERCLA EE/CA prepared for properties comprising Phase 1 of MVP cleanup. The cleanup criteria contained in these documents were adopted by USACE to allow for cleanup of the MVPs addressed in the EE/CA to continue under USACE management without disruption.

These documents are contained in the Administrative Record established for the Maywood site and are available for review at the USACE Information Center in the Borough of Maywood.

2.1 EPA AGREEMENT WITH DOE

The agreement between EPA and DOE reached in April 1994 establishes cleanup levels for radionuclide contamination in soil at all properties on the Maywood site (DOE 1994). Soil on Phase 1 properties, regardless of depth, is to be remediated to 5 pCi/g above background for thorium-232 and radium-226.

2.2 EE/CA

In September 1995, DOE made available for public review and comment the EE/CA announcing the preferred remedy for the cleanup of residential and other properties included in Phase 1 of cleanup activities at the Maywood site (BNI 1995a). The final EE/CA adopts the criteria for radionuclides contained in the EPA/DOE agreement and other site-specific, federal criteria developed for radionuclides of concern at the MVPs.

2.3 SITE-SPECIFIC TOTAL URANIUM GUIDELINE

In the absence of promulgated federal criteria for total uranium in soil, a site-specific criterion was developed for the Maywood site by the Argonne National Laboratory (ANL), an agency of the DOE. To develop the guideline for total uranium, site-specific soil data was used to determine the level of uranium that would result in the maximum public exposure limit of 100 mrem/yr for all plausible uses of land. The site-specific guideline for Maywood was developed based on hypothetical but reasonable exposure pathways from the site.

Based on the ANL analysis, the uranium limit is well below the dose guideline of 100 mrem/y (910 pCi/g), which must be met under all worst case, plausible scenarios, including the assumed residential and agricultural use (BNI 1994). An as low as reasonably achievable (ALARA) analysis was conducted by DOE. The 100 pCi/g total uranium limit is considered

acceptable since no potential benefit is expected from a lower value due to the uranium being co-located with the thorium. Remediation of thorium-contaminated soils will result in residual uranium concentrations much lower than 100 pCi/g (BNI 1994). The resulting uranium-238 guideline is 50 pCi/g, assuming that uranium exists in the naturally occurring abundance of 1:1:0.046 for uranium-234, uranium-238, and uranium-235, respectively (Shleien 1992).

2.4 APPLICATION OF CRITERIA

Historical data indicate that radioactive contamination at the MVPs consisted primarily of thorium-232 but also included uranium-238 and radium-226 and their decay products. Table 2-1 lists the residual contamination guidelines for these radionuclides and release of the Phase 1 MVPs without radiological restrictions. The following sections address key principles associated with the application of radiological criteria and assessment of compliance.

Appendix A includes a brief introduction to the nature, sources, and basic units of radiation.

2.4.1 Radionuclides of Concern

Radionuclides of concern at the Maywood site are thorium-232, radium-226, and uranium-238, identified based on the following:

- Reconstruction of the process used by the MCW to extract thorium, and
- Analysis of soil samples collected during the remedial investigation for radionuclides.

The explanation below discusses the thorium-232 and uranium-238 radioactive decay series, and then the results of remedial investigation sampling.

In unprocessed, undisturbed ores, thorium-232 coexists with all of the decay products in the thorium decay series and is often found in secular equilibrium, a state in which each radionuclide in the decay series has the same decay rate (activity) as the parent (thorium-232). Substantial amounts of thorium-232 and thorium-228 would be removed in the extraction process, leaving primarily decay products. The waste component would also contain unextracted thorium-232 and thorium-228. Due to the relatively short half-lives of their decay products, these radionuclides would reestablish equilibrium in 30 to 40 years. One of these decay products is radon-220, a gas that would be released by emission from exposed surfaces and would decay elsewhere.

Uranium-238 is also present in monazite ore (at lower concentrations), and its decay products would also be in secular equilibrium. Due to low natural abundance of these radionuclides and their low concentrations in the waste material, the total activity contributed by their decay series is only a small fraction of the total activity of the waste. Thorium-230 concentrations are expected to be lower than radium-226 based on the fact that the processing would remove most of thorium-230.

To determine whether secular equilibrium existed between thorium-232 and its daughters in contaminated soils at the Maywood site, five percent of all remedial investigation soil samples analyzed for uranium-238, radium-226, and thorium-232 were also randomly selected for isotopic analysis (radium-226, radium-228, uranium-238, uranium-235, uranium-234, thorium-232, thorium-230, and thorium-228). Fifty-four samples, representative of the sampling conducted at the Maywood site, excluding MISS, were selected.

Although a small number of samples were not in equilibrium, all contained progeny of the thorium-232 and uranium-238 decay series. It was therefore concluded that because all samples were analyzed for uranium-238, radium-226, and thorium-232, all radionuclides of interest at the Maywood site were detected. The results are provided in the remedial investigation done for the Maywood FUSRAP site (BNI 1992).

2.4.2 Background Levels

Because cleanup guidelines are based on radioactivity in addition to background levels, it was important to establish the levels of naturally occurring background radioactivity in soils near the site. Background data serve as a frame of reference for evaluating analytical data from the vicinity properties because they represent conditions typical of the areas unaffected by former MCW activities. During the remedial investigation, soil samples were obtained from three background locations in the general area of the vicinity properties. The locations were selected on the basis of their proximity to the site, relative independence from potential influence of the site, and representativeness of area land uses. The background locations are shown in Figure 2-1. Samples from these background areas were analyzed for radium-226, thorium-232, and uranium-238. Background external gamma radiation exposure rates were also measured at these three background locations using a pressurized ionization chamber (PIC). The average concentration of thorium-232 in background samples was 1.0 pCi/g, with a range of 0.9 to 1.1 pCi/g.

The average background concentration of radium-226 was 0.7 pCi/g with a range of 0.5 to 0.8 pCi/g. The average background concentration of uranium-238 was 2.9 pCi/g with a range of

2.4 to 3.5 pCi/g (BNI 1992). The average background external radiation exposure rate was determined to be 9.0 μR/h.

2.4.3 Sum-of-Ratios Calculation

Compliance with radionuclide criteria is determined by performing a sum-of-ratios calculation by first subtracting the background concentration for each isotope from the reported value for that isotope. If the net result of an isotope is negative, then the value for that isotope is reported as zero. The subtraction of background concentrations can cause the values of some isotopes to be reduced to 0, and in some cases this causes the sum of ratios to be 0 as well. Then the values are divided by the appropriate guideline number for thorium-232, uranium-238, and radium-226 (see Table 2-1 for guidelines). Finally, the three calculated values are summed. If the sum of the three calculated values is 1.0 or less, the soil is below the applicable guideline for radioactive contamination at Maywood and is thus considered clean.

2.4.4 Hot Spot Criteria

Hot spots are small areas that have levels of residual radioactive material that are considerably above the levels in the surrounding area. Residual concentrations of radioactive material in soil are defined as those in excess of background concentrations averaged over an area of 100 m^2. If the average concentration in any surface or below-surface area less than or equal to 25 m^2 exceeds the limit or guideline by a factor of $(100/A)^{1/2}$, where A is the area in square meters of the region in which concentrations are elevated, limits for "hot spots" are applicable. Procedures for calculating these hot spot limits, which depend on the extent of the elevated local concentrations, are given in the supplement "A Manual for Implementing Residual Radioactive Material Guidelines – A Supplement to U.S. Department of Energy Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Surplus Facilities Management Program Sites" (ANL 1989). In addition, the standard requires that every reasonable effort be made to remove any source of radionuclide that exceeds 30 times the appropriate limit for soil, irrespective of the average concentration in the soil.

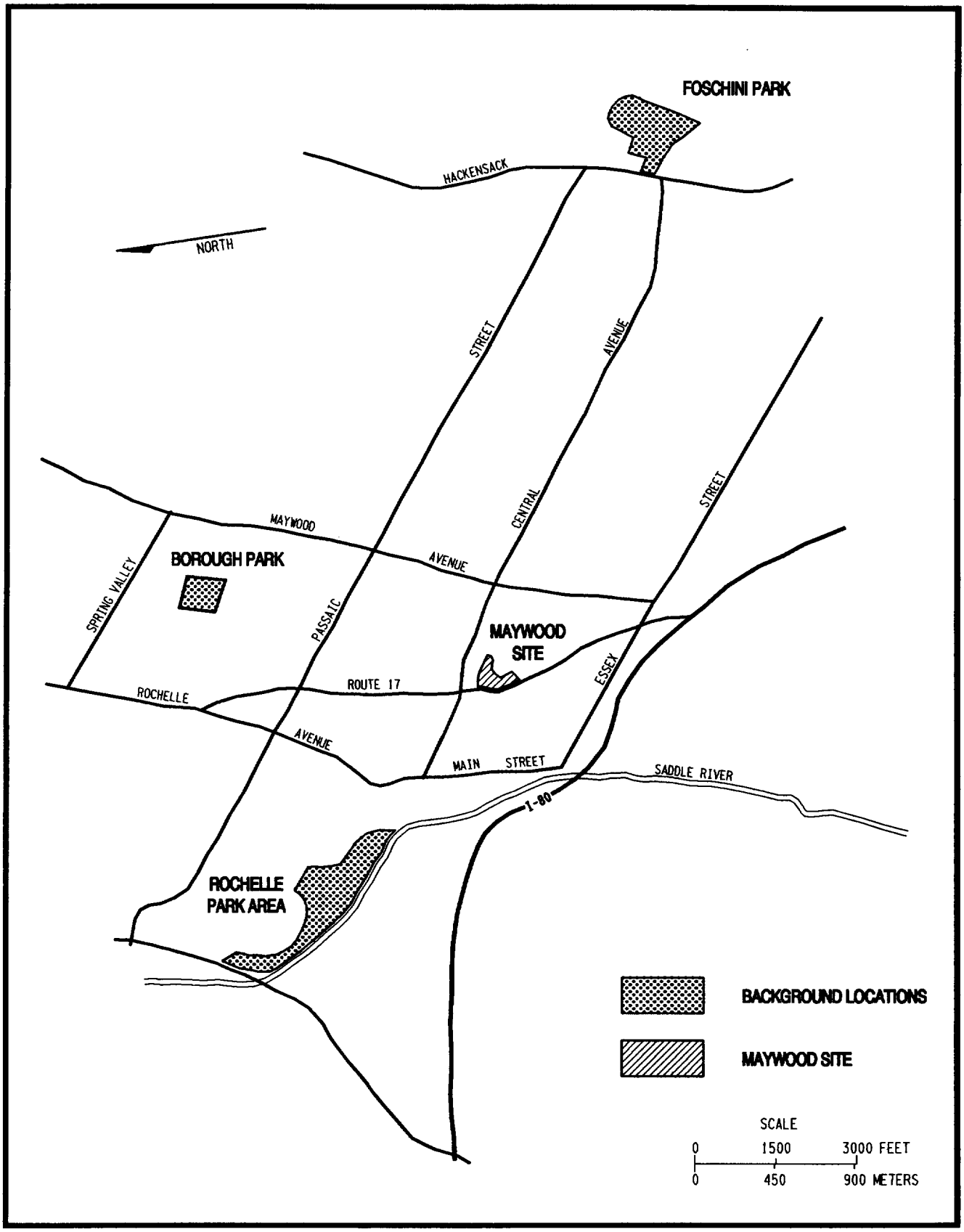

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Figure 2-1
Background Sampling Locations for the Maywood Interim Storage Site

Table 2-1
Federal Guidelines for Residual Radioactive Contamination

Basic Dose Limits
The basic limit for the annual radiation dose received by an individual member of the general public is 100 mrem/yr [a]. In implementing this limit, as-low-as-reasonably-achievable (ALARA) principles are applied to set site-specific guidelines.

Soil Guidelines [b,c,d,e]

Radium-226 Radium-228 Thorium-230 Thorium-232	5 pCi/g when averaged over any 15-cm (6-in.)-thick layer of soil regardless of depth.
Uranium [f]	100 pCi/g total uranium, 50 pCi/g uranium-238 (BNI 1994).

Radionuclide [g]	Allowable Surface Residual Contamination [g] (dpm/100 cm^2)		
	Average [h,i]	Maximum [h,j]	Removable [h,k]
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-124, I-129	100	300	20
Th-Natural, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1,000	3,000	200
U-Natural, U-235, U-238. and associated decay products	5,000 $^{\alpha}$	15,000 $^{\alpha}$	1,000 $^{\alpha}$
Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission except Sr-90 and others noted above)	5,000 $^{\beta\text{-}\gamma}$	15,000 $^{\beta\text{-}\gamma}$	1,000 $^{\beta\text{-}\gamma}$

[a] Department of Energy, 1990, Order 5400.5, "Radiation Protection of the Public and the Environment" (February 8).

[b] Soil guidelines are also used for sediment because there are no sediment guidelines. The soil guideline of 5 pCi/g regardless of depth is from DOE 1994.

[c] These guidelines take into account ingrowth of radium-226 from thorium-230 and of radium-228 from thorium-232, and assume secular equilibrium. If either thorium-230 and radium-226 or thorium-232 and radium-228 are both present, not in secular equilibrium, the guidelines apply to the higher concentration. If other mixtures of radionuclides occur, the concentrations of individual radionuclides must be reduced so that (1) the dose for the mixtures will not exceed the basic dose limit, or (2) the sum of ratios of the soil concentration of each radionuclide to the allowable limit for the radionuclide will not exceed 1 ("unity").

[d] These guidelines represent allowable residual concentration exceeding background levels averaged across any 15-cm (6-in.)-thick layer to any depth and over any contiguous 100-m^2 (1,076-ft^2) surface area, except as noted.

[e] If the average concentration in any surface or below-surface area less than or equal to 25 m^2 (269 ft^2) exceeds the authorized limit or guideline by a factor of $(100/A)^{1/2}$, where A is the area of the elevated region in square meters, limits for "hot spots" will also be applicable. Procedures for calculating these hot spot limits, which depend on the extent of the elevated local concentrations, are given in the supplement. In addition, every reasonable effort shall be made to remove any source of radionuclide that exceeds 30 times the appropriate limit for soil, irrespective of the average concentration in the soil.

[f] Guidelines are calculated on a site-specific basis using a DOE manual developed for this use.

[g] Where surface contamination by both alpha- and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides should apply independently.

[h] Measurements of average contamination should not be averaged over more than 1 m^2 (10.8 ft^2). For objects of less surface area, the average must be derived for each such object.

[i] The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm (0.4 in.).

[j] The maximum contamination level applies to an area of not more than 100 cm^2 (16 $in.^2$).

[k] The amount of removable radioactive material per 100 cm^2 (16 $in.^2$) of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm^2 (16 $in.^2$) is determined, the activity per unit area should be based on the actual area or the entire surface should be wiped. The numbers in this column are maximum amounts.

3.0 REMEDIAL ACTION

3.1 CLEANUP ACTIVITIES

Generally, pre-remediation work activities at 7 Hancock Street consisted of documentation of existing conditions and preparation of the property for remedial action. This included the performance of inspections, the preparation of videotapes, and evaluation of building material for lead paint or asbestos content.

Prior to remediation, the results of earlier characterization investigations were used to help plan remediation activities. The property was again surveyed immediately before remediation to more accurately define the boundaries of radioactive contamination. Walkover surface scans were conducted during remediation to direct the excavation. As remediation was completed, soil samples were collected and analyzed to verify that residual radioactive material above the cleanup criteria had been removed. Additionally, exposure rate measurements were taken with a PIC to confirm that residual radiation levels were in compliance with applicable guidelines. Details are provided in Section 4.0.

The primary technique used in the remedial action was excavation of the contaminated materials. A jackhammer was used to break up concrete, asphalt, and debris before removal. Because of the limited working space available, small volumes of soil were removed with picks and shovels, while a backhoe was used to remove larger volumes. A vacuum truck was also used to remove larger volumes below the house and garage. After remedial action, areas were restored to the condition agreed upon by the property owners.

The alternate trench method (ATM- II) was used to underpin the property; details of the method are provided in the design drawing (BNI 1998b). The underpins for wall footings and support columns for interior sections of the property were installed to support the structure and to facilitate removal of contaminated material underneath the structure. A separate drawing indicating approximate locations of underpins and support columns was generated for field use. As remediation work progressed, the onsite field engineer made appropriate changes to identify exact locations of underpins and support columns. Upon completion, the field sketches were revised to identify exact locations of underpins and support columns. Final data on underpins and support columns are provided in Section 4.0.

After the material was excavated, direct gamma measurements were taken with an Eberline SPA-3 gamma scintillation detector. When survey results indicated that remediation was complete, post-remediation soil samples were collected from the excavated areas in accordance with the *FUSRAP Post-Remedial Action Survey Plan* (BNI 1996). The soil samples were sent to

a laboratory at the MISS for gamma spectral analysis to ensure that all soils contaminated above the cleanup criteria had been removed. If the analysis showed that residual radioactive material exceeding criteria remained, then additional excavation was conducted and additional post-remedial action samples were collected and analyzed. The rationale for the sampling program and the analytical results are presented in Section 4.0.

Following verification that cleanup criteria had been met, excavated areas were either backfilled with clean fill purchased from a vendor or with clean soil (i.e., overburden) removed from other properties in the vicinity being remediated. Radiological results were compared to applicable guidelines identified in section 2.0. Chemical results were compared to applicable New Jersey soil cleanup criteria and site background concentrations (NJDEP 1996, BNI 1992). The results compared to applicable guidelines for backfill and clean overburden soil are provided in Section 4.1.

During remediation, approximately 1,328 m^3 (1,737 yd^3) of radioactively contaminated soil was removed from 7 Hancock Street, including 9 Hancock Street (BNI 1999a). Volume from 9 Hancock Street was included with 7 Hancock Street because the properties were remediated concurrently. Excavated material was transported to the MISS, where it was loaded into railcars and shipped to the Envirocare of Utah disposal facility in Clive, Utah.

Details on the results of post-remedial action surveys and sampling are provided in Section 4.0. Information pertaining to contamination control during remedial action is provided in Appendix B.

4.0 POST-REMEDIAL ACTION MEASUREMENTS

After each portion of the property was remediated, the area was surveyed to confirm that all radioactive contamination exceeding cleanup criteria had been removed. Safety and Ecology Corporation (SEC), a subcontractor to BNI, conducted the initial post-remediation surveys. Verification techniques included walkover gamma scans, external gamma radiation exposure rate measurements, and soil sampling. ORNL, as the IVC, performed independent verification surveys of the remediated areas using similar or identical survey techniques. The results of IVC final survey data and conclusions are to be issued as a separate report.

As excavation proceeded, walkover surface scans were conducted with an Eberline SPA-3 gamma scintillation detector to determine whether all soil that was radioactively contaminated in excess of the cleanup criteria had been removed from the remediated areas. The walkover survey provided immediate feedback so that additional excavation could be performed if residual contamination appeared to exceed remedial action guidelines. The area was scanned after each lift of soil was removed to verify that the contamination had been removed. Soil samples also were collected throughout the excavation and analyzed at the MISS laboratory as an additional verification measure on the surface scans.

In addition, external gamma radiation exposure rates were taken and measured with a PIC at 1 m (3 ft) above the ground surface in each open excavation prior to its backfilling with clean fill. PIC readings were compared with the background exposure rate (9.0 μR/h) established for the area.

The procedure followed for performing post-remedial action sampling is provided in the "FUSRAP Post-Remedial Action Survey Plan" (BNI 1996). Upon completion of remediation, a survey grid of 100 m^2 (1,076 ft^2) was established over the excavated area to conduct radiological surveys. If there were small irregularities in the excavated area, the total area for each grid did not exceed 100 m^2 (1,076 ft^2). Composite post-remediation soil samples were collected (from a depth of 0 to 6 in.) from each remediated grid by taking individual samples [at a frequency of 25 per 100 m^2 (1,076 ft^2)] from each sample grid and compositing these individual samples into one sample for that grid. A bias sample was also collected from the bottom of the excavation at an area indicating the highest gamma reading for that grid. Soil sampling, using gamma spectroscopy, was the primary method used to confirm that all radioactive contamination exceeding the cleanup criteria had been removed. External gamma exposure rates were measured in excavated areas using a PIC.

For underpins and columns, bias samples were collected from the floor of each underpin and column at areas indicating the highest gamma reading. A composite sample for underpins was obtained by mixing six-inch plugs collected systematically from all underpins.

Samples for radiological parameters were analyzed at the MISS laboratory. Samples for chemical analysis were sent to Adirondack laboratory in Albany, New York, or the RECRA laboratory in Lionsville, Pennsylvania. In addition, approximately 10% of all samples collected for radiological analysis were sent to the Thermo NuTech laboratory in Oak Ridge, Tennessee, for independent analysis as a quality control (QC) measure. The samples sent to the independent laboratory primarily consisted of clean overburden, in-progress excavation, and post-remedial action bias and composite samples. QC results are provided in Appendix C.

Additionally, material purchased from a vendor was used as backfill after remediation. Before the excavated areas were backfilled, samples were tested for radiological and chemical parameters to ensure the backfill material was not contaminated.

The radiological data packages were validated as required by project procedures. The post-remedial action radiological results are reported in Table D-1 (Appendix D).

4.1 7 HANCOCK STREET

The property at 7 Hancock Street is a two-story house with a basement that has an entrance at the back of the house. It has one add-on room with crawlspace in the back, and a garage in the front. The approximate areas of subsurface contamination are shown in Figure 1-3.

During remediation, surface scans were performed on each lift of soil removed to determine if the material was below or above the cleanup criteria. Clean soil from the excavation, i.e., overburden, was staged separately at Lodi Park. Sixteen samples were collected during excavation at depths from 0.3 to 0.9 m (1 to 3 ft). Results of analyses for thorium-232, radium-226, and uranium-238 were below the cleanup criteria. Data for clean overburden soil for this property, and other properties, are reported in Appendices E and F. All soil exceeding the cleanup criteria, including soil between the underpins and below the house, was excavated and transported to the MISS for later shipment to Envirocare of Utah.

Clean soil from residential property excavations and material obtained from offsite vendor(s) was used to backfill the site. Soils naturally contain certain metals and organic compounds. All sources of backfill were tested for radiological and chemical parameters. USACE review of this data indicates that the levels of contamination fall within or below the CERCLA (cancer) risk range of 1×10^{-4} to 1×10^{-6}. Radiological and chemical data associated with all backfill sources potentially used on this site are contained in Appendix G.

In response to a request from the property owner, BNI provided a supplemental explanation to the USACE to clarify differences in the results of the characterization report, the vicinity property data gap characterization, and the post-remedial action data (BNI 1998b). Each subsequent investigation after initial characterization provided a more accurate representation of the extent of the subsurface contamination on the property. An explanation also was provided that contamination was not found under the basement of the house since the basement extends deeper than the lowest depth of contamination (BNI 1998b). The post-remedial action data represents the final radiological condition of the property (see Section 4.1.1).

Figure 4-1 shows vertical cuts in areas that were excavated during remediation. The depth of excavation during remediation ranged from 1.2 to 2.0 m (4 to 6.5 ft), while the depth of excavation near the exterior of the basement area ranged from 1.4 to 1.8 m (4.5 to 6 ft).

The excavated area shown in Figure 4-2 was larger in comparison to the extrapolated area of contamination (Figure 1-3) because surface scans performed during remediation indicated that a narrow lens of contamination was present in various areas that had been undetected by previous sampling activities. The results of further sampling required the removal of additional soil, so the excavated area shown in Figure 4-2 was larger than predicted.

Prior to backfilling of the excavated areas, EPA Region II did not perform chemical sampling because results for the samples collected earlier from Phase 1 MVPs detected no chemical contamination. The results were considered representative for this property (BNI 1998c).

4.1.1 Post-Remedial Action Survey

Figure 4-2 shows the areas of excavation and property elevation contours. The areas and depths of excavation, grid locations, and locations of post-remedial action soil samples are shown in Figure 4-3. Twelve samples were collected from 6 locations in grids 1 through 6 (see Figure 4-3).

Before pouring the concrete mix, a post-remedial action survey was performed to verify that soils under each underpin and column was below the cleanup criteria. SEC, a BNI subcontractor, collected post-remedial action bias samples from each underpin and column for radionuclide analysis. This data was provided to the IVC for review and approval. Figure 4-4 shows the areas of excavation and locations of post-remedial action soil samples with underpin and column numbers. Photographs of the underpins are shown in Figures 4-5, 4-6, and 4-7.

Figure 4-4 also shows two supplemental investigation samples taken at the base of two columns (columns #1 and 2) installed for support in the unexcavated soil beneath the basement.

Samples MVP0820 and MVP0821 were collected and analyzed to confirm that there was no contamination above guidelines under the house after remedial action activities were completed. Results from these two samples are included in Table 4-1 and in Appendices C and D.

The net result for each radionuclide reported in Table 4-1 is obtained by subtracting the background concentration for each radionuclide from the reported value for that radionuclide. If the net result of a radionuclide is negative, then the value for that radionuclide is reported as zero. Except for post-remedial action bias sample MVP0888 for grid 4, the sum-of-ratios for samples listed in Table 4-1 were below 1. The hot spot criterion for grid 4 (sample MVP0888) was used for the elevated surface area because the area for this grid was considered small (BNI 1998e). Section 2.4.4 provides guidelines for the hot spot criteria. The hot spot criteria calculations indicated that the sum-of-ratios for sample MVP0888 was below 1, and radiological criteria for release were met.

