Health Consultation

PRESCHOOL/DAYCARE AT THE
MCCANDLESS FUELS SITE

FRANKLINVILLE, GLOUCESTER COUNTY, NEW JERSEY

SEPTEMBER 28, 2007

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

PRESCHOOLS/DAYCARE AT THE MCCANDLESS FUELS SITE

FRANKLINVILLE, GLOUCESTER COUNTY, NEW JERSEY

Prepared By:

New Jersey Department of Health and Senior Services
Public Health Services Branch
Consumer and Environmental Health Services
Hazardous Site Health Evaluation Program
Under a Cooperative Agreement with the
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

Statement of Issues

In January 2007, the New Jersey Department of Environmental Protection (NJDEP) requested assistance from the New Jersey Department of Health and Senior Services (NJDHSS) in assessing potential exposures and hazards associated with polychlorinated biphenyls (PCBs) detected at or near a preschool/daycare center owned by Faith Fellowship Church and located in one of the buildings at the McCandless Fuels site, Franklinville, Gloucester County.

Through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), the NJDHSS prepared the following health consultation for the preschool/daycare center located at the McCandless Fuels site. The purpose of this Health Consultation was to review the environmental contamination data and to evaluate potential public health implications.

Background

The McCandless Fuels property is located at 2231 Delsea Drive, Franklinville, Gloucester County, New Jersey (see Figure 1). The site has been used as a fuel oil distribution station and waste storage facility. While in operation, the site contained numerous above ground storage tanks (ASTs), underground storage tanks (USTs), loading racks, and other fuel distribution related structures (e.g., pump house, piping). The company ceased operation in May 1989 and began to lease on-site buildings to businesses.

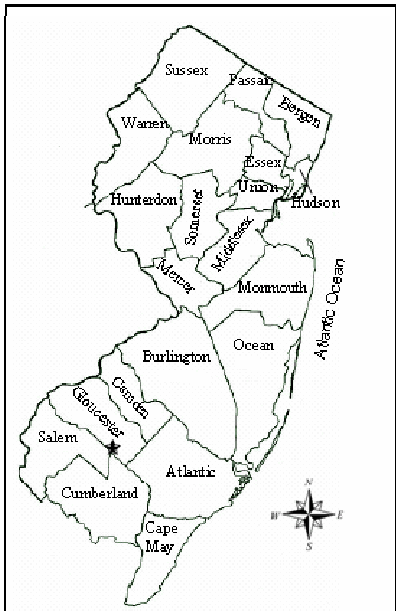

Figure 1: Location of McCandles Fuels Site

On August 25, 1993, the Faith Fellowship Church began leasing a building on the McCandless Fuels Site. The building, the Faith Fellowship Center, was a slab-on-grade, one-story, masonry building. Information obtained from McCandless Fuel personnel indicate that the building was previously used by a glassworks, a hardware store, and McCandless Fuel (as an office and motor oil storage area). In 1993, Faith Fellowship Church was notified of the existence of petroleum hydrocarbon and PCBs contamination at the site (Synergy 2003). In 1996, a 4,000-gallon UST was removed from the building. The tank reportedly exhibited no corrosion or holes.

In September 2001, the Faith Fellowship Church opened a preschool/daycare facility in the building. An area located at the west end of the building, abutting the former operational area, was fenced to create a recreation play area for the preschool/daycare (Mitchell Kizner, McCandless Fuels, personal communication, 2007).

In August 2002, the fenced recreational play area was redesigned/renovated. Approximately 2 inches of asphalt were placed over the existing driveway located between the building and the operational area. An asphalt berm area was also installed and filled with clean sand to create a large sand box.

In October 2003, a remedial investigation (RI) of the McCandless Fuels property was performed (Synergy 2003). Results of the soil samples indicated high PCBs concentrations in the soils abutting the operational area fence. A review of historical investigations of other on-site areas indicated that the site also contains chlorinated volatile organic compounds (VOCs) and petroleum-related compounds at concentrations exceeding the New Jersey Soil Cleanup Criteria. A silt fence along the chain link fence and a plastic cover over the area of impacted surface soil was installed as an interim remedial measure.

In order to determine if PCBs have migrated into the building, a supplemental RI was conducted (Synergy 2004). Although PCBs were detected inside the building during the initial limited sampling event (September 2003), PCBs concentration data from a subsequent, extensive indoor sampling were below the detection limit for PCBs (October and November, 2003). The USEPA Region II, NJDEP, Gloucester County Health Services, and Division of Youth and Family Services were notified about the findings of the sampling events. Each of these agencies indicated that based on the findings presented, no further action was required to protect human health (Synergy 2004). The Faith Fellowship Church was notified about the presence of high concentration of PCBs in the surface soils in the operational area of McCandless Fuels, near the recreational area. In June 2006, the preschool/daycare facility and the Faith Fellowship Church vacated the Faith Fellowship Center building.

Site Visit

On April 27, 2007, a site visit of the McCandless Fuels site was conducted. Individuals present were Tariq Ahmed of NJDHSS and Atwood Davis of NJDEP.

The NJDEP representative discussed the site history and the current status of the McCandless Fuels site. The central portion of the site (also referred to as the "operational area") was secured by a chain link fence with a locked gate. The doors to each building (including the Faith Fellowship Center) were locked (see Photograph 1). The western portion of the site was undeveloped; the NJDEP representative indicated that various types of debris have been found during subsurface investigation in this area. This portion of the site was also secured by a chain link fence in May 2003 (see Photograph 2). Two residences were located directly downgradient from the site on Porchtown Road. These properties were located approximately 2,000 feet from the site on the far side of the Little Ease Run.

The Faith Fellowship Center building was located at the southeast part of the site. The recreational area was paved and contained a large sandbox (see Photograph 3). The

PCB-contaminated area was covered with a black synthetic liner and was located across a chain link fence (see Photograph 4).

