

NJDEP Site Investigation for Historic Farm Use and Unknown Source Soil Stockpile

1084-1092 Route 83
Dennis Township, Cape May County, NJ

*MJW Consulting prepares factual data to support our clients
Environmental Business Risk Decision Making*

May 27, 2008

Prepared for: David and Karen Thompson
by: MJW Consulting

Filename: C:\AAAfiles\Site_ass\Route 83 1084-92\SI Report.wpd

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Introduction

David and Karen Thompson are planning to build on land that has been recently subdivided into five lots. Two of the five lots (lots 4.04 and 4.05) will become a day care facility. In order for Mr. and Mrs. Thompson to proceed with this development, MJW was asked to perform a Preliminary Site Assessment (PSA). As part of this review we developed two potential Areas of Concern that required a Site Investigation. This reporting covers both areas of concern and proves that these two concerns will not result in a human health concern when the new development of the day care center is completed.

1084-1092 Route 83 is a vacant parcel of land that is planned for future use as a day care center. The site consists of 1.966 acres of vacant land recently subdivided and now known as lots 4.04 and 4.05 in block 260. The total lot measurements of the property are irregular in shape. There is 588.27 feet of frontage on Route 83 and 206 feet of frontage on Radcliff Lane. The property extends as much as 327 feet away from Route 83 to the northeast, coming within a few feet of Kings Highway.

We reviewed aerial photography that showed a prior use of the land for farming. This resulted in an open Area of Concern (AOC-1) in the PSA conclusions. Historical farm use has been known to cause pesticides that remain in the surface soils. In order to confirm that pesticides are not in excess of the residential soil standard a Site Investigation is required.

During the site reconnaissance portion of the PSA MJW noted a stockpile of soils on the property. The current owner did not know the original source of the soil. Therefore, a second area of concern (AOC-2) was required for an unknown source of approximately 20 cubic yards of stockpiled soil.

The following discussion is presented to eliminate the two outstanding areas of concern at this property.

Previous Farm Land Use

Previous farm land use became an environmental issue of importance to the NJDEP in 1998. The NJDEP was asked to respond to several areas where residential development over farm land had caused surface soil contamination. Lead, arsenic and pesticides were found in the surface soil at two Burlington County housing developments in 1998. A task force was formed to determine what action should be taken to define the potential contamination at old farm land property, before the land is redeveloped. In 1999 the task force issued recommendations for determining if the contamination is present and for treating the soils to reduce these pollutants and protect public health. The document titled, Findings and Recommendations for the Remediation of Historic Pesticide Contamination was presented to the NJDEP Commissioner and gained his approval. MJW Consulting has reviewed the document. We do not find a regulatory or administrative code reference that would indicate that the findings have been adopted by the State of New Jersey. Therefore, this document should be treated as a guideline rather than a regulation. We recommend addressing previous farm use if the specific site may be used as residential housing in the future, or, if the potential for exposure to children at play is present. In this case, analysis of the site is necessary because of the planned future use of the site as a day care facility. It is also noted that a Site Investigation for these types of contaminants may be required to comply with the Dennis Township municipal site plan approval process.

MJW Consulting used the above recommended procedures to determine if the levels of surface soil contamination at 1084-1092 Route 83 warrant further action. The quantity and type of sampling is recommended by the guidance document. Our analysis demonstrates that all compounds are below all three of the NJDEP soil standards. The analytical results prove that pesticides were used at this property in the past. However, although three compounds were detected in the pesticide scan, these levels do not exceed the soil standards. The NJDEP's Unrestricted Use Cleanup Criteria allows the land to be developed as a day care center. Refer to the Site Investigation section of this report for further details.

Based on these results, this area of concern does not require soil treatment or site remediation. There is no need for further investigation of the soil. We recommend a No Further Action determination from the NJDEP to conclude this matter, based on the following analysis of surface soil conditions.

