

**Appendix I-3**  
**Pesticide Report**  
*Nelson, Pope & Voorhis, LLC*  
*November 6, 2015*

**Pesticide Report**

**Indian Hills Golf Club**

**Northport, New York**

**NP&V Job# 86047**

**November 6, 2015**

**Pesticide Report**  
**Indian Hills Golf Club**  
**Northport, New York**

**THIS DOCUMENT CONTAINS 10 PAGES OF TEXT**

*Prepared For:*

Mr. Jim Tsunis  
The Northwind Group  
One Rabro Drive, Suite 100  
Hauppauge, New York 11788

Jillian Mooney  
Signature Bank  
68 South Service Road  
Melville, New York 11747

*Prepared By:*

Mr. Charles J. Voorhis, CEP, AICP  
Nelson, Pope & Voorhis, LLC  
572 Walt Whitman Road  
Melville, New York 11747  
(631) 427-5665

Long Island Analytical Laboratories, Inc.  
110 Colin Drive  
Holbrook, New York 11741

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**Pesticide Report**

**Indians Hills Golf Club**

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## **Pesticide Report**

### **Indian Hills Golf Club**

#### **1.0 INTRODUCTION AND PURPOSE**

Nelson, Pope & Voorhis, LLC has been contracted to prepare a Pesticide Report for the subject property. This report is intended to determine the concentration of pesticides in soil, due to the site's past use for agricultural purposes.

The subject property lies in the Village of Northport, Town of Huntington, County of Suffolk, New York. The subject property consists of a ±45 acre property that is comprised of two (2) tax parcels on the north side of Breeze Hill Road and two (2) tax parcels on the south side of Breeze Hill Road. The entirety of the subject property is located east of Makamah Road, west of Fresh Pond Road and directly south of Long Island Sound. The parcels north of Breeze Hill Road are more particularly described as Suffolk County Tax Map #s 0400-14-04-1 and 2, and the parcels south of Breeze Hill Road are more particularly described as Suffolk County Tax Map #s 0400-15-01-11 and 12. The surrounding area is moderately developed and contains a mix of residential and vacant land.

The subject property consists of an irregularly-shaped property that presently contains a landscaped 18-hole golf course with a driving range and associated country club facilities. There are several small freshwater ponds throughout the golf course and the course borders an estuarine and marine wetland to the north (Long Island Sound). The structures currently present on the subject property include: the main clubhouse, a pro shop, a halfway house, a barn utilized for storage, an equipment shed, a fertilizer and spray rig storage structure, and a maintenance garage with associated offices. All of the buildings are connected to separate sanitary systems with the exception of the storage barn, the equipment shed, and the fertilizer storage structure, which are not connected to sanitary systems. The clubhouse is connected to two (2) separate sanitary systems, one (1) for the kitchen and one (1) for the bathrooms.

The sampling program was designed and supervised by NP&V. Laboratory analytical data was prepared by Long Island Analytical Laboratories, Inc. The protocol used to direct this investigation was based upon the guidance offered by the New York State Department of Health Bureau of Toxic Substance Assessment to the local health department in particular, with general consideration of sampling and analysis protocol as documented in USEPA Soil Screening Guidance - Soil Screening Levels as imposed by SCDHS. The following sections detail the subject property and surrounding area characteristics, sampling program, protocol and quality assurance, lab analysis and results.

Soil samples were collected from nine (9) locations in the area of the maintenance building and in the area of the driving range. All of the samples were collected from a depth of 0-3, 3-6, 6-12, 12-18 and 18-24 inches. Initially, four (4) of the samples were analyzed for the presence of pesticides and metals and five (5) samples were analyzed for the presence of arsenic only. The

laboratory results for these samples revealed that there were elevated concentrations of arsenic; however, none the concentrations exceeded the regulatory guidance values set by the Suffolk County Department of Health Services (SCDHS). Based on the laboratory results, and NYSDOH guidance, only the 0-3 inch samples were required to be analyzed. The following sections of this report outline the sampling measures taken and provide a map illustrating the location of the samples collected. Appropriate recommendations are provided in Section 5.0.

## 2.0 SAMPLING AND ANALYSIS PROGRAM (SAP)

### 2.1 SAMPLE COLLECTION

Soil samples were collected from nine (9) locations in the driving range area and maintenance barn area of the golf course on September 9, 2015. The soil samples were collected from depths of 0-3, 3-6, 6-12, 12-18 and 18-24 inches below grade. The 0-3 inch samples were analyzed for the presence of pesticides and metals or arsenic only. Based on the laboratory results of the 0-3 inch samples, only the 0-3 samples were required to be analyzed since no elevated concentrations were exhibited in any of the samples. The depths of the soil samples were selected to provide a profile of the soil located on the subject property. The sampling scheme employed was consistent with guidance available from the New York State Department of Health (NYSDOH).