Past NJDHSS or ATSDR Activities

No previous activities have been conducted by the NJDHSS or ATSDR at this location.

Environmental Contamination

An evaluation of site-related environmental contamination consists of a two tiered approach: 1) a screening analysis; and 2) a more in-depth analysis to determine public health implications of site-specific exposures. First, maximum concentrations of detected substances are compared to media-specific environmental guideline comparison values (CVs). If concentrations exceed the environmental guideline CV, these substances, referred to as Contaminants of Concern (COC), are selected for further evaluation. Contaminant levels above environmental guideline CVs do not mean that adverse health effects are likely, but that a health guideline comparison is necessary to evaluate site-specific exposures. Once exposure doses are estimated, they are compared with health guideline CVs to determine the likelihood of adverse health effects.

Environmental Guideline Comparison

There are a number of CVs available for the screening environmental contaminants to identify COCs. These include ATSDR Environmental Media Evaluation Guides (EMEGs) and Reference Media Evaluation Guides (RMEGs). EMEGs are estimated contaminant concentrations that are not expected to result in adverse noncarcinogenic health effects. RMEGs represent the concentration in water or soil at which daily human exposure is unlikely to result in adverse noncarcinogenic effects. If the substance is a known or a probable carcinogen, ATSDR's Cancer Risk Evaluation Guides (CREGs) were also considered as comparison values. CREGs are estimated contaminant concentrations that would be expected to cause no more than one excess cancer in a million (10^{-6}) persons exposed during their lifetime (70 years). In the absence of an ATSDR CV, other comparison values may be used to evaluate contaminant levels in environmental media. These include New Jersey Maximum Contaminant Levels (NJMCLs) for drinking water, and USEPA Region 3 Risk-Based Concentrations (RBCs). RBCs are contaminant concentrations corresponding to a fixed level of risk (i.e., a Hazard Quotient[1] of 1, or lifetime excess cancer risk of one in one million, whichever results in a lower contaminant concentration) in water, air, biota, and soil. For soils and sediments, other CVs include the NJDEP Residential and Non-Residential Direct Contact Soil Cleanup Criteria (RDCSCC, NRDCSCC). Based primarily on human health impacts, these criteria also take into account natural background concentrations, analytical detection limits, and ecological effects.

[1]The ratio of estimated site-specific exposure to a single chemical from a site over a specified period to the estimated daily exposure level at which no adverse health effects are likely to occur.

Substances exceeding applicable environmental guideline CVs were identified as COCs and evaluated further to determine whether these contaminants pose a health threat to exposed or potentially exposed receptor populations. In instances where an environmental guideline CV was unavailable, the substance may be retained for further evaluation.

Site Conditions

The McCandless Fuels site area is generally level, with a slight slope to the southwest towards a marshy drainage area called Little Ease Run located approximately 100 feet from the westernmost boundary of the site (see Figure 2). The Little Ease Run drains southward into Still Run, through Willow Grove Lake, into the Maurice River. The groundwater flow is to the west-southwest across the site (Synergy, 2003).

The McCandless Fuels site is surrounded by various commercial properties to the south, Route 47 (Delsea Drive) to the east, an active rail line to the west, an electrical substation to the northeast, and undeveloped and residential land to the north (see Figure 3). One residential property located to the north is connected to the McCandless Fuels supply well; however, the water is not used for drinking (Synergy 2003). The McCandless Fuels site covers approximately 4.4 acres and consists of three functional areas (see Figure 3):

- the operational area – Operational buildings and fuel storage tanks were/are located in this area. This portion of the site has not been used since May 1989.
- the western area – This portion of the site is undeveloped, however unauthorized dumping of construction debris and other solid waste materials took place in this area. This portion of the site was secured by a chain link fence in May 2003.
- the Faith Fellowship Center – This building is located at the east end of the site along Delsea Drive. It was leased to the Faith Fellowship Church, which operated a preschool/daycare facility in the building.

Soil and groundwater at the McCandless Fuels site have been impacted by PCBs, chlorinated VOCs, and petroleum-related compounds. The site is listed on the New Jersey Known Contaminated Sites List.

Demographics

Using 2000 United States Census data, the ATSDR estimates that there are about 2,300 individuals residing within a one mile radius of the McCandless Fuels site (see Figure 4).

McCandless Fuels Site Operational Area Surface Soil

In August and September 2003, five shallow soil samples (0-6 inch depth) were collected from the operational area located along the western boundary of the recreational area of the Faith Fellowship preschool/daycare (see Figure 5) and were analyzed for PCBs. The range and maximum of contaminant concentrations detected are provided in Table 1. The maximum concentration of PCBs exceeded the environmental guideline CV (see Table 1).

Play Area Sand (preschool/daycare)

In August 2003, two play sand samples were collected from the recreational area at the preschool/daycare. Samples were analyzed for PCBs. Results were below the laboratory detection limits (see Figure 6).

Dust Wipe and Bulk Samples (preschool/daycare)

Dust wipe samples were collected from areas known to promote particulate deposition (e.g., the supply side of heating, ventilation and air conditioning (HVAC) systems, or areas not subject to disturbance or routine cleaning, such as tops of cabinets and light fixtures). Bulk dust samples were collected to determine the potential presence of PCBs in materials that may have accumulated over a long period of time. Samples were collected using a new razor knife to cut off a representative piece of the fiberglass duct liners in the day care HVAC systems and from a floor mat in the day care.

In September 2003, one wipe sample from classroom #4 and the playhouse door located in the recreational area and one bulk sample from classroom #3 and infant nursery room #12 were collected (see Figure 6). PCBs were detected in wipe samples from classroom #4 and the playhouse door (0.26 mg/kg and 0.097 mg/kg, respectively) at levels which were below the New Jersey RDCSCC for PCBs (0.49 mg/kg). PCB concentrations detected in the HVAC filter bulk samples from classroom #3 and infant nursery room #12 (1.05 mg/kg and 4.88 mg/kg, respectively). There is no appropriate CV for these samples.