In post-remedial action composite samples, net concentrations of thorium-232 ranged from 0.0 pCi/g to 0.33 pCi/g; radium-226 net concentrations ranged from 0.0 pCi/g to 0.44 pCi/g; and concentrations of uranium-238 were not detected above background.

In post-remedial action bias samples, net concentrations of thorium-232 ranged from 0.0 pCi/g to 4.89 pCi/g; radium-226 net concentrations ranged from 0.0 pCi/g to 0.88 pCi/g; and uranium-238 net concentrations ranged from 0.0 pCi/g to 0.85 pCi/g.

Figure 4-8 shows the locations of the six gamma exposure rate measurements taken with the PIC. The exposure rates ranged from 10.4 to 15.5 μR/h; the background value is 9.0 μR/h. The PIC readings were taken in excavated areas prior to backfilling as a remedial action evaluation survey. If PIC readings were elevated, the readings would have indicated potential exposure concerns thus indicating missed contamination above the release criteria and triggering additional excavation. Although the reported values are above background, they do not represent the final status of the property. The exposures from external gamma radiation would be further reduced after the excavations were backfilled with clean fill. The clean fill would cause a shielding and covering effect on the remaining soils, reducing gamma ray, dust, and radon exposures. Even without the clean fill and assuming continuous exposure at the point of measurement, the average additional dose calculated from measured gamma radiation exposure rates was below the remedial action level of 100 mrem/y.

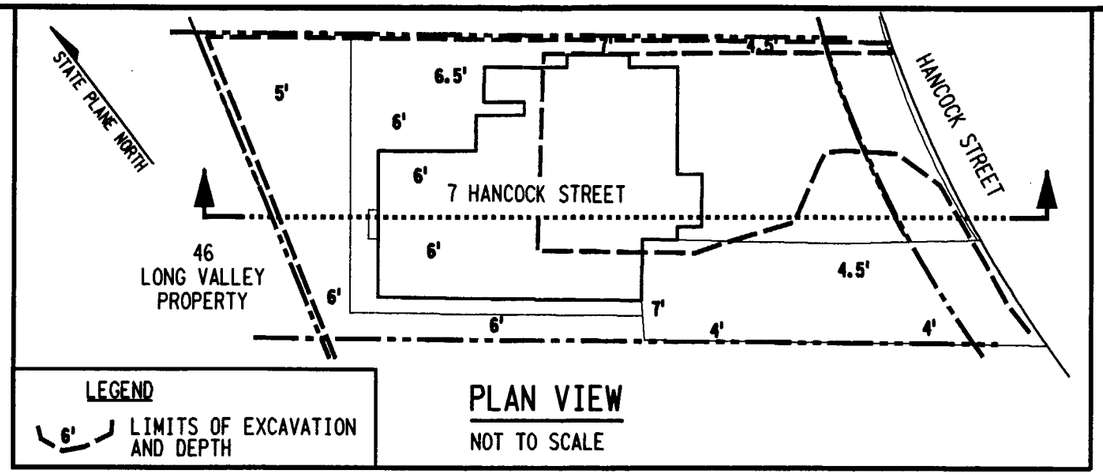
The unaffected portion of the house was sealed off from the work area with a wood frame covered in heavy plastic to keep out dust. BNI also employed security personnel to ensure these areas were secured.

4.1.2 IVC Verification

After remediation, BNI provided post-remedial action data to the IVC for review. The IVC verified excavated areas to determine if remediated areas were in compliance with the cleanup criteria. Upon completion of verification, the IVC gave verbal approval so that excavated areas could be backfilled. This was followed by e-mail confirming their approval. The final IVC report will be published separately.

4.1.3 Summary

The results of data taken at the conclusion of remediation for the open excavations, underpins, and columns were below the cleanup criteria (see Table 2-1). On verification of results, the remediated areas were restored.

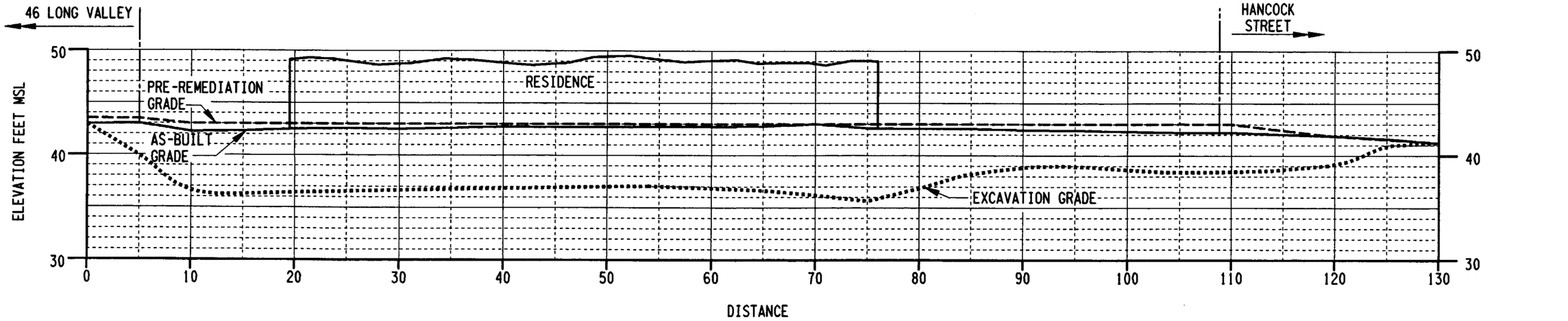


PLAN VIEW

NOT TO SCALE

NOTE:

POST-REMEDIAL ACTION VERIFIATION OF EXCAVATED AREAS UP TO PROPERTY LINES CONFIRMED THAT RESIDUAL RADIOACTIVE MATERIAL EXCEEDING CLEANUP GUIDELINES HAD BEEN REMOVED. SOMETIMES EXCAVATION EXTENDED ONTO ADJACENT PROPERTIES OR ONTO MUNICIPAL RIGHT-OF-WAYS TO MAINTAIN THE STABILITY OF THE EXCAVATION.



PROFILE

1" = 10'
HORZ AND VERT

LEGEND

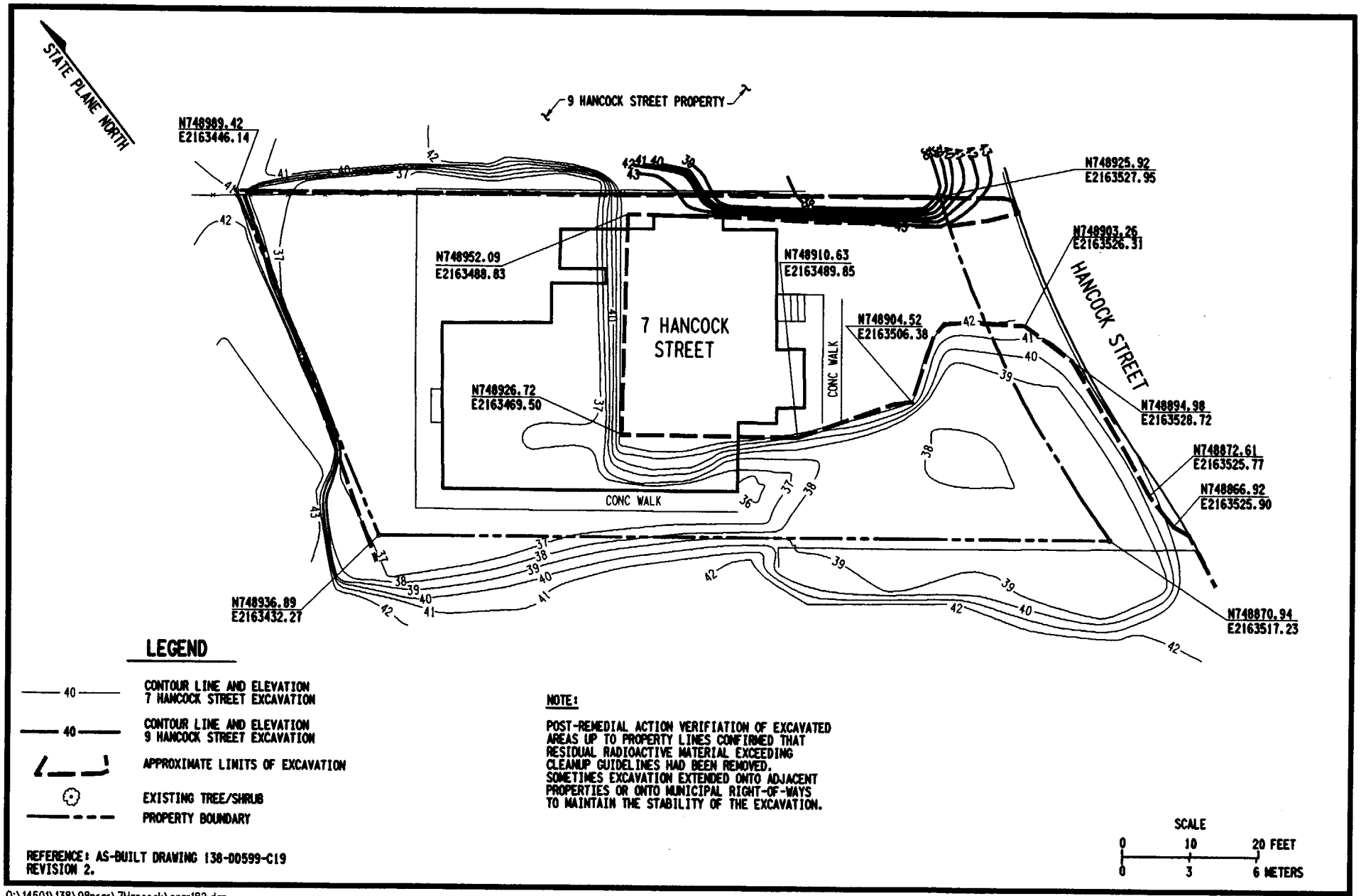
PRE-REMEDIATION GRADE

AS-BUILT (RESTORATION) GRADE

EXCAVATION GRADE

0:\14501\138\98PRAR\7HANCOCK\PRAR181.DGN
12/10/2001

Figure 4-1
Vertical Cut With Depth of Excavation
7 Hancock Street



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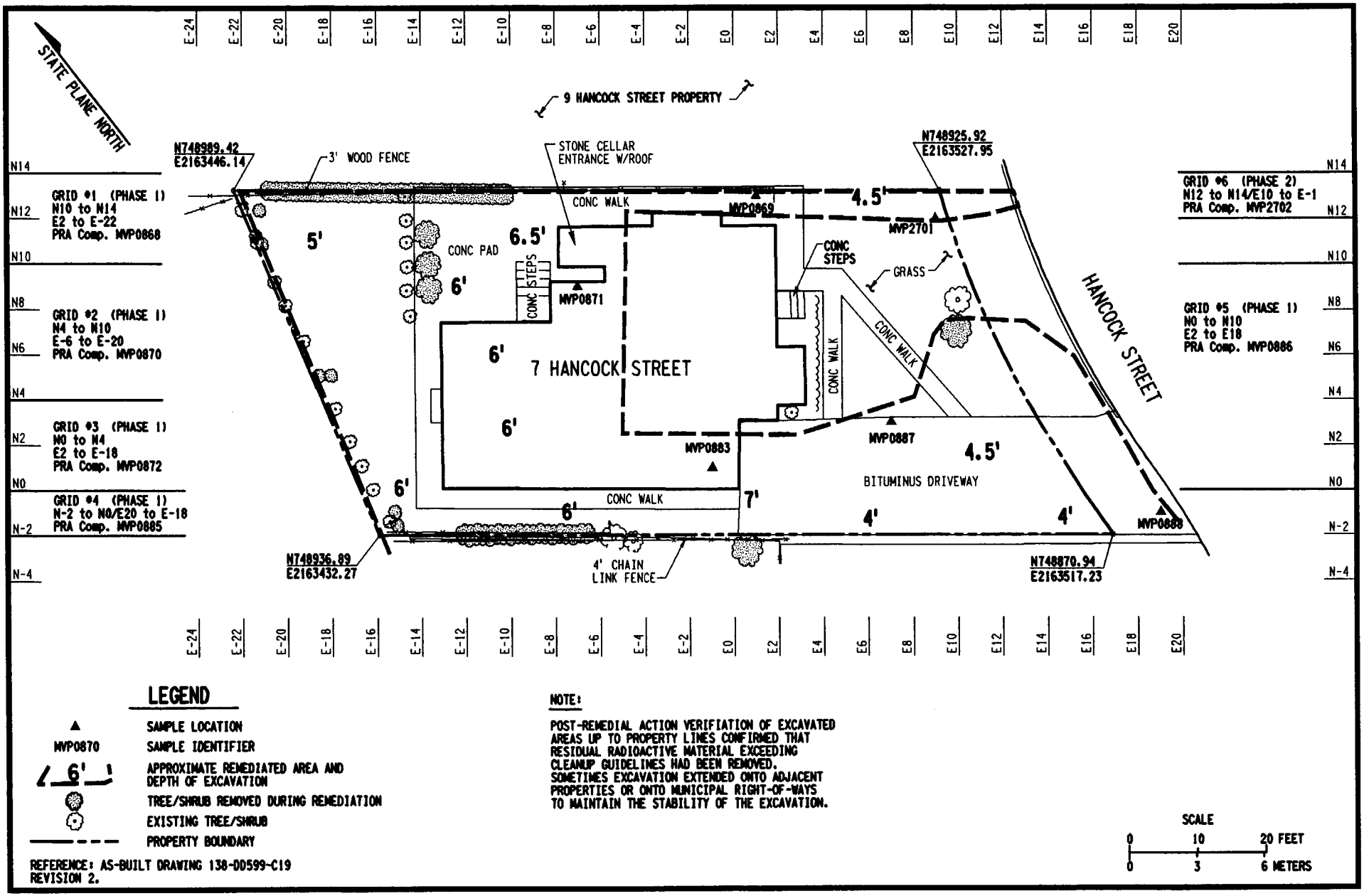
12/10/2001

Figure 4-2
Areas of Excavation and Elevation Contours
7 Hancock Street



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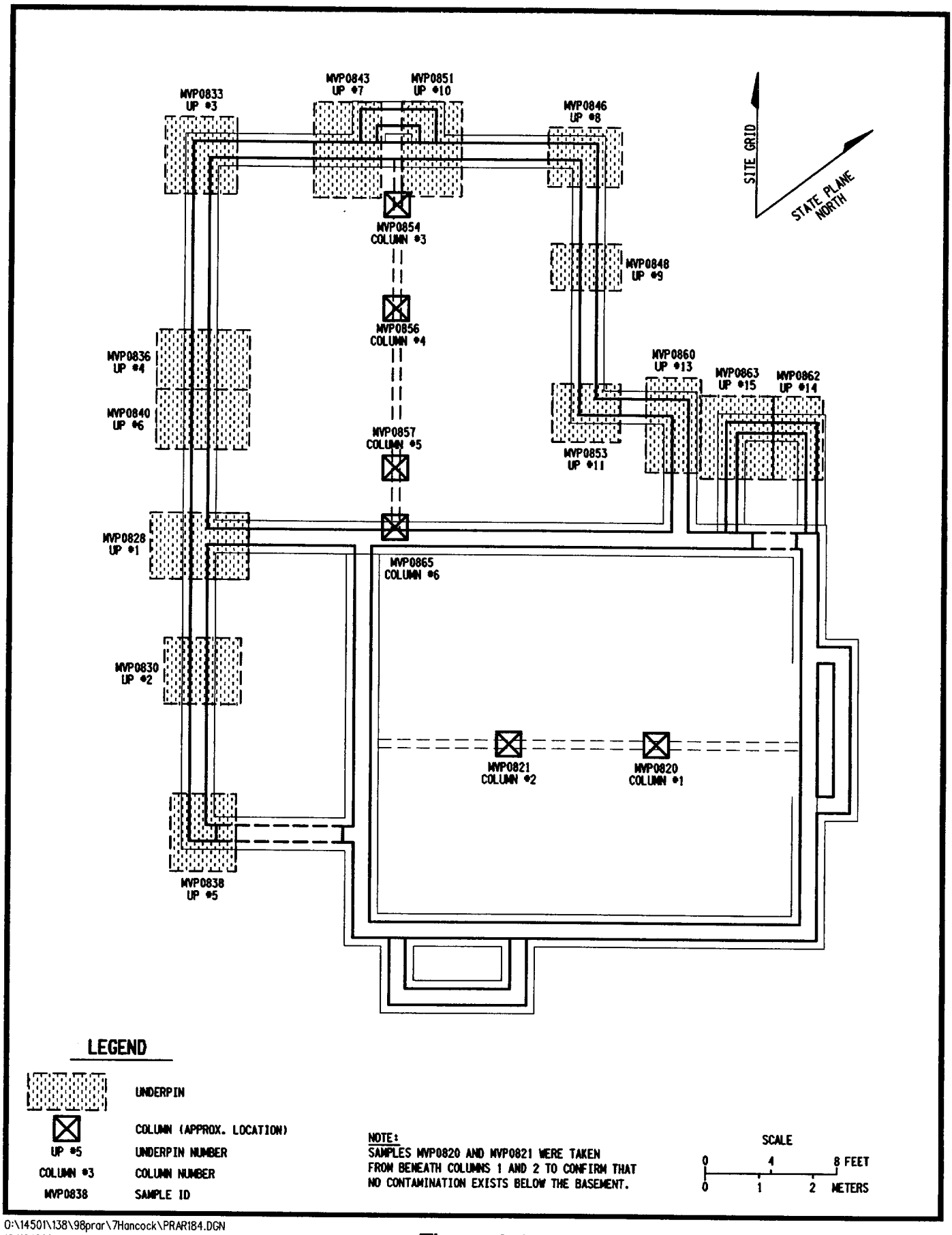
12/10/2001

Figure 4-3
Areas of Excavation and Post-Remedial Action Samples
7 Hancock Street



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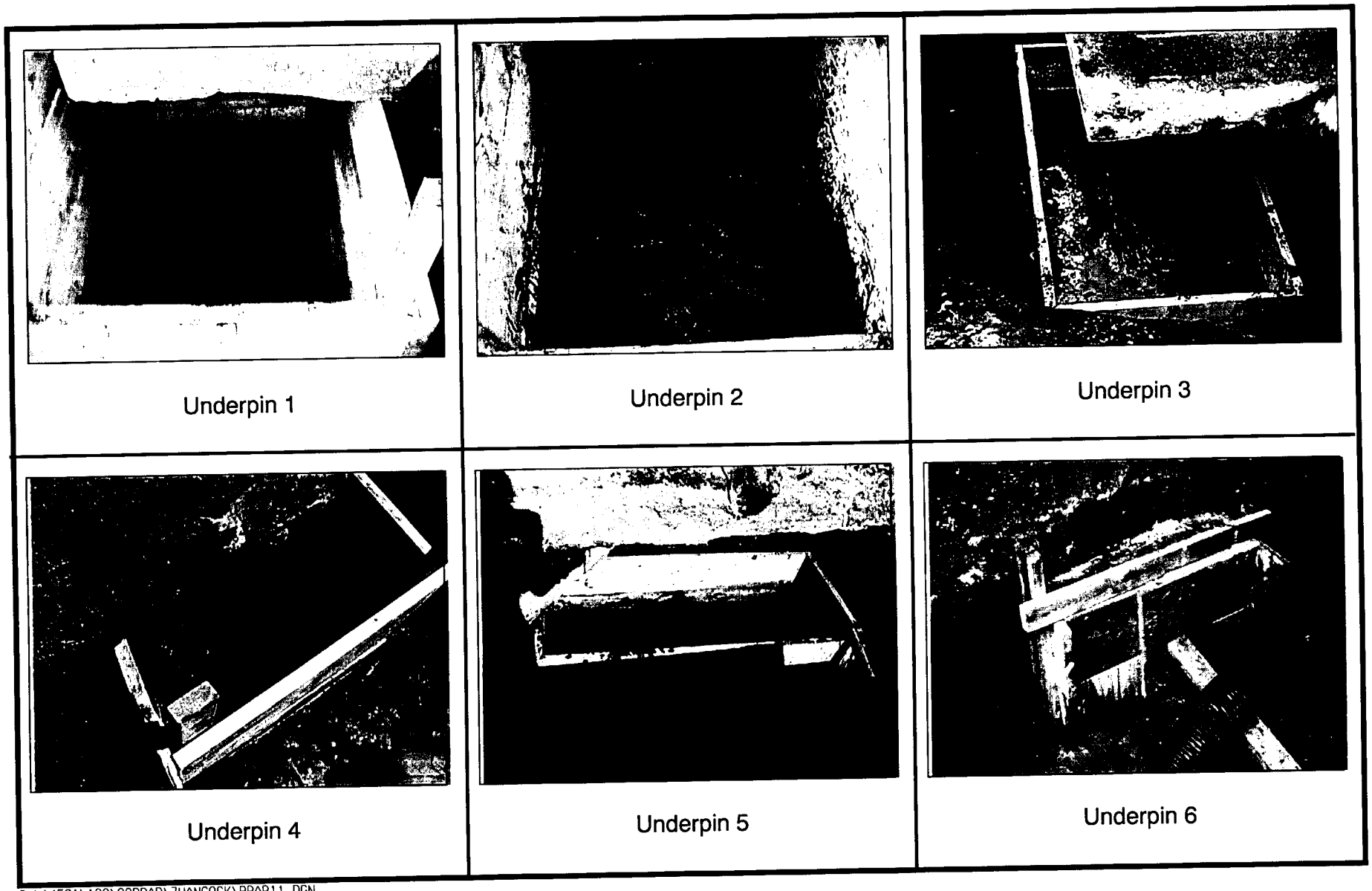
12/10/2001

Figure 4-4
Underpin, Column Excavation and Post-Remedial Action Samples
7 Hancock Street



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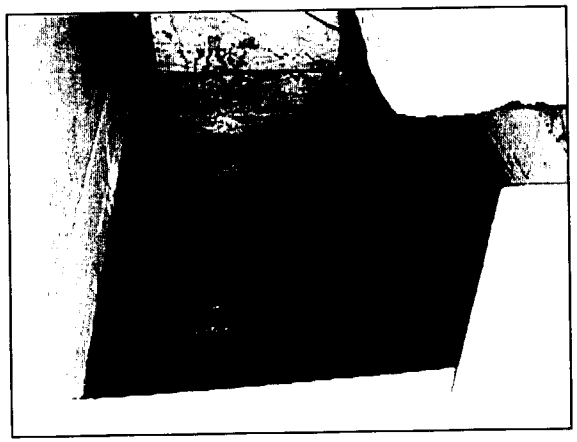
12/10/2001

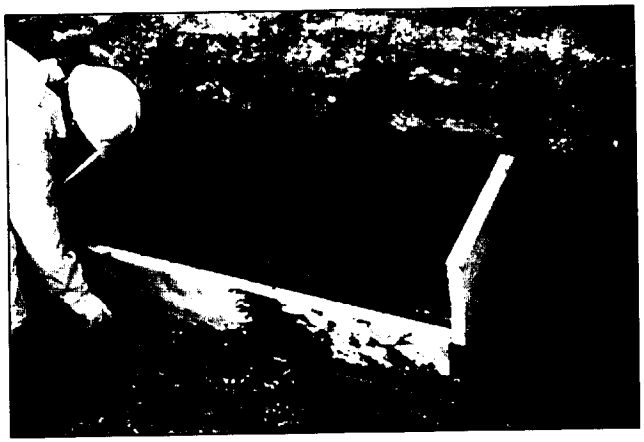
Figure 4-5
Underpin Photographs (Photos 1 through 6)
7 Hancock Street

Underpin 7

Underpin 8



Underpin 9



Underpin 10

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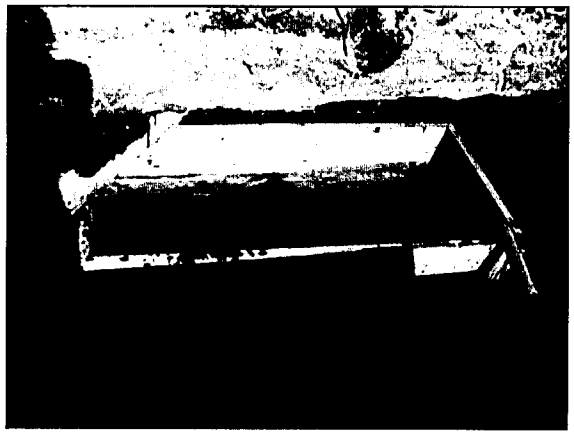
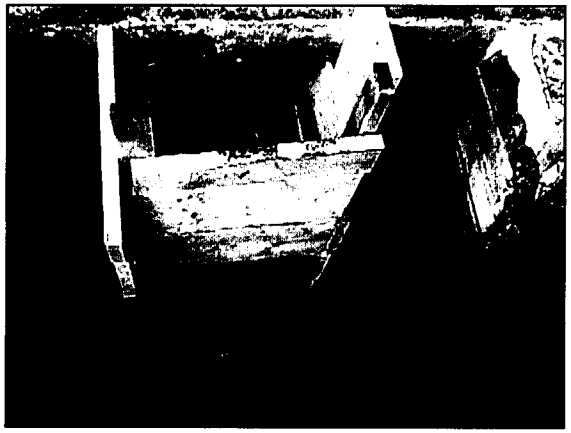
12/10/2001