A stainless steel hand auger decontaminated between uses (see Section 4.0), was used to extract all of the soil samples from the subject property. **Figure 1** provides a map that identifies the various locations from which the soil samples were collected. The topography of the subject property is flat.

### 2.2 SAMPLING PROGRAM RATIONALE

The NYSDOH provides guidance for such soil sampling through the Suffolk County Department of Health Services (SCDHS). Soil samples were collected in accordance with the recommendations of the NYSDOH, noted as follows:

- samples were collected at a depth of 0-3, 3-6, 6-12, 12-18 & 18-24 inches.
- samples were directed toward those areas likely to have accumulated the highest contaminant levels.
- samples were analyzed for lead, arsenic and DDT and its metabolites.

These samples were collected and analyzed in order to provide a background for the prospective purchaser since they intend to utilize the subject property for the same use as is existing. Initial sampling is used to determine if elevated concentrations are present. If concentrations are detected, further sampling is used to determine horizontal and vertical extent. Laboratory analysis results are discussed in Section 3.0.

In accordance with NYSDOH recommendations, the sampling and analysis program was intended to determine:

- if site activities had caused degradation of soil quality on site;
- if a soils management plan (SMP) is appropriate given the concentration of contaminants and the intended use of the site.

The following section provides the laboratory analysis for the site samples, including test methods and analytical results.

### 3.0 LABORATORY ANALYSIS

#### 3.1 ANALYTICAL TEST METHODS

The soil samples were transported to a New York State Certified Commercial ELAP Laboratory for analysis. Selection of the analytical test methods for the soil samples was based on the NYSDOH recommended soil sampling parameters for agricultural soils on Long Island. Analysis of the soil samples consisted of pesticides, metals or arsenic.

#### 3.2 ANALYTICAL RESULTS

The laboratory results revealed that all four (4) 0-3 inch samples analyzed for the presence of pesticides and SCDHS metals exhibited slightly elevated concentrations of the analyzed constituents, including arsenic. In addition, none of the five (5) samples analyzed for the presence of arsenic exhibited elevated concentrations in excess of the 4 parts per million (ppm).

Recently, there has been an effort to re-evaluate the arsenic guidance value that has been in use based on the SCDHS document entitled Draft *“Procedures for Municipalities to Evaluate the Need for Soil Sampling and Soil Management as Subdivisions or Other Construction Projects with Potentially Contaminated Soils”* (SCDHS, February 2006). This document referenced an action level of 4 mg/kg, above which SCDHS had previously recommended to municipalities that soil management was warranted.

SCDHS is currently reviewing a New York State Department of Health (NYSDOH) Fact Sheet titled “The Development of New York State Soil Cleanup Objectives for Arsenic” from September 2011 (**Attached**). This fact sheet provides *“information on the derivation of the New York State health-based SCOs [Soil Cleanup Objectives] for arsenic for different land use categories.”* In determining the final SCOs for arsenic, background levels were reviewed since the legislation that required the SCOs indicated that *“when the risk-based SCO for a chemical is lower than its rural soil background concentration, the final SCO may be set at the rural soil background concentration.”*

In order to develop the SCOs, the New York State Department of Environmental Conservation (NYSDEC) and NYSDOH conducted an extensive survey of selected chemicals, including arsenic that evaluated concentrations in rural NYS soils. Based on this survey, the background concentration of arsenic in rural soils was 16 ppm for residential and restricted-residential land use. Therefore, the final recommended NYSDOH SCO for arsenic is 16 ppm. At this time, Suffolk County Department of Health Services (SCDHS) is reviewing the NYSDOH fact sheet and is considering adopting an SCO consistent with the statewide health based guidance value.

Based on the laboratory results for the 0-3 inch samples, none of the deeper samples were analyzed for the presence of arsenic. **Tables 1A & 1B** identify those constituents which exhibited elevated concentrations and the regulatory standards. The original laboratory analysis sheets as provided by Long Island Analytical Laboratories, Inc. are presented in **Appendix A** of this document.