In October 2003, eight wipe samples were collected from various accessible indoor areas of the Faith Fellowship Center and the preschool/daycare and analyzed for PCBs (see Figure 7). The PCB concentrations were below the laboratory detection limits. In addition, three bulk dust samples were collected from indoor areas including classroom #3 and infant nursery room #12 and analyzed for PCBs. The PCB concentrations were below the laboratory detection limits.

Sweep Sample (preschool/daycare)

One sweep sample was collected from the paved area located at the preschool/daycare, along the fence line that abuts the operational area. The sample was

analyzed for PCBs; the PCB concentration (0.118 mg/kg) was below the New Jersey RDCSCC for PCBs (0.49 mg/kg).

Indoor Air (preschool/daycare)

In October, 2003 one ambient and 10 indoor air samples were collected from areas or rooms to be representative of occupant exposure. Sampling pumps were suspended from the ceiling or placed on the surfaces and away from windows, outside doors and other interferences. The samples were analyzed using NIOSH Method 5503 for air samples. All air sample results were less than the analytical detection limits (0.03 $\mu g/m^3$ for all PCBs except Aroclor 1221, which had a detection limit of 0.04 $\mu g/m^3$).

Since the detection limits were above the EPA Region 3 RBC (0.0031 $\mu g/m^3$), four additional indoor air samples from the Faith Fellowship Center and the preschool/daycare were collected in November 2003 and analyzed for PCBs using USEPA Method TO-04. All results were below the much lower detection limits (0.0002 to 0.0003 $\mu g/m^3$), and were also below the EPA Region 3 RBC (0.0031 $\mu g/m^3$).

Potable Wells

On November 20-21, 2003 potable water supply well samples were collected from (1) the McCandless supply well, and, (2) the Faith Fellowship Center supply well and tested for PCBs. The results indicated no exceedances of the New Jersey drinking water standards.

Contaminants of Concern: Summary

PCBs were found at high levels in soils of the operational area at the McCandless Fuels site. However, with the exception of the recreational area playhouse door and classroom #4, the results of PCB analyses of all wipe and air samples collected from the indoor and recreational areas of the daycare/preschool were below laboratory detection limits. The PCB concentration in the sample collected from the playhouse door and classroom #4 were below the New Jersey RDCSCC for PCBs. As such, PCBs are not considered a COC for the preschool/daycare areas.

Discussion

The method for assessing whether a health hazard exists to a community is to determine whether there is a completed exposure pathway from a contaminant source to a receptor population and whether exposures to contamination are high enough to be of health concern. Site-specific exposure doses can be calculated and compared with health guideline CVs.

Assessment Methodology

An exposure pathway is a series of steps starting with the release of a contaminant in environmental media and ending at the interface with the human body. A completed exposure pathway consists of five elements:

1. source of contamination;
2. environmental media and transport mechanisms;
3. point of exposure;
4. route of exposure; and
5. receptor population.

Generally, the ATSDR considers three exposure pathway categories: 1) completed exposure pathways, that is, all five elements of a pathway are present; 2) potential exposure pathways, that is, one or more of the elements may not be present, but information is insufficient to eliminate or exclude the element; and 3) eliminated exposure pathways, that is, one or more of the elements is absent. Exposure pathways are used to evaluate specific ways in which people were, are, or will be exposed to environmental contamination in the past, present, and future.

Based on results and knowledge of accessibility of the media to the population, exposure pathways for individuals were identified as follows:

Completed Pathways

While the preschool/daycare was in operation, children were indoors and accessed the recreational area. With the exception of the playhouse door located in the recreation area and the classroom #4, all wipe and air samples collected from these areas were "non-detect" for PCBs. The PCBs detected in the samples collected from the playhouse door and classroom #4 were below the New Jersey RDCSCC for PCBs. As such, the past exposures were very limited given the lack of detection with most samples.

Child Health Considerations

ATSDR's Child Health Initiative recognizes that the unique vulnerabilities of infants and children demand special emphasis in communities faced with contamination in their environment. Children are at greater risk than adults from certain kinds of exposures to hazardous substances. They are more likely to be exposed because they play outdoors and they often bring food into contaminated areas. They are shorter than adults, which means they breathe dust, soil, and heavy vapors closer to the ground. Children are also smaller, resulting in higher doses of chemical exposure per body weight. The developing body systems of children can sustain permanent damage if toxic exposures occur during critical growth stages. Most important, children depend completely on adults for risk identification and management decisions, housing decisions, and access to medical care.

While in operation, children at the preschool/daycare were indoor and accessed the recreational area on a regular basis. All wipe and air samples collected from these areas were "non-detect" for PCBs or were below the New Jersey RDCSCC for PCBs. As such, the exposures were likely very small and below levels that would result in adverse health effects.

Conclusions

The NJDHSS and ATSDR reviewed the PCB sampling data collected from the Faith Fellowship Center preschool/daycare in 2003. The results show that all wipe and air samples collected from accessible indoor and recreational areas were "non-detect" or were below the New Jersey RDCSCC for PCBs; the exposures were likely very small and below levels that would result in adverse health effects. As such, the site posed ***No Apparent Public Health Hazard*** to children and other individuals.

Since the preschool/daycare owned by the Faith Fellowship Church closed in June 2006, there are no current or future contaminant exposure pathways at the site related to the preschool/daycare operations. As such, the site poses ***No Public Health Hazard.***

Recommendations

The NJDHSS and ATSDR have no recommendations for follow-up activities for the Faith Fellowship Center, including the preschool/daycare.