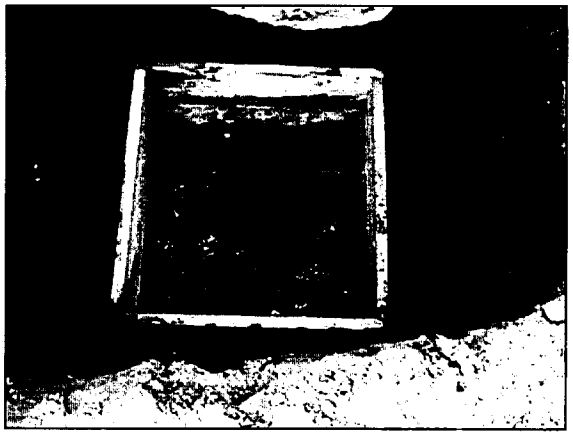
Figure 4-6
Underpin Photographs (Photos 7 through 10)
7 Hancock Street



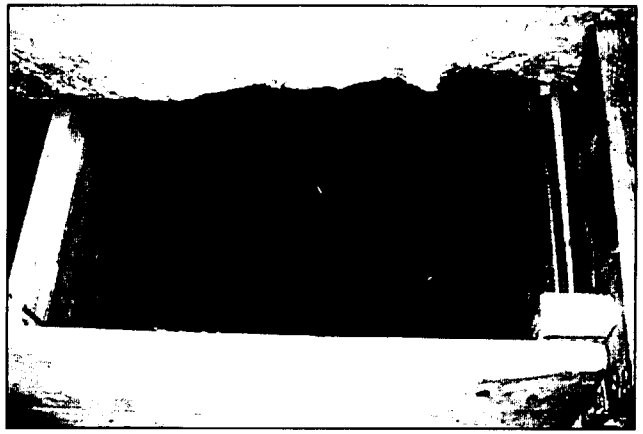
Undepin 11



Underpin 12



Underpin 13



Underpin 14

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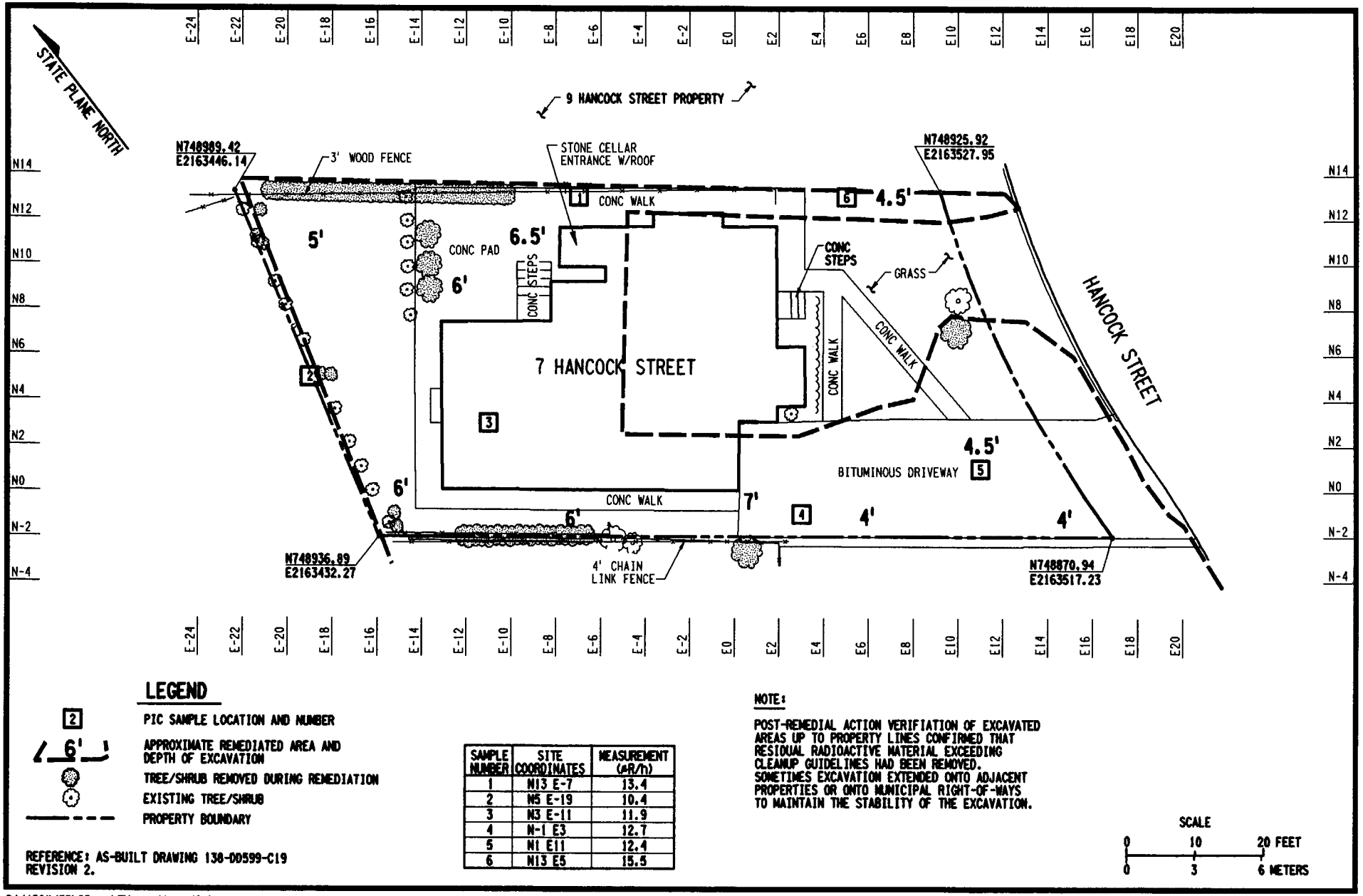
Figure 4-7
Underpin Photographs (Photos 11 through 14)
7 Hancock Street



LEGEND

- 2 — PIC SAMPLE LOCATION AND NUMBER
- 6' — APPROXIMATE REMEDIATED AREA AND DEPTH OF EXCAVATION
- TREE/SHRUB REMOVED DURING REMEDIATION
- EXISTING TREE/SHRUB
- PROPERTY BOUNDARY

REFERENCE: AS-BUILT DRAWING 138-00599-C19 REVISION 2.

SAMPLE NUMBER	SITE COORDINATES	MEASUREMENT (μR/h)
1	N13 E-7	13.4
2	N5 E-19	10.4
3	N3 E-11	11.9
4	N-1 E3	12.7
5	N1 E11	12.4
6	N13 E5	15.5

NOTE:

POST-REMEDIAL ACTION VERIFIATION OF EXCAVATED AREAS UP TO PROPERTY LINES CONFIRMED THAT RESIDUAL RADIOACTIVE MATERIAL EXCEEDING CLEANUP GUIDELINES HAD BEEN REMOVED. SOMETIMES EXCAVATION EXTENDED ONTO ADJACENT PROPERTIES OR ONTO MUNICIPAL RIGHT-OF-WAYS TO MAINTAIN THE STABILITY OF THE EXCAVATION.

SCALE
0 10 20 FEET
0 3 6 METERS

0:\14501\138\98prar\7Hancock\prar10.dgn
12/10/2001

Figure 4-8
PIC Readings
7 Hancock Street

TABLE 4-1
FINAL STATUS SURVEY RESULTS FOR 7 HANCOCK STREET

Sample ID	COC #	Collection Date	Comments	Matrix	Coordinates	Depth (ft)	Lab	Th-232 (pCi/g)	Error +\-	Ra-226 (pCi/g)	Error +\-	U-238 (pCi/g)	Error +\-	Sum Ratios
MVP0868	138980787	7/30/1998	Post-RA composite grid 1	sfs	N10~14 E2~-22	0.0-0.5	MISS	0.00	0.05	0.00	0.03	0.00	0.00	0.000
MVP0870	138980787	7/30/1998	Post-RA composite grid 2	sfs	N4~10 E-6~-20	0.0-0.5	MISS	0.00	0.05	0.05	0.03	0.00	0.00	0.010
MVP0872	138980787	7/30/1998	Post-RA composite grid 3	sfs	N0~4 E-18~2	0.0-0.5	MISS	0.05	0.06	0.27	0.04	0.00	0.00	0.064
MVP0885	138980813	8/5/1998	Post-RA composite grid 4	sfs	N0~-2 E-18~20	0.0-0.5	MISS	0.00	0.05	0.02	0.03	0.00	0.00	0.004
MVP0886	138980813	8/5/1998	Post-RA composite grid 5	sfs	N0~10 E2~18	0.0-0.5	MISS	0.33	0.05	0.44	0.04	0.00	0.00	0.154
MVP2702	138980940	9/22/1998	Post-RA composite grid 6	sfs	N12~14 E10~-1	0.0-0.5	MISS	0.00	0.04	0.00	0.02	0.00	0.00	0.000
MVP0869	138980787	7/30/1998	Post-RA bias grid 1	sfs	N13 E1	0.0-0.5	MISS	2.86	0.10	0.41	0.04	0.07	0.00	0.655
MVP0871	138980787	7/30/1998	Post-RA bias grid 2	sfs	N9 E-7	0.0-0.5	MISS	0.57	0.06	0.38	0.04	0.00	0.00	0.190
MVP0883	138980805	8/4/1998	Post-RA bias grid 3	sfs	N1 E-1	0.0-0.5	MISS	0.25	0.05	0.47	0.04	0.00	0.00	0.144
MVP0888 [a]	138980813	8/5/1998	Post-RA bias grid 4	sfs	N-1 E19	0.0-0.5	MISS	4.89	0.14	0.88	0.05	0.85	0.00	1.171
MVP0887	138980813	8/5/1998	Post-RA bias grid 5	sfs	N3 E7	0.0-0.5	MISS	2.99	0.11	0.23	0.04	0.33	0.00	0.651
MVP2701	138980940	9/22/1998	Post-RA bias grid 6	sfs	N12 E9	0.0-0.5	MISS	1.81	0.08	0.70	0.05	0.00	0.00	0.502
MVP0828	138980707	7/2/1998	Post-RA bias (UP# 1)	sfs	N0 E-6	0.0-0.5	MISS	0.00	0.04	0.00	0.02	0.00	0.00	0.000
MVP0830	138980712	7/6/1998	Post-RA bias (UP# 2)	sfs	N0 E-4	0.0-0.5	MISS	0.00	0.05	0.00	0.03	0.00	0.00	0.000
MVP0833	138980718	7/7/1998	Post-RA bias (UP# 3)	sfs	N0 E-13	0.0-0.5	MISS	0.24	0.06	0.22	0.04	0.00	0.00	0.092
MVP0836	138980718	7/7/1998	Post-RA bias (UP# 4)	sfs	N0 E-11	0.0-0.5	MISS	0.15	0.06	0.00	0.03	0.00	0.84	0.030
MVP0838	138980721	7/8/1998	Post-RA bias (UP# 5)	sfs	N0 E0	0.0-0.5	MISS	0.00	0.04	0.00	0.03	0.00	0.64	0.000
MVP0840	138980721	7/8/1998	Post-RA bias (UP# 6)	sfs	N0 E-8	0.0-0.5	MISS	0.00	0.05	0.00	0.03	0.00	0.73	0.000
MVP0843	138980736	7/14/1998	Post-RA bias (UP# 7)	sfs	N3 E-13	0.0-0.5	MISS	0.00	0.06	0.04	0.03	0.00	0.00	0.008
MVP0846	138980736	7/14/1998	Post-RA bias (UP# 8)	sfs	N7 E-13	0.0-0.5	MISS	0.06	0.06	0.01	0.03	0.00	0.00	0.014
MVP0848	138980740	7/15/1998	Post-RA bias	sfs	N7 E-11	0.0-0.5	MISS	0.00	0.05	0.00	0.03	0.00	0.47	0.000

TABLE 4-1
FINAL STATUS SURVEY RESULTS FOR 7 HANCOCK STREET

Sample ID	COC #	Collection Date	Comments	Matrix	Coordinates	Depth (ft)	Lab	Th-232 (pCi/g)	Error +\-	Ra-226 (pCi/g)	Error +\-	U-238 (pCi/g)	Error +\-	Sum Ratios
			(UP# 9)											
MVP0851	138980740	7/15/1998	Post-RA bias (UP# 10)	sfs	N5 E-13	0.0-0.5	MISS	0.00	0.05	0.00	0.03	0.00	0.00	0.000
MVP0853	138980740	7/15/1998	Post-RA bias (UP# 11)	sfs	N7 E-9	0.0-0.5	MISS	0.08	0.05	0.06	0.03	0.00	0.55	0.028
MVP0860	138980765	7/23/1998	Post-RA bias (UP# 13)	sfs	N9 E-8	0.0-0.5	MISS	0.00	0.04	0.00	0.03	0.00	0.00	0.000
MVP0862	138980765	7/23/1998	Post-RA bias (UP# 14)	sfs	N11 E-8	0.0-0.5	MISS	0.00	0.05	0.00	0.03	0.00	0.00	0.000
MVP0863	138980770	7/27/1998	Post-RA bias (UP# 15)	sfs	N10 E-8	0.0-0.5	MISS	0.00	0.04	0.00	0.04	0.00	0.00	0.000
MVP0820[b]	138980690	6/30/1998	Investigative bias (Column # 1)	sfs	N9 E-2	0.0-0.5	MISS	0.25	0.05	0.71	0.04	0.00	0.00	0.192
MVP0821[b]	138980690	6/30/1998	Investigative bias (Column # 2)	sfs	N5 E-2	0.0-0.5	MISS	0.00	0.04	0.00	0.03	0.00	0.59	0.000
MVP0854	138980744	7/16/1998	Post-RA bias (Column # 3)	sfs	N4 E-12	0.0-0.5	MISS	0.00	0.04	0.00	0.02	0.00	0.00	0.000
MVP0856	138980751	7/20/1998	Post-RA bias (Column # 4)	sfs	N4 E-10	0.0-0.5	MISS	0.00	0.04	0.00	0.03	0.00	0.00	0.000
MVP0857	138980751	7/20/1998	Post-RA bias (Column # 5)	sfs	N4 E-7	0.0-0.5	MISS	0.00	0.05	0.00	0.03	0.00	0.00	0.000
MVP0865	138980778	7/28/1998	Post-RA bias (Column # 6)	sfs	N4 E-6	0.0-0.5	MISS	0.00	0.04	0.00	0.02	0.00	0.63	0.000

NOTES:
COC # - Chain-of-custody number
RA - Remedial action
sfs - Surface soil
UP # - Underpin number
Background values: Th-232, 1.00 pCi/g; Ra-226, 0.70 pCi/g; and U-238, 2.90 pCi/g.
Net results reported. The net result is obtained by subtracting the background concentration for each radionuclide from the gross reported value for that radionuclide. If the net result of a radionuclide is negative, then the value for that radionuclide is reported as zero.
[a] Hot spot criterion was used to calculate sum-of-ratios. Details are provided in Section 4.1.1.
[b] Investigative samples were taken below two support columns to confirm that contamination does not extend below the basement.

5.0 POST-REMEDIAL ACTION STATUS

Final analytical results for 7 Hancock Street demonstrate that remediated areas are in compliance with applicable cleanup guidelines for radioactive contamination and that chemicals were not detected in soils exceeding the applicable chemical criteria.

The IVC is responsible for preparing a plan outlining the procedures used in conducting verification activities (ORNL 1998). In accordance with its verification plan, Type A and Type B reviews were conducted by the IVC following the completion of remediation 7 Hancock Street.

Type A verification consisted of reviewing the existing post-remedial action survey results. After review of the results, the IVC determined if there was a need to collect additional samples from the location(s) listed in the survey results. In performing Type B verification review, the IVC conducted a survey of the site that included direct radiological measurements, review of the post-remedial action survey methods and results, sampling, and laboratory analysis of separate soil samples. On publication, the IVC's verification report will become part of the CERCLA Administrative Record for the Maywood FUSRAP site.

6.0 REFERENCES

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Bechtel National, Inc. (BNI) 1989. "Radiological Characterization Report for the Residential Property at 7 Hancock Street, Lodi, New Jersey," DOE/OR/20722-240, Oak Ridge, Tenn. (September).

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BNI 1994. "MIS – Uranium Guideline (from Wagoner to Price)" CCN 115863 (April).

BNI 1995a. "Engineering Evaluation/Cost Analysis for the Cleanup of Residential and Municipal Vicinity Properties at the Maywood Site, Bergen County, New Jersey," CCN 134427, Oak Ridge, Tenn. (September).

BNI 1995b. "Technical Memorandum – Results of Maywood Vicinity Properties Data Gap Characterization," CCN 133183, Oak Ridge, Tenn. (August).

BNI 1996. "FUSRAP Post-Remedial Action Survey Plan," CCN 144856, Oak Ridge, Tenn. (August).

BNI 1998a. "FUSRAP Maywood Vicinity Properties Remediation, Alternate Trench Method – II, Remediation Stages," Dwg # 138-DD599-C04, Oak Ridge, Tenn. (February).

BNI 1998b. "MIS – 7 Hancock Letter – Comparison of Characterization Reports," 138-TOA-GAM-00117 (August).

BNI 1998c. "EPA Discontinuance of Chemical Sampling of Phase 1 VPs," CCN 138-IOA-GEV-00226 (July).

BNI 1998d. "MIS – 7 Hancock Post RA Data to IVC," 138-IOA-GEV-00142 (August).

BNI 1999a. "MIS-Delivery Order 0004 Maywood Vicinity Property Cost Summaries," CCN 138-TOA-GAM-00189 (August).

BNI 1999b. "VP Perimeter Radiological Air Sampling Summary," 138-TOA-GEV-00228 (September).

APPENDIX A

RADIATION AT A GLANCE

RADIATION AT A GLANCE

Of all activities at FUSRAP sites, those associated with radiation receive the most attention. What exactly is radiation and where does it come from? To answer these questions, it is best to start with a few basics.

All matter is made up of extremely small particles called atoms. Atoms contain even smaller particles called protons, neutrons, and electrons. When an atom has a stable mix of protons and neutrons, it is non-radioactive. However, when atoms have too many either protons or neutrons, these unstable atoms can break apart, or decay, in an attempt to become stable. As atoms decay, energy is released; this released energy is called radiation.

Sources of Radiation

Radiation originates from natural events that happen all the time, but it can also be made by man. Most of the radiation people are exposed to occurs naturally. Radiation has always been present and every person who has ever lived has been exposed to it. Although modern technology may seem to have greatly increased the exposure rate, this is not necessarily the case. Exposure to manmade radiation varies greatly based on a given individual's lifestyle choices and medical treatments.

Sources of natural, or background, radiation include internal radiation from food (we all have approximately 500,000 atoms disintegrating in our bodies every minute), cosmic radiation from the sun and from outside the solar system, and terrestrial radiation from rocks, soils, and minerals. People have no control over the amount of natural radiation around them, and the amount of natural radiation stays about the same over time. The natural radiation present in the environment today is not much different than it was hundreds of years ago. In general, over 80 percent of the radiation to which the average person is exposed is from natural sources. Manmade radiation accounts for less than 20 percent of the total; most of it is from medical procedures.

Manmade sources of radiation include consumer products, medical procedures, and the nuclear industry. Some consumer products such as smoke detectors and even porcelain dentures contain radioactive elements. Probably the best-known source of manmade radiation is nuclear medicine. For example, to conduct a brain, liver, lung, or bone scan, doctors inject patients with radioactive compounds and then use radiation detectors to make a diagnosis by examining the resulting image of the organ. Manmade radioactive materials also include cesium-137 and strontium-90, present in the environment as a result of previous nuclear weapons testing.

As with background radiation, exposure to other sources of radiation varies greatly depending on individual choices, such as smoking tobacco products (which contain polonium-210) and eating certain foods (bananas contain potassium-40).

Levels of Radiation

The average dose caused by background radiation varies widely. In the United States, the average is about 300 mrem/y; some people in other parts of the world receive a dose more than four times this amount. For example, in some areas of Brazil, doses to inhabitants can be more than 2,000 mrem/y from background radiation. These wide variations are the result of several factors, most notably the types and amounts of radionuclides in the soil.

This diversity in background radiation is responsible for the large differences in doses. Because people live in areas with high levels of background radiation without proven harm, it is assumed by most in the scientific community that small variations in environmental radiation levels have an inconsequential effect, if any, on humans.

Measuring Radiation

To determine the possible effects of radiation on the health of the environment and people, these effects must be measured. More precisely, the potential for radiation to cause damage must be ascertained. Measurements of these potential effects are derived from the activity of each isotope and are expressed in terms of the absorbed dose to an individual and the effective dose or potential to cause biological damage.

Activity

When we measure the amount of radiation in the environment, what is actually being measured is the rate of radioactive decay, or radioactivity, of a given element. This radioactivity is expressed in a unit of measure known as a curie (Ci). A curie is a measure of radioactivity, not a set quantity of material. More specifically, one curie equals 37,000,000,000 (3.7×10^{10}) radioactive disintegrations per second. One gram of a radioactive substance may contain the same amount of radioactivity as several tons of another radioactive substance. For example, one gram of tritium (a radioactive form of hydrogen) emits about 10,000 Ci, while one gram of uranium emits about 0.000000333 (333×10^{-9}) Ci. Because the levels of radioactive contamination at most FUSRAP sites are very low, the picocurie is commonly used in reporting contaminant levels. One picocurie is equal to 1×10^{-12} curies. Contaminants in water are reported in picocuries per liter (pCi/L), and contaminants in soil are reported in picocuries per gram (pCi/g).

Absorbed Dose

The total amount of absorbed energy per unit mass as a result of exposure to radiation is expressed in a unit of measure known as a rad. However, in terms of human health, it is the relative effectiveness of the absorbed energy in causing biological damage that is important, not the actual amount of energy absorbed.

Dose Equivalent

The absorbed dose needed to achieve a given level of biological damage is different for different kinds of radiation. To allow for the different biological effectiveness of different kinds of radiation, the concept of dose equivalent is used. The dose equivalent is the product of the absorbed dose and a dimensionless quality factor. The unit of dose equivalent is called the rem (roentgen-equivalent-man). A rem is a fairly large dose; therefore, the most common unit of dose equivalent is the millirem (mrem), or 1/1,000 of a rem. Table A-1 describes some potential health effects over a wide range of radiation doses.

Table A-1
Comparison and Description of Various Dose Levels

Dose	Description
1 mrem	Approximate daily dose from natural background radiation, including that from radon.
2.5 mrem	Cosmic dose to a person on a one-way airplane flight from New York to Los Angeles.
4 mrem	Annual exposure limit set by EPA for manmade radiation in drinking water.
10 mrem	Typical dose from one chest X-ray using modern equipment.
10 mrem	Annual exposure limit, set by EPA, for exposures from airborne emissions (excluding radon) from operations of nuclear fuel cycle facilities, including power plants, uranium mines, and mills.
25 mrem	Annual exposure limit set by EPA for low-level waste-related exposures.
65 mrem	Average yearly dose to people in the United States from manmade sources.
60-80 mrem	Average yearly dose from cosmic radiation to people in the Rocky Mountain States.
83 mrem	Estimate of the largest dose any offsite person could have received from the March 28, 1979, Three Mile Island nuclear accident.
100 mrem	Annual limit of dose from all DOE facilities to a member of the public who is not a radiation worker.
110 mrem	Average occupational dose received by United States commercial radiation workers in 1980.

170 mrem	Average yearly dose to an airline flight crewmember from cosmic radiation.
300 mrem	Average yearly dose to people in the United States from all sources of natural background radiation.
900 mrem	Average dose from a lower-intestine diagnostic X-ray series.
1,000–5,000 mrem	EPA's Protective Action Guidelines state that public officials should take emergency action when the dose to a member of the public from a nuclear accident will likely reach this range.
5,000 mrem	Annual limit for occupational exposure of radiation workers set by the U.S. Nuclear Regulatory Commission and DOE.
8,000 mrem	Average yearly dose to the lungs from smoking 1½ packs of cigarettes per day.
10,000 mrem	The BEIR V report estimated that an acute dose at this level would result in a lifetime excess risk of death from cancer, caused by the radiation, of 0.8 percent.
25,000 mrem	EPA's guideline for voluntary maximum dose to emergency workers for non-lifesaving work during an emergency.
75,000 mrem	EPA's guideline for maximum dose to emergency workers volunteering for lifesaving work.
50,000–600,000 mrem	Doses in this range received over a short period of time will produce radiation sickness in varying degrees. At the lower end of this range, people are expected to recover completely, given proper medical attention. At the top of this range, most people will die within 60 days.