**TABLE 1A**  
**PESTICIDE RESULTS FOR 0-3 INCH SAMPLES**

<b>Constituents</b>	<b>PS-1 (0-3)</b>	<b>PS-2 (0-3)</b>	<b>PS-3 (0-3)</b>	<b>PS-4 (0-3)</b>	<b>USEPA SSL</b>
<b>Pesticides</b>	<b>ug/kg</b>	<b>ug/kg</b>	<b>ug/kg</b>	<b>ug/kg</b>	<b>ug/kg</b>
4,4' -DDE	17.0	ND	13.2	5.20	2,000
4,4' -DDT	ND	ND	4.62	ND	2,000
Chlordane	355	775	138	ND	2,000
Cis-Chlordane	93.9	195	33.2	ND	NS
Delta-BHC	ND	ND	60.7	9.63	NS
Heptachlor Epoxide	26.9	30.9	6.48	ND	70
Trans-Chlordane	ND	86.4	25.6	ND	NS
<b>Metals</b>	<b>mg/kg</b>	<b>mg/kg</b>	<b>mg/kg</b>	<b>mg/kg</b>	<b>mg/kg</b>
Arsenic	2.58	2.13	3.68	2.07	4 or 16
Barium	46.2	20.6	34.0	32.7	5,500
Chromium	13.6	14.5	16.3	6.37	230
Copper	6.59	5.06	14.0	6.39	NS
Lead	25.2	15.9	29.1	13.2	NS
Nickel	7.80	5.33	7.94	5.09	1,600
Mercury	0.16	0.19	0.21	0.06	23

ND = Not Detected      NS = No Standard

Bold and shaded indicates the constituent exceeds the USEPA standards.

**TABLE 1B**  
**ARSENIC RESULTS**

<b>Sample</b>	<b>Arsenic (0-3")</b>	<b>Arsenic GLV</b>
	<b>mg/kg</b>	<b>mg/kg</b>
AS-1	2.48	4/16
AS-2	2.12	4/16
AS-3	2.43	4/16
AS-4	2.42	4/16
AS-5	ND	4/16

Bold and shaded indicates the constituent exceeds the SCDHS guidance value.

GLV: guideline value

#### **4.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES (QA/QC)**

Sampling protocol was conducted in accordance with USEPA accepted sampling procedures for hazardous waste streams (Municipal Research Laboratory, 1980, Sampling and Sampling Procedures for Hazardous Material Waste Streams, USEPA, Cincinnati, Ohio EPA- 600\280-018) and ASTM Material Sampling Procedures. All samples were collected by or under the auspices of USEPA trained personnel having completed the course Sampling of Hazardous Materials, offered by the Office of Emergency and Remedial Response.

Separate QA/QC measures were implemented for each of the instruments used in the Sampling and Analysis Program. Sampling instruments included a stainless steel hand auger and sample vessels.

Prior to arrival on the subject property and between sample locations, the hand auger was decontaminated by washing with a detergent (alconox/liquinox) and potable water solution with distilled water rinse. All sample vessels were "level A" certified decontaminated containers. Samples were placed into vessels consistent with the analytical parameters. After acquisition, samples were preserved in the field. All containerized samples were refrigerated to 4° C during transport.

A sample represents physical evidence, therefore, an essential part of liability reduction is the proper control of gathered evidence. To establish proper control, the following sample identification and chain-of-custody procedures were followed.

##### Sample Identification

Sample identification was executed by use of a sample tag, logbook and manifest. Documentation provides the following:

1. Project Code
2. Sample Laboratory Number
3. Sample Preservation
4. Instrument Used for Source Soil Grabs
5. Composite Medium Used for Source Soil Grabs
6. Date Sample was Secured from Source Soil
7. Time Sample was Secured from Source Soil
8. Person Who Secured Sample from Source Soil

##### Chain-of-Custody Procedures

Due to the evidential nature of samples, possession was traceable from the time the samples were collected until they were received by the testing laboratory. A sample was considered under custody if:

- It was in a person's possession, or
- It was in a person's view, after being in possession, or
- It was in a person's possession and they were to lock it up, or
- It is in a designated secure area.

When transferring custody, the individuals relinquishing and receiving signed, dated and noted the time of the Chain-of- Custody Form.

Laboratory Custody Procedures

A designated sample custodian accepted custody of the shipped samples and verified that the information on the sample tags matched that on the Chain-of-Custody records. Pertinent information as to shipment, pick-up, courier, etc. was entered in the "remarks" section. The custodian then entered the sample tag data into a bound logbook which was arranged by project code and station number.

The laboratory custodian used the sample tag number or assigned an unique laboratory number to each sample tag and assured that all samples were transferred to the proper analyst or stored in the appropriate source area.

The custodian distributed samples to the appropriate analysts. Laboratory personnel were responsible for the care and custody of samples from the time they were received until the sample was exhausted or returned to the custodian.

All identifying data sheets and laboratory records were retained as part of the permanent site record. Samples received by the laboratory were retained until after analysis and quality assurance checks were completed.

## 5.0 SUMMARY AND CONCLUSION

This investigation was completed in order to determine if certain pesticide related compounds and/or arsenic were present in the soils of the subject property. A sampling and analysis program (SAP) was designed to determine the concentrations of pesticides, metals or arsenic in the soil in accordance with recommendations of the NYSDOH. The SAP consisted of collection of discrete soil samples at a depth of 0-3 inches in the driving range area and the maintenance area of the golf course. Laboratory analysis of the soil samples was performed using analytical test methods consistent with expected parameters and NYSDOH guidance. The following presents an evaluation of the results of this investigation.