Public Health Action Plan (PHAP)

The purpose of a PHAP is to ensure that this Health Consultation not only identifies public health hazards, but also provides a plan of action designed to mitigate and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. Included is a commitment on the part of the ATSDR and the NJDHSS to follow up on this plan to ensure that it is implemented. The public health actions to be implemented by the ATSDR and NJDHSS are as follows:

Public Health Actions Taken

1. PCB concentration data from the Faith Fellowship Center in 2003 were evaluated by the NJDHSS and ATSDR.

2. Representatives of the NJDHSS conducted a site visit of the McCandless Fuel site on April 27, 2007.

Public Health Actions Planned

1. The health consultation will be provided to the NJDEP, the Gloucester County Division of Health, the Faith Fellowship Church and concerned parents upon request. It will also be made available on the NJDHSS and ATSDR web sites.

References

[ATSDR] Agency for Toxic Substances and Disease Registry. 2000. Toxicological profile for Polychlorinated Biphenyls. Atlanta: US Department of Health and Human Services.

[Synergy 2003a] Synergy Environmental, Inc. 2003. Remedial Investigation Report: McCandless Fuels Site, Gloucester County, New Jersey, October 2003.

[Synergy 2003b] Synergy Environmental, Inc. 2003. Supplemental Remedial Investigation Report: McCandless Fuels Site, Gloucester County, New Jersey, October 2003.

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CERTIFICATION

The health consultation for the former McCandless Fuels site, Gloucester County, New Jersey was prepared by the New Jersey Department of Health and Senior Services under a cooperative agreement with the Agency for Toxic Substances and Disease Registry. It is in accordance with approved methodology and procedures existing at the time the health assessment were initiated. Editorial review was completed by the cooperative agreement partner.

Gregory V. Ulirsch, MS, PhD
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Agency for Toxic Substances and Disease Registry

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this health consultation and concurs with its findings.

Alan Yarbrough
Team Leader, CAT, CAPEB, DHAC
Agency for Toxic Substances and Disease Registry

Table 1: Surface Soil (0-6 inch depth) PCBs Testing Results of the Samples collected along the Eastern Boundary of the Operational Area

PCBs	Concentration Range (mg/kg[b])	Environmental Guideline CV[c] (mg/kg)	COC[c]
Aroclor - 1248	ND – 338	0.49 (RDCSCC)	**Yes**
Aroclor - 1254	ND – 200	0.49 (RDCSCC)	**Yes**
Aroclor - 1260	ND – 31.2	0.49 (RDCSCC)	**Yes**

[a]milligrams of contaminant per kilogram of soil; [b]Comparison Value; [c]Contaminant of Concern; [d]EPA Region 3 Risk-Based Concentration; [e]ATSDR Cancer Risk Evaluation Guide for chronic exposure; [f]NJDEP Residential Direct Contact Soil Cleanup Criteria; [g]ATSDR Reference Media Evaluation Guide for chronic exposure for child; [h]ATSDR Environmental Media Evaluation Guide for chronic exposure for child