Site Investigation

AOC-1 Historic Farm Use

In response to the need for surface soil sampling in the area where farm land was once located, MJW obtained two surface soil samples in accordance with the sampling requirements defined in the Findings and Recommendations for the Remediation of Historic Pesticide Contamination. Our sampling protocol was also in compliance with the NJDEP Field Sampling Procedures Manual, dated 1992.

This land has been farmed for at least 30 years. During the Phase I assessment of the property we determined that this land has cleared of natural vegetation since 1940. There are no historical records dating back to before this date. Therefore, it is possible that the land was farmed prior to 1940. In a 1970 aerial view we see the farm use come to an end. There are no other land uses for 1084-1092 Route 83 after 1970, when the farm operation concluded.

Two discrete soil samples for arsenic, lead and pesticides (SW864-8081A) is considered adequate to cover the up to five acres of land. Less than 75 percent of the 1.966 acres of land under review was once being farmed. Therefore, the two sample minimum applies and this quantity of sampling will be sufficient to analyze the land for Historic Farm Use parameters in surface soil.

All of the planted surfaces could potentially receive pesticide contamination. Therefore, these areas must be analyzed. We have indicated on a Site Map of the property the two locations selected for laboratory analysis. This drawings is located under Appendix 1. Each sampling point is identified by a sample ID number on the drawing (S1 and S2). We positioned each soil boring so as to equally divide the site into two areas, each 1/2 of the total planted surface area in 1947. The 1947 aerial view is also attached under Appendix 1. This photo is the clearest representation of the planted area during the historical review. On May 21, 2008 MJW obtained two discrete soil samples from zero to six inches below grade in the areas shown on the Site Map. Soil samples were laboratory packaged and placed on ice for transport to QC Inc. Laboratories. A standard chain of custody accompanied the soil samples that were delivered to the laboratory on May 22, 2008. The samples were marked for NJDEP quality control analysis and reporting. A summary of the analytical results is presented below:

Area of Concern 1
 Surface Soil Sampling Results for Historic Farm Use at
 1084-1092 Route 83
 Dennis Township, Cape May County
 In Comparison to all NJDEP Soil Cleanup Criteria

Sample ID	S1 (mg/kg)	S2 (mg/kg)	NJDEP RDCSCC mg/kg	NJDEP NRDCSC mg/kg	NJDEP IGWSCC mg/kg
Compound					
Arsenic	2.67	3.96	20.0	20.0	SS
Lead	15.1	20.6	400	600	SS
Aldrin	ND	ND	0.040	0.17	50.0
Alpha - BHC	ND	ND	NS	NS	NS
Beta - BHC	ND	ND	NS	NS	NS
Gamma - BHC	ND	ND	NS	NS	NS
Delta - BHC	ND	ND	NS	NS	NS
Chlordane	ND	0.0596	NS	NS	NS
4,4' - DDD	ND	ND	3	12	50
4,4' - DDE	ND	0.0409	2	9	50
4,4' - DDT	ND	0.137	2	9	500
Dieldrin	ND	ND	0.042	0.18	50
Endosulfan I	ND	ND	340	6,200	50
Endosulfan II	ND	ND	NS	NS	NS
Endosulfan Sulfate	ND	ND	NS	NS	NS
Endrin	ND	ND	17	310	50
Endrin Aldehyde	ND	ND	NS	NS	NS
Heptachlor	ND	ND	0.15	0.65	50

ND=Not Detected; SS= Site Specific; NS=No NJDEP Soil Standard **BOLD**= over one or more of the soil standards

Area of Concern 1 Surface Soil Sampling Results for Historic Farm Use at 1084-1092 Route 83 Dennis Township, Cape May County In Comparison to all NJDEP Soil Cleanup Criteria (Cont.)					
Sample ID	S1 (mg/kg)	S2 (mg/kg)	NJDEP RDCSCC mg/kg	NJDEP NRDCSC mg/kg	NJDEP IGWSCC mg/kg
Compound					
Heptachlor Epoxide	ND	ND	NS	NS	NS
Methoxychlor	ND	ND	280	5,200	50
Toxaphene	ND	ND	0.10	0.2	50
Mirex	ND	ND	NS	NS	NS
Solid %	82.70	85.15	-	-	-