1. Soil samples were collected from nine (9) locations on the subject property at five (5) depths, 0-3, 3-6, 6-12, 12-18 and 18-24 inches. Initially, four (4) of the 0-3 inch samples were analyzed for the presence of pesticides and metals and five (5) of the 0-3 inch samples were analyzed for the presence of arsenic only. The laboratory analysis revealed that none of the pesticides or metals exceeded their regulatory guidance values. In addition, none of the arsenic samples exhibited elevated concentrations in excess of 4 ppm. As a result, none of the deeper samples were analyzed. Based on these findings, no soil management is required in the areas discussed above.

In summary, representative soils on the subject property were sampled and analyzed for the presence of pesticides and metals or arsenic. As a result of this investigation, no further action in the form of additional sampling or soil management is required for the subject property since none of the analyzed constituents exceeded the standards set forth by SCDHS.

---

*Date of Completion*

---

*Charles J. Voorhis, CEP, AICP  
NELSON, POPE & VOORHIS, LLC*

## 6.0 REFERENCES

New York State Department of Environmental Conservation (NYSDEC), 1992, Sampling Guidelines and Protocols, Technology Background and Quality Control/Quality Assurance for NYSDEC Spill Response Program, NYSDEC, Albany, New York.

NYSDEC, 1994, Technical Administrative Guidance Memorandum, HWR-94-4046, Determination of soil cleanup objectives and cleanup levels, Division of Hazardous Waste Remediation, Albany, New York.

NYSDOH, 1996, letter dated July 15, 1996 from Edward Horn, Ph.D., Director Bureau of Toxic Substance Assessment to Frank Randall, Chief, Inspection Services Bureau NYSDOH.

USEPA, Office of Solid Waste and Emergency Response, 1996, Publication 9355.4-23, Soil Screening Guidance User's Guide, Washington, D.C.

# FIGURES





**FIGURE 1  
SAMPLE LOCATION MAP**

**Indian Hills  
Golf Club  
Northport**



Source: NYS Orthophotos, 2010  
Scale: 1 inch = 500 feet



**Pesticide Survey**

# APPENDICES



**APPENDIX A**

**LONG ISLAND ANALYTICAL  
LABORATORIES, INC.**

**LABORATORY DATA SHEETS**



**LONG  
ISLAND  
ANALYTICAL  
LABORATORIES INC.**

**"TOMORROWS ANALYTICAL SOLUTIONS TODAY"**

## Laboratory Report

NYSDOH ELAP# 11693  
USEPA# NY01273  
CTDOH# PH-0284  
AIHA# 164456  
NJDEP# NY012  
PADEP# 68-2943

LIAL# 5090916

September 22, 2015

Nelson, Pope & Voorhis  
Steve McGinn  
572 Walt Whitman Road  
Melville, NY 11747

### Re: Indian Hills Golf Club

Dear Steve McGinn,

Enclosed please find the laboratory Analysis Report(s) for sample(s) received on September 09, 2015. Long Island Analytical laboratories analyzed the samples on September 19, 2015 for the following:

SAMPLE ID	ANALYSIS
PS-1 (0-3)	EPA 8081 B, SCDH Metals
PS-2 (0-3)	EPA 8081 B, SCDH Metals
PS-3 (0-3)	EPA 8081 B, SCDH Metals
PS-4 (0-3)	EPA 8081 B, SCDH Metals
AS-1 (0-3)	Arsenic
AS-2 (0-3)	Arsenic
AS-3 (0-3)	Arsenic
AS-4 (0-3)	Arsenic
AS-5 (0-3)	Arsenic

Samples received at 1.6 ° C

If you have any questions or require further information, please call at your convenience. Long Island Analytical Laboratories Inc. is a NELAP accredited laboratory. All reported results meet the requirements of the NELAP standards unless noted. Report shall not be reproduced except in full without the written approval of the laboratory. Results related only to items tested. Long Island Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,



**Long Island Analytical Laboratories, Inc.**

**Michael Veraldi - Laboratory Director**

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 15:35	Sample ID: PS-1 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-01 % Solid:80.04
Matrix: Soil	ELAP: #11693