APPENDIX B

CONTAMINATION CONTROL DURING REMEDIAL ACTION

CONTAMINATION CONTROL DURING REMEDIAL ACTION

During the removal action, engineering and administrative controls (such as dust control, hazardous work permits, and installation of silt fences) and personal protective equipment (PPE) were used to protect remediation workers and members of the public from exposure to radiation in excess of applicable guidelines. These measures also controlled the migration of radioactive material to uncontaminated areas next to these vicinity properties.

All personnel working in contaminated areas were required to wear protective clothing, safety glasses, rubber boots, hardhat, and gloves.

Workers exiting controlled areas were checked for radioactive contamination (frisked) at the control point with a hand-held radiation detection instrument. Conducted by personnel who have received Radiological Worker II training, the frisk ensured that workers were not contaminated and prevented the potential spread of radioactive material from the work area. A frisk is simply a search for radioactive material that may have been transferred onto the skin or clothing of individuals inside the work area. The AC-3 alpha probe radiation detection instrument is hand-held approximately 0.5 cm (0.2 in.) away from the area to be frisked and moved slowly [about 5 cm (2 in.) per second] across the body or clothing by the worker. Portions of the worn PPE that were suspected or known to be contaminated were packaged and shipped to Envirocare of Utah for disposal.

The primary pathway by which persons onsite and offsite could be exposed to radioactive material during removal activities at the site was inhalation and ingestion of radioactively contaminated airborne dust generated during excavation. The spread of contamination and personnel exposure during remedial action were minimized by the following measures:

- A fine water mist was sprayed as needed to control dust during soil removal and transport.

- Trucks hauling contaminated materials were fitted with liners, and the loads were covered with tarps to prevent spillage.

- Silt fences were placed around excavated areas to prevent runoff of potentially contaminated sediment and were maintained until restoration activities were completed.

Water accumulated in the excavated area was sampled first for shipment to an offsite laboratory for radionuclide analysis. Then the water was pumped into a tanker and transported to the MISS.

Area air particulate sampling was also performed adjacent to areas being remediated to ensure that no member of the general public was exposed at levels exceeding the guidelines (DOE 1990). The limits expressed are derived concentration guides (DCGs); a DCG is the concentration of a particular radionuclide that would provide an effective dose equivalent of 100 mrem/yr to an individual continuously inhaling the radionuclide for an entire year. These guidelines were established by the International Commission on Radiation Protection and the National Commission on Radiation Protection to protect the environment and members of the general public. Eberline RAS-1 high-volume and SKC low-volume samplers were used, and the filters were collected daily and counted after 4 days to allow for radon decay. As an extra precaution, the area monitors were placed well within the site perimeter. The average concentration of thorium-232 measured by area air particulate monitors was 1.61×10^{-14} μCi/mL (1.61×10^{-5} pCi/L) (BNI 1999b).

Most results were below the DCG of 1.0×10^{-5} pCi/L for thorium-232. Even though the DCG was exceeded for a few 8-h periods, a person would need to be exposed to the thorium-232 DCG continuously for 1 year to receive a dose greater than the 100 mrem/y guideline.

APPENDIX C

QUALITY CONTROL DATA
FOR 7 HANCOCK STREET

TABLE C-1
QUALITY CONTROL RESULTS FOR 7 HANCOCK STREET

Sample ID	COC #	Date	Comments	Matrix	Coordinates	Depth	Th-232	Review	Error	Ra-226	Review	Error	U-238	Review	Error
Background						(ft)	(pCi/g)	Qual.	+\-	(pCi/g)	Qual.	+\-	(pCi/g)	Qual.	+\-
							1.00			0.70			2.90		
MVP0889	138980853	8/31/1998	Pre-remedial action sample for MVP0800	sbs	N1 E-17	2	1.28		0.16	0.72		0.09	1.69		1.18
MVP0890	138980853	8/31/1998	Clean overburden QC sample for MVP0810	sbs	N3 E-15	2	0.55		0.17	0.43		0.08	1.91		0.74
MVP0891	138980853	8/31/1998	Investigative bias QC sample for MVP0820	sfs	N9 E-2	0.0-0.5	1.74		0.28	1.74		0.12	2.40	UJ	2.82
MVP0892	138980853	8/31/1998	Post-remedial action bias QC sample for MVP0830	sfs	N0 E-4	0.0-0.5	0.45		0.14	0.47		0.07	0.79	UJ	1.05
MVP0893	138980853	8/31/1998	Post-remedial action bias QC sample for MVP0840	sfs	N0 E-8	0.0-0.5	0.65		0.15	0.50		0.07	0.68	UJ	0.65
MVP0894	138980853	8/31/1998	Remedial action QC sample for MVP0850	sbs	N5 E-13	3	2.27		0.28	2.60		0.15	1.88	UJ	3.03
MVP0895	138980853	8/31/1998	Post-remedial action bias QC sample for MVP0860	sfs	N9 E-8	0.0-0.5	0.48		0.16	0.44		0.07	0.04	UJ	0.68
MVP0896	138980853	8/31/1998	Post-remedial action composite sample for MVP0870	sfs	N4~10 E-6~-20	0.0-0.5	0.75		0.17	0.64		0.07	1.57	UJ	2.03
MVP0897[a]	138980853	8/31/1998	Remedial action QC sample for MVP0880	sbs	N-1 E11	2 - 3	10.80		0.49	1.78		0.14	3.79		2.08
MVP2703	138981009	10/7/1998	Rad. characterization QC sample for MVP2700	sbs	N12 E9	3	4.75		0.49	2.24		0.18	3.93		1.92

NOTES:
COC # - Chain-of-custody number
sfs - Surface soil
sbs - Subsurface soil
QC - Quality control
UJ - Undetected, but estimated. The result is below the minimum detectable activity level or less than the associated error.
Samples were analyzed at the Thermo NuTech laboratory in Oak Ridge, Tenn.
Gross results are reported. The net result is obtained by subtracting the background concentration for each radionuclide from the gross reported value for that radionuclide.
[a] Sample was taken during the remedial action to identify areas needing additional soil removal.
Data Validation - BNI BEIDMS ID #s 9809006 and 9810073

APPENDIX D

POST-REMEDIAL ACTION DATA FOR 7 HANCOCK STREET

TABLE D-1
POST-REMEDIAL ACTION DATA FOR 7 HANCOCK STREET

Sample ID	COC #	Collection Date	Comments	Matrix	Coordinates	Depth (ft)	Lab	Th-232 (pCi/g)	Review Qual.	Error +\-	Ra-226 (pCi/g)	Review Qual.	Error +\-	U-238 (pCi/g)	Review Qual.	Error +\-
Background								1.00			0.70			2.90		
MVP0868	138980787	7/30/1998	Post-RA composite grid 1	sfs	N10~14 E2~-22	0.0-0.5	MISS	0.84	J	0.05	0.55	J	0.03	2.04	UJ	0.00
MVP0870	138980787	7/30/1998	Post-RA composite grid 2	sfs	N4~10 E-6~-20	0.0-0.5	MISS	0.95	J	0.05	0.75	J	0.03	2.13	UJ	0.00
MVP0872	138980787	7/30/1998	Post-RA composite grid 3	sfs	N0~4 E-18~2	0.0-0.5	MISS	1.05	J	0.06	0.97	J	0.04	2.33	UJ	0.00
MVP0885	138980813	8/5/1998	Post-RA composite grid 4	sfs	N0~-2 E-18~20	0.0-0.5	MISS	0.93	J	0.05	0.72	J	0.03	2.09	UJ	0.00
MVP0886	138980813	8/5/1998	Post-RA composite grid 5	sfs	N0~10 E2~18	0.0-0.5	MISS	1.33		0.05	1.14	J	0.04	2.16	UJ	0.00
MVP2702	138980940	9/22/1998	Post-RA composite grid 6	sfs	N12~14 E10~-1	0.0-0.5	MISS	0.62	J	0.04	0.41	J	0.02	1.58	UJ	0.00
MVP0869	138980787	7/30/1998	Post-RA bias grid 1	sfs	N13 E1	0.0-0.5	MISS	3.86	J	0.10	1.11	J	0.04	2.97	UJ	0.00
MVP0871	138980787	7/30/1998	Post-RA bias grid 2	sfs	N9 E-7	0.0-0.5	MISS	1.57	J	0.06	1.08	J	0.04	2.27	UJ	0.00
MVP0883	138980805	8/4/1998	Post-RA bias grid 3	sfs	N1 E-1	0.0-0.5	MISS	1.25	J	0.05	1.17	J	0.04	2.03	UJ	0.00
MVP0888	138980813	8/5/1998	Post-RA bias grid 4	sfs	N-1 E19	0.0-0.5	MISS	5.89	J	0.14	1.58	J	0.05	3.75	UJ	0.00
MVP0887	138980813	8/5/1998	Post-RA bias grid 5	sfs	N3 E7	0.0-0.5	MISS	3.99	J	0.11	0.93	J	0.04	3.23	UJ	0.00
MVP2701	138980940	9/22/1998	Post-RA bias grid 6	sfs	N12 E9	0.0-0.5	MISS	2.81	J	0.08	1.40	J	0.05	2.82	UJ	0.00
MVP0828	138980707	7/2/1998	Post-RA bias (UP# 1)	sfs	N0 E-6	0.0-0.5	MISS	0.53	J	0.04	0.42	J	0.02	1.80	UJ	0.00
MVP0830	138980712	7/6/1998	Post-RA bias (UP# 2)	sfs	N0 E-4	0.0-0.5	MISS	0.81	J	0.05	0.63	J	0.03	2.05	UJ	0.00
MVP0833	138980718	7/7/1998	Post-RA bias (UP# 3)	sfs	N0 E-13	0.0-0.5	MISS	1.24	J	0.06	0.92	J	0.04	2.43	UJ	0.00
MVP0836	138980718	7/7/1998	Post-RA bias (UP# 4)	sfs	N0 E-11	0.0-0.5	MISS	1.15	J	0.06	0.61	J	0.03	1.94	UJ	0.84
MVP0838	138980721	7/8/1998	Post-RA bias (UP# 5)	sfs	N0 E0	0.0-0.5	MISS	0.68	J	0.04	0.55	J	0.03	1.87	UJ	0.64
MVP0840	138980721	7/8/1998	Post-RA bias (UP# 6)	sfs	N0 E-8	0.0-0.5	MISS	0.79	J	0.05	0.59	J	0.03	1.04	UJ	0.73
MVP0843	138980736	7/14/1998	Post-RA bias (UP# 7)	sfs	N3 E-13	0.0-0.5	MISS	0.95		0.06	0.74	J	0.03	2.28	UJ	0.00
MVP0846	138980736	7/14/1998	Post-RA bias (UP# 8)	sfs	N7 E-13	0.0-0.5	MISS	1.06	J	0.06	0.71	J	0.03	2.24	UJ	0.00

TABLE D-1
POST-REMEDIAL ACTION DATA FOR 7 HANCOCK STREET

Sample ID	COC #	Collection Date	Comments	Matrix	Coordinates	Depth (ft)	Lab	Th-232 (pCi/g)	Review Qual.	Error +\-	Ra-226 (pCi/g)	Review Qual.	Error +\-	U-238 (pCi/g)	Review Qual.	Error +\-
Background								1.00			0.70			2.90		
MVP0848	138980740	7/15/1998	Post-RA bias (UP# 9)	sfs	N7 E-11	0.0-0.5	MISS	0.86	J	0.05	0.48	J	0.03	0.47	UJ	0.47
MVP0851	138980740	7/15/1998	Post-RA bias (UP# 10)	sfs	N5 E-13	0.0-0.5	MISS	0.87	J	0.05	0.68	J	0.03	2.08	UJ	0.00
MVP0853	138980740	7/15/1998	Post-RA bias (UP# 11)	sfs	N7 E-9	0.0-0.5	MISS	1.08	J	0.05	0.76	J	0.03	1.89	J	0.55
MVP0860	138980765	7/23/1998	Post-RA bias (UP# 13)	sfs	N9 E-8	0.0-0.5	MISS	0.64	J	0.04	0.55	J	0.03	1.80	UJ	0.00
MVP0862	138980765	7/23/1998	Post-RA bias (UP# 14)	sfs	N11 E-8	0.0-0.5	MISS	0.71	J	0.05	0.63	J	0.03	1.99	UJ	0.00
MVP0863	138980770	7/27/1998	Post-RA bias (UP# 15)	sfs	N10 E-8	0.0-0.5	MISS	0.70	J	0.04	0.43	J	0.04	1.82	UJ	0.00
MVP0820[a]	138980690	6/30/1998	Investigative bias (Column # 1)	sfs	N9 E-2	0.0-0.5	MISS	1.25	J	0.05	1.41	J	0.04	2.09	UJ	0.00
MVP0821[a]	138980690	6/30/1998	Investigative bias (Column # 2)	sfs	N5 E-2	0.0-0.5	MISS	0.48	J	0.04	0.44	J	0.03	0.82	UJ	0.59
MVP0854	138980744	7/16/1998	Post-RA bias (Column # 3)	sfs	N4 E-12	0.0-0.5	MISS	0.48	J	0.04	0.31	J	0.02	1.63	UJ	0.00
MVP0856	138980751	7/20/1998	Post-RA bias (Column # 4)	sfs	N4 E-10	0.0-0.5	MISS	0.61	J	0.04	0.47	J	0.03	1.92	UJ	0.00
MVP0857	138980751	7/20/1998	Post-RA bias (Column # 5)	sfs	N4 E-7	0.0-0.5	MISS	0.68	J	0.05	0.67	J	0.03	2.10	UJ	0.00
MVP0865	138980778	7/28/1998	Post-RA bias (Column # 6)	sfs	N4 E-6	0.0-0.5	MISS	0.63	J	0.04	0.43	J	0.02	1.34	UJ	0.63

NOTES:
COC # - Chain-of-custody number
RA - Remedial action
sfs - Surface soil
UP # - Underpin number
J - Estimated, qualitatively correct but quantitatively suspect.
UJ - Undetected, but estimated. The result is below the minimum detectable activity level or less than the associated error.
Gross results are reported. The net result is obtained by subtracting the background concentration for each radionuclide from the gross reported value for that radionuclide.
[a] Investigative samples were taken below two support columns to confirm that contamination does not extend below the basement.
Data validation - BNI BEIDMS Document ID #s 98G1051, 98G1052, 98G1053, 98G1055, 98G1056, 98G1058, 98G1062, 98G1063, 98G1064
98G1065, 98G1069, 98G1070, 98G1095, 98G1096

APPENDIX E

RADIOLOGICAL DATA FOR CLEAN OVERBURDEN SOIL

TABLE E-1
RADIOLOGICAL DATA FOR MAYWOOD VICINITY PROPERTIES CLEAN OVERBURDEN SAMPLES

Property	Document ID	COC #	Collection Date	Sample ID	Matrix	Coordinates	Depth (ft)	Th-232 (pCi/g)	Review Qual.	Error +\-	Ra-226 (pCi/g)	Review Qual.	Error +\-	U-238 (pCi/g)	Review Qual.	Error +\-
Background								1.00			0.70			2.90		
4 HANCOCK STREET	98G1030	138980506	5/4/1998	MVP1100	sbs	N1 E5	1	0.67	J	0.04	0.69	J	0.03	1.60	UJ	0.00
4 HANCOCK STREET	98G1030	138980506	5/4/1998	MVP1101	sbs	N1 E3	1	0.95	J	0.04	0.90	J	0.03	1.73	UJ	0.00
4 HANCOCK STREET	98G1030	138980506	5/4/1998	MVP1102	sbs	N1 E4	2	0.81	J	0.04	0.75	J	0.03	1.57	UJ	0.00
4 HANCOCK STREET	98G1031	138980506	5/4/1998	MVP1103	sbs	N1 E2	2	0.83		0.04	0.84		0.03	1.68		0.00
4 HANCOCK STREET	98G1031	138980506	5/4/1998	MVP1104	sbs	N-1 E0	1	0.60		0.04	0.51		0.02	1.59		0.00
4 HANCOCK STREET	98G1031	138980506	5/4/1998	MVP1105	sbs	N1 E0	2	0.54		0.04	0.38		0.02	1.41		0.00
4 HANCOCK STREET	98G1031	138980508	5/5/1998	MVP1106	sbs	N1 E4	3	0.43		0.03	0.42		0.02	1.34		0.00
4 HANCOCK STREET	98G1031	138980508	5/5/1998	MVP1107	sbs	N1 E0	3	0.50		0.03	0.41		0.02	1.42		0.00
4 HANCOCK STREET	98G1031	138980508	5/5/1998	MVP1108	sbs	N-3 E0	1	0.72		0.04	0.72		0.03	1.61		0.00
4 HANCOCK STREET	98G1031	138980508	5/5/1998	MVP1109	sbs	N-2 E-2	2	0.83		0.04	0.66		0.03	1.65		0.00
4 HANCOCK STREET	98G1031	138980508	5/5/1998	MVP1110	sbs	N2 E-4	1	0.84		0.04	0.80		0.03	1.71		0.00
4 HANCOCK STREET	98G1031	138980508	5/5/1998	MVP1111	sbs	N2 E-6	1	0.74		0.04	0.88		0.03	1.65		0.00
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1112	sbs	N-7 E-11	1	0.87	J	0.04	0.70	J	0.03	0.51	UJ	0.49
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1113	sbs	N-5 E-11	2	1.00	J	0.04	0.91	J	0.03	1.80	UJ	0.00
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1114	sbs	N-8 E-11	1	0.90	J	0.05	0.77	J	0.03	1.83	UJ	0.00
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1115	sbs	N-5 E-11	2	0.87	J	0.04	0.76	J	0.03	1.82	UJ	0.00
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1116	sbs	N-7 E-3	1	0.56	J	0.03	0.44	J	0.02	1.55	UJ	0.00
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1117	sfs	N-7 E-4	0.0-0.5	0.51	J	0.04	0.43	J	0.02	1.51	UJ	0.00
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1118	sbs	N-10 E0	1	0.99	J	0.05	0.86	J	0.03	1.80	UJ	0.00
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1119	sbs	N-10 E-2	2	1.00	J	0.04	0.97	J	0.03	1.87	UJ	0.00
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1120	sbs	N-4 E-16	1	0.61	J	0.04	0.55	J	0.03	0.23	UJ	0.37
4 HANCOCK STREET	98G1032	138980508	5/5/1998	MVP1121	sbs	N-5 E-6	2	0.63	J	0.04	0.52	J	0.02	1.56	UJ	0.00
6 HANCOCK STREET	98G1019	138980423	4/16/1998	MVP0600	sbs	N-7 E-2	2	0.44	J	0.04	0.46	J	0.03	1.79	UJ	0.00
6 HANCOCK STREET	98G1019	138980423	4/16/1998	MVP0601	sbs	N-10 E-3	3	0.54	J	0.04	0.61	J	0.03	1.76	UJ	0.00
6 HANCOCK STREET	98G1019	138980423	4/16/1998	MVP0602	sbs	N-8 E-7	2	0.58	J	0.04	0.51	J	0.03	1.67	UJ	0.00
6 HANCOCK STREET	98G1020	138980426	4/20/1998	MVP0603	sbs	N-2 E-4	2-2.5	0.47	J	0.04	0.41	J	0.02	1.71	UJ	0.00
6 HANCOCK STREET	98G1020	138980426	4/20/1998	MVP0604	sbs	N-2 E-6	2-2.5	0.74	J	0.04	0.65	J	0.03	1.89	UJ	0.00
6 HANCOCK STREET	98G1020	138980426	4/20/1998	MVP0605	sbs	N-10 E-1	3	0.81	J	0.04	0.61	J	0.02	1.87	UJ	0.00
6 HANCOCK STREET	98G1020	138980426	4/20/1998	MVP0606	sbs	N0 E-7	3.5	1.44		0.08	1.85		0.06	3.11	UJ	0.00
6 HANCOCK STREET	98G1020	138980427	4/21/1998	MVP0607	sbs	N0 E-8	0.5-1	1.35	J	0.07	1.61	J	0.05	2.46	UJ	0.00
6 HANCOCK STREET	98G1020	138980427	4/21/1998	MVP0608	sbs	N-2 E-6	2.5-3	1.31	J	0.07	1.60	J	0.05	2.30	UJ	0.00
6 HANCOCK STREET	98G1020	138980427	4/21/1998	MVP0609	sbs	N-6 E-6	2.5-3	1.69	J	0.06	1.44	J	0.05	0.83	UJ	0.61
6 HANCOCK STREET	98G1030	138980505	5/4/1998	MVP0610	sbs	N-12 E6	1	0.86	J	0.04	0.88	J	0.03	0.67	UJ	0.62
6 HANCOCK STREET	98G1031	138980505	5/4/1998	MVP0611	sbs	N-12 E4	1	0.85		0.04	0.99		0.03	1.73		0.00
6 HANCOCK STREET	98G1031	138980505	5/4/1998	MVP0612	sbs	N-12 E5	2	0.92		0.04	0.94		0.03	1.79		0.00
6 HANCOCK STREET	98G1031	138980505	5/4/1998	MVP0613	sbs	N-12 E3	2	1.17		0.05	1.37		0.04	1.84		0.00
6 HANCOCK STREET	98G1031	138980505	5/4/1998	MVP0614	sbs	N-12 E1	1	0.51		0.03	0.40		0.02	1.45		0.00
6 HANCOCK STREET	98G1031	138980505	5/4/1998	MVP0615	sbs	N-12 E0	2	0.55		0.03	0.40		0.02	0.06		0.50
7 HANCOCK STREET	98G1023	138980440	4/28/1998	MVP0802	sbs	N1 E-15	1	0.84	J	0.05	0.52	J	0.03	2.04	UJ	0.00
7 HANCOCK STREET	98G1024	138980440	4/28/1998	MVP0803	sbs	N11 E-18	1	0.87	J	0.05	0.60	J	0.03	2.03	UJ	0.00
7 HANCOCK STREET	98G1024	138980440	4/28/1998	MVP0804	sbs	N11 E-15	1	0.76	J	0.04	0.45	J	0.03	1.82	UJ	0.00
7 HANCOCK STREET	98G1026	138980440	4/28/1998	MVP0805	sbs	N6 E-15	1	0.74	J	0.04	0.59	J	0.03	1.78	UJ	0.00
7 HANCOCK STREET	98G1026	138980440	4/28/1998	MVP0806	sbs	N9 E-17	2	0.75	J	0.04	0.47	J	0.02	1.54	UJ	0.00
7 HANCOCK STREET	98G1026	138980440	4/28/1998	MVP0807	sbs	N9 E-14	2	0.70	J	0.04	0.58	J	0.03	1.60	UJ	0.00
7 HANCOCK STREET	98G1026	138980440	4/28/1998	MVP0808	sbs	N7 E-19	2	0.78	J	0.04	0.57	J	0.03	0.82	UJ	0.74
7 HANCOCK STREET	98G1030	138980440	4/28/1998	MVP0809	sbs	N12 E-20	2	0.76	J	0.05	0.65	J	0.03	1.80	UJ	0.00