ND=Not Detected; SS= Site Specific; NS=No NJDEP Soil Standard **BOLD**= over one or more of the soil standards

The above table summarizes all contaminant concentrations that could potentially be found at a pesticide contaminated site. There were no pesticide compounds detected at S1. S2 had three compounds; Chlordane, DDE and DDT that were detected at levels that do not represent a human health concern, if these soils were placed at the surface and residential housing replaced the farm land use. Likewise, for children at play, the most stringent soil standard would apply. This standard is known as the Residential Direct Contact Cleanup Criteria (RDCSCC). Chlordane does not have a residential standard. DDE and DDT have a limit of 2 mg/kg. The DDE concentration is 0.0409 mg/kg, which is only about two percent of the allowable under the most stringent standard. The DDT level is 0.137 mg/kg, which is about seven percent of the allowable.

Chlordane is at 0.0596, which does not have a level to compare it to in the standard. We researched the NJDEP web site and found no references that could be used to determine a limit for this compound. However, the level reported of 0.0596 mg/kg is considered an insignificant concentration.

Lead and arsenic were detected at relatively low concentrations in both locations. The highest arsenic level was 3.96 ppm at sampling point S2. The allowable limit is 20 ppm. Therefore, the arsenic levels are all acceptable. Lead was detected at a maximum level of 20.6 ppm at sampling point S2. The allowable limit is 400 ppm for Unrestricted Use of the site. Therefore, the lead levels are considered safe for residential development of the land.

Analytical data sheets covering all parameters in the pesticide scan may be found in the attached QC, Inc. analytical results. The quality control data has not been received as of this reporting. MJW will forward this information when received from our laboratory.

Although there was a use of pesticide at 1084-1092 Route 83, the residual

concentration in the surface soils do not pose a risk to human health if the property is redeveloped as a child day care center.

In summary, although not required by environmental regulations, the NJDEP recommends that previous farm land be assessed to determine if pesticide contamination is present in surface soils. We believe that the pesticide levels at this property do not require treatment on site or disposal off site because of the intended future use of the site as a child day care center. The soils may be left in place.

AOC-2 Unknown Source Stockpiled Soil

Approximately 20 cubic yards of stockpiled soil was left on this property by a previous owner. Or, it may have been illegally dumped on the land. The current owner suspected that the soils were generated when excavation equipment was used to clear the land of vegetation. Because MJW consulting could not accurately determine the source of the stockpiled soils, we recommended an Area of Concern (AOC-2).

To determine if there were contaminants in the stockpile that could result in a human health concern, we were required to sample for all parameters. The stockpiled material was subdivided into five equal parts. One soil sample was taken from each nominal four cubic yard quantity of soil. The soils were then commingled to create one composite soil sample. The composite soil sample was then analyzed for all potential contaminants that might be expected in an unknown source of material. Volatile organics, base/neutral organics, heavy metals, pesticides, herbicides and PCBs were included in a priority pollutant plus 40 scan. Following is summary of the results of this analysis. We have omitted from this summary table all of those compounds that were reported "Non-Detect".

Area of Concern 2 Surface Soil Sampling Results for Unknown Source Stockpile at 1084-1092 Route 83 Dennis Township, Cape May County In Comparison to all NJDEP Soil Cleanup Criteria				
Sample ID	S3 (mg/kg)	NJDEP RDCSCC mg/kg	NJDEP NRDCSC mg/kg	NJDEP IGWSCC mg/kg
Compound				
Acetone	0.344	1,000	10,000	100
Methylene Chloride	0.0744	49	210	1
8270C TICs	9.227	10,000	10,000	10,000
Arsenic	1.32	20	20	NS
Chromium *	4.86	240	20	SS
Copper	51.2	600	600	NS
Nickel	1.84	250	2,400	NS
Lead	20.2	400	600	NS
Zinc	13.9	1,500	1,500	NS
Phenol	5.07	10,000	10,000	50