## Pesticides Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
4,4'-DDD	72-54-8	3.75	<3.75	ug/kg dry	
4,4'-DDE	72-55-9	3.75	17.0	ug/kg dry	
4,4'-DDT	50-29-3	3.75	<3.75	ug/kg dry	
Aldrin	309-00-2	6.25	<6.25	ug/kg dry	
alpha-BHC	319-84-6	6.25	<6.25	ug/kg dry	
beta-BHC	319-85-7	6.25	<6.25	ug/kg dry	
Chlordane	12789-03-6	18.7	355	ug/kg dry	
cis-Chlordane	5103-71-9	6.25	93.9	ug/kg dry	4.Q
delta-BHC	319-86-8	6.25	<6.25	ug/kg dry	
Dieldrin	60-57-1	6.25	<6.25	ug/kg dry	
Endosulfan I	959-98-8	6.25	<6.25	ug/kg dry	
Endosulfan II	33213-65-9	6.25	<6.25	ug/kg dry	
Endosulfan Sulfate	1031-07-8	6.25	<6.25	ug/kg dry	
Endrin	72-20-8	6.25	<6.25	ug/kg dry	
Endrin Aldehyde	7421-93-4	6.25	<6.25	ug/kg dry	
Endrin Ketone	53494-70-5	6.25	<6.25	ug/kg dry	
gamma-BHC	58-89-9	6.25	<6.25	ug/kg dry	
Heptachlor	76-44-8	6.25	<6.25	ug/kg dry	
Heptachlor Epoxide	1024-57-3	6.25	26.9	ug/kg dry	
Methoxychlor	72-43-5	6.25	<6.25	ug/kg dry	
Toxaphene	8001-35-2	125	<125	ug/kg dry	
trans-Chlordane	5103-74-2	6.25	<6.25	ug/kg dry	

Date Prepared: 09/10/2015

Preparation Method: EPA 3545 A

Date Analyzed: 09/11/2015

Analytical Method: EPA 8081 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 15:35	Sample ID: PS-1 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-01 % Solid:80.04
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	2.01	2.58	mg/kg dry	
Barium	09/15/2015	EPA 6010 C	2.01	46.2	mg/kg dry	
Beryllium	09/15/2015	EPA 6010 C	2.01	<2.01	mg/kg dry	
Cadmium	09/15/2015	EPA 6010 C	2.01	<2.01	mg/kg dry	
Chromium	09/15/2015	EPA 6010 C	2.01	13.6	mg/kg dry	
Copper	09/15/2015	EPA 6010 C	2.01	6.59	mg/kg dry	
Lead	09/15/2015	EPA 6010 C	2.01	25.2	mg/kg dry	
Nickel	09/15/2015	EPA 6010 C	2.01	7.80	mg/kg dry	
Selenium	09/15/2015	EPA 6010 C	2.01	<2.01	mg/kg dry	
Silver	09/15/2015	EPA 6010 C	2.01	<2.01	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Mercury	09/18/2015	EPA 7471 B	0.02	0.16	mg/kg dry	

Date Prepared: 09/16/2015

Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 15:09	Sample ID: PS-2 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-02 % Solid:98.65
Matrix: Soil	ELAP: #11693

## Pesticides Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
4,4'-DDD	72-54-8	3.04	<3.04	ug/kg dry	
4,4'-DDE	72-55-9	3.04	<3.04	ug/kg dry	
4,4'-DDT	50-29-3	3.04	<3.04	ug/kg dry	
Aldrin	309-00-2	5.07	<5.07	ug/kg dry	
alpha-BHC	319-84-6	5.07	<5.07	ug/kg dry	
beta-BHC	319-85-7	5.07	<5.07	ug/kg dry	
Chlordane	12789-03-6	15.2	775	ug/kg dry	
cis-Chlordane	5103-71-9	5.07	195	ug/kg dry	4.Q
delta-BHC	319-86-8	5.07	<5.07	ug/kg dry	
Dieldrin	60-57-1	5.07	<5.07	ug/kg dry	
Endosulfan I	959-98-8	5.07	<5.07	ug/kg dry	
Endosulfan II	33213-65-9	5.07	<5.07	ug/kg dry	
Endosulfan Sulfate	1031-07-8	5.07	<5.07	ug/kg dry	
Endrin	72-20-8	5.07	<5.07	ug/kg dry	
Endrin Aldehyde	7421-93-4	5.07	<5.07	ug/kg dry	
Endrin Ketone	53494-70-5	5.07	<5.07	ug/kg dry	
gamma-BHC	58-89-9	5.07	<5.07	ug/kg dry	
Heptachlor	76-44-8	5.07	<5.07	ug/kg dry	
Heptachlor Epoxide	1024-57-3	5.07	30.9	ug/kg dry	
Methoxychlor	72-43-5	5.07	<5.07	ug/kg dry	
Toxaphene	8001-35-2	101	<101	ug/kg dry	
trans-Chlordane	5103-74-2	5.07	86.4	ug/kg dry	