TABLE E-1
RADIOLOGICAL DATA FOR MAYWOOD VICINITY PROPERTIES CLEAN OVERBURDEN SAMPLES

Property	Document ID	COC #	Collection Date	Sample ID	Matrix	Coordinates	Depth (ft)	Th-232 (pCi/g)	Review Qual.	Error +\-	Ra-226 (pCi/g)	Review Qual.	Error +\-	U-238 (pCi/g)	Review Qual.	Error +\-
Background								1.00			0.70			2.90		
7 HANCOCK STREET	98G1029	138980446	4/29/1998	MVP0810	sbs	N3 E-15	2	0.70	J	0.04	0.54	J	0.03	1.68	UJ	0.00
7 HANCOCK STREET	98G1026	138980446	4/29/1998	MVP0811	sbs	N0 E-14	2	0.89	J	0.04	0.59	J	0.03	1.73	UJ	0.00
7 HANCOCK STREET	98G1030	138980446	4/29/1998	MVP0812	sbs	N-1 E-9	1	2.74	J	0.08	1.28	J	0.04	2.74	UJ	0.00
7 HANCOCK STREET	98G1030	138980446	4/29/1998	MVP0813	sbs	N-1 E-12	1	1.08	J	0.05	0.74	J	0.04	2.13	UJ	0.00
7 HANCOCK STREET	98G1030	138980446	4/29/1998	MVP0814	sbs	N10 E-12	1	0.95	J	0.04	0.73	J	0.03	1.76	UJ	0.00
7 HANCOCK STREET	98G1029	138980446	4/29/1998	MVP0815	sbs	N11 E-12	2	0.83	J	0.05	0.75	J	0.03	1.71	UJ	0.00
7 HANCOCK STREET	98G1030	138980446	4/29/1998	MVP0816	sbs	N7 E-10	1	1.31	J	0.06	0.96	J	0.04	0.10	UJ	0.50
7 HANCOCK STREET	98G1030	138980446	4/29/1998	MVP0817	sbs	N7 E-10	2	1.01	J	0.06	0.94	J	0.04	0.13	UJ	0.72
8 HANCOCK STREET	98G1013	138980305	3/27/1998	MVP0305	sbs	N-10 E1	2-2.5	0.44	J	0.03	0.37	J	0.02	1.32	UJ	0.00
8 HANCOCK STREET	98G1013	138980305	3/27/1998	MVP0306	sbs	N-10 E3	4	0.77	J	0.04	0.82	J	0.03	1.44	UJ	0.80
8 HANCOCK STREET	98G1013	138980305	3/27/1998	MVP0307	sbs	N-10 E1	4	1.03	J	0.05	1.13	J	0.03	1.99	UJ	0.00
8 HANCOCK STREET	98G1013	138980305	3/27/1998	MVP0308	sbs	N-10 E6	3.5-4	0.61	J	0.04	0.61	J	0.03	0.92	UJ	0.80
8 HANCOCK STREET	98G1013	138980306	3/30/1998	MVP0309	sbs	N-10 E7	3-3.5	1.72	J	0.07	1.95	J	0.05	2.50	UJ	0.00
8 HANCOCK STREET	98G1013	138980306	3/30/1998	MVP0310	sbs	N-10 E7	3-3.5	1.53	J	0.06	1.77	J	0.05	1.61	UJ	0.87
8 HANCOCK STREET	98G1013	138980306	3/30/1998	MVP0311	sbs	N-7 E-2	4-4.5	1.61	J	0.06	1.77	J	0.05	2.35	UJ	0.00
8 HANCOCK STREET	98G1013	138980306	3/30/1998	MVP0312	sbs	N-6 E-9	4-4.5	1.56	J	0.06	1.83	J	0.05	1.32	UJ	0.90
8 HANCOCK STREET	98G1013	138980306	3/30/1998	MVP0313	sbs	N-4 E-12	4-4.5	1.64	J	0.06	1.46	J	0.04	2.40	UJ	0.00
8 HANCOCK STREET	98G1013	138980306	3/30/1998	MVP0314	sbs	N-2 E-13	3-3.5	1.28	J	0.06	0.90	J	0.04	0.21	UJ	0.73
8 HANCOCK STREET	98G1013	138980307	3/31/1998	MVP0315	sbs	N-3 E-3	4-4.5	1.67	J	0.06	1.84	J	0.05	2.35	UJ	0.00
8 HANCOCK STREET	98G1013	138980307	3/31/1998	MVP0316	sbs	N-10 E8	4-4.5	1.54	J	0.06	1.75	J	0.05	0.53	UJ	0.79
8 HANCOCK STREET	98G1014	138980401	4/1/1998	MVP0319	sbs	N-1 E9	5	1.31	J	0.05	1.67	J	0.05	0.70	UJ	0.89
8 HANCOCK STREET	98G1019	138980422	4/16/1998	MVP0381	sbs	N-8 E-6	4.5-5	2.27	J	0.07	1.85	J	0.05	2.60	UJ	0.00
8 HANCOCK STREET	98G1019	138980422	4/16/1998	MVP0382	sbs	N-4 E-8	4.5-5	2.23	J	0.07	1.70	J	0.05	2.55	UJ	0.00
9 HANCOCK STREET	98G1086	138980911	9/3/1998	MVP2120	sbs	N2 E-2	2.5	0.76	J	0.04	0.48	J	0.03	1.65	UJ	0.00
9 HANCOCK STREET	98G1086	138980911	9/3/1998	MVP2125	sbs	N11 E-1	1	0.75	J	0.04	0.47	J	0.03	1.72	UJ	0.00
9 HANCOCK STREET	98G1088	138980915	9/9/1998	MVP2141	sbs	N16 E2	1.5	1.27	J	0.05	0.78	J	0.03	2.17	UJ	0.00
9 HANCOCK STREET	98G1088	138980915	9/9/1998	MVP2142	sbs	N15 E4	2	1.30	J	0.06	0.64	J	0.03	0.74	UJ	0.79
9 HANCOCK STREET	98G1091	138980924	9/15/1998	MVP2154	sbs	N-6 E7	3	0.48	J	0.04	0.37	J	0.02	1.50	UJ	0.00
9 HANCOCK STREET	98G1091	138980924	9/15/1998	MVP2155	sbs	N-5 E3	1.5	1.43	J	0.06	1.16	J	0.04	1.70	UJ	0.83
9 HANCOCK STREET	98G1093	138980925	9/16/1998	MVP2156	sbs	N-6 E11	3	0.81	J	0.05	0.56	J	0.03	1.92	UJ	0.00
9 HANCOCK STREET	98G1094	138980925	9/16/1998	MVP2160	sbs	N-4 E11	2	0.59	J	0.04	0.52	J	0.03	1.85	UJ	0.00
10 HANCOCK STREET	98G1014	138980309	3/31/1998	MVP0405	sbs	N-3 E15	4-4.5	1.56	J	0.06	1.68	J	0.05	2.32	UJ	0.00
10 HANCOCK STREET	98G1014	138980402	4/1/1998	MVP0406	sbs	N4 E6	4	0.81	J	0.05	0.77	J	0.03	1.78	UJ	0.00
10 HANCOCK STREET	98G1014	138980402	4/1/1998	MVP0407	sbs	N4 E0	4	0.79	J	0.04	0.90	J	0.03	0.42	UJ	0.83
10 HANCOCK STREET	98G1014	138980403	4/2/1998	MVP0408	sbs	N2 E6	4	1.26	J	0.06	1.26	J	0.04	2.20	UJ	0.00
10 HANCOCK STREET	98G1015	138980408	4/7/1998	MVP0409	sbs	N-3 E-10	4	1.43	J	0.07	1.09	J	0.04	2.26	UJ	0.00
10 HANCOCK STREET	98G1020	138980425	4/20/1998	MVP0413	sbs	N-10 E2	3-3.5	0.81	J	0.05	0.54	J	0.03	2.05	UJ	0.00
10 HANCOCK STREET	98G1034	138980521	5/12/1998	MVP0484	sbs	N-3.5 E-5	5	2.55	J	0.08	1.25	J	0.04	2.59	UJ	0.00
10 HANCOCK STREET	98G1034	138980521	5/12/1998	MVP0486	sbs	N-1 E-4	4	1.58	J	0.06	1.76	J	0.05	2.37	UJ	0.00
6 BRANCA COURT	98G1032	138980510	5/5/1998	MVP1200	sbs	N16 E0	2	0.99	J	0.05	0.67	J	0.03	1.90	UJ	0.00
6 BRANCA COURT	98G1032	138980510	5/5/1998	MVP1201	sbs	N18 E6	1.5-2	0.74	J	0.04	0.62	J	0.03	1.97	UJ	0.00
6 BRANCA COURT	98G1032	138980510	5/5/1998	MVP1202	sbs	N4 E1	1.5	0.79	J	0.05	0.60	J	0.03	1.94	UJ	0.00
6 BRANCA COURT	98G1034	138980510	5/6/1998	MVP1203	sbs	N2 E2	2-2.5	0.72	J	0.04	0.49	J	0.02	1.64	UJ	0.00
6 BRANCA COURT	98G1040	138980608	6/2/1998	MVP1245	sbs	N0 E-17	2.5	0.70	J	0.05	0.46	J	0.03	1.87	UJ	0.00
6 BRANCA COURT	98G1040	138980608	6/2/1998	MVP1247	sbs	N2 E-14	3	0.90	J	0.05	0.64	J	0.03	1.99	UJ	0.00

TABLE E-1
RADIOLOGICAL DATA FOR MAYWOOD VICINITY PROPERTIES CLEAN OVERBURDEN SAMPLES

Property	Document ID	COC #	Collection Date	Sample ID	Matrix	Coordinates	Depth (ft)	Th-232 (pCi/g)	Review Qual.	Error +\-	Ra-226 (pCi/g)	Review Qual.	Error +\-	U-238 (pCi/g)	Review Qual.	Error +\-
Background								1.00			0.70			2.90		
I-80 ROW	98G1023	138980438	4/27/1998	MVP0706	sfs	N7 E19	0.0-0.5	2.09	J	0.07	0.55	J	0.03	2.40	UJ	0.00
I-80 ROW	98G1023	138980438	4/27/1998	MVP0707	sfs	N8 E10	0.0-0.5	1.06	J	0.05	0.46	J	0.03	1.94	UJ	0.00
I-80 ROW	98G1023	138980438	4/27/1998	MVP0708	sbs	N6 E8	0.5-1.5	1.31	J	0.06	0.56	J	0.03	2.09	UJ	0.00
I-80 ROW	98G1023	138980438	4/27/1998	MVP0709	sfs	N6 E10	0.0-0.5	0.96	J	0.05	0.48	J	0.02	1.86	UJ	0.00
I-80 ROW	98G1023	138980438	4/27/1998	MVP0710	sbs	N8 E33	3.5-4	2.29	J	0.08	0.58	J	0.03	0.91	UJ	0.97
LODI PARK	98G1037	138980534	5/19/1998	MVP1602	sbs	N12 E60	2	0.66	J	0.05	0.55		0.04	2.19	UJ	0.00
LODI PARK	98G1037	138980534	5/19/1998	MVP1604	sbs	N16 E62	4	0.82	J	0.05	0.49	J	0.03	2.18	UJ	0.00
200 BROOKDALE ST.	S98-035	138980101	1/8/1998	MVP0180	sfs	N9 E9	0-0.5	0.84		0.05	0.69		0.04	2.25	UJ	0.00
200 BROOKDALE ST.	S98-035	138980101	1/8/1998	MVP0181	sbs	N6 E9	1.0-2	0.94		0.05	0.49		0.03	2.03	UJ	0.00
200 BROOKDALE ST.	S98-035	138980101	1/8/1998	MVP0182	sbs	N7 E6	1-1.5	0.64		0.06	0.44		0.04	2.25	UJ	0.00
200 BROOKDALE ST.	S98-034	138980102	1/9/1998	MVP0183	sbs	N2 E2	2.5-3	0.78		0.07	0.65		0.04	2.37	UJ	0.00
200 BROOKDALE ST.	S98-034	138980102	1/9/1998	MVP0184	sbs	N10 E10	0.5-1	0.90		0.06	0.66		0.04	2.15	UJ	0.00
200 BROOKDALE ST.	S98-034	138980102	1/9/1998	MVP0185	sbs	N5 E1	1-1.5	0.76		0.06	0.51		0.03	2.04	UJ	0.00
200 BROOKDALE ST.	S98-034	138980102	1/9/1998	MVP0186	sbs	N4 E3	0.5-1	0.81	J	0.07	0.56	J	0.03	2.06	UJ	0.00
200 BROOKDALE ST.	S98-034	138980102	1/9/1998	MVP0187	sbs	N12 E4	1.5-2	0.92		0.06	0.53		0.04	2.23	UJ	0.00
200 BROOKDALE ST.	S98-034	138980102	1/9/1998	MVP0188	sbs	N5 E6	0.5-1	0.65	J	0.05	0.57	J	0.03	1.83	UJ	0.00
200 BROOKDALE ST.	98G1024	138980444	4/29/1998	MVP0268	sfs	South pile	NA	0.72		0.05	0.69	J	0.04	1.52	UJ	0.86
200 BROOKDALE ST.	98G1024	138980444	4/29/1998	MVP0269	sfs	North pile	NA	0.67	J	0.05	0.50	J	0.03	1.89	UJ	0.00
200 BROOKDALE ST.	98G1025	138980444	4/29/1998	MVP0260	sfs	North pile	NA	0.60	J	0.04	0.48	J	0.03	1.89	UJ	0.00
200 BROOKDALE ST.	98G1025	138980444	4/29/1998	MVP0261	sfs	North pile	NA	0.94		0.06	0.82	J	0.05	4.37	J	0.87
200 BROOKDALE ST.	98G1025	138980444	4/29/1998	MVP0262	sfs	North pile	NA	0.73		0.06	0.72	J	0.06	4.84	J	1.31
200 BROOKDALE ST.	98G1025	138980444	4/29/1998	MVP0263	sfs	North pile	NA	0.95		0.06	0.54	J	0.03	3.05	UJ	1.09
200 BROOKDALE ST.	98G1025	138980444	4/29/1998	MVP0264	sfs	South pile	NA	0.95	J	0.07	0.72	J	0.07	1.76	UJ	1.07
200 BROOKDALE ST.	98G1025	138980444	4/29/1998	MVP0265	sfs	South pile	NA	0.84		0.06	0.65	J	0.04	2.87	UJ	0.00
200 BROOKDALE ST.	98G1025	138980444	4/29/1998	MVP0266	sfs	South pile	NA	0.79		0.05	0.57	J	0.03	4.22	UJ	0.95
200 BROOKDALE ST.	98G1025	138980444	4/29/1998	MVP0267	sfs	South pile	NA	0.88		0.07	0.68	J	0.04	2.78	UJ	1.09

NOTES:

sfs - Surface soil

sbs - Subsurface soil

J - Estimated, qualitatively correct, but quantitatively suspect.

UJ - Undetected, but estimated. The result is below the minimum detectable activity or less than the associated error.

Gross values are reported. The net result is obtained by subtracting the background concentration for each radionuclide from the gross reported value for that radionuclide.

Samples were analyzed at the Maywood site field laboratory.

TABLE E-2
SUM-OF-RATIOS FOR RADIOLOGICAL DATA FOR MAYWOOD VICINITY PROPERTIES
CLEAN OVERBURDEN SAMPLES

Property	COC #	Collection Date	Sample ID	Matrix	Coordinates	Depth (ft)	Th-232 (pCi/g)	Error +\-	Ra-226 (pCi/g)	Error +\-	U-238 (pCi/g)	Error +\-	Sum Ratios
4 HANCOCK STREET	138980506	5/4/1998	MVP1100	sbs	N1 E5	1	0.00	0.04	0.00	0.03	0.00	0.00	0.000
4 HANCOCK STREET	138980506	5/4/1998	MVP1101	sbs	N1 E3	1	0.00	0.04	0.20	0.03	0.00	0.00	0.040
4 HANCOCK STREET	138980506	5/4/1998	MVP1102	sbs	N1 E4	2	0.00	0.04	0.05	0.03	0.00	0.00	0.010
4 HANCOCK STREET	138980506	5/4/1998	MVP1103	sbs	N1 E2	2	0.00	0.04	0.14	0.03	0.00	0.00	0.028
4 HANCOCK STREET	138980506	5/4/1998	MVP1104	sbs	N-1 E0	1	0.00	0.04	0.00	0.02	0.00	0.00	0.000
4 HANCOCK STREET	138980506	5/4/1998	MVP1105	sbs	N1 E0	2	0.00	0.04	0.00	0.02	0.00	0.00	0.000
4 HANCOCK STREET	138980508	5/5/1998	MVP1106	sbs	N1 E4	3	0.00	0.03	0.00	0.02	0.00	0.00	0.000
4 HANCOCK STREET	138980508	5/5/1998	MVP1107	sbs	N1 E0	3	0.00	0.03	0.00	0.02	0.00	0.00	0.000
4 HANCOCK STREET	138980508	5/5/1998	MVP1108	sbs	N-3 E0	1	0.00	0.04	0.02	0.03	0.00	0.00	0.004
4 HANCOCK STREET	138980508	5/5/1998	MVP1109	sbs	N-2 E-2	2	0.00	0.04	0.00	0.03	0.00	0.00	0.000
4 HANCOCK STREET	138980508	5/5/1998	MVP1110	sbs	N2 E-4	1	0.00	0.04	0.10	0.03	0.00	0.00	0.020
4 HANCOCK STREET	138980508	5/5/1998	MVP1111	sbs	N2 E-6	1	0.00	0.04	0.18	0.03	0.00	0.00	0.036
4 HANCOCK STREET	138980508	5/5/1998	MVP1112	sbs	N-7 E-11	1	0.00	0.04	0.00	0.03	0.00	0.49	0.000
4 HANCOCK STREET	138980508	5/5/1998	MVP1113	sbs	N-5 E-11	2	0.00	0.04	0.21	0.03	0.00	0.00	0.042
4 HANCOCK STREET	138980508	5/5/1998	MVP1114	sbs	N-8 E-11	1	0.00	0.05	0.07	0.03	0.00	0.00	0.014
4 HANCOCK STREET	138980508	5/5/1998	MVP1115	sbs	N-5 E-11	2	0.00	0.04	0.06	0.03	0.00	0.00	0.012
4 HANCOCK STREET	138980508	5/5/1998	MVP1116	sbs	N-7 E-3	1	0.00	0.03	0.00	0.02	0.00	0.00	0.000
4 HANCOCK STREET	138980508	5/5/1998	MVP1117	sfs	N-7 E-4	0.0-0.5	0.00	0.04	0.00	0.02	0.00	0.00	0.000
4 HANCOCK STREET	138980508	5/5/1998	MVP1118	sbs	N-10 E0	1	0.00	0.05	0.16	0.03	0.00	0.00	0.032
4 HANCOCK STREET	138980508	5/5/1998	MVP1119	sbs	N-10 E-2	2	0.00	0.04	0.27	0.03	0.00	0.00	0.054
4 HANCOCK STREET	138980508	5/5/1998	MVP1120	sbs	N-4 E-16	1	0.00	0.04	0.00	0.03	0.00	0.37	0.000
4 HANCOCK STREET	138980508	5/5/1998	MVP1121	sbs	N-5 E-6	2	0.00	0.04	0.00	0.02	0.00	0.00	0.000
6 HANCOCK STREET	138980423	4/16/1998	MVP0600	sbs	N-7 E-2	2	0.00	0.04	0.00	0.03	0.00	0.00	0.000
6 HANCOCK STREET	138980423	4/16/1998	MVP0601	sbs	N-10 E-3	3	0.00	0.04	0.00	0.03	0.00	0.00	0.000
6 HANCOCK STREET	138980423	4/16/1998	MVP0602	sbs	N-8 E-7	2	0.00	0.04	0.00	0.03	0.00	0.00	0.000
6 HANCOCK STREET	138980426	4/20/1998	MVP0603	sbs	N-2 E-4	2-2.5	0.00	0.04	0.00	0.02	0.00	0.00	0.000
6 HANCOCK STREET	138980426	4/20/1998	MVP0604	sbs	N-2 E-6	2-2.5	0.00	0.04	0.00	0.03	0.00	0.00	0.000
6 HANCOCK STREET	138980426	4/20/1998	MVP0605	sbs	N-10 E-1	3	0.00	0.04	0.00	0.02	0.00	0.00	0.000
6 HANCOCK STREET	138980426	4/20/1998	MVP0606	sbs	N0 E-7	3.5	0.44	0.08	1.15	0.06	0.21	0.00	0.322
6 HANCOCK STREET	138980427	4/21/1998	MVP0607	sbs	N0 E-8	0.5-1	0.35	0.07	0.91	0.05	0.00	0.00	0.252
6 HANCOCK STREET	138980427	4/21/1998	MVP0608	sbs	N-2 E-6	2.5-3	0.31	0.07	0.90	0.05	0.00	0.00	0.242
6 HANCOCK STREET	138980427	4/21/1998	MVP0609	sbs	N-6 E-6	2.5-3	0.69	0.06	0.74	0.05	0.00	0.61	0.286
6 HANCOCK STREET	138980505	5/4/1998	MVP0610	sbs	N-12 E6	1	0.00	0.04	0.18	0.03	0.00	0.62	0.036
6 HANCOCK STREET	138980505	5/4/1998	MVP0611	sbs	N-12 E4	1	0.00	0.04	0.29	0.03	0.00	0.00	0.058
6 HANCOCK STREET	138980505	5/4/1998	MVP0612	sbs	N-12 E5	2	0.00	0.04	0.24	0.03	0.00	0.00	0.048
6 HANCOCK STREET	138980505	5/4/1998	MVP0613	sbs	N-12 E3	2	0.17	0.05	0.67	0.04	0.00	0.00	0.168
6 HANCOCK STREET	138980505	5/4/1998	MVP0614	sbs	N-12 E1	1	0.00	0.03	0.00	0.02	0.00	0.00	0.000
6 HANCOCK STREET	138980505	5/4/1998	MVP0615	sbs	N-12 E0	2	0.00	0.03	0.00	0.02	0.00	0.50	0.000
7 HANCOCK STREET	138980440	4/28/1998	MVP0802	sbs	N1 E-15	1	0.00	0.05	0.00	0.03	0.00	0.00	0.000
7 HANCOCK STREET	138980440	4/28/1998	MVP0803	sbs	N11 E-18	1	0.00	0.05	0.00	0.03	0.00	0.00	0.000
7 HANCOCK STREET	138980440	4/28/1998	MVP0804	sbs	N11 E-15	1	0.00	0.04	0.00	0.03	0.00	0.00	0.000
7 HANCOCK STREET	138980440	4/28/1998	MVP0805	sbs	N6 E-15	1	0.00	0.04	0.00	0.03	0.00	0.00	0.000

TABLE E-2
SUM-OF-RATIOS FOR RADIOLOGICAL DATA FOR MAYWOOD VICINITY PROPERTIES
CLEAN OVERBURDEN SAMPLES

Property	COC #	Collection Date	Sample ID	Matrix	Coordinates	Depth (ft)	Th-232 (pCi/g)	Error +\-	Ra-226 (pCi/g)	Error +\-	U-238 (pCi/g)	Error +\-	Sum Ratios
7 HANCOCK STREET	138980440	4/28/1998	MVP0806	sbs	N9 E-17	2	0.00	0.04	0.00	0.02	0.00	0.00	0.000
7 HANCOCK STREET	138980440	4/28/1998	MVP0807	sbs	N9 E-14	2	0.00	0.04	0.00	0.03	0.00	0.00	0.000
7 HANCOCK STREET	138980440	4/28/1998	MVP0808	sbs	N7 E-19	2	0.00	0.04	0.00	0.03	0.00	0.74	0.000
7 HANCOCK STREET	138980440	4/28/1998	MVP0809	sbs	N12 E-20	2	0.00	0.05	0.00	0.03	0.00	0.00	0.000
7 HANCOCK STREET	138980446	4/29/1998	MVP0810	sbs	N3 E-15	2	0.00	0.04	0.00	0.03	0.00	0.00	0.000
7 HANCOCK STREET	138980446	4/29/1998	MVP0811	sbs	N0 E-14	2	0.00	0.04	0.00	0.03	0.00	0.00	0.000
7 HANCOCK STREET	138980446	4/29/1998	MVP0812	sbs	N-1 E-9	1	1.74	0.08	0.58	0.04	0.00	0.00	0.464
7 HANCOCK STREET	138980446	4/29/1998	MVP0813	sbs	N-1 E-12	1	0.08	0.05	0.04	0.04	0.00	0.00	0.024
7 HANCOCK STREET	138980446	4/29/1998	MVP0814	sbs	N10 E-12	1	0.00	0.04	0.03	0.03	0.00	0.00	0.006
7 HANCOCK STREET	138980446	4/29/1998	MVP0815	sbs	N11 E-12	2	0.00	0.05	0.05	0.03	0.00	0.00	0.010
7 HANCOCK STREET	138980446	4/29/1998	MVP0816	sbs	N7 E-10	1	0.31	0.06	0.26	0.04	0.00	0.50	0.114
7 HANCOCK STREET	138980446	4/29/1998	MVP0817	sbs	N7 E-10	2	0.01	0.06	0.24	0.04	0.00	0.72	0.050
8 HANCOCK STREET	138980305	3/27/1998	MVP0305	sbs	N-10 E1	2-2.5	0.00	0.03	0.00	0.02	0.00	0.00	0.000
8 HANCOCK STREET	138980305	3/27/1998	MVP0306	sbs	N-10 E3	4	0.00	0.04	0.12	0.03	0.00	0.80	0.024
8 HANCOCK STREET	138980305	3/27/1998	MVP0307	sbs	N-10 E1	4	0.03	0.05	0.43	0.03	0.00	0.00	0.092
8 HANCOCK STREET	138980305	3/27/1998	MVP0308	sbs	N-10 E6	3.5-4	0.00	0.04	0.00	0.03	0.00	0.80	0.000
8 HANCOCK STREET	138980306	3/30/1998	MVP0309	sbs	N-10 E7	3-3.5	0.72	0.07	1.25	0.05	0.00	0.00	0.394
8 HANCOCK STREET	138980306	3/30/1998	MVP0310	sbs	N-10 E7	3-3.5	0.53	0.06	1.07	0.05	0.00	0.87	0.320
8 HANCOCK STREET	138980306	3/30/1998	MVP0311	sbs	N-7 E-2	4-4.5	0.61	0.06	1.07	0.05	0.00	0.00	0.336
8 HANCOCK STREET	138980306	3/30/1998	MVP0312	sbs	N-6 E-9	4-4.5	0.56	0.06	1.13	0.05	0.00	0.90	0.338
8 HANCOCK STREET	138980306	3/30/1998	MVP0313	sbs	N-4 E-12	4-4.5	0.64	0.06	0.76	0.04	0.00	0.00	0.280
8 HANCOCK STREET	138980306	3/30/1998	MVP0314	sbs	N-2 E-13	3-3.5	0.28	0.06	0.20	0.04	0.00	0.73	0.096
8 HANCOCK STREET	138980307	3/31/1998	MVP0315	sbs	N-3 E-3	4-4.5	0.67	0.06	1.14	0.05	0.00	0.00	0.362
8 HANCOCK STREET	138980307	3/31/1998	MVP0316	sbs	N-10 E8	4-4.5	0.54	0.06	1.05	0.05	0.00	0.79	0.318
8 HANCOCK STREET	138980401	4/1/1998	MVP0319	sbs	N-1 E9	5	0.31	0.05	0.97	0.05	0.00	0.89	0.256
8 HANCOCK STREET	138980422	4/16/1998	MVP0381	sbs	N-8 E-6	4.5-5	1.27	0.07	1.15	0.05	0.00	0.00	0.484
8 HANCOCK STREET	138980422	4/16/1998	MVP0382	sbs	N-4 E-8	4.5-5	1.23	0.07	1.00	0.05	0.00	0.00	0.446
9 HANCOCK STREET	138980911	9/3/1998	MVP2120	sbs	N2 E-2	2.5	0.00	0.04	0.00	0.03	0.00	0.00	0.000
9 HANCOCK STREET	138980911	9/3/1998	MVP2125	sbs	N11 E-1	1	0.00	0.04	0.00	0.03	0.00	0.00	0.000
9 HANCOCK STREET	138980915	9/9/1998	MVP2141	sbs	N16 E2	1.5	0.27	0.05	0.08	0.03	0.00	0.00	0.070
9 HANCOCK STREET	138980915	9/9/1998	MVP2142	sbs	N15 E4	2	0.30	0.06	0.00	0.03	0.00	0.79	0.060
9 HANCOCK STREET	138980924	9/15/1998	MVP2154	sbs	N-6 E7	3	0.00	0.04	0.00	0.02	0.00	0.00	0.000
9 HANCOCK STREET	138980924	9/15/1998	MVP2155	sbs	N-5 E3	1.5	0.43	0.06	0.46	0.04	0.00	0.83	0.178
9 HANCOCK STREET	138980925	9/16/1998	MVP2156	sbs	N-6 E11	3	0.00	0.05	0.00	0.03	0.00	0.00	0.000
9 HANCOCK STREET	138980925	9/16/1998	MVP2160	sbs	N-4 E11	2	0.00	0.04	0.00	0.03	0.00	0.00	0.000
10 HANCOCK STREET	138980309	3/31/1998	MVP0405	sbs	N-3 E15	4-4.5	0.56	0.06	0.98	0.05	0.00	0.00	0.308
10 HANCOCK STREET	138980402	4/1/1998	MVP0406	sbs	N4 E6	4	0.00	0.05	0.07	0.03	0.00	0.00	0.014
10 HANCOCK STREET	138980402	4/1/1998	MVP0407	sbs	N4 E0	4	0.00	0.04	0.20	0.03	0.00	0.83	0.040
10 HANCOCK STREET	138980403	4/2/1998	MVP0408	sbs	N2 E6	4	0.26	0.06	0.56	0.04	0.00	0.00	0.164
10 HANCOCK STREET	138980408	4/7/1998	MVP0409	sbs	N-3 E-10	4	0.43	0.07	0.39	0.04	0.00	0.00	0.164
10 HANCOCK STREET	138980425	4/20/1998	MVP0413	sbs	N-10 E2	3-3.5	0.00	0.05	0.00	0.03	0.00	0.00	0.000
10 HANCOCK STREET	138980521	5/12/1998	MVP0484	sbs	N-3.5 E-5	5	1.55	0.08	0.55	0.04	0.00	0.00	0.420

