

Health Consultation

MATERIALS EXCHANGE CORPORATION CONSTRUCTION
AND DEMOLITION LANDFILL
(a/k/a WEST COAST MATERIALS)

HOMOSASSA SPRINGS, CITRUS COUNTY, FLORIDA

NOVEMBER 8, 2001

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

MATERIALS EXCHANGE CORPORATION
CONSTRUCTION AND DEMOLITION LANDFILL
(a/k/a WEST COAST MATERIALS)

HOMOSASSA SPRINGS, CITRUS COMPANY, FLORIDA

Prepared by:

Florida Department of Health
Bureau of Environmental Epidemiology
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

Summary

This is the third health consultation the Florida Department of Health (DOH) has prepared for this 142-acre landfill at 5353 Grover Cleveland Boulevard in Homosassa Springs, Florida. In the 1980s, Monex deposited 1.25 million tons of flyash from a coal-fired electric-generating complex in this landfill. Nearby residents are concerned that fugitive dust has caused off-site soil contamination. They are also concerned that buried material poses a threat to nearby groundwater, which is their drinking water source.

In a March 10, 2000, Health Consultation, DOH reviewed the limited existing environmental data and recommended additional testing. In a second Health Consultation evaluating results from five down-gradient private wells, DOH found no volatile organic chemicals or metals above state or federal drinking water standards. Subsequently, DOH found private wells closer to the site. In October and November 2000, the Department of Environmental Protection (DEP) and their consultant sampled groundwater from four on-site monitoring wells and 12 nearby private wells. They also collected and analyzed four on-site and four off-site soil samples. In this health consultation, DOH evaluates these soil and groundwater sampling results.

DOH classifies this site as an “indeterminate public health hazard.” Although the available data do not indicate a current public health problem, additional off-site soil and groundwater data are needed to evaluate the public health threat from this site.

On-site and off-site soil contained metals at levels that are acceptable for current site use. However, the soil samples were taken from the top 2 feet and DOH usually considers the *top 3 inches* of soil in determining peoples’ exposure. This sampling difference is important at this site because of the community’s concern about wind-blown flyash. Because of the possibility of higher surface soil concentrations, DOH recommends retesting the *top 3 inches* of off-site soil.

One on-site monitor well had elevated concentrations of metals. One off-site private well had elevated concentrations of lead. The lead levels in this off-site private well were not elevated, however, when it was retested. Another off-site private well contained oil and grease. Some other off-site private wells contained trace levels of chloroform, dichlorofluoromethane, 1,1-dichloroethene, and chloromethane. Although the levels of these chemicals are unlikely to cause illness, they do indicate possible contamination from the landfill. These off-site private wells should be routinely tested to ensure they do not become a public health threat.

The Citrus County Health Department will sample 12 private off-site wells twice a year for 5 years. The DOH Drinking Water Toxics section will fund the analyses of the samples by the DOH laboratory. The DEP Superfund Site Screening Section has indicated an interest in additional soil sampling on or near the site.

If the site use changes, DOH would need additional on-site environmental data to determine the public health risk.

Background

The Materials Exchange Corporation site, now called West Coast Materials, is a privately owned and operated construction and demolition (C&D) landfill. This landfill is about 3.5 miles east of US 19 (Figure 1), at 5355 Grover Cleveland Boulevard. On April 2, 1999, a resident living near this landfill petitioned the federal Agency for Toxic Substances and Disease Registry (ATSDR) to evaluate the potential public health threats posed by this site. The ATSDR asked the Florida Department of Health (DOH) to prepare a health consultation for this site. In a March 10, 2000, Health Consultation, DOH reviewed the limited existing environmental data and recommended additional soil, surface water, and groundwater testing. DOH also recommended continuous air-monitoring. In a second health consultation evaluating results from five down-gradient private wells, DOH found no volatile organic chemicals or metals above state or federal drinking water standards; however, these wells were not the closest wells to the site. DOH recommended testing the down-gradient wells closest to the site.

This, our third health consultation, evaluates analytical results for soil and groundwater samples taken during a site investigation in late October and early November 2000. Site investigators included personnel from the Department of Environmental Protection (DEP) Superfund site screening section, Ecology and Environment (E&E, DEP's contractors), and the Citrus County Health Department.

History

Mr. Fred Parsons operated a sand mine on the site in the 1970s. From 1980 to 1990, Monex (also known as Monier Ash) disposed of 1.25 million tons of coal flyash in 30 acres near the center of the property. The flyash came from the Florida Power Energy Complex north of Crystal River. Nearby residents reported dust in their yards from the flyash trucks. Residents reported that the drivers had covered their truck-beds when they entered the landfill, but they removed the covers when the ash was dumped and this light material blew out on the trucks' return trips. Residents are concerned not only about inhaling metals from dust, they are also concerned that metals from the flyash may have leached into the groundwater.