Date Prepared: 09/10/2015

Preparation Method: EPA 3545 A

Date Analyzed: 09/11/2015

Analytical Method: EPA 8081 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 15:09	Sample ID: PS-2 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-02 % Solid:98.65
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	1.67	2.13	mg/kg dry	
Barium	09/15/2015	EPA 6010 C	1.56	20.6	mg/kg dry	
Beryllium	09/15/2015	EPA 6010 C	1.67	<1.67	mg/kg dry	
Cadmium	09/15/2015	EPA 6010 C	1.65	<1.65	mg/kg dry	
Chromium	09/15/2015	EPA 6010 C	1.67	14.5	mg/kg dry	
Copper	09/15/2015	EPA 6010 C	1.67	5.06	mg/kg dry	
Lead	09/15/2015	EPA 6010 C	1.67	15.9	mg/kg dry	
Nickel	09/15/2015	EPA 6010 C	1.67	5.33	mg/kg dry	
Selenium	09/15/2015	EPA 6010 C	1.67	<1.67	mg/kg dry	
Silver	09/15/2015	EPA 6010 C	1.67	<1.67	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Mercury	09/18/2015	EPA 7471 B	0.02	0.19	mg/kg dry	

Date Prepared: 09/16/2015

Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 12:02	Sample ID: PS-3 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-03 % Solid:77.51
Matrix: Soil	ELAP: #11693

## Pesticides Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
4,4'-DDD	72-54-8	3.87	<3.87	ug/kg dry	
4,4'-DDE	72-55-9	3.87	13.2	ug/kg dry	
4,4'-DDT	50-29-3	3.87	4.62	ug/kg dry	
Aldrin	309-00-2	6.45	<6.45	ug/kg dry	
alpha-BHC	319-84-6	6.45	<6.45	ug/kg dry	
beta-BHC	319-85-7	6.45	<6.45	ug/kg dry	
Chlordane	12789-03-6	19.4	138	ug/kg dry	
cis-Chlordane	5103-71-9	6.45	33.2	ug/kg dry	4.Q
delta-BHC	319-86-8	6.45	60.7	ug/kg dry	
Dieldrin	60-57-1	6.45	<6.45	ug/kg dry	
Endosulfan I	959-98-8	6.45	<6.45	ug/kg dry	
Endosulfan II	33213-65-9	6.45	<6.45	ug/kg dry	
Endosulfan Sulfate	1031-07-8	6.45	<6.45	ug/kg dry	
Endrin	72-20-8	6.45	<6.45	ug/kg dry	
Endrin Aldehyde	7421-93-4	6.45	<6.45	ug/kg dry	
Endrin Ketone	53494-70-5	6.45	<6.45	ug/kg dry	
gamma-BHC	58-89-9	6.45	<6.45	ug/kg dry	
Heptachlor	76-44-8	6.45	<6.45	ug/kg dry	
Heptachlor Epoxide	1024-57-3	6.45	6.48	ug/kg dry	
Methoxychlor	72-43-5	6.45	<6.45	ug/kg dry	
Toxaphene	8001-35-2	129	<129	ug/kg dry	
trans-Chlordane	5103-74-2	6.45	25.6	ug/kg dry	

Date Prepared: 09/10/2015

Preparation Method: EPA 3545 A

Date Analyzed: 09/11/2015

Analytical Method: EPA 8081 B



Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 12:02	Sample ID: PS-3 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-03 % Solid:77.51
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	1.96	3.68	mg/kg dry	
Barium	09/15/2015	EPA 6010 C	1.96	34.0	mg/kg dry	
Beryllium	09/15/2015	EPA 6010 C	1.96	<1.96	mg/kg dry	
Cadmium	09/15/2015	EPA 6010 C	1.96	<1.96	mg/kg dry	
Chromium	09/15/2015	EPA 6010 C	1.96	16.3	mg/kg dry	
Copper	09/15/2015	EPA 6010 C	1.96	14.0	mg/kg dry	
Lead	09/15/2015	EPA 6010 C	1.96	29.1	mg/kg dry	
Nickel	09/15/2015	EPA 6010 C	1.96	7.94	mg/kg dry	
Selenium	09/15/2015	EPA 6010 C	1.96	<1.96	mg/kg dry	
Silver	09/15/2015	EPA 6010 C	1.96	<1.96	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Mercury	09/18/2015	EPA 7471 B	0.02	0.21	mg/kg dry	

Date Prepared: 09/16/2015

Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 11:47	Sample ID: PS-4 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-04 % Solid:78.08
Matrix: Soil	ELAP: #11693

## Pesticides Analysis

Parameter	CAS No.	LOQ	Result	Units	Flag
4,4'-DDD	72-54-8	3.84	<3.84	ug/kg dry	
4,4'-DDE	72-55-9	3.84	5.20	ug/kg dry	
4,4'-DDT	50-29-3	3.84	<3.84	ug/kg dry	
Aldrin	309-00-2	6.40	<6.40	ug/kg dry	
alpha-BHC	319-84-6	6.40	<6.40	ug/kg dry	
beta-BHC	319-85-7	6.40	<6.40	ug/kg dry	
Chlordane	12789-03-6	19.2	<19.2	ug/kg dry	
cis-Chlordane	5103-71-9	6.40	<6.40	ug/kg dry	
delta-BHC	319-86-8	6.40	9.63	ug/kg dry	
Dieldrin	60-57-1	6.40	<6.40	ug/kg dry	
Endosulfan I	959-98-8	6.40	<6.40	ug/kg dry	
Endosulfan II	33213-65-9	6.40	<6.40	ug/kg dry	
Endosulfan Sulfate	1031-07-8	6.40	<6.40	ug/kg dry	
Endrin	72-20-8	6.40	<6.40	ug/kg dry	
Endrin Aldehyde	7421-93-4	6.40	<6.40	ug/kg dry	
Endrin Ketone	53494-70-5	6.40	<6.40	ug/kg dry	
gamma-BHC	58-89-9	6.40	<6.40	ug/kg dry	
Heptachlor	76-44-8	6.40	<6.40	ug/kg dry	
Heptachlor Epoxide	1024-57-3	6.40	<6.40	ug/kg dry	
Methoxychlor	72-43-5	6.40	<6.40	ug/kg dry	
Toxaphene	8001-35-2	128	<128	ug/kg dry	
trans-Chlordane	5103-74-2	6.40	<6.40	ug/kg dry	

Date Prepared: 09/10/2015

Preparation Method: EPA 3545 A

Date Analyzed: 09/11/2015

Analytical Method: EPA 8081 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 11:47	Sample ID: PS-4 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-04 % Solid:78.08
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	2.04	2.07	mg/kg dry	
Barium	09/15/2015	EPA 6010 C	2.04	32.7	mg/kg dry	
Beryllium	09/15/2015	EPA 6010 C	2.04	<2.04	mg/kg dry	
Cadmium	09/15/2015	EPA 6010 C	2.04	<2.04	mg/kg dry	
Chromium	09/15/2015	EPA 6010 C	2.04	6.37	mg/kg dry	
Copper	09/15/2015	EPA 6010 C	2.04	6.39	mg/kg dry	
Lead	09/15/2015	EPA 6010 C	2.04	13.2	mg/kg dry	
Nickel	09/15/2015	EPA 6010 C	2.04	5.09	mg/kg dry	
Selenium	09/15/2015	EPA 6010 C	2.04	<2.04	mg/kg dry	
Silver	09/15/2015	EPA 6010 C	2.04	<2.04	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Mercury	09/19/2015	EPA 7471 B	0.02	0.06	mg/kg dry	

Date Prepared: 09/16/2015

Preparation Method: EPA 7471 B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 16:13	Sample ID: AS-1 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-05 % Solid:94.52
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	1.68	2.48	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 15:25	Sample ID: AS-2 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-06 % Solid:97.78
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	1.67	2.12	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 15:09	Sample ID: AS-3 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-07 % Solid:94.89
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	1.67	2.43	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B

Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 12:02	Sample ID: AS-4 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-08 % Solid:97.20
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	1.67	2.42	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B



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Client: Nelson, Pope & Voorhis	Client ID: Indian Hills Golf Club
Date (Time) Collected: 09/08/2015 12:18	Sample ID: AS-5 (0-3)
Date (Time) Received: 09/09/2015 17:19	Laboratory ID: 5090916-09 % Solid:98.30
Matrix: Soil	ELAP: #11693

### Total Metals Analysis

Parameter	Date Analyzed	Method	LOQ	Result	Units	Flag
Arsenic	09/15/2015	EPA 6010 C	1.67	<1.67	mg/kg dry	

Date Prepared: 09/15/2015

Preparation Method: EPA 3050B

#### Data Qualifiers Key Reference:

- 4.Q Compound concentration has >40% difference using dual column analysis.  
 MDL Minimum Detection Limit  
 LOQ Limit of Quantitation





# CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS NPV 572 W. H. Johnson Rd Melville, N.Y. 11747	CONTACT: Steve McGinn PHONE: 477-5665 FAX: EMAIL:	SAMPLER (SIGNATURE) <i>[Signature]</i>	SAMPLES SEaled YES / NO CORRECT CONTAINER(S) YES / NO	5090916
PROJECT LOCATION: Indian Hills Golf Club		SAMPLER NAME (PRINT) Jonathan McGinn		
		SAMPLES RECEIVED AT 1.6 °C		

TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month. Tending of samples to LIAL for analytical testing constitutes agreement by buyer/sampler to LIAL's Standard terms

LABORATORY ID # <small>For Laboratory Use Only</small>	MATRIX	TYPE	pH	RES. CHLORINE	DATE	TIME	SAMPLE # LOCATION	ANALYSIS REQUIRED	# OF CONTAINERS
1. 509091601	SG				9/15/15	3:35	PS-1 (0-3)	X	1
2.						3:37	PS-1 (3-6)		
3.						3:39	PS-1 (6-12)		
4.						3:41	PS-1 (12-18)		
5.						3:43	PS-1 (18-24)		
6.	OL					3:09	PS-2 (0-3)	XX	
7.						3:13	PS-2 (3-6)		
8.						3:17	PS-2 (6-12)		
9.						3:20	PS-2 (12-18)		
10.						3:23	PS-2 (18-24)		
11.	03					12:02	PS-3 (0-3)	XX	
12.						12:03	PS-3 (3-6)		
13.						12:05	PS-3 (6-12)		
14.						12:07	PS-3 (12-18)		

MATRIX: S=SOIL; SL=SLUDGE; DW=DRINKING WATER; A=AIR; W=WATER PC=PAINT CHIPS; BM=BULK MATERIAL; O=OIL; WW=WASTE WATER TYPE: G=GRAB; C=COMPOSITE; SS=SPLIT SPOON PRES: (1) ICE; (2) HCL; (3) H <sub>2</sub> SO <sub>4</sub> ; (4) NaOH; (5) Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ; (6) HNO <sub>3</sub> ; (7) OTHER	TURNAROUND REQUIRED: <input type="checkbox"/> NORMAL <input checked="" type="checkbox"/> STAT	COMMENTS / INSTRUCTIONS Hold until approved by SJM	
RELINQUISHED BY (SIGNATURE) <i>[Signature]</i>	RECEIVED BY (SIGNATURE) <i>[Signature]</i>	DATE 9/15/15	DATE 9/15/15
TIME 4:30	TIME 1:30AM	PRINTED NAME Jonathan McGinn	PRINTED NAME Ben Lamberson
RELINQUISHED BY (SIGNATURE) <i>[Signature]</i>	RECEIVED BY (SIGNATURE) <i>[Signature]</i>	DATE 9/15/15	DATE 9/15/15
TIME	TIME 5:17M	PRINTED NAME	PRINTED NAME Ben Lamberson



# CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS NPN 5722 Walt Whitman Rd Melville, NY 11747		CONTACT: Steve McGinn PHONE: 487-5665 FAX: EMAIL:		SAMPLER (SIGNATURE) <i>[Signature]</i>		SAMPLE(S) SEALED YES/NO 5090916		AIN LY)	
PROJECT LOCATION: Indian Hills Golf Club		SAMPLER NAME (PRINT) Jonathan McGinn		CORRECT CONTAINER(S) YES/NO		ANALYSIS REQUIRED			
TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month. Tending of samples to LIAL for analytical testing constitutes agreement by buyer/sampler to LIAL's Standard terms		EMAIL: 116 °C							
LABORATORY ID # <small>For Laboratory Use Only</small>	MATRIX	TYPE	pH	RES CHLORINE	DATE	TIME	SAMPLE # LOCATION	SAMPLES RECEIVED AT	# OF CONTAINERS
1.	S G				9/8/15	12:09	PS-3 (18-24) Hold		1
2. 5090916-01						11:47	PS-4 (0-3)	X X	
3.						11:49	PS-4 (3-6)		
4.						11:51	PS-4 (6-12)		
5.						11:53	PS-4 (12-18)		
6.						11:55	PS-4 (18-24)		
7.						4:13	AS-1 (0-3)	X	
8.						4:15	AS-1 (3-6)		
9.						4:16	AS-1 (6-12)		
10.						4:20	AS-1 (12-18)		
11.						4:22	AS-1 (18-24)		
12.						3:25	AS-2 (0-3)	X	
13.						3:28	AS-2 (3-6) > hold		
14.						3:30	AS-2 (6-12)		

TURNAROUND REQUIRED:  NORMAL  STAT BY / /

COMMENTS / INSTRUCTIONS: Hold until approved by JSM

RECEIVED BY (SIGNATURE): *[Signature]* DATE 9-9-15 TIME 4:30P

RECEIVED BY SAMPLE CUSTODIAN: *[Signature]* DATE 9-9-15 TIME 5:17A

PRINTED NAME: Ben Lamberson





# CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS NPV 572 West Whitman Rd Melville, N.Y. 11747		CONTACT: Steve McGin PHONE: 427-5665 FAX: EMAIL:		SAMPLER(S) SEALED YES / NO CORRECT CONTAINER(S) YES / NO		SAMPLE(S) REQUIRED ANALYSIS REQUIRED		5090916	
PROJECT LOCATION: Indian Hills Golf