TABLE E-2
SUM-OF-RATIOS FOR RADIOLOGICAL DATA FOR MAYWOOD VICINITY PROPERTIES
CLEAN OVERBURDEN SAMPLES

Property	COC #	Collection Date	Sample ID	Matrix	Coordinates	Depth (ft)	Th-232 (pCi/g)	Error +\-	Ra-226 (pCi/g)	Error +\-	U-238 (pCi/g)	Error +\-	Sum Ratios
10 HANCOCK STREET	138980521	5/12/1998	MVP0486	sbs	N-1 E-4	4	0.58	0.06	1.06	0.05	0.00	0.00	0.328
6 BRANCA COURT	138980510	5/5/1998	MVP1200	sbs	N16 E0	2	0.00	0.05	0.00	0.03	0.00	0.00	0.000
6 BRANCA COURT	138980510	5/5/1998	MVP1201	sbs	N18 E6	1.5-2	0.00	0.04	0.00	0.03	0.00	0.00	0.000
6 BRANCA COURT	138980510	5/5/1998	MVP1202	sbs	N4 E1	1.5	0.00	0.05	0.00	0.03	0.00	0.00	0.000
6 BRANCA COURT	138980510	5/6/1998	MVP1203	sbs	N2 E2	2-2.5	0.00	0.04	0.00	0.02	0.00	0.00	0.000
6 BRANCA COURT	138980608	6/2/1998	MVP1245	sbs	N0 E-17	2.5	0.00	0.05	0.00	0.03	0.00	0.00	0.000
6 BRANCA COURT	138980608	6/2/1998	MVP1247	sbs	N2 E-14	3	0.00	0.05	0.00	0.03	0.00	0.00	0.000
I-80 ROW	138980438	4/27/1998	MVP0706	sfs	N7 E19	0.0-0.5	1.09	0.07	0.00	0.03	0.00	0.00	0.218
I-80 ROW	138980438	4/27/1998	MVP0707	sfs	N8 E10	0.0-0.5	0.06	0.05	0.00	0.03	0.00	0.00	0.012
I-80 ROW	138980438	4/27/1998	MVP0708	sbs	N6 E8	0.5-1.5	0.31	0.06	0.00	0.03	0.00	0.00	0.062
I-80 ROW	138980438	4/27/1998	MVP0709	sfs	N6 E10	0.0-0.5	0.00	0.05	0.00	0.02	0.00	0.00	0.000
I-80 ROW	138980438	4/27/1998	MVP0710	sbs	N8 E33	3.5-4	1.29	0.08	0.00	0.03	0.00	0.97	0.258
LODI PARK	138980534	5/19/1998	MVP1602	sbs	N12 E60	2	0.00	0.05	0.00	0.04	0.00	0.00	0.000
LODI PARK	138980534	5/19/1998	MVP1604	sbs	N16 E62	4	0.00	0.05	0.00	0.03	0.00	0.00	0.000
200 BROOKDALE ST.	138980101	1/8/1998	MVP0180	sfs	N9 E9	0-0.5	0.00	0.05	0.00	0.04	0.00	0.00	0.000
200 BROOKDALE ST.	138980101	1/8/1998	MVP0181	sbs	N6 E9	1.0-2	0.00	0.05	0.00	0.03	0.00	0.00	0.000
200 BROOKDALE ST.	138980101	1/8/1998	MVP0182	sbs	N7 E6	1-1.5	0.00	0.06	0.00	0.04	0.00	0.00	0.000
200 BROOKDALE ST.	138980102	1/9/1998	MVP0183	sbs	N2 E2	2.5-3	0.00	0.07	0.00	0.04	0.00	0.00	0.000
200 BROOKDALE ST.	138980102	1/9/1998	MVP0184	sbs	N10 E10	0.5-1	0.00	0.06	0.00	0.04	0.00	0.00	0.000
200 BROOKDALE ST.	138980102	1/9/1998	MVP0185	sbs	N5 E1	1-1.5	0.00	0.06	0.00	0.03	0.00	0.00	0.000
200 BROOKDALE ST.	138980102	1/9/1998	MVP0186	sbs	N4 E3	0.5-1	0.00	0.07	0.00	0.03	0.00	0.00	0.000
200 BROOKDALE ST.	138980102	1/9/1998	MVP0187	sbs	N12 E4	1.5-2	0.00	0.06	0.00	0.04	0.00	0.00	0.000
200 BROOKDALE ST.	138980102	1/9/1998	MVP0188	sbs	N5 E6	0.5-1	0.00	0.05	0.00	0.03	0.00	0.00	0.000
200 BROOKDALE ST.	138980444	4/29/1998	MVP0268	sfs	South pile	NA	0.00	0.05	0.00	0.04	0.00	0.86	0.000
200 BROOKDALE ST.	138980444	4/29/1998	MVP0269	sfs	North pile	NA	0.00	0.05	0.00	0.03	0.00	0.00	0.000
200 BROOKDALE ST.	138980444	4/29/1998	MVP0260	sfs	North pile	NA	0.00	0.04	0.00	0.03	0.00	0.00	0.000
200 BROOKDALE ST.	138980444	4/29/1998	MVP0261	sfs	North pile	NA	0.00	0.06	0.12	0.05	1.47	0.87	0.053
200 BROOKDALE ST.	138980444	4/29/1998	MVP0262	sfs	North pile	NA	0.00	0.06	0.02	0.06	1.94	1.31	0.043
200 BROOKDALE ST.	138980444	4/29/1998	MVP0263	sfs	North pile	NA	0.00	0.06	0.00	0.03	0.15	1.09	0.003
200 BROOKDALE ST.	138980444	4/29/1998	MVP0264	sfs	South pile	NA	0.00	0.07	0.02	0.07	0.00	1.07	0.004
200 BROOKDALE ST.	138980444	4/29/1998	MVP0265	sfs	South pile	NA	0.00	0.06	0.00	0.04	0.00	0.00	0.000
200 BROOKDALE ST.	138980444	4/29/1998	MVP0266	sfs	South pile	NA	0.00	0.05	0.00	0.03	1.32	0.95	0.026
200 BROOKDALE ST.	138980444	4/29/1998	MVP0267	sfs	South pile	NA	0.00	0.07	0.00	0.04	0.00	1.09	0.000

NOTES:
sfs - Surface soil
sbs - Subsurface soil
Samples were analyzed at the Maywood site field laboratory.
Background values: Th-232, 1.00 pCi/g; Ra-226, 0.70 pCi/g; and U-238, 2.90 pCi/g.
Net values are reported. The net result is obtained by subtracting the background concentration for each radionuclide from the gross reported value fc that radionuclide. If the net result of a radionuclide is negative, then the value for that radionuclide is reported as zero.

APPENDIX F

CHEMICAL DATA FOR CLEAN OVERBURDEN SOIL

TABLE F-1
CHEMICAL DATA FOR CLEAN OVERBURDEN SAMPLES COLLECTED FROM MAYWOOD VICINITY PROPERTIES

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
Overburden Soil from Lodi Park Pile Staged at Lodi Park							
MVP1806	9809L578	138980905	9/2/98	Chloromethane	11	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Bromomethane	11	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Vinyl chloride	11	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Chloroethane	11	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Methylene chloride	15	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Acetone	8	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Carbon disulfide	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,1-Dichloroethene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,1-Dichloroethane	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,2-Dichloroethene (total)	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Chloroform	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,2-Dichloroethane	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2-Butanone	11	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,1,1-Trichloroethane	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Carbon tetrachloride	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Bromodichloromethane	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,2-Dichloropropane	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	cis-1,3-Dichloropropene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	trans-1,3-Dichloropropene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Trichloroethene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Dibromochloromethane	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,1,2-Trichloroethane	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Benzene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Bromoform	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	4-methyl-2-pentanone	11	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2-Hexanone	11	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Tetrachloroethene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,1,2,2-Tetrachloroethane	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Toluene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Chlorobenzene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Ethylbenzene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Styrene	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Xylene (total)	6	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Vinyl acetate	11	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Phenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	bis (2-chloroethyl) ether	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2-Chlorophenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,3-Dichlorobenzene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,4-Dichlorobenzene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,2-Dichlorobenzene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2-Methyl phenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	4- Methyl phenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	N-Nitroso-di-n-propylamine	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Hexachloroethane	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Nitrobenzene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Isophorone	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2-Nitrophenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4-Dimethyl phenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Cabazole	64	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	bis (2-Chloroethoxy) methane	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4-Dichlorophenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	1,2,4-Trichlorobenzene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Naphthalene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	4-Chloroaniline	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Hexachlorobutadiene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	4-Chloro-3-methyl phenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2-Methylnaphthalene	34	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Hexachlorocyclopentadiene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4,6-Trichlorophenol	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4,5-Trichlorophenol	840	U	UG/KG

TABLE F-1
CHEMICAL DATA FOR CLEAN OVERBURDEN SAMPLES COLLECTED FROM MAYWOOD VICINITY PROPERTIES

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1806	9809L578	138980905	9/2/98	2-Chloronaphthalene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2-Nitroaniline	840	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Dimethylphthalate	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Acenaphthylene	32	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,6-Dinitrotoluene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	3-Nitroaniline	840	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Acenaphthene	66	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4-Dinitrophenol	840	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	4-Nitrophenol	840	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Dibenzofuran	43	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4-Dinitrotoluene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Diethylphthalate	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	4-Chlorophenyl-phenylether	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Fluorene	100	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	4-Nitroaniline	840	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	4,6-Dinitro-2-methylphenol	840	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	N-Nitrosodiphenylamine	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	4-Bromophenyl-phenylether	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Hexachlorobenzene	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Pentachlorophenol	840	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Phenanthrene	710		UG/KG
MVP1806	9809L578	138980905	9/2/98	Anthracene	200	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Di-n-butylphthalate	1700	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Fluoranthene	990		UG/KG
MVP1806	9809L578	138980905	9/2/98	2,2'-oxybis(1-cloropropane)	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Pyrene	960		UG/KG
MVP1806	9809L578	138980905	9/2/98	Butylbenzylphthalate	17	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	3,3'-Dichlorobenzidine	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Benzo (a) anthracene	440		UG/KG
MVP1806	9809L578	138980905	9/2/98	Chrysene	460		UG/KG
MVP1806	9809L578	138980905	9/2/98	bis (2-ethylhexyl) phthalate	58	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Di-n-octyl phthalate	330	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	Benzo (b) fluoranthene	320	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Benzo (k) fluoranthene	360		UG/KG
MVP1806	9809L578	138980905	9/2/98	Benzo (a) pyrene	370		UG/KG
MVP1806	9809L578	138980905	9/2/98	Indeno (1,2,3-cd) pyrene	210	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Dibenzo (a,h) anthracene	82	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Benzo (g,h,i) perylene	230	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Aluminum	7720		MG/KG
MVP1806	9809L578	138980905	9/2/98	Antimony	0.42	UJ	MG/KG
MVP1806	9809L578	138980905	9/2/98	Arsenic	5		MG/KG
MVP1806	9809L578	138980905	9/2/98	Barium	77.2		MG/KG
MVP1806	9809L578	138980905	9/2/98	Beryllium	0.48		MG/KG
MVP1806	9809L578	138980905	9/2/98	Cadmium	0.26		MG/KG
MVP1806	9809L578	138980905	9/2/98	Calcium	4980		MG/KG
MVP1806	9809L578	138980905	9/2/98	Chromium	23.8		MG/KG
MVP1806	9809L578	138980905	9/2/98	Cobalt	5.9		MG/KG
MVP1806	9809L578	138980905	9/2/98	Copper	20.9		MG/KG
MVP1806	9809L578	138980905	9/2/98	Iron	15200		MG/KG
MVP1806	9809L578	138980905	9/2/98	Lead	41.2		MG/KG
MVP1806	9809L578	138980905	9/2/98	Magnesium	3790		MG/KG
MVP1806	9809L578	138980905	9/2/98	Manganese	428	J	MG/KG
MVP1806	9809L578	138980905	9/2/98	Mercury	0.11	J	MG/KG
MVP1806	9809L578	138980905	9/2/98	Nickel	11.5		MG/KG
MVP1806	9809L578	138980905	9/2/98	Potassium	726		MG/KG
MVP1806	9809L578	138980905	9/2/98	Selenium	0.73		MG/KG
MVP1806	9809L578	138980905	9/2/98	Silver	0.12	U	MG/KG
MVP1806	9809L578	138980905	9/2/98	Sodium	135		MG/KG
MVP1806	9809L578	138980905	9/2/98	Thallium	1.4		MG/KG
MVP1806	9809L578	138980905	9/2/98	Vanadium	21.9		MG/KG
MVP1806	9809L578	138980905	9/2/98	Zinc	60.8		MG/KG

TABLE F-1
CHEMICAL DATA FOR CLEAN OVERBURDEN SAMPLES COLLECTED FROM MAYWOOD VICINITY PROPERTIES

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1806	9809L578	138980905	9/2/98	Arochlor-1016	190	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Arochlor-1221	380	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Arochlor-1232	190	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Arochlor-1242	190	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Arochlor-1248	270	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Arochlor-1254	190	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Arochlor-1260	190	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Aldrin	I	R	UG/KG
MVP1806	9809L578	138980905	9/2/98	alpha-BHC	9.6	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	beta-BHC	9.6	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	delta-BHC	17	NJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	gamma-BHC (lindane)	19	NJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	alpha-chlordane	20	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	gamma-chlordane	27	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	4,4'-DDD	19	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	4,4'-DDE	19	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	4,4'-DDT	26	J	UG/KG
MVP1806	9809L578	138980905	9/2/98	Dieldrin	19	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Endosulfan I	9.6	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Endosulfan II	19	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Endosulfan sulfate	19	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Endrin	19	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Endrin aldehyde	19	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Endrin ketone	19	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Heptachlor	9.6	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Heptachlor epoxide	9.6	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Methoxychlor	96	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	Toxaphene	960	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4-D	38	UJ	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4,5-T	19	U	UG/KG
MVP1806	9809L578	138980905	9/2/98	2,4,5-TP (silvex)	19	U	UG/KG
Overburden Soil from Lodi Park Pile Staged at Lodi Park							
MVP1809	9812L717	138981237	12/17/98	Chloromethane	11	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Bromomethane	11	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Vinyl chloride	11	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Chloroethane	11	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Methylene chloride	8	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Acetone	10	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Carbon disulfide	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,1-Dichloroethene	6	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,1-Dichloroethane	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,2-Dichloroethene (total)	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Chloroform	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,2-Dichloroethane	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2-Butanone	11	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,1,1-Trichloroethane	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Carbon tetrachloride	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Bromodichloromethane	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,2-Dichloropropane	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	cis-1,3-Dichloropropene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	trans-1,3-Dichloropropene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Trichloroethene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dibromochloromethane	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,1,2-Trichloroethane	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Benzene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Bromoform	11	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	4-methyl-2-pentanone	11	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2-Hexanone	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Tetrachloroethene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,1,2,2-Tetrachloroethane			

TABLE F-1
CHEMICAL DATA FOR CLEAN OVERBURDEN SAMPLES COLLECTED FROM MAYWOOD VICINITY PROPERTIES

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1809	9812L717	138981237	12/17/98	Toluene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Chlorobenzene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Ethylbenzene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Styrene	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Xylene (total)	6	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Phenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	bis (2-chloroethyl) ether	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2-Chlorophenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,3-Dichlorobenzene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,4-Dichlorobenzene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,2-Dichlorobenzene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2-Methyl phenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	4- Methyl phenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	N-Nitroso-di-n-propylamine	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Hexachloroethane	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Nitrobenzene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Isophorone	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2-Nitrophenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4-Dimethyl phenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,2'-oxybis(1-chloropropane)	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	bis (2-Chloroethoxy) methane	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4-Dichlorophenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	1,2,4-Trichlorobenzene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Naphthalene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	4-Chloroaniline	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Hexachlorobutadiene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	4-Chloro-3-methyl phenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2-Methylnaphthalene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Hexachlorocyclopentadiene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4,6-Trichlorophenol	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4,5-Trichlorophenol	940	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2-Chloronaphthalene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2-Nitroaniline	940	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dimethylphthalate	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Acenaphthylene	28	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,6-Dinitrotoluene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	3-Nitroaniline	940	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Acenaphthene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4-Dinitrophenol	940	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	4-Nitrophenol	940	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dibenzofuran	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4-Dinitrotoluene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Diethylphthalate	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	4-Chlorophenyl-phenylether	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Fluorene	33	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	4-Nitroaniline	940	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	4,6-Dinitro-2-methylphenol	940	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	N-Nitrosodiphenylamine	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	4-Bromophenyl-phenylether	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Hexachlorobenzene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Pentachlorophenol	940	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Phenanthrene	280	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Anthracene	45	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Di-n-butylphthalate	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Fluoranthene	240	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Carbazole	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Pyrene	330	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Butylbenzylphthalate	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	3,3'-Dichlorobenzidine	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Benzo (a) anthracene	120	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Chrysene	180	J	UG/KG

TABLE F-1
CHEMICAL DATA FOR CLEAN OVERBURDEN SAMPLES COLLECTED FROM MAYWOOD VICINITY PROPERTIES

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1809	9812L717	138981237	12/17/98	bis (2-ethylhexyl) phthalate	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Di-n-octyl phthalate	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Benzo (b) fluoranthene	82	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Benzo (k) fluoranthene	88	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Benzo (a) pyrene	110	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Indeno (1,2,3-cd) pyrene	52	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dibenzo (a,h) anthracene	380	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Benzo (g,h,i) perylene	68	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	Aluminum	8600		MG/KG
MVP1809	9812L717	138981237	12/17/98	Antimony	0.39	UJ	MG/KG
MVP1809	9812L717	138981237	12/17/98	Arsenic	3.3		MG/KG
MVP1809	9812L717	138981237	12/17/98	Barium	48		MG/KG
MVP1809	9812L717	138981237	12/17/98	Beryllium	0.39		MG/KG
MVP1809	9812L717	138981237	12/17/98	Cadmium	0.24		MG/KG
MVP1809	9812L717	138981237	12/17/98	Calcium	4230		MG/KG
MVP1809	9812L717	138981237	12/17/98	Chromium	16.8		MG/KG
MVP1809	9812L717	138981237	12/17/98	Cobalt	6.2		MG/KG
MVP1809	9812L717	138981237	12/17/98	Copper	22.7		MG/KG
MVP1809	9812L717	138981237	12/17/98	Iron	14100		MG/KG
MVP1809	9812L717	138981237	12/17/98	Lead	27.7		MG/KG
MVP1809	9812L717	138981237	12/17/98	Magnesium	3290		MG/KG
MVP1809	9812L717	138981237	12/17/98	Manganese	242		MG/KG
MVP1809	9812L717	138981237	12/17/98	Mercury	0.04		MG/KG
MVP1809	9812L717	138981237	12/17/98	Nickel	12.4		MG/KG
MVP1809	9812L717	138981237	12/17/98	Potassium	501		MG/KG
MVP1809	9812L717	138981237	12/17/98	Selenium	0.4	U	MG/KG
MVP1809	9812L717	138981237	12/17/98	Silver	0.06	U	MG/KG
MVP1809	9812L717	138981237	12/17/98	Sodium	148		MG/KG
MVP1809	9812L717	138981237	12/17/98	Thallium	0.46		MG/KG
MVP1809	9812L717	138981237	12/17/98	Vanadium	31.6		MG/KG
MVP1809	9812L717	138981237	12/17/98	Zinc	48.5		MG/KG
MVP1809	9812L717	138981237	12/17/98	Arochlor-1016	380	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Arochlor-1221	750	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Arochlor-1232	380	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Arochlor-1242	380	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Arochlor-1248	380	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Arochlor-1254	380	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Arochlor-1260	380	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Aldrin	30	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	alpha-BHC	19	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	beta-BHC	19	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	delta-BHC	19	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	gamma-BHC (lindane)	19	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	alpha-chlordane	62	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	gamma-chlordane	58	J	UG/KG
MVP1809	9812L717	138981237	12/17/98	4,4'-DDD	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	4,4'-DDE	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	4,4'-DDT	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dieldrin	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Endosulfan I	19	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Endosulfan II	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Endosulfan sulfate	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Endrin	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Endrin aldehyde	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Endrin ketone	38	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Heptachlor	19	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Heptachlor epoxide	19	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Methoxychlor	190	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	Toxaphene	1900	UJ	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4-D	38	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4,5-T	19	U	UG/KG

TABLE F-1
CHEMICAL DATA FOR CLEAN OVERBURDEN SAMPLES COLLECTED FROM MAYWOOD VICINITY PROPERTIES

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1809	9812L717	138981237	12/17/98	2,4,5-TP (silvex)	19	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dalapon	190	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dicamba	75	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dichloroprop	190	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	2,4-DB	190	U	UG/KG
MVP1809	9812L717	138981237	12/17/98	Dinoseb	19	UJ	UG/KG

NOTES:
U - Analyte was analyzed for, but not detected.
J - Estimated value
UJ - Analyte was analyzed for but not detected, but must be estimated for quality control purposes.
NJ - This is an estimated value. The analyte is presumed to be present although the peaks in the retention time window showed poor comparison and could not be dismissed.
R - Rejected
I - Interference