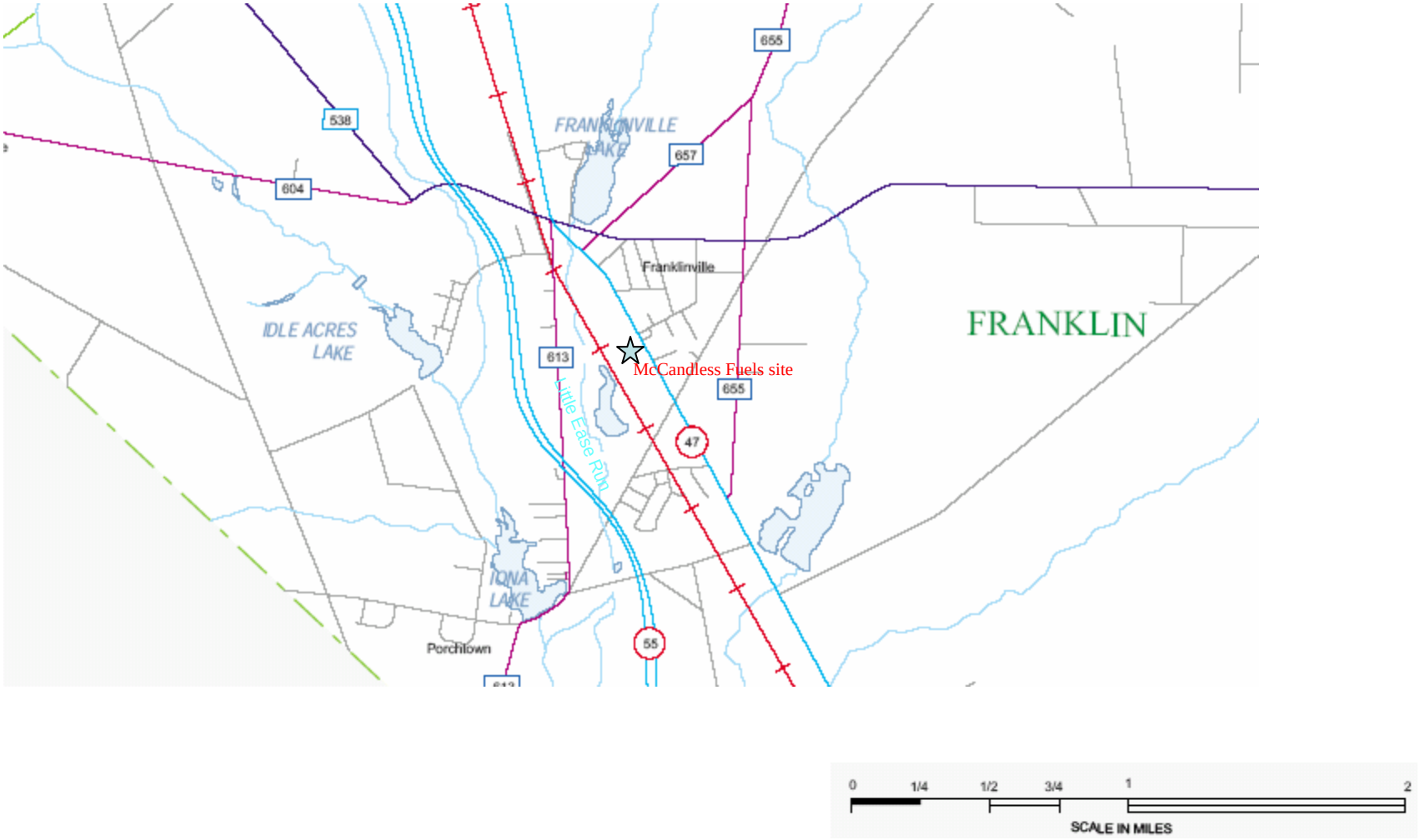


Figure 2: McCandless Fuels site map

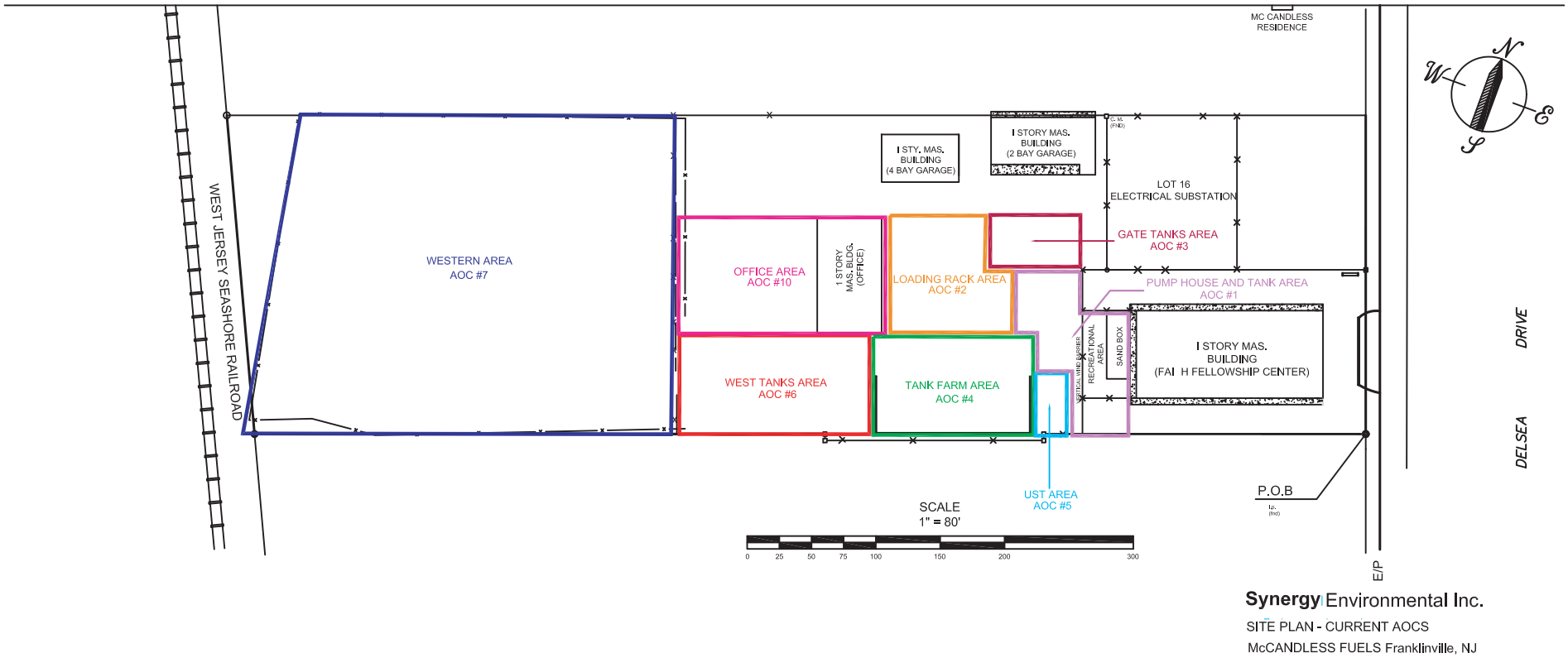
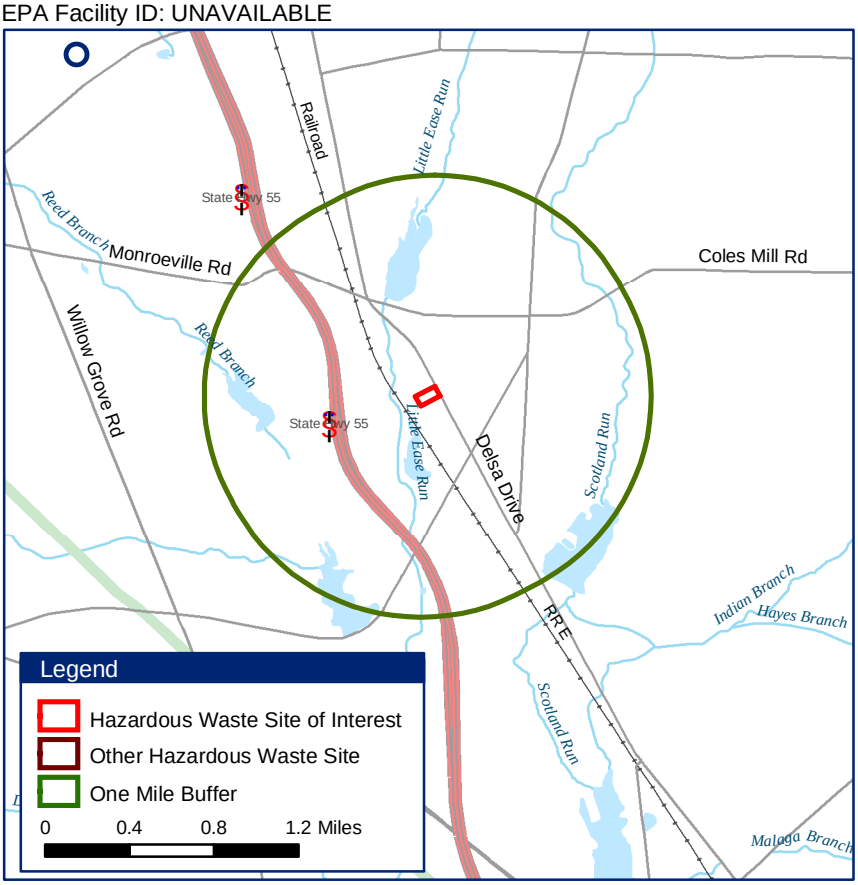