ND=Not Detected; SS= Site Specific; NS=No NJDEP Soil Standard **BOLD**= over one or more of the soil standards

* Assumed to be exclusively hexavalent for a worst case comparison to the standards

These results demonstrate that the stockpiled material does not contain contaminants that might cause a concern for human health when the property is developed as a day care center. There were several compounds detected, but most are either laboratory contaminants or naturally occurring. The concentrations of heavy metals, including arsenic, chromium, copper, nickel, lead and zinc are all naturally occurring compounds commonly found at low concentrations. Acetone and methylene chloride are typically found to be laboratory contaminants. The base/neutral tentatively identified compounds (8270C TICs) are not typically found in either laboratory trip blanks or naturally occurring. However, the concentrations of these compounds at less than 1/1,000 of the allowable is considered insignificant. We also note that pesticides were not found in these soils.

The results of composite sampling allows us to conclude that this soil stockpile does not contain material that is dangerous to human health. We believe that regardless of the source of the material (ie from on-site or off), the soils can be reused without a concern for human health at the future day care center development.

Findings and Conclusions

Historically, this site has been used as farm land from 1940 to 1970. Farm use creates the possibility that historic pesticide contamination could be present. To respond to this concern, MJW Consulting analyzed surface soils for pesticides, arsenic and lead. This request is warranted based on the future planned use of the site as a day care center, where children may come in contact with surface soil. We found that the surface soils do not contain pesticide concentrations that exceed any of the NJDEP limits.

A second area where soils were found to have been stockpiled was also analyzed to verify that the soil pile does not contain any contaminants that could cause a concern when the property is redeveloped. We found that the stockpiled soils do not contain priority pollutant concentrations that exceed any of the NJDEP limits.

Based on these results the existing surface soils may be used in the development of the daycare center without treatment or off-site disposal. Likewise, the stockpiled soils can be reused on site or spread at grade level.

This concludes both areas of concern for 1084-1092 Route 83 in Dennis Township, Cape May County.

Should you have questions with regard to this submission, kindly direct them to Matthew J. Wristbridge. Thank you for selecting MJW Consulting to perform this environmental site assessment. Good luck in finalizing the project.

Qualifications of Environmental Professionals

Matthew J. Wristbridge

***Environmental Engineer
MJW Consulting***

Project Experience

Matthew J. Wristbridge has more than 15 years of experience in the environmental services industry. Specific expertise in New Jersey includes environmental site assessments, underground storage tank closure and site remediation. A 1980 graduate of Drexel University, Mr. Wristbridge holds a Bachelor of Science Degree in Commerce and Engineering. After graduating, he joined General Electric, as a technical liaison between General Electric's clients and regulators in the state of California. The position was created to allow General Electric to sell power generation equipment in the state of California. Although GE gas turbine equipment burned environmentally friendly natural gas, it was environmental regulatory concerns that controlled market growth. Mr. Wristbridge is credited with siting power generation equipment that now supplies nearly 10 percent of Northern California's electricity from clean burning, high efficiency, cogeneration units. Returning to New Jersey in 1986, Mr. Wristbridge owned and managed a multimillion dollar environmental services firm known as Tank Management, Inc. from 1987 to 1994. In this position, he gained experience both managing a small business and in New Jersey's difficult environmental regulations. This position provided experience in the field of environmental auditing both as a phase I/II auditor and as a subsurface evaluator removing underground storage tanks. In 1994 this venture was dissolved in order to concentrate on a new business offering independent consulting services with regard to commercial real estate transfer. MJW Consulting currently performs site wide Environmental Business Risk Analysis of commercial real estate for private developers and commercial real estate purchasers.