APPENDIX G

RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL RECEIVED FROM VENDORS

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
Fill Material from Parsippany Construction						
44148	a NA	2/11/98	Chloromethane	ND		UG/KG
44148	a NA	2/11/98	Bromomethane	ND		UG/KG
44148	a NA	2/11/98	Vinyl chloride	ND		UG/KG
44148	a NA	2/11/98	Chloroethane	ND		UG/KG
44148	a NA	2/11/98	Methylene chloride	1.2	B	UG/KG
44148	a NA	2/11/98	Acetone	ND		UG/KG
44148	a NA	2/11/98	Carbon disulfide	ND		UG/KG
44148	a NA	2/11/98	1,1-Dichloroethene	ND		UG/KG
44148	a NA	2/11/98	1,1-Dichloroethane	ND		UG/KG
44148	a NA	2/11/98	1,2-Dichloroethene (cis)	ND		UG/KG
44148	a NA	2/11/98	1,2-Dichloroethene (trans)	ND		UG/KG
44148	a NA	2/11/98	Chloroform	ND		UG/KG
44148	a NA	2/11/98	1,2-Dichloroethane	ND		UG/KG
44148	a NA	2/11/98	2-Butanone	ND		UG/KG
44148	a NA	2/11/98	1,1,1-Trichloroethane	ND		UG/KG
44148	a NA	2/11/98	Carbon tetrachloride	ND		UG/KG
44148	a NA	2/11/98	Bromodichloromethane	ND		UG/KG
44148	a NA	2/11/98	1,2-Dichloropropane	ND		UG/KG
44148	a NA	2/11/98	cis-1,3-Dichloropropene	ND		UG/KG
44148	a NA	2/11/98	trans-1,3-Dichloropropene	ND		UG/KG
44148	a NA	2/11/98	Trichloroethene	ND		UG/KG
44148	a NA	2/11/98	Dibromochloromethane	ND		UG/KG
44148	a NA	2/11/98	1,1,2-Trichloroethane	ND		UG/KG
44148	a NA	2/11/98	Benzene	ND		UG/KG
44148	a NA	2/11/98	Bromoform	ND		UG/KG
44148	a NA	2/11/98	4-methyl-2-pentanone	ND		UG/KG
44148	a NA	2/11/98	2-Hexanone	ND		UG/KG
44148	a NA	2/11/98	Tetrachloroethene	ND		UG/KG
44148	a NA	2/11/98	1,1,2,2-Tetrachloroethane	ND		UG/KG
44148	a NA	2/11/98	Toluene	ND		UG/KG
44148	a NA	2/11/98	Chlorobenzene	ND		UG/KG
44148	a NA	2/11/98	Ethylbenzene	ND		UG/KG
44148	a NA	2/11/98	Styrene	ND		UG/KG
44148	a NA	2/11/98	Xylene (total)	ND		UG/KG
44148	a NA	2/11/98	N-Nitrosodimethylamine	ND		UG/KG
44148	a NA	2/11/98	Phenol	ND		UG/KG
44148	a NA	2/11/98	bis (2-chloroethyl) ether	ND		UG/KG
44148	a NA	2/11/98	2-Chlorophenol	ND		UG/KG
44148	a NA	2/11/98	1,3-Dichlorobenzene	ND		UG/KG
44148	a NA	2/11/98	1,4-Dichlorobenzene	ND		UG/KG
44148	a NA	2/11/98	1,2-Dichlorobenzene	ND		UG/KG
44148	a NA	2/11/98	bis (2-chloroisopropyl) ether	ND		UG/KG
44148	a NA	2/11/98	N-Nitroso-di-n-propylamine	ND		UG/KG
44148	a NA	2/11/98	Hexachloroethane	ND		UG/KG
44148	a NA	2/11/98	Nitrobenzene	ND		UG/KG
44148	a NA	2/11/98	Isophorone	ND		UG/KG
44148	a NA	2/11/98	2-Nitrophenol	ND		UG/KG
44148	a NA	2/11/98	2,4-Dimethyl phenol	ND		UG/KG
44148	a NA	2/11/98	bis (2-Chloroethoxy) methane	ND		UG/KG
44148	a NA	2/11/98	2,4-Dichlorophenol	ND		UG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
44148	a	NA	2/11/98	1,2,4-Trichlorobenzene	ND		UG/KG
44148	a	NA	2/11/98	Naphthalene	41		UG/KG
44148	a	NA	2/11/98	Hexachlorobutadiene	ND		UG/KG
44148	a	NA	2/11/98	4-Chloro-3-methyl phenol	ND		UG/KG
44148	a	NA	2/11/98	Hexachlorocyclopentadiene	ND		UG/KG
44148	a	NA	2/11/98	2,4,6-Trichlorophenol	ND		UG/KG
44148	a	NA	2/11/98	2-Chloronaphthalene	ND		UG/KG
44148	a	NA	2/11/98	Dimethylphthalate	ND		UG/KG
44148	a	NA	2/11/98	Acenaphthylene	120		UG/KG
44148	a	NA	2/11/98	2,6-Dinitrotoluene	ND		UG/KG
44148	a	NA	2/11/98	Acenaphthene	150		UG/KG
44148	a	NA	2/11/98	2,4-Dinitrophenol	ND		UG/KG
44148	a	NA	2/11/98	4-Nitrophenol	ND		UG/KG
44148	a	NA	2/11/98	2,4-Dinitrotoluene	ND		UG/KG
44148	a	NA	2/11/98	Diethylphthalate	ND		UG/KG
44148	a	NA	2/11/98	4-Chlorophenyl-phenylether	ND		UG/KG
44148	a	NA	2/11/98	Fluorene	160		UG/KG
44148	a	NA	2/11/98	4,6-Dinitro-2-methylphenol	ND		UG/KG
44148	a	NA	2/11/98	N-Nitrosodiphenylamine	ND		UG/KG
44148	a	NA	2/11/98	4-Bromophenyl-phenylether	ND		UG/KG
44148	a	NA	2/11/98	Hexachlorobenzene	ND		UG/KG
44148	a	NA	2/11/98	Pentachlorophenol	ND		UG/KG
44148	a	NA	2/11/98	Phenanthrene	1500		UG/KG
44148	a	NA	2/11/98	Anthracene	370		UG/KG
44148	a	NA	2/11/98	Di-n-butylphthalate	ND		UG/KG
44148	a	NA	2/11/98	Fluoranthene	2600		UG/KG
44148	a	NA	2/11/98	Benzidine	ND		UG/KG
44148	a	NA	2/11/98	Pyrene	2500		UG/KG
44148	a	NA	2/11/98	Butylbenzylphthalate	ND		UG/KG
44148	a	NA	2/11/98	3,3'-Dichlorobenzidine	ND		UG/KG
44148	a	NA	2/11/98	Benzo (a) anthracene	1200		UG/KG
44148	a	NA	2/11/98	Chrysene	1300		UG/KG
44148	a	NA	2/11/98	bis (2-ethylhexyl) phthalate	140	J	UG/KG
44148	a	NA	2/11/98	Di-n-octyl phthalate	ND		UG/KG
44148	a	NA	2/11/98	Benzo (b) fluoranthene	1400		UG/KG
44148	a	NA	2/11/98	Benzo (k) fluoranthene	560		UG/KG
44148	a	NA	2/11/98	Benzo (a) pyrene	1100		UG/KG
44148	a	NA	2/11/98	Indeno (1,2,3-cd) pyrene	680		UG/KG
44148	a	NA	2/11/98	Dibenzo (a,h) anthracene	160		UG/KG
44148	a	NA	2/11/98	Benzo (g,h,i) perylene	580		UG/KG
44148	a	NA	2/11/98	Aluminum	5740		MG/KG
44148	a	NA	2/11/98	Antimony	ND		MG/KG
44148	a	NA	2/11/98	Arsenic	2.2		MG/KG
44148	a	NA	2/11/98	Barium	56.5		MG/KG
44148	a	NA	2/11/98	Beryllium	0.28		MG/KG
44148	a	NA	2/11/98	Cadmium	ND		MG/KG
44148	a	NA	2/11/98	Calcium	3940		MG/KG
44148	a	NA	2/11/98	Chromium	14.4		MG/KG
44148	a	NA	2/11/98	Cobalt	5.7		MG/KG
44148	a	NA	2/11/98	Copper	21.5		MG/KG
44148	a	NA	2/11/98	Iron	11000		MG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
44148	a	NA	2/11/98	Lead	76.5		MG/KG
44148	a	NA	2/11/98	Magnesium	3450		MG/KG
44148	a	NA	2/11/98	Manganese	220		MG/KG
44148	a	NA	2/11/98	Mercury	0.18		MG/KG
44148	a	NA	2/11/98	Nickel	27		MG/KG
44148	a	NA	2/11/98	Potassium	481		MG/KG
44148	a	NA	2/11/98	Selenium	ND		MG/KG
44148	a	NA	2/11/98	Silver	ND		MG/KG
44148	a	NA	2/11/98	Sodium	254		MG/KG
44148	a	NA	2/11/98	Thallium	ND		MG/KG
44148	a	NA	2/11/98	Vanadium	19.9		MG/KG
44148	a	NA	2/11/98	Zinc	80.1		MG/KG
44148	a	NA	2/11/98	Arochlor-1016	ND		UG/KG
44148	a	NA	2/11/98	Arochlor-1221	ND		UG/KG
44148	a	NA	2/11/98	Arochlor-1232	ND		UG/KG
44148	a	NA	2/11/98	Arochlor-1242	ND		UG/KG
44148	a	NA	2/11/98	Arochlor-1248	ND		UG/KG
44148	a	NA	2/11/98	Arochlor-1254	ND		UG/KG
44148	a	NA	2/11/98	Arochlor-1260	ND		UG/KG
44148	a	NA	2/11/98	Aldrin	5.9		UG/KG
44148	a	NA	2/11/98	alpha-BHC	ND		UG/KG
44148	a	NA	2/11/98	beta-BHC	ND		UG/KG
44148	a	NA	2/11/98	delta-BHC	ND		UG/KG
44148	a	NA	2/11/98	gamma-BHC (lindane)	ND		UG/KG
44148	a	NA	2/11/98	alpha-chlordane	340		UG/KG
44148	a	NA	2/11/98	4,4'-DDD	ND		UG/KG
44148	a	NA	2/11/98	4,4'-DDE	5.9		UG/KG
44148	a	NA	2/11/98	4,4'-DDT	ND		UG/KG
44148	a	NA	2/11/98	Dieldrin	17		UG/KG
44148	a	NA	2/11/98	Endosulfan I	ND		UG/KG
44148	a	NA	2/11/98	Endosulfan II	ND		UG/KG
44148	a	NA	2/11/98	Endosulfan sulfate	ND		UG/KG
44148	a	NA	2/11/98	Endrin	ND		UG/KG
44148	a	NA	2/11/98	Endrin aldehyde	ND		UG/KG
44148	a	NA	2/11/98	Heptachlor	ND		UG/KG
44148	a	NA	2/11/98	Heptachlor epoxide	ND		UG/KG
44148	a	NA	2/11/98	Toxaphene	ND		UG/KG
Fill Material from Parsippany Construction							
60339	b	NA	5/12/98	Chloromethane	ND		UG/KG
60339	b	NA	5/12/98	Bromomethane	ND		UG/KG
60339	b	NA	5/12/98	Vinyl chloride	ND		UG/KG
60339	b	NA	5/12/98	Chloroethane	ND		UG/KG
60339	b	NA	5/12/98	Methylene chloride	2.6	B	UG/KG
60339	b	NA	5/12/98	Acetone	ND		UG/KG
60339	b	NA	5/12/98	Carbon disulfide	1	J	UG/KG
60339	b	NA	5/12/98	1,1-Dichloroethene	ND		UG/KG
60339	b	NA	5/12/98	1,1-Dichloroethane	ND		UG/KG
60339	b	NA	5/12/98	1,2-Dichloroethene (cis)	ND		UG/KG
60339	b	NA	5/12/98	1,2-Dichloroethene (trans)	ND		UG/KG
60339	b	NA	5/12/98	Chloroform	ND		UG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
60339	b	NA	5/12/98	1,2-Dichloroethane	ND		UG/KG
60339	b	NA	5/12/98	2-Butanone	ND		UG/KG
60339	b	NA	5/12/98	1,1,1-Trichloroethane	ND		UG/KG
60339	b	NA	5/12/98	Carbon tetrachloride	ND		UG/KG
60339	b	NA	5/12/98	Bromodichloromethane	ND		UG/KG
60339	b	NA	5/12/98	1,2-Dichloropropane	ND		UG/KG
60339	b	NA	5/12/98	cis-1,3-Dichloropropene	ND		UG/KG
60339	b	NA	5/12/98	trans-1,3-Dichloropropene	ND		UG/KG
60339	b	NA	5/12/98	Trichloroethene	ND		UG/KG
60339	b	NA	5/12/98	Dibromochloromethane	ND		UG/KG
60339	b	NA	5/12/98	1,1,2-Trichloroethane	ND		UG/KG
60339	b	NA	5/12/98	Benzene	0.6	J	UG/KG
60339	b	NA	5/12/98	Bromoform	ND		UG/KG
60339	b	NA	5/12/98	4-methyl-2-pentanone	ND		UG/KG
60339	b	NA	5/12/98	2-Hexanone	ND		UG/KG
60339	b	NA	5/12/98	Tetrachloroethene	ND		UG/KG
60339	b	NA	5/12/98	1,1,2,2-Tetrachloroethane	ND		UG/KG
60339	b	NA	5/12/98	Toluene	ND		UG/KG
60339	b	NA	5/12/98	Chlorobenzene	ND		UG/KG
60339	b	NA	5/12/98	Ethylbenzene	ND		UG/KG
60339	b	NA	5/12/98	Styrene	ND		UG/KG
60339	b	NA	5/12/98	Xylene (total)	ND		UG/KG
60339	b	NA	5/12/98	4-Methy phenol	ND		UG/KG
60339	b	NA	5/12/98	Phenol	ND		UG/KG
60339	b	NA	5/12/98	bis (2-chloroethyl) ether	ND		UG/KG
60339	b	NA	5/12/98	2-Chlorophenol	ND		UG/KG
60339	b	NA	5/12/98	1,3-Dichlorobenzene	ND		UG/KG
60339	b	NA	5/12/98	1,4-Dichlorobenzene	ND		UG/KG
60339	b	NA	5/12/98	1,2-Dichlorobenzene	ND		UG/KG
60339	b	NA	5/12/98	2-Methyl phenol	ND		UG/KG
60339	b	NA	5/12/98	bis (2-chloroisopropyl) ether	ND		UG/KG
60339	b	NA	5/12/98	N-Nitroso-di-n-propylamine	ND		UG/KG
60339	b	NA	5/12/98	Hexachloroethane	ND		UG/KG
60339	b	NA	5/12/98	Nitrobenzene	ND		UG/KG
60339	b	NA	5/12/98	Isophorone	ND		UG/KG
60339	b	NA	5/12/98	2-Nitrophenol	ND		UG/KG
60339	b	NA	5/12/98	2,4-Dimethyl phenol	ND		UG/KG
60339	b	NA	5/12/98	bis (2-Chloroethoxy) methane	ND		UG/KG
60339	b	NA	5/12/98	2,4-Dichlorophenol	ND		UG/KG
60339	b	NA	5/12/98	1,2,4-Trichlorobenzene	ND		UG/KG
60339	b	NA	5/12/98	Naphthalene	28	J	UG/KG
60339	b	NA	5/12/98	4-Chloroaniline	ND		UG/KG
60339	b	NA	5/12/98	Hexachlorobutadiene	ND		UG/KG
60339	b	NA	5/12/98	4-Chloro-3-methyl phenol	ND		UG/KG
60339	b	NA	5/12/98	2-Methylnaphthalene	14	J	UG/KG
60339	b	NA	5/12/98	Hexachlorocyclopentadiene	ND		UG/KG
60339	b	NA	5/12/98	2,4,6-Trichlorophenol	ND		UG/KG
60339	b	NA	5/12/98	2,4,5-Trichlorophenol	ND		UG/KG
60339	b	NA	5/12/98	2-Chloronnaphthalene	ND		UG/KG
60339	b	NA	5/12/98	2-Nitroaniline	ND		UG/KG
60339	b	NA	5/12/98	Dimethylphthalate	ND		UG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
60339	b	NA	5/12/98	Acenaphthylene	71	J	UG/KG
60339	b	NA	5/12/98	2,6-Dinitrotoluene	ND		UG/KG
60339	b	NA	5/12/98	3-Nitroaniline	ND		UG/KG
60339	b	NA	5/12/98	Acenaphthene	37	J	UG/KG
60339	b	NA	5/12/98	2,4-Dinitrophenol	ND		UG/KG
60339	b	NA	5/12/98	4-Nitrophenol	ND		UG/KG
60339	b	NA	5/12/98	Dibenzofuran	22	J	UG/KG
60339	b	NA	5/12/98	2,4-Dinitrotoluene	ND		UG/KG
60339	b	NA	5/12/98	Diethylphthalate	ND		UG/KG
60339	b	NA	5/12/98	4-Chlorophenyl-phenylether	ND		UG/KG
60339	b	NA	5/12/98	Fluorene	51	J	UG/KG
60339	b	NA	5/12/98	4-Nitroaniline	ND		UG/KG
60339	b	NA	5/12/98	4,6-Dinitro-2-methylphenol	ND		UG/KG
60339	b	NA	5/12/98	N-Nitrosodiphenylamine	ND		UG/KG
60339	b	NA	5/12/98	4-Bromophenyl-phenylether	ND		UG/KG
60339	b	NA	5/12/98	Hexachlorobenzene	ND		UG/KG
60339	b	NA	5/12/98	Pentachlorophenol	ND		UG/KG
60339	b	NA	5/12/98	Phenanthrene	420	J	UG/KG
60339	b	NA	5/12/98	Anthracene	120	J	UG/KG
60339	b	NA	5/12/98	Di-n-butylphthalate	ND		UG/KG
60339	b	NA	5/12/98	Fluoranthene	750	J	UG/KG
60339	b	NA	5/12/98	Pyrene	790		UG/KG
60339	b	NA	5/12/98	Butylbenzylphthalate	ND		UG/KG
60339	b	NA	5/12/98	3,3'-Dichlorobenzidine	ND		UG/KG
60339	b	NA	5/12/98	Benzo (a) anthracene	420		UG/KG
60339	b	NA	5/12/98	Chrysene	410	J	UG/KG
60339	b	NA	5/12/98	bis (2-ethylhexyl) phthalate	ND		UG/KG
60339	b	NA	5/12/98	Di-n-octyl phthalate	ND		UG/KG
60339	b	NA	5/12/98	Benzo (b) fluoranthene	580		UG/KG
60339	b	NA	5/12/98	Benzo (k) fluoranthene	250		UG/KG
60339	b	NA	5/12/98	Benzo (a) pyrene	470		UG/KG
60339	b	NA	5/12/98	INDeno (1,2,3-cd) pyrene	280		UG/KG
60339	b	NA	5/12/98	Dibenzo (a,h) anthracene	62		UG/KG
60339	b	NA	5/12/98	Benzo (g,h,i) perylene	310	J	UG/KG
60339	b	NA	5/12/98	Carbazole	47	J	UG/KG
60339	b	NA	5/12/98	Aluminum	5410		MG/KG
60339	b	NA	5/12/98	Antimony	ND		MG/KG
60339	b	NA	5/12/98	Arsenic	1.7		MG/KG
60339	b	NA	5/12/98	Barium	41		MG/KG
60339	b	NA	5/12/98	Beryllium	0.28		MG/KG
60339	b	NA	5/12/98	Cadmium	ND		MG/KG
60339	b	NA	5/12/98	Calcium	2440		MG/KG
60339	b	NA	5/12/98	Chromium	9.1		MG/KG
60339	b	NA	5/12/98	Cobalt	3.7		MG/KG
60339	b	NA	5/12/98	Copper	14.2		MG/KG
60339	b	NA	5/12/98	Iron	8400		MG/KG
60339	b	NA	5/12/98	Lead	32.9		MG/KG
60339	b	NA	5/12/98	Magnesium	1790		MG/KG
60339	b	NA	5/12/98	Manganese	197		MG/KG
60339	b	NA	5/12/98	Mercury	0.05		MG/KG
60339	b	NA	5/12/98	Nickel	7.6		MG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
60339	b	NA	5/12/98	Potassium	352		MG/KG
60339	b	NA	5/12/98	Selenium	ND		MG/KG
60339	b	NA	5/12/98	Silver	ND		MG/KG
60339	b	NA	5/12/98	Sodium	263		MG/KG
60339	b	NA	5/12/98	Thallium	ND		MG/KG
60339	b	NA	5/12/98	Vanadium	12.5		MG/KG
60339	b	NA	5/12/98	Zinc	37.6		MG/KG
60339	b	NA	5/12/98	Arochlor-1016	ND		UG/KG
60339	b	NA	5/12/98	Arochlor-1221	ND		UG/KG
60339	b	NA	5/12/98	Arochlor-1232	ND		UG/KG
60339	b	NA	5/12/98	Arochlor-1242	ND		UG/KG
60339	b	NA	5/12/98	Arochlor-1248	ND		UG/KG
60339	b	NA	5/12/98	Arochlor-1254	ND		UG/KG
60339	b	NA	5/12/98	Arochlor-1260	ND		UG/KG
60339	b	NA	5/12/98	Aldrin	ND		UG/KG
60339	b	NA	5/12/98	alpha-BHC	ND		UG/KG
60339	b	NA	5/12/98	beta-BHC	ND		UG/KG
60339	b	NA	5/12/98	delta-BHC	ND		UG/KG
60339	b	NA	5/12/98	gamma-BHC (lindane)	ND		UG/KG
60339	b	NA	5/12/98	alpha-chlordane	ND		UG/KG
60339	b	NA	5/12/98	4,4'-DDD	5.3		UG/KG
60339	b	NA	5/12/98	4,4'-DDE	ND		UG/KG
60339	b	NA	5/12/98	4,4'-DDT	7.3		UG/KG
60339	b	NA	5/12/98	Dieldrin	ND		UG/KG
60339	b	NA	5/12/98	Endosulfan I	ND		UG/KG
60339	b	NA	5/12/98	Endosulfan II	ND		UG/KG
60339	b	NA	5/12/98	Endosulfan sulfate	ND		UG/KG
60339	b	NA	5/12/98	Endrin	ND		UG/KG
60339	b	NA	5/12/98	Endrin aldehyde	ND		UG/KG
60339	b	NA	5/12/98	Endrin ketone	ND		UG/KG
60339	b	NA	5/12/98	Heptachlor	ND		UG/KG
60339	b	NA	5/12/98	Heptachlor epoxide	ND		UG/KG
60339	b	NA	5/12/98	Methoxychlor	ND		UG/KG
60339	b	NA	5/12/98	Toxaphene	ND		UG/KG
Fill Material from RACE Excavation							
MVP1800	c	NA	6/10/98	Chloromethane	ND		UG/KG
MVP1800	c	NA	6/10/98	Bromomethane	ND		UG/KG
MVP1800	c	NA	6/10/98	Vinyl chloride	ND		UG/KG
MVP1800	c	NA	6/10/98	Chloroethane	ND		UG/KG
MVP1800	c	NA	6/10/98	Methylene chloride	ND		UG/KG
MVP1800	c	NA	6/10/98	Acetone	ND		UG/KG
MVP1800	c	NA	6/10/98	Carbon disulfide	ND		UG/KG
MVP1800	c	NA	6/10/98	1,1-Dichloroethene	ND		UG/KG
MVP1800	c	NA	6/10/98	1,1-Dichloroethane	ND		UG/KG
MVP1800	c	NA	6/10/98	1,2-Dichloroethene (cis)	ND		UG/KG
MVP1800	c	NA	6/10/98	1,2-Dichloroethene (trans)	ND		UG/KG
MVP1800	c	NA	6/10/98	Chloroform	ND		UG/KG
MVP1800	c	NA	6/10/98	1,2-Dichloroethane	ND		UG/KG
MVP1800	c	NA	6/10/98	2-Butanone	ND		UG/KG
MVP1800	c	NA	6/10/98	1,1,1-Trichloroethane	ND		UG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1800	c	NA	6/10/98	Carbon tetrachloride	ND		UG/KG
MVP1800	c	NA	6/10/98	Bromodichloromethane	ND		UG/KG
MVP1800	c	NA	6/10/98	1,2-Dichloropropane	ND		UG/KG
MVP1800	c	NA	6/10/98	cis-1,3-Dichloropropene	ND		UG/KG
MVP1800	c	NA	6/10/98	trans-1,3-Dichloropropene	ND		UG/KG
MVP1800	c	NA	6/10/98	Trichloroethene	ND		UG/KG
MVP1800	c	NA	6/10/98	Dibromochloromethane	ND		UG/KG
MVP1800	c	NA	6/10/98	1,1,2-Trichloroethane	ND		UG/KG
MVP1800	c	NA	6/10/98	Benzene	ND		UG/KG
MVP1800	c	NA	6/10/98	Bromoform	ND		UG/KG
MVP1800	c	NA	6/10/98	4-methyl-2-pentanone	ND		UG/KG
MVP1800	c	NA	6/10/98	2-Hexanone	ND		UG/KG
MVP1800	c	NA	6/10/98	Tetrachloroethene	ND		UG/KG
MVP1800	c	NA	6/10/98	1,1,2,2-Tetrachloroethane	ND		UG/KG
MVP1800	c	NA	6/10/98	Toluene	ND		UG/KG
MVP1800	c	NA	6/10/98	Chlorobenzene	ND		UG/KG
MVP1800	c	NA	6/10/98	Ethylbenzene	ND		UG/KG
MVP1800	c	NA	6/10/98	Styrene	ND		UG/KG
MVP1800	c	NA	6/10/98	Xylene (total)	ND		UG/KG
MVP1800	c	NA	6/10/98	Vinyl acetate	ND		UG/KG
MVP1800	c	NA	6/10/98	2-chloroethylvinylether	ND		UG/KG
MVP1800	c	NA	6/10/98	Phenol	ND		UG/KG
MVP1800	c	NA	6/10/98	bis (2-chloroethyl) ether	ND		UG/KG
MVP1800	c	NA	6/10/98	2-Chlorophenol	ND		UG/KG
MVP1800	c	NA	6/10/98	1,3-Dichlorobenzene	ND		UG/KG
MVP1800	c	NA	6/10/98	1,4-Dichlorobenzene	ND		UG/KG
MVP1800	c	NA	6/10/98	Benzyl alcohol	ND		UG/KG
MVP1800	c	NA	6/10/98	1,2-Dichlorobenzene	ND		UG/KG
MVP1800	c	NA	6/10/98	2-Methyl phenol	ND		UG/KG
MVP1800	c	NA	6/10/98	bis (2-chloroisopropyl) ether	ND		UG/KG
MVP1800	c	NA	6/10/98	4- Methyl phenol	ND		UG/KG
MVP1800	c	NA	6/10/98	N-Nitroso-di-n-propylamine	ND		UG/KG
MVP1800	c	NA	6/10/98	Hexachloroethane	ND		UG/KG
MVP1800	c	NA	6/10/98	Nitrobenzene	ND		UG/KG
MVP1800	c	NA	6/10/98	Isophorone	ND		UG/KG
MVP1800	c	NA	6/10/98	2-Nitrophenol	ND		UG/KG
MVP1800	c	NA	6/10/98	2,4-Dimethyl phenol	ND		UG/KG
MVP1800	c	NA	6/10/98	Benzoic acid	ND		UG/KG
MVP1800	c	NA	6/10/98	bis (2-Chloroethoxy) methane	ND		UG/KG
MVP1800	c	NA	6/10/98	2,4-Dichlorophenol	ND		UG/KG
MVP1800	c	NA	6/10/98	1,2,4-Trichlorobenzene	ND		UG/KG
MVP1800	c	NA	6/10/98	Naphthalene	ND		UG/KG
MVP1800	c	NA	6/10/98	4-Chloroaniline	ND		UG/KG
MVP1800	c	NA	6/10/98	Hexachlorobutadiene	ND		UG/KG
MVP1800	c	NA	6/10/98	4-Chloro-3-methyl phenol	ND		UG/KG
MVP1800	c	NA	6/10/98	2-Methylnaphthalene	ND		UG/KG
MVP1800	c	NA	6/10/98	2,4,6-Trichlorophenol	ND		UG/KG
MVP1800	c	NA	6/10/98	2,4,5-Trichlorophenol	ND		UG/KG
MVP1800	c	NA	6/10/98	2-Chloronaphthalene	ND		UG/KG
MVP1800	c	NA	6/10/98	2-Nitroaniline	ND		UG/KG
MVP1800	c	NA	6/10/98	Dimethylphthalate	ND		UG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1800	c NA	6/10/98	Acenaphthylene	ND		UG/KG
MVP1800	c NA	6/10/98	2,6-Dinitrotoluene	ND		UG/KG
MVP1800	c NA	6/10/98	3-Nitroaniline	ND		UG/KG
MVP1800	c NA	6/10/98	Acenaphthene	ND		UG/KG
MVP1800	c NA	6/10/98	2,4-Dinitrophenol	ND		UG/KG
MVP1800	c NA	6/10/98	4-Nitrophenol	ND		UG/KG
MVP1800	c NA	6/10/98	2,4-Dinitrotoluene	ND		UG/KG
MVP1800	c NA	6/10/98	Diethylphthalate	ND		UG/KG
MVP1800	c NA	6/10/98	4-Chlorophenyl-phenylether	ND		UG/KG
MVP1800	c NA	6/10/98	Fluorene	ND		UG/KG
MVP1800	c NA	6/10/98	4-Nitroaniline	ND		UG/KG
MVP1800	c NA	6/10/98	4,6-Dinitro-2-methylphenol	ND		UG/KG
MVP1800	c NA	6/10/98	N-Nitrosodiphenylamine	ND		UG/KG
MVP1800	c NA	6/10/98	4-Bromophenyl-phenylether	ND		UG/KG
MVP1800	c NA	6/10/98	Hexachlorobenzene	ND		UG/KG
MVP1800	c NA	6/10/98	Pentachlorophenol	ND		UG/KG
MVP1800	c NA	6/10/98	Phenanthrene	ND		UG/KG
MVP1800	c NA	6/10/98	Anthracene	ND		UG/KG
MVP1800	c NA	6/10/98	Di-n-butylphthalate	ND		UG/KG
MVP1800	c NA	6/10/98	Fluoranthene	ND		UG/KG
MVP1800	c NA	6/10/98	Pyrene	ND		UG/KG
MVP1800	c NA	6/10/98	Butylbenzylphthalate	ND		UG/KG
MVP1800	c NA	6/10/98	3,3'-Dichlorobenzidine	ND		UG/KG
MVP1800	c NA	6/10/98	Benzo (a) anthracene	ND		UG/KG
MVP1800	c NA	6/10/98	Chrysene	ND		UG/KG
MVP1800	c NA	6/10/98	bis (2-ethylhexyl) phthalate	ND		UG/KG
MVP1800	c NA	6/10/98	Di-n-octyl phthalate	ND		UG/KG
MVP1800	c NA	6/10/98	Benzo (b) fluoranthene	ND		UG/KG
MVP1800	c NA	6/10/98	Benzo (k) fluoranthene	ND		UG/KG
MVP1800	c NA	6/10/98	Benzo (a) pyrene	ND		UG/KG
MVP1800	c NA	6/10/98	Indeno (1,2,3-cd) pyrene	ND		UG/KG
MVP1800	c NA	6/10/98	Dibenzo (a,h) anthracene	ND		UG/KG
MVP1800	c NA	6/10/98	Benzo (g,h,i) perylene	ND		UG/KG
MVP1800	c NA	6/10/98	Aluminum	10100		MG/KG
MVP1800	c NA	6/10/98	Antimony	ND		MG/KG
MVP1800	c NA	6/10/98	Arsenic	ND		MG/KG
MVP1800	c NA	6/10/98	Barium	36		MG/KG
MVP1800	c NA	6/10/98	Beryllium	0.45		MG/KG
MVP1800	c NA	6/10/98	Cadmium	ND		MG/KG
MVP1800	c NA	6/10/98	Calcium	1350		MG/KG
MVP1800	c NA	6/10/98	Chromium	20		MG/KG
MVP1800	c NA	6/10/98	Cobalt	7.7		MG/KG
MVP1800	c NA	6/10/98	Copper	25		MG/KG
MVP1800	c NA	6/10/98	Iron	11700		MG/KG
MVP1800	c NA	6/10/98	Lead	58		MG/KG
MVP1800	c NA	6/10/98	Magnesium	3040		MG/KG
MVP1800	c NA	6/10/98	Manganese	88		MG/KG
MVP1800	c NA	6/10/98	Mercury	ND		MG/KG
MVP1800	c NA	6/10/98	Nickel	15		MG/KG
MVP1800	c NA	6/10/98	Potassium	259		MG/KG
MVP1800	c NA	6/10/98	Selenium	ND		MG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1800	c	NA	6/10/98	Silver	ND		MG/KG
MVP1800	c	NA	6/10/98	Sodium	186		MG/KG
MVP1800	c	NA	6/10/98	Thallium	ND		MG/KG
MVP1800	c	NA	6/10/98	Vanadium	42		MG/KG
MVP1800	c	NA	6/10/98	Zinc	38		MG/KG
MVP1800	c	NA	6/10/98	Arochlor-1016	ND		UG/KG
MVP1800	c	NA	6/10/98	Arochlor-1221	ND		UG/KG
MVP1800	c	NA	6/10/98	Arochlor-1232	ND		UG/KG
MVP1800	c	NA	6/10/98	Arochlor-1242	ND		UG/KG
MVP1800	c	NA	6/10/98	Arochlor-1248	ND		UG/KG
MVP1800	c	NA	6/10/98	Arochlor-1254	ND		UG/KG
MVP1800	c	NA	6/10/98	Arochlor-1260	ND		UG/KG
MVP1800	c	NA	6/10/98	Aldrin	ND		UG/KG
MVP1800	c	NA	6/10/98	alpha-BHC	ND		UG/KG
MVP1800	c	NA	6/10/98	beta-BHC	ND		UG/KG
MVP1800	c	NA	6/10/98	delta-BHC	ND		UG/KG
MVP1800	c	NA	6/10/98	gamma-BHC (lindane)	ND		UG/KG
MVP1800	c	NA	6/10/98	alpha-chlordane	ND		UG/KG
MVP1800	c	NA	6/10/98	4,4'-DDD	ND		UG/KG
MVP1800	c	NA	6/10/98	4,4'-DDE	ND		UG/KG
MVP1800	c	NA	6/10/98	4,4'-DDT	ND		UG/KG
MVP1800	c	NA	6/10/98	Dieldrin	ND		UG/KG
MVP1800	c	NA	6/10/98	Endosulfan I	ND		UG/KG
MVP1800	c	NA	6/10/98	Endosulfan II	ND		UG/KG
MVP1800	c	NA	6/10/98	Endosulfan sulfate	ND		UG/KG
MVP1800	c	NA	6/10/98	Endrin	ND		UG/KG
MVP1800	c	NA	6/10/98	Endrin ketone	ND		UG/KG
MVP1800	c	NA	6/10/98	Heptachlor	ND		UG/KG
MVP1800	c	NA	6/10/98	Heptachlor epoxide	ND		UG/KG
MVP1800	c	NA	6/10/98	Methoxychlor	ND		UG/KG
MVP1800	c	NA	6/10/98	Toxaphene	ND		UG/KG
MVP1800	c	NA	6/10/98	2,4-D	ND		UG/KG
MVP1800	c	NA	6/10/98	2,4,5-T	ND		UG/KG
MVP1800	c	NA	6/10/98	2,4,5-TP (silvex)	ND		UG/KG
Top Soil from RACE Excavation							
MVP1801	c	NA	6/10/98	Chloromethane	ND		UG/KG
MVP1801	c	NA	6/10/98	Bromomethane	ND		UG/KG
MVP1801	c	NA	6/10/98	Vinyl chloride	ND		UG/KG
MVP1801	c	NA	6/10/98	Chloroethane	ND		UG/KG
MVP1801	c	NA	6/10/98	Methylene chloride	ND		UG/KG
MVP1801	c	NA	6/10/98	Acetone	ND		UG/KG
MVP1801	c	NA	6/10/98	Carbon disulfide	ND		UG/KG
MVP1801	c	NA	6/10/98	1,1-Dichloroethene	ND		UG/KG
MVP1801	c	NA	6/10/98	1,1-Dichloroethane	ND		UG/KG
MVP1801	c	NA	6/10/98	1,2-Dichloroethene (cis)	ND		UG/KG
MVP1801	c	NA	6/10/98	1,2-Dichloroethene (trans)	ND		UG/KG
MVP1801	c	NA	6/10/98	Chloroform	ND		UG/KG
MVP1801	c	NA	6/10/98	1,2-Dichloroethane	ND		UG/KG
MVP1801	c	NA	6/10/98	2-Butanone	ND		UG/KG
MVP1801	c	NA	6/10/98	1,1,1-Trichloroethane	ND		UG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1801	c	NA	6/10/98	Carbon tetrachloride	ND		UG/KG
MVP1801	c	NA	6/10/98	Bromodichloromethane	ND		UG/KG
MVP1801	c	NA	6/10/98	1,2-Dichloropropane	ND		UG/KG
MVP1801	c	NA	6/10/98	cis-1,3-Dichloropropene	ND		UG/KG
MVP1801	c	NA	6/10/98	trans-1,3-Dichloropropene	ND		UG/KG
MVP1801	c	NA	6/10/98	Trichloroethene	ND		UG/KG
MVP1801	c	NA	6/10/98	Dibromochloromethane	ND		UG/KG
MVP1801	c	NA	6/10/98	1,1,2-Trichloroethane	ND		UG/KG
MVP1801	c	NA	6/10/98	Benzene	ND		UG/KG
MVP1801	c	NA	6/10/98	Bromoform	ND		UG/KG
MVP1801	c	NA	6/10/98	4-methyl-2-pentanone	ND		UG/KG
MVP1801	c	NA	6/10/98	2-Hexanone	ND		UG/KG
MVP1801	c	NA	6/10/98	Tetrachloroethene	ND		UG/KG
MVP1801	c	NA	6/10/98	1,1,2,2-Tetrachloroethane	ND		UG/KG
MVP1801	c	NA	6/10/98	Toluene	ND		UG/KG
MVP1801	c	NA	6/10/98	Chlorobenzene	ND		UG/KG
MVP1801	c	NA	6/10/98	Ethylbenzene	ND		UG/KG
MVP1801	c	NA	6/10/98	Styrene	ND		UG/KG
MVP1801	c	NA	6/10/98	Xylene (total)	ND		UG/KG
MVP1801	c	NA	6/10/98	Vinyl acetate	ND		UG/KG
MVP1801	c	NA	6/10/98	2-chloroethylvinylether	ND		UG/KG
MVP1801	c	NA	6/10/98	Phenol	ND		UG/KG
MVP1801	c	NA	6/10/98	bis (2-chloroethyl) ether	ND		UG/KG
MVP1801	c	NA	6/10/98	2-Chlorophenol	ND		UG/KG
MVP1801	c	NA	6/10/98	1,3-Dichlorobenzene	ND		UG/KG
MVP1801	c	NA	6/10/98	1,4-Dichlorobenzene	ND		UG/KG
MVP1801	c	NA	6/10/98	Benzyl alcohol	ND		UG/KG
MVP1801	c	NA	6/10/98	1,2-Dichlorobenzene	ND		UG/KG
MVP1801	c	NA	6/10/98	2-Methyl phenol	ND		UG/KG
MVP1801	c	NA	6/10/98	bis (2-chloroisopropyl) ether	ND		UG/KG
MVP1801	c	NA	6/10/98	4- Methyl phenol	ND		UG/KG
MVP1801	c	NA	6/10/98	N-Nitroso-di-n-propylamine	ND		UG/KG
MVP1801	c	NA	6/10/98	Hexachloroethane	ND		UG/KG
MVP1801	c	NA	6/10/98	Nitrobenzene	ND		UG/KG
MVP1801	c	NA	6/10/98	Isophorone	ND		UG/KG
MVP1801	c	NA	6/10/98	2-Nitrophenol	ND		UG/KG
MVP1801	c	NA	6/10/98	2,4-Dimethyl phenol	ND		UG/KG
MVP1801	c	NA	6/10/98	Benzoic acid	ND		UG/KG
MVP1801	c	NA	6/10/98	bis (2-Chloroethoxy) methane	ND		UG/KG
MVP1801	c	NA	6/10/98	2,4-Dichlorophenol	ND		UG/KG
MVP1801	c	NA	6/10/98	1,2,4-Trichlorobenzene	ND		UG/KG
MVP1801	c	NA	6/10/98	Naphthalene	ND		UG/KG
MVP1801	c	NA	6/10/98	4-Chloroaniline	ND		UG/KG
MVP1801	c	NA	6/10/98	Hexachlorobutadiene	ND		UG/KG
MVP1801	c	NA	6/10/98	4-Chloro-3-methyl phenol	ND		UG/KG
MVP1801	c	NA	6/10/98	2-Methylnaphthalene	ND		UG/KG
MVP1801	c	NA	6/10/98	Hexachlorocyclopentadiene	ND		UG/KG
MVP1801	c	NA	6/10/98	2,4,6-Trichlorophenol	ND		UG/KG
MVP1801	c	NA	6/10/98	2,4,5-Trichlorophenol	ND		UG/KG
MVP1801	c	NA	6/10/98	2-Chloronaphthalene	ND		UG/KG
MVP1801	c	NA	6/10/98	2-Nitroaniline	ND		UG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1801	c	NA	6/10/98	Dimethylphthalate	ND		UG/KG
MVP1801	c	NA	6/10/98	Acenaphthylene	ND		UG/KG
MVP1801	c	NA	6/10/98	2,6-Dinitrotoluene	ND		UG/KG
MVP1801	c	NA	6/10/98	Acenaphthene	ND		UG/KG
MVP1801	c	NA	6/10/98	2,4-Dinitrophenol	ND		UG/KG
MVP1801	c	NA	6/10/98	4-Nitrophenol	ND		UG/KG
MVP1801	c	NA	6/10/98	2,4-Dinitrotoluene	ND		UG/KG
MVP1801	c	NA	6/10/98	Diethylphthalate	ND		UG/KG
MVP1801	c	NA	6/10/98	4-Chlorophenyl-phenylether	ND		UG/KG
MVP1801	c	NA	6/10/98	Fluorene	ND		UG/KG
MVP1801	c	NA	6/10/98	4-Nitroaniline	ND		UG/KG
MVP1801	c	NA	6/10/98	4,6-Dinitro-2-methylphenol	ND		UG/KG
MVP1801	c	NA	6/10/98	N-Nitrosodiphenylamine	ND		UG/KG
MVP1801	c	NA	6/10/98	4-Bromophenyl-phenylether	ND		UG/KG
MVP1801	c	NA	6/10/98	Hexachlorobenzene	ND		UG/KG
MVP1801	c	NA	6/10/98	Pentachlorophenol	ND		UG/KG
MVP1801	c	NA	6/10/98	Phenanthrene	ND		UG/KG
MVP1801	c	NA	6/10/98	Anthracene	ND		UG/KG
MVP1801	c	NA	6/10/98	Di-n-butylphthalate	ND		UG/KG
MVP1801	c	NA	6/10/98	Fluoranthene	400		UG/KG
MVP1801	c	NA	6/10/98	Pyrene	370		UG/KG
MVP1801	c	NA	6/10/98	Butylbenzylphthalate	ND		UG/KG
MVP1801	c	NA	6/10/98	3,3'-Dichlorobenzidine	ND		UG/KG
MVP1801	c	NA	6/10/98	Benzo (a) anthracene	ND		UG/KG
MVP1801	c	NA	6/10/98	Chrysene	ND		UG/KG
MVP1801	c	NA	6/10/98	bis (2-ethylhexyl) phthalate	ND		UG/KG
MVP1801	c	NA	6/10/98	Di-n-octyl phthalate	ND		UG/KG
MVP1801	c	NA	6/10/98	Benzo (b) fluoranthene	ND		UG/KG
MVP1801	c	NA	6/10/98	Benzo (k) fluoranthene	ND		UG/KG
MVP1801	c	NA	6/10/98	Benzo (a) pyrene	ND		UG/KG
MVP1801	c	NA	6/10/98	Indeno (1,2,3-cd) pyrene	ND		UG/KG
MVP1801	c	NA	6/10/98	Dibenzo (a,h) anthracene	ND		UG/KG
MVP1801	c	NA	6/10/98	Benzo (g,h,i) perylene	ND		UG/KG
MVP1801	c	NA	6/10/98	Aluminum	5400		MG/KG
MVP1801	c	NA	6/10/98	Antimony	ND		MG/KG
MVP1801	c	NA	6/10/98	Arsenic	ND		MG/KG
MVP1801	c	NA	6/10/98	Barium	28		MG/KG
MVP1801	c	NA	6/10/98	Beryllium	ND		MG/KG
MVP1801	c	NA	6/10/98	Cadmium	ND		MG/KG
MVP1801	c	NA	6/10/98	Calcium	1100		MG/KG
MVP1801	c	NA	6/10/98	Chromium	10		MG/KG
MVP1801	c	NA	6/10/98	Cobalt	ND		MG/KG
MVP1801	c	NA	6/10/98	Copper	9.4		MG/KG
MVP1801	c	NA	6/10/98	Iron	3120		MG/KG
MVP1801	c	NA	6/10/98	Lead	15		MG/KG
MVP1801	c	NA	6/10/98	Magnesium	700		MG/KG
MVP1801	c	NA	6/10/98	Manganese	30		MG/KG
MVP1801	c	NA	6/10/98	Mercury	0.02		MG/KG
MVP1801	c	NA	6/10/98	Nickel	6.1		MG/KG
MVP1801	c	NA	6/10/98	Potassium	147		MG/KG
MVP1801	c	NA	6/10/98	Selenium	ND		MG/KG