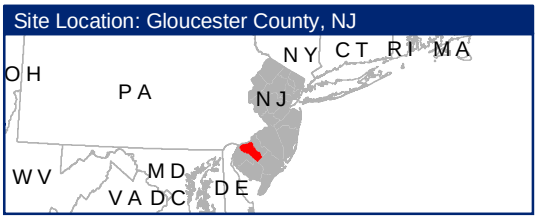
Figure 3: McCandless Fuels Site Plan

McCandless Fuels
Franklinville, NJ

EPA Facility ID: UNAVAILABLE



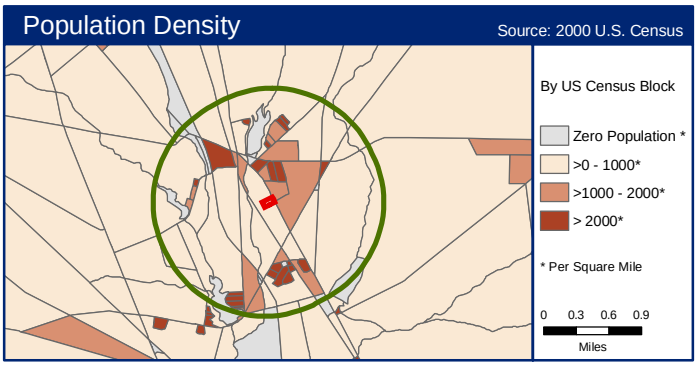
Base Map Source: Geographic Data Technology, May 2005.
Site Boundary Data Source: ATSDR Geospatial Research, Analysis, and Services Program, Current as of Generate Date (bottom left-hand corner).
Coordinate System (All Panels): NAD 1983 StatePlane New Jersey FIPS 2900 Feet

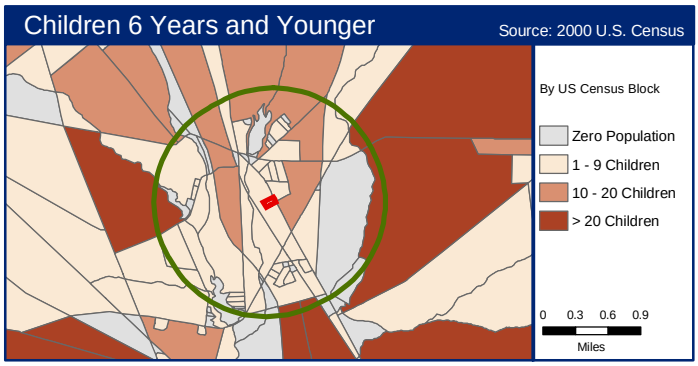


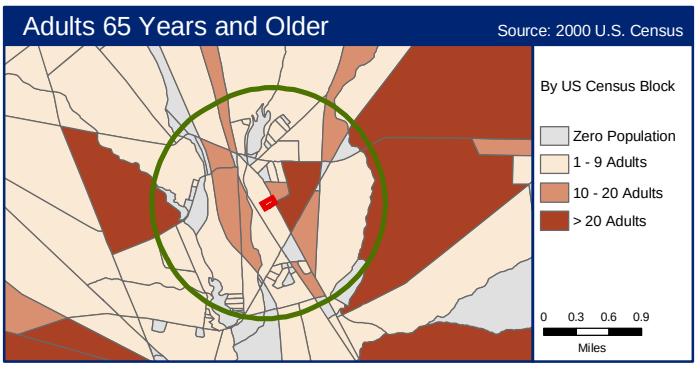
Demographic Statistics
Within One Mile of Site*

Total Population	2,267
White Alone	2,170
Black Alone	53
Am. Indian & Alaska Native Alone	4
Asian Alone	8
Native Hawaiian & Other Pacific Islander Alone	0
Some Other Race Alone	15
Two or More Races	18
Hispanic or Latino**	50
Children Aged 6 and Younger	206
Adults Aged 65 and Older	258
Females Aged 15 to 44	507
Total Housing Units	838

Demographics Statistics Source: 2000 U.S. Census
* Calculated using an area-proportion spatial analysis technique
** People who identify their origin as Hispanic or Latino may be of any race.







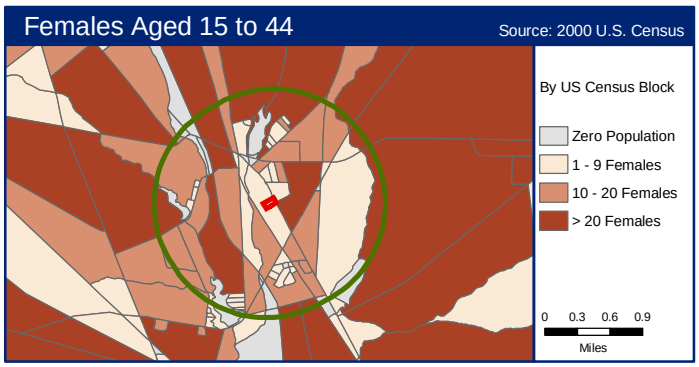


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Figure 4: Demographic Information of McCandless Fuel site

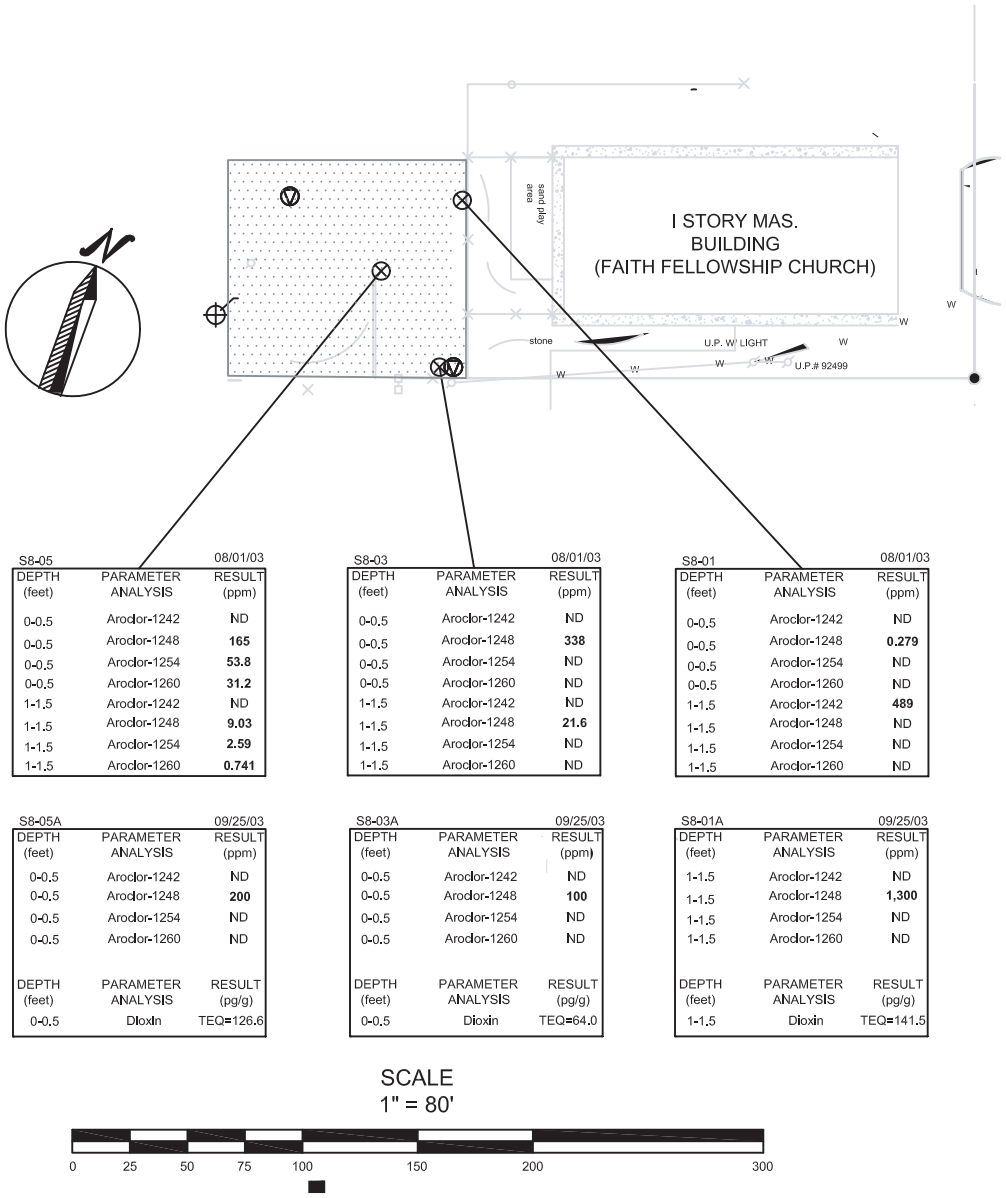

Figure 5: Operational Area Soil Sampling Results

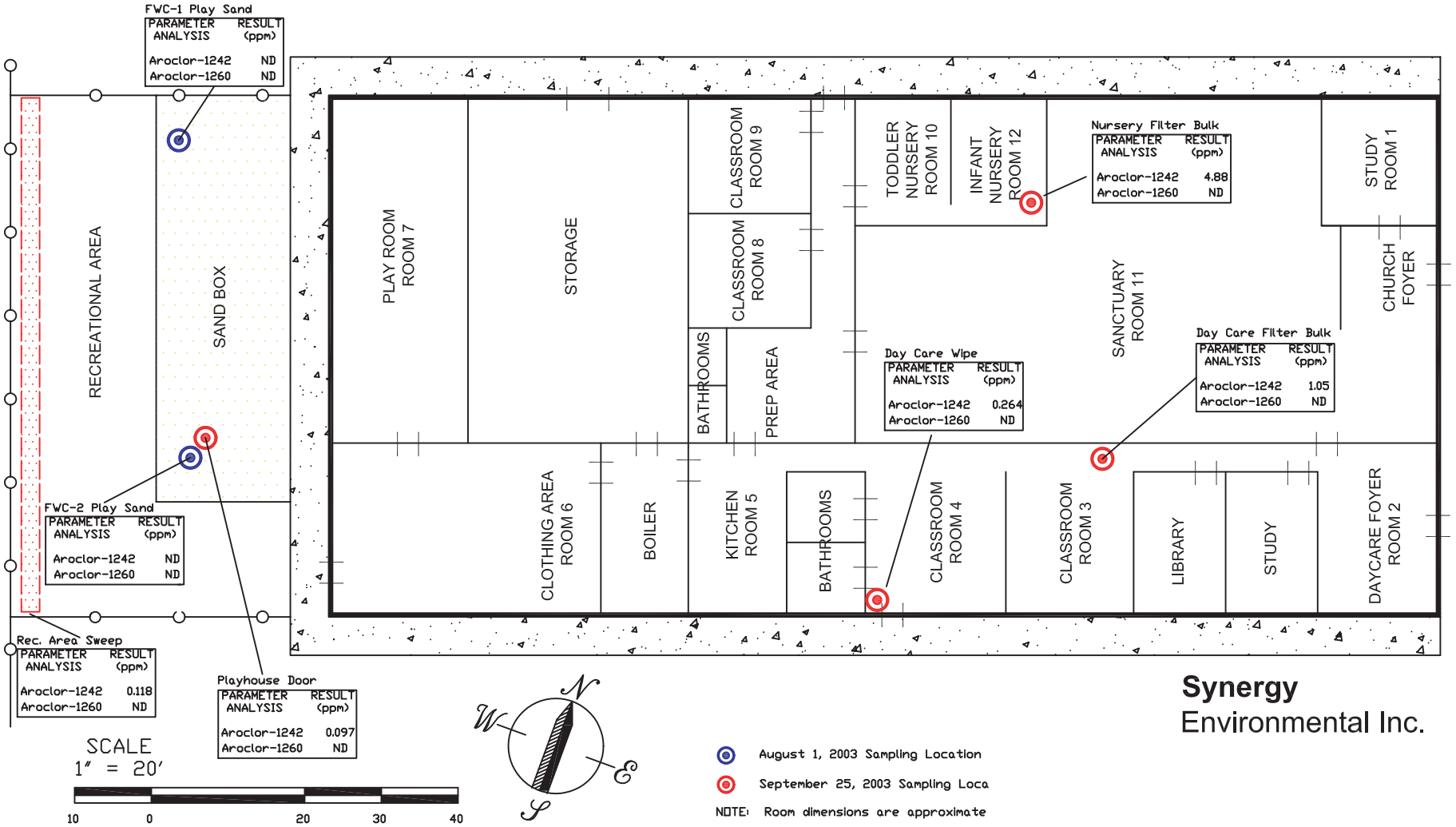

Figure 6: Recreational Area and Indoor PCB Sampling Results (August and September , 2003)

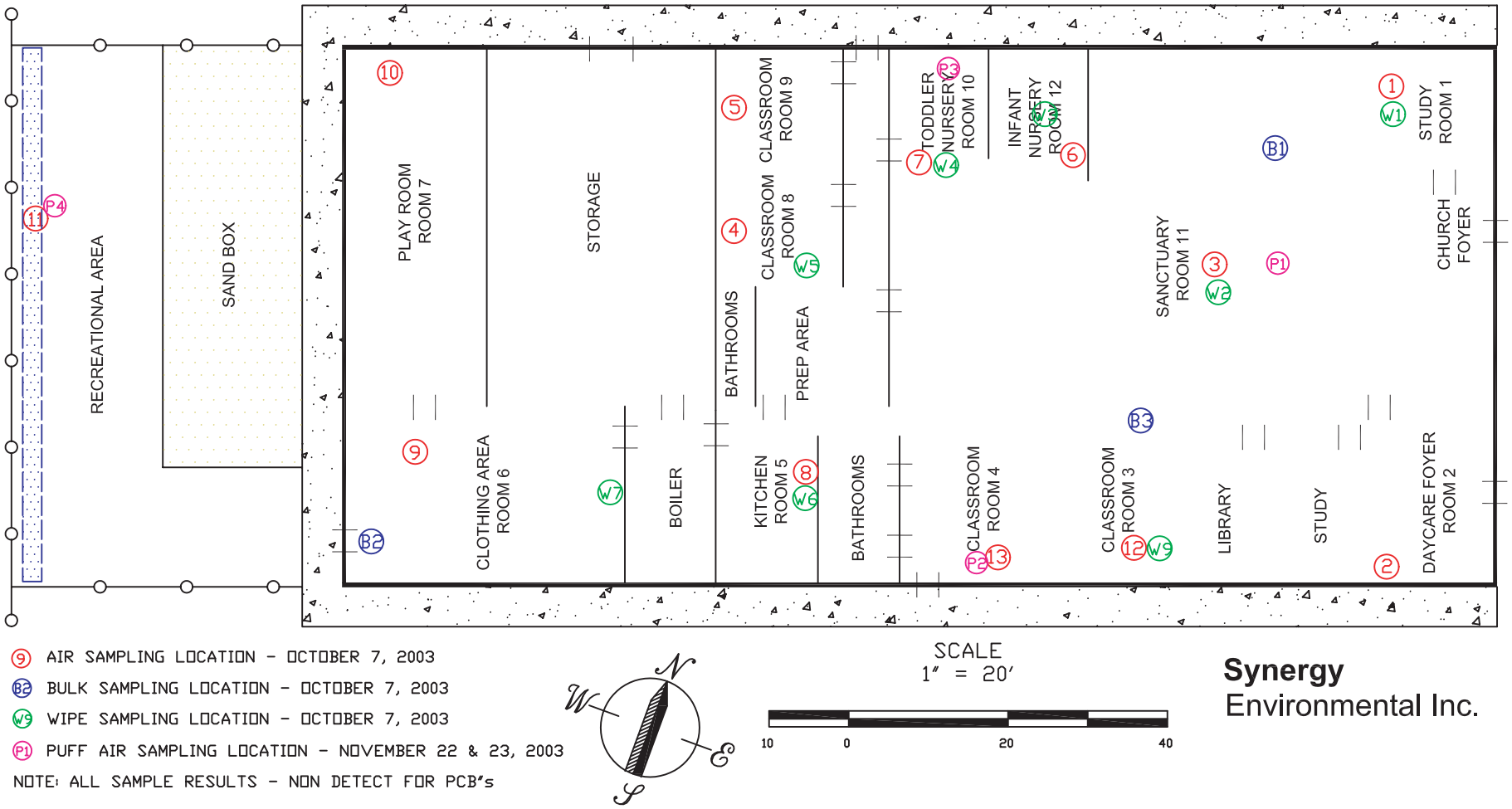

Figure 7: Recreational Area and Indoor PCB Sampling Results (October and November, 2003)

Photograph 1: The Faith Fellowship Center Building

Photograph 2: The chain link fence around the operation area

Photograph 3: Former recreation area of the daycare center

Photograph 4: Plastic cover on the PCB contaminated area