June 1994 to Present: MJW Consulting: Completed over 200 Environmental Site Assessments. Investigated environmental concerns at residential and commercial real estate in New Jersey. Defined on-site and off-site environmental liability impact on property value. Responsibilities included physical sampling, reporting and, in some cases, resolving environmental issues prior to title transfer. Mr. Wristbridge was the project manager for Almonesson Creek Limited Partnership's (a/k/a American Realty) redevelopment of the Dee Lumber site in Linwood, New Jersey. In 1998 this site was the largest residential housing development project in Atlantic County. Included in the project management tasks were three regulated underground storage tanks as well as five above ground areas of concern identified during MJW's phase II investigation. MJW also developed the first interactive Off-Site Conditions Disclosure Mapping to be distributed to potential real estate buyers via the internet. Mr Wristbridge has also developed the first CD-ROM based digital Phase I. A web style format is used to allow the site development engineers easier access. We anticipate major improvement in communication speed, once the internet can handle larger quantities of data. Updating and historical preservation features of this reporting style will soon allow it to replace paper.

April 1988 to June 1994: Tank Management, Inc.: Developed, owned and managed the first company dedicated to removing leaking underground storage tanks. Removed source contamination by focusing on the cause of contamination (underground tanks) rather than the residual affects. Removed several thousand regulated and non-regulated

underground storage tanks with a small group of highly trained and dedicated professional and nonprofessional employees working together as a team. This was my most fulfilling and challenging career experience.

March 1987 to April 1988: Chemical Waste Management: Directed the New Jersey Underground Storage Tank services division of Chemical Waste Management. Responsibilities included surveying of UST systems as well as project management of testing and remediation services throughout the state.

March 1983 to August 1986: General Electric Company: Industrial Cogeneration Specialist assigned to the San Francisco, California office of General Electric. Assisted in gaining approval and implementing the first commercial application of a combustion system designed to reduce emissions from a gas turbine to meet California air quality limits. Also heavily involved in the first application of cogeneration in the food processing industry (Gilroy Foods).

August 1980 to March 1983: General Electric Training Program: Completed a two year training program designed to allow one to become a field engineer representing General Electric industrial power generation equipment. Training included three manufacturing plants and one systems engineering assignment.

Educational Background

Drexel University, Philadelphia, Pennsylvania

June 1980 Graduate

Bachelor of Science, Commerce and Engineering - Five year Cooperative Education Program.

General Electric courses in Effective Presentation, Effective Listening and Negotiating skills workshop.

1998 Rutgers Continuing Education Courses:

Impact of Wetlands and Contaminated Sites on Property Value

Environmental Impact Statements

1999 Rutgers Continuing Education Courses:

Environmental Audits and Site Assessments

Geographical Information System Course

2001 NJDEP Certification as Subsurface Evaluator and UST Closure

Remedial Alternatives Workshop

2003 Rutgers Continuing Education

Environmental Audits and Site Assessments

Regulatory Training in Underground Storage Tanks (Re-certification)

2004 Rutgers Continuing Education

Remedial Action Decision Making

NJDEP Subsurface Evaluator Certification (Expires June 30, 2007)

NJDEP UST Closure Certification (Expires June 30, 2007)

Strengths

Capable of independently initiating a project and carrying the full responsibility for implementation and successful completion.

References

Current clients served by MJW Consulting include Harrah's Casino Hotel.

Recently completed Brownfield restoration projects include (1) American Realty as the

developer of the Dee Lumber Site, Linwood and (2) MAR L.L.C./ Grace Realty as developer of the Marine Science Consortium Project, Seaville.

Clients served during Tank Managements years of operation include Ballys Park Place, Claridge Casino Hotel and Resorts International Casino Hotel. Each of these clients required major UST work and extensive site remediation. In each case, Matthew Wristbridge was directly responsible for project completion on a firm price basis.

Institutional clients include Atlantic County and the Borough of Pitman. A list of small business references and environmental attorney's interacting with Mr. Wristbridge on a routine basis can be provided.

Appendices

Appendix 1: Site Map and Sampling Key

1947 Aerial View

Appendix 2: Analytical Data