In 1992, Materials Exchange Corporation, Inc. purchased the site and the Florida Department of Environmental Protection (DEP) permitted a second burial area on the site for construction and demolition (C&D) waste. Beginning in 1993, this second area received about one million cubic yards of waste every 2 years from Citrus and several other counties to the south. Residents began complaining of odors in 1994. DEP attributed the odors to rotting drywall (gypsum) which can produce hydrogen sulfide under anaerobic (no oxygen) conditions.

In 1997, West Coast Materials, Inc. purchased the site. The second burial area closed in 1998, after receiving about 2.5 million cubic yards of C&D waste. A third area is currently receiving C&D waste. DEP permitted four subareas within this third area, one for each of the four years of

the current permit. Figure 2 shows the two closed burial areas and one active waste area on the 142-acre property. A portion of the second construction and demolition burial area is closed. The operators are depositing debris in another portion of this area and they are still mining a third area for sand. West Coast Materials, Inc. has applied to DEP to operate a Class III landfill in the western area of the site (4).

Demographics

Eleven single-family homes and five mobile homes are within 500 feet of the site property boundaries. Farther than 500 feet to the west and northwest of the site are both undeveloped and residential areas. The areas to the east, north, and immediately west of the site are planned for low residential density. The areas farther west and south of Grover Cleveland Boulevard are planned for medium residential density.

According to 1990 census data, roughly 5,200 people live within a 2-mile radius of the site. About half use private wells. Average family incomes in this area range from about \$20,000 to \$25,000 per year. Most of the population is Caucasian (99%), with the remaining 1% composed of Hispanics, Asians, Native Americans, and others. Four public schools with about 3,200 students are within 2 miles of the site.

Local Hydrology

A surficial aquifer does not exist on or down-gradient from the site. The Floridan aquifer system is the first source of water encountered. Groundwater elevations are between 32 and 80 feet below the land surface. Mining activities and the limited number of monitoring wells complicate the interpretation of groundwater flow direction.

The Floridan aquifer system is the primary source of drinking water in Citrus County. Three public supply wells and 50 commercially operated potable supply wells serving a population of 9,917 exist within four miles of the site. Figure 2 shows the closest wells. Private drinking water well GW-7 is approximately 500 feet from the western perimeter of the site. However, GW-15 is closest to past landfill operations. It is about 2,250 feet from the first closed construction and demolition debris burial area.

Environmental Sample Collection, Analysis, and Results

Soil

Sample Locations - E&E collected eight soil samples with a stainless steel bucket auger from zero to two feet below the ground surface. They collected these samples on November 2, 2000, in the following locations (4):

- **on the site** in potential source areas,
 - three samples from drainage retention areas down gradient from flyash and construction and demolition debris burial areas,
 - one soil sample from near the maintenance area.

- **off the site** in potentially affected areas,
 - three samples from two properties west of the site,
 - one sample from a property south of the site, and
- **one background** sample at the intersection of West Miller Street and at the power line right-of-way northeast of the site.

See E&E's Table 4-1 (at the end of the report) and Figure 2 for sample locations.

Analytical Results - DOH assumes that E&E and DEP followed standard quality assurance and quality control procedures in collecting and analyzing these soil samples. The DEP laboratory in Tallahassee analyzed each soil sample for volatile organic chemicals, base-neutral/acid extractable organic compounds, pesticides, polychlorinated biphenyls, metals, and cyanide. In addition, DEP analyzed the background sample and the soil sample they collected near the maintenance shed for oil and grease, and total recoverable petroleum hydrocarbons.

DOH evaluated these soil analytical results. Most of these chemicals were not present above instrument detection levels with the following exceptions. Traces of semi-volatile chemicals (polynuclear aromatic hydrocarbons - remnants of incompletely burned organic materials) were found in one on-site soil sample and traces of organochlorine pesticides were found in two on-site samples. All the on-site and off-site soil samples showed varying levels of metals. The detection of metals in soil is common because metals can be natural components of soil.

DOH screened all of the identified chemicals using health-based screening levels. **No off-site soil chemical values exceeded ATSDR's health-based screening values (2).** The three on-site soil-arsenic levels that exceed our screening value for residential site use and cancer are shown in the following table. All other on-site chemicals detected were below health-based screening levels.

Chemicals in On-site Soil Collected in October and November 2000 (units—milligrams per kilogram (mg/kg), or parts per million.)				
Chemical	ATSDR CREG¹	MECSS-2 original/DUP	MECSS-3	MECSS-4
Arsenic	0.5¹	1.8I/3.0	2.3 I	3.1

¹ ATSDR cancer risk evaluation guide for 1×10^{-6} excess cancer risk (2). A one-in-one-million excess cancer is a governmental risk management decision of an "acceptable level of risk" (5). The federal government makes such risk management decisions to limit people's exposures to toxic chemicals.

I - Value reported is less than the minimum quantitation limit and greater than or equal to the minimum detection limit.

Discussion of Likelihood of Exposure to and Health Effects from Soil Chemicals - While the arsenic levels in on-site soil are above the ATSDR cancer risk evaluation guide, it is unlikely that

these levels currently pose a risk to public health. This is because the assumptions we make to calculate an average person's dose are unlikely to be met. First, these levels of arsenic were found in sediments/soils in the drainage retention areas and near the truck maintenance shed. Under non-drought conditions, the drainage retention area will likely be underwater and no one is likely to come in contact with sediments from these areas, including site workers. In addition, workers probably do not have daily contact with the soil near the maintenance shed.

To calculate a daily exposure amount (dose), DOH assumes that a person would eat or inhale 100 milligrams of soil per day (about the weight of one postage stamp), each day, for a period greater than a year. We also assume an average person weighs about 140 pounds. At this time it is unlikely that anyone would ingest or inhale this much soil. The landfill is only open 5 days a week, and much of the activity on the site takes place in trucks and other vehicles. The highest arsenic levels measured on the site could increase the risk of lung and skin cancer for individuals who might disturb contaminated soil and who might be exposed for extended periods, if the site use changed. Such exposure is currently unlikely; therefore, skin and lung cancers are also currently unlikely.

With the present site use, it is unlikely children would have daily exposure to on-site soil as the site is fenced and gated along the road to restrict access. DOH's assumed ingestion level (for daily dose calculations) for children is higher than for adults, 200 milligrams of soil per day. The dose DOH calculated for children ingesting 200 mg of soil with 3.1 mg/kg of arsenic, daily, for 10 years, is 26 times lower than the lowest dose linked with lung cancer in humans. Therefore, even residential use of this site would be unlikely to increase the risk of cancers associated with arsenic ingestion even for the youngest members of the population, including those who might deliberately eat soil.

The concentrations of chemicals in the top 2 feet of off-site soil are unlikely to cause illness. DOH usually considers the top 3 inches in determining peoples' exposure. DEP's contractor E&E took these soil samples from 0 to 2 feet deep and mixed them before analysis. Such a sample may not be representative of what people are generally exposed to, except if they are doing extensive digging. Mixing the surface soil with deeper soil may have diluted higher surface concentrations. Because of the possibility of higher surface soil concentrations, DOH recommends retesting the top 3 inches of soil, especially off the site. Soil samples taken from only the top 3 inches would allow DOH to better assess the effects fugitive flyash could have for residents from incidental ingestion or from breathing dust from dry weather conditions.

Groundwater

Sample Locations

On-site Monitoring Wells - DEP contractors collected six groundwater samples on November 1, 2000 from on-site monitoring wells (GW-1 through GW-6, (4)). The following list gives general monitoring well locations:

- **two potential source/impact area monitoring wells**, MW-7A and MW-13B, down gradient of the flyash and the first closed C&D burial area,
 - **three samples from potentially impacted monitoring wells**, MW-15, MW-16, and MW-17 on the northwestern and western perimeters of the site, and
 - **one background sample** up gradient of the burial areas, from monitoring well MW-12.
- See Table 4-1 (from E&E's report at the end of the report) and Figure 2 for sample locations.

Off-site Private Drinking Water Wells - DEP's contractor E&E and Citrus County Health Department staff collected groundwater samples from twelve private wells on October 31, 2000. The following list indicates the general proximity of the private wells to the site:

- **seven west of the site** (MECGW-7 through MECGW-13),
- **one northwest of the site** (MECGW-14),
- **one southwest of the site** (MECGW-15), and
- **three south of the site**—across Grover Cleveland Boulevard (MECGW16 through MECGW-18).

All these wells are shown on Figure 2 and described on E&E's Table 4-1. Each well was purged for at least 15 minutes at the faucet closest to the holding tank or well. On Jan 10, 2001, the Citrus County Health Department resampled MECGW-11 and MECGW-9 for lead.

Analytical Results

On-site Monitoring Wells - The DEP laboratory in Tallahassee analyzed each sample for volatile organic chemicals, base-neutral/acid extractable organic compounds, pesticides, polychlorinated biphenyls, metals, and cyanide. DOH assumes that E&E and DEP followed standard quality assurance and quality control procedures in collecting and analyzing these groundwater samples. Most of the chemicals were not present above instrument detection levels, with the following exceptions. Two monitoring wells contained trace levels of Endosulfan Sulfate (a chlorinated insecticide) and three contained trace levels of chloroform. All of the monitoring wells contained trace levels of metals.

DOH screened all of the chemicals identified in the monitoring wells using health-based screening levels (1, 3). The following table lists chromium, lead, and vanadium found in on-site groundwater that exceed these screening levels (all other on-site chemicals detected were below health-based screening levels).

Chemicals in On-site Groundwater Collected in late October and early November 2000 (units—micrograms per liter (µg/L), or parts per billion)			
Chemical	Screening Value	Monitoring Well MECGW-3 DUP Depth - 47.5'	Monitoring Well MECGW-5 Depth - 50.8'
Chromium	<i>30¹, 100², 100³</i>	11.9	152
Lead	<i>15³</i>	15.0	94.6
Vanadium	<i>30⁴, 100⁵</i>	7.9	108

¹RMEG - Reference Dose Media Evaluation Guide for Children - ATSDR

²RMEG - Reference Dose Media Evaluation Guide for Adults - ATSDR

³MCL - Maximum Contamination Level, Florida Primary Drinking Water Standard (Enforceable)

⁴EMEG - Intermediate (exposure period greater than 10 days and less than 365 days) Environmental Media Evaluation Guide for Children - ATSDR

⁵EMEG - Intermediate (exposure period greater than 10 days and less than 365 days) Environmental Media Evaluation Guide for Adults - ATSDR

Off-site Private Potable Wells - The DOH Laboratory in Jacksonville analyzed each of the 12 private well samples for volatile organic chemicals, semi-volatile organic compounds, and metals. In addition, the DEP Laboratory in Tallahassee analyzed the three private well samples from south of the site for oil, grease, and total recoverable hydrocarbons. DOH assumes that E&E, Citrus County Health Department, and DOH and DEP Laboratory staff followed standard quality assurance and quality control procedures in collecting and analyzing these groundwater samples. Most of the chemicals were not present above instrument detection levels, with the following exceptions. Five private wells contained trace levels of chloroform, one contained trace levels of dichlorofluoromethane, one contained trace levels of 1,1-dichloroethene, and one contained trace levels of chloromethane. All of the private wells contained trace levels of metals.

DOH screened all of the chemicals identified in the private potable wells using health-based screening levels (1, 3). The following table shows lead in one off-site private well that exceeds the enforceable state Maximum Concentration Level (all other chemicals detected off-site were below health-based screening levels). The detection of oil and grease and total recoverable petroleum hydrocarbons in one off-site potable well may be related to the maintenance area on the site.

Chemicals in Off-site Groundwater (We give all values in micrograms per liter (µg/L), or parts per billion.)				
Chemical	Screening Value	Private Well MECGW-16 sampled 10/31/00	Private Well MECGW-11 sampled 10/31/00	Private Well MECGW-11 sampled 1/10/01
Lead	15 ¹	U	120	9.1
Oil & Grease	Not Available	8,000	NA	NA

¹MCL - Maximum Contamination Level, Florida Primary Drinking Water Standard (Enforceable)

U - Undetected (chemical not present above the instrument detection level)

NA - Not Analyzed

Discussion of Likelihood of Exposure to and Health Effects from Groundwater Chemicals -

Metals are considered key indicators for monitoring groundwater at flyash disposal sites. Elevated metals concentrations in groundwater are sometimes attributable to suspended solids. Although sample MECGW-5—the sample with the metals that exceeded our screening values—had a high turbidity reading, the second highest turbidity value came from the on-site background well that had only low or non detectable metal concentrations. With so few monitoring wells and limited data from those few wells, DOH is unable to draw conclusions about on-site groundwater quality.

Although elevated levels of lead were found in groundwater on and off the site, the resample of MECGW-11 did not confirm the presence of elevated lead. DOH recommends continued off-site sampling of private wells, to assure drinking water quality. Although the DOH laboratory did not analyze the private well samples for vanadium, because vanadium was detected in on-site groundwater future private well testing should include vanadium.

ATSDR's Child Health Initiative

ATSDR and DOH, through ATSDR's Child Health Initiative, recognize that the unique vulnerabilities of infants and children demand special emphasis in communities faced with the contamination of their environment. Children are at a greater risk than adults from certain kinds of exposure to hazardous substances emitted from waste sites. They are more likely exposed because they play outdoors and because they often bring food into contaminated areas. They are shorter than adults, which means they breathe dust, soil, and heavy vapors close 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. Probably most important, however, children depend completely on

adults for risk identification and risk management decisions, housing decisions, and for access to medical care. ATSDR has screening values for most of these metals, calculated specifically for children's exposures.

Conclusions

DOH classifies this site as an "indeterminate public health hazard." DOH was not able to determine the public health threat from groundwater because of the limited amount of data. Although the available data do not indicate a current public health problem, four soil and five groundwater samples are inadequate to evaluate the public health threat for future use of this 142-acre site. If the site use changes (flyash mining, residential development, school construction, etc). DOH would need additional environmental data to determine the public health risk.

1. Concentrations of metals in the top 2 feet of off-site soil are not likely to cause illness. DOH usually considers the top 3 inches of soil, however, in determining peoples' exposure. Soil samples from zero to 2 feet deep may not be representative of what people are generally exposed to. Mixing surface soil with deeper soil may have diluted higher surface concentrations. Because of the possibility of higher surface soil concentrations, DOH recommends retesting the top 3 inches of off-site soil.

2. One on-site monitor well had elevated concentrations of metals. One off-site private well had elevated lead that was not confirmed when this well was retested. Another off-site private well contained oil and grease. Some of the off-site private wells contained trace levels of chloroform, dichlorofluoromethane, 1,1-dichloroethene, and chloromethane. Although the levels of these chemicals are unlikely to cause illness, they do indicate possible contamination from the landfill.

Recommendations

To assure that nearby residents are not exposed to metals in soil, or metal or other chemicals in their potable water, DOH makes the following specific recommendations:

1. Collect five additional surface soil samples (0-3" deep) from the residences nearest the site entrance and the road. Analyze for arsenic, chromium, vanadium, and other metals associated with flyash.

2. Test the nearest 12 private wells for metals (EPA method 200.8) and purgeable organic chemicals (EPA method 524.2). In addition, test MECGW-16 for oil and grease (EPA 1664) and total recoverable petroleum hydrocarbons (FL-PRO). Test these wells twice a year for 5 years.

Public Health Action Plan

DOH will continue to work with ATSDR, DEP, the Citrus County Health Department, and nearby residents to protect public health.

1. The Citrus County Health Department will sample 12 private off-site wells twice a year for 5 years. The DOH Drinking Water Toxics section will fund the analyses of the samples by the DOH laboratory.
2. The DEP Superfund Site Screening Section has indicated an interest in additional sampling on or near the site. DOH will propose adding an additional five surface (0-3") soil samples to DEP's future work plans. If they agree with our recommendation, DEP's consultant E&E will be collecting the soil samples during possible future site-related investigation.

Preparers of the Report

Florida Department of Health Author

Connie Garrett, P.G.
Bureau of Environmental Epidemiology
Division of Environmental Health
(850) 245-4299

Florida Department Of Health Designated Reviewer

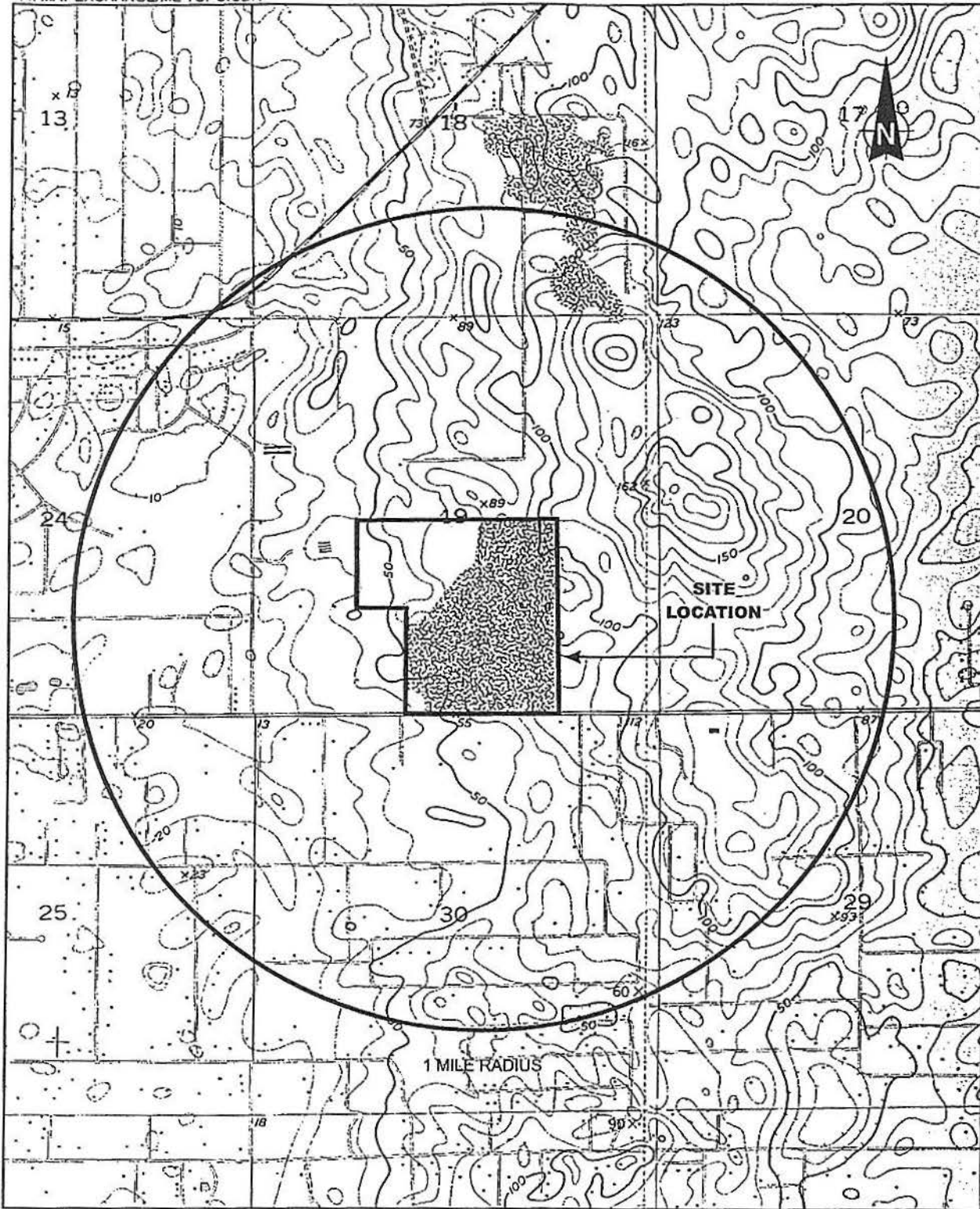
Randy Merchant
Manager, Bureau of Environmental Epidemiology
Division of Environmental Health

ATSDR Designated Reviewer

Debra Gable
Technical Project Officer
Division of Health Assessment and Consultation
ATSDR

References

- (1) State of Florida, Department of Environmental Protection, 1996. Drinking Water Standards, Monitoring and Reporting, Chapter 62-550.
- (2) ATSDR Drinking Water Comparison Values.
- (3) ATSDR Drinking Water Comparison Values.
- (4) Site Inspection Report for the Materials Exchange Corporation Site, Homosassa Springs, Citrus County, Florida, February 2001, prepared for DEP by Ecology and Environment, inc.
- (5) Kamrin, M.A., 1988. Toxicology - A Primer on Toxicology Principles and Applications. Lewis Publishers. Chelsea, MI.



SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle: Homosassa, Florida 1954, photorevised 1988.

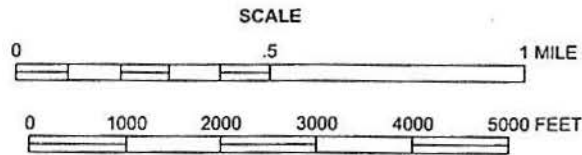
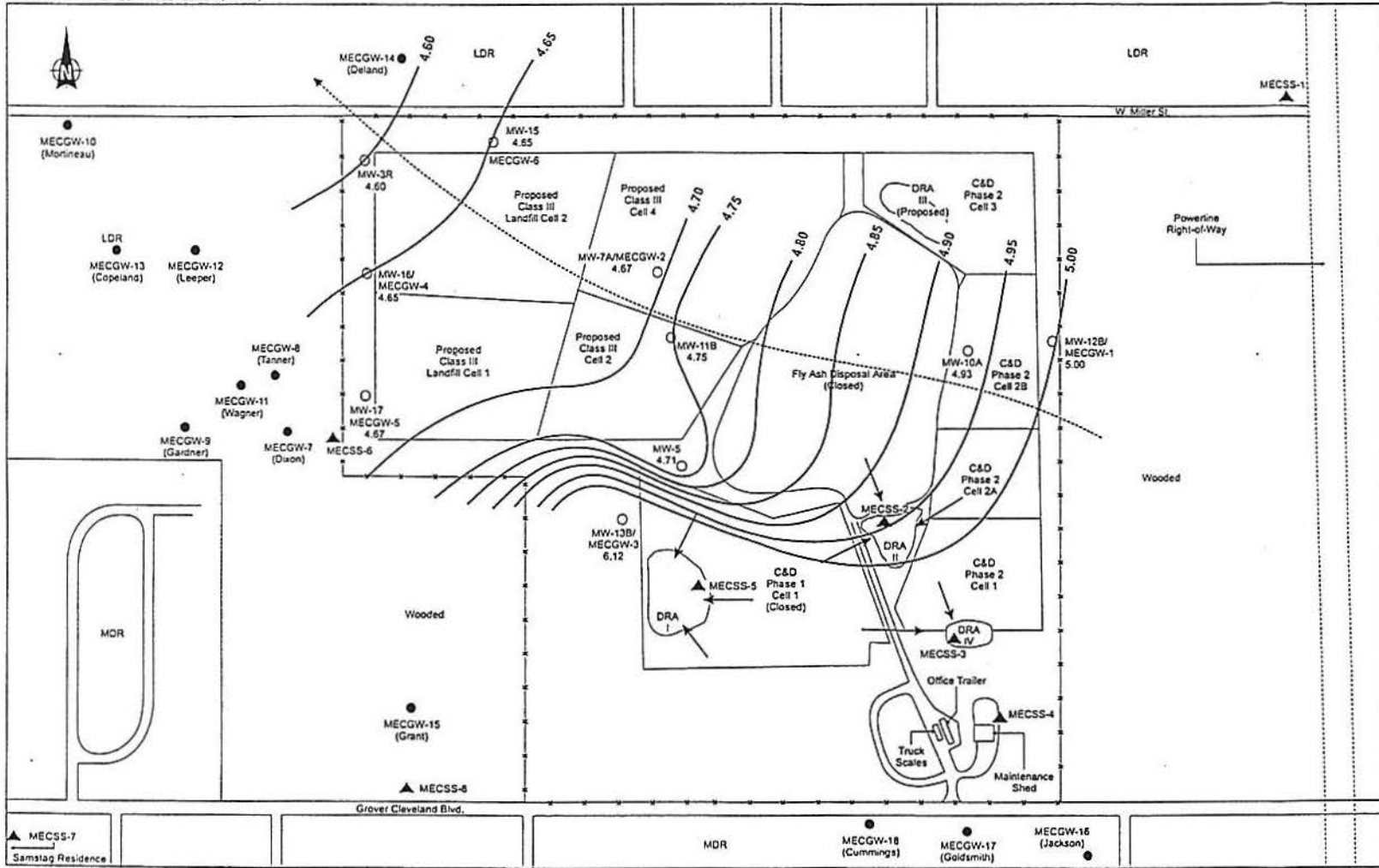


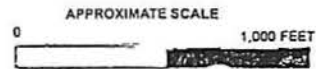
Figure 1 SITE LOCATION MAP -- MATERIAL EXCHANGE CORPORATION SITE, HOMOSSA SPRINGS, CITRUS COUNTY, FLORIDA



SOURCE: Ensol, Inc., October 2, 1999.

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Figure 2 WATER LEVEL ELEVATION ISOPLETH MAP (OCTOBER 31, 2001) MATERIAL EXCHANGE CORPORATION SITE, HOMOSSA SPRINGS, CITRUS COUNTY, FLORIDA



**Table 4-1
SAMPLE LOCATIONS, RATIONALE AND LABORATORY ANALYSIS FOR THE
MATERIAL EXCHANGE CORPORATION SITE
HOMOSASSA SPRINGS, CITRUS COUNTY, FLORIDA**

Sample Type	Sample Designation	Sample Location	Rationale	Laboratory Analysis
Soil	MECSS-1	Surface soil: northwest of site north of West Miller St. near the power line right-of way	Background location	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide, Oil and Grease, TRPH[F1-PRO]
	MECSS-2	Surface soil: DRA II downgradient from the fly ash landfill and C & D Phase 1 Cell 1.	Potential source/impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECSS-3	Surface soil: DRA IV downgradient from the Phase 1 C & D landfill and Phase 2 Cell 1.	Potential source/impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECSS-4	Surface soil: 55-foot north of northeast corner of the maintenance shed/area.	Potential source area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide, Oil and Grease, TRPH[F1-PRO]
	MECSS-5	Surface soil: near DRA I downgradient from Phase 1 C & D landfill.	Potential source/impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECSS-6	Surface soil: Eastern boundary of the Dixon property west of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECSS-7	Surface soil: Northeast corner of Samstag property west of the site along Grover Cleveland Blvd..	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECSS-8	Surface soil: Southern boundard of the Grant property west of site along Grover Cleveland Bld.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
Groundwater (monitoring wells)	MECGW-1	Existing monitoring well MW-12B	Background location	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-2	Existing monitoring well MW-7A, downgradient from the fly ash disposal area.	Potential source/impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-3	Existing monitoring well MW-13B, downgradient from the Phase 1 C & D landfill.	Potential source/impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-4	Existing monitoring well MW-16, downgradient from site at western perimeter.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-5	Existing monitoring well MW-17, downgradient from site at western perimeter .	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-6	Existing monitoring well MW-15 downgradient from site at western perimeter .	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide

**Table 4-1
SAMPLE LOCATIONS, RATIONALE AND LABORATORY ANALYSIS FOR THE
MATERIAL EXCHANGE CORPORATION SITE
HOMOSASSA SPRINGS, CITRUS COUNTY, FLORIDA**

Sample Type	Sample Designation	Sample Location	Rationale	Laboratory Analysis
Groundwater (private supply wells)	MECGW-7	Dixon residence well, west of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-8	Tanner residence well west of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-9	Gardner residence well, west of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-10	Martineau residence well, west of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-11	Wagner residence well, west of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-12	Leeper residence well, west of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-13	Copeland residence well, west of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-14	Deland residence well, northwest of the site.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-15	Grant property well southwest of Phase 1 C & D landfill.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-16	Jackson residence well located south of the maintenance area across Grover Cleveland Boulevard.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide, Oil and Grease, TRPH[FI-PRO]
	MECGW-17	Goldsmith residence well located south of the maintenance area across Grover Cleveland Boulevard.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide, Oil and Grease, TRPH[FI-PRO]
	MECGW-18	Cummings residence well located south of the maintenance area across Grover Cleveland Boulevard.	Potential impact area	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide, Oil and Grease, TRPH[FI-PRO]
Quality Assurance/ Quality Control	MECSS-RB	NA	Soil sampling equipment rinsate blank	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECSS-2DUP	Surface soil: DRA II downgradient from the fly ash landfill and C & D Phase 1 Cell 1.	Duplicate soil sample	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide

Table 4-1
SAMPLE LOCATIONS, RATIONALE AND LABORATORY ANALYSIS FOR THE
MATERIAL EXCHANGE CORPORATION SITE
HOMOSASSA SPRINGS, CITRUS COUNTY, FLORIDA

Sample Type	Sample Designation	Sample Location	Rationale	Laboratory Analysis
Quality Assurance/ Quality Control	MECSSS-TB	NA	Trip blank for soil samples	VOCs
	MECGW-RB	NA	Groundwater sampling equipment rinsate blank	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide
	MECGW-3DUP	Existing monitoring well MW-13B, downgradient from the Phase 1 C & D landfill	Duplicate groundwater sample	VOCs, SVOCs, Pest/PCBs, Metals, Cyanide, Oil and Grease
	MECGW-16DUP	NA	Duplicate groundwater sample	Oil and Grease, TRPH[F1-PRO]
	MECGW-TB1	NA	Trip blank for groundwater samples to DOH laboratory	VOCs
	MECGW-TB	NA	Trip blank for groundwater samples to FDEP laboratory	VOCs

Key:

DRA = drainage retention area.

NA = Not applicable.

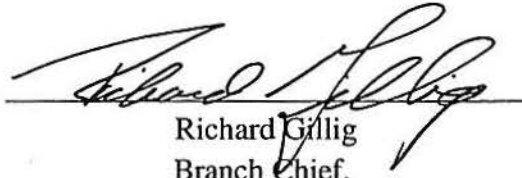
CERTIFICATION

The Florida Department of Health, Bureau of Environmental Epidemiology prepared the Materials Exchange Corporation (MEC) Landfill Health Consultation under a cooperative agreement with the Agency for Toxic Substances and Disease Registry. It followed approved methodology and procedures existing at the time it began.



Debra Gable
Technical Project Officer,
SPS, SSAB, DHAC

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



Richard Gillig
Branch Chief,
SSAB, DHAC, ATSDR