TABLE G-1
RADIOLOGICAL AND CHEMICAL DATA FOR BACKFILL MATERIAL RECEIVED FROM VENDORS

Sample ID	Document ID	COC #	Collection Date	Analyte	Concentration	Review Qualifier	Unit
MVP1801	[c]	NA	6/10/98	Silver	ND		MG/KG
MVP1801	[c]	NA	6/10/98	Sodium	174		MG/KG
MVP1801	[c]	NA	6/10/98	Thallium	ND		MG/KG
MVP1801	[c]	NA	6/10/98	Vanadium	18		MG/KG
MVP1801	[c]	NA	6/10/98	Zinc	18		MG/KG
MVP1801	[c]	NA	6/10/98	Arochlor-1016	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Arochlor-1221	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Arochlor-1232	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Arochlor-1242	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Arochlor-1248	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Arochlor-1254	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Arochlor-1260	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Aldrin	ND		UG/KG
MVP1801	[c]	NA	6/10/98	alpha-BHC	ND		UG/KG
MVP1801	[c]	NA	6/10/98	beta-BHC	ND		UG/KG
MVP1801	[c]	NA	6/10/98	delta-BHC	ND		UG/KG
MVP1801	[c]	NA	6/10/98	gamma-BHC (lindane)	ND		UG/KG
MVP1801	[c]	NA	6/10/98	alpha-chlordane	ND		UG/KG
MVP1801	[c]	NA	6/10/98	4,4'-DDD	ND		UG/KG
MVP1801	[c]	NA	6/10/98	4,4'-DDE	ND		UG/KG
MVP1801	[c]	NA	6/10/98	4,4'-DDT	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Dieldrin	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Endosulfan I	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Endosulfan II	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Endosulfan sulfate	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Endrin	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Endrin ketone	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Heptachlor	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Heptachlor epoxide	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Methoxychlor	ND		UG/KG
MVP1801	[c]	NA	6/10/98	Toxaphene	ND		UG/KG
MVP1801	[c]	NA	6/10/98	2,4-D	ND		UG/KG
MVP1801	[c]	NA	6/10/98	2,4,5-T	ND		UG/KG
MVP1801	[c]	NA	6/10/98	2,4,5-TP (silvex)	ND		UG/KG
Top Soil from RACE Excavation							
MVP1803	98G1045	138980637	6/10/98	Thorium-232	0.43	UJ	PCI/G
MVP1803	98G1045	138980637	6/10/98	Radium-226	0.26	J	PCI/G
MVP1803	98G1045	138980637	6/10/98	Uranium-238	3.1	UJ	PCI/G
Fill Material from RACE Excavation							
MVP1804	98G1045	138980637	6/10/98	Thorium-232	0.56	J	PCI/G
MVP1804	98G1045	138980637	6/10/98	Radium-226	0.38	J	PCI/G
MVP1804	98G1045	138980637	6/10/98	Uranium-238	1.82	UJ	PCI/G

NOTES:

ND - Not detected

NA - Not applicable

J - Estimated value

UJ - Analyte was analyzed for but not detected, but must be estimated for quality control purposes.

B - The analyte was found in the laboratory blank as well as in the sample. This indicates possible laboratory contamination.

[a] BNI 1998. FUSRAP Subcontractor Submittal Status Sheet Analytical Test Results, BPO-5996-1.1-003-1 (March 19).

[b] BNI 1998. FUSRAP Subcontractor Submittal Status Sheet Analytical Test Results, BPO-5996-1.1-004-1 (October 19).

[c] BNI 1998. MIS - Radiological and Chemical Data for Top Soil and Fill Material, CCN # 138-IOA-GEV-00117 (June).

Parsippany Backfill Sample Radiological Data

Sample	34646	44148	60339
Date	12/5/97	2/11/98	5/12/98
Be-7	0.2	<0.2	NA
K-40	11.5	11.2	NA
Mn-54	<0.03	<0.02	NA
Co-58	<0.03	<0.02	NA
Fe-59	<0.06	<0.04	NA
Co-60	<0.03	<0.02	NA
Zn-65	<0.07	<0.04	NA
Zr-95	<0.03	<0.02	NA
Ru-103	<0.03	<0.2	NA
Ru-106	<0.3	<0.2	NA
I-131	<0.05	<0.03	NA
Cs-134	<0.04	0.09	NA
Cs-137	<0.03	0.09	NA
Ba-140	<0.04	<0.03	NA
Ce-141	<0.04	<0.1	NA
Ce-144	<0.2	<0.1	NA
Ra-226	0.91	0.83	1.2
Ac-228	NA	NA	0.53
Th-228	0.60	0.568	NA
Th-232[a]	0.60	0.568	0.53
Th-234	NA	NA	1.6
U-238[b]	0.91	0.83	1.6

Results in pCi/g dry weight.
NA – Not analyzed.
[a]Th-232 concentration inferred from Ac-228 and Th-228 concentrations (assumes equilibrium and natural source).
[b]U-238 concentration inferred from Ra-226 and Th-234 concentration (assumes equilibrium and natural source; uses maximum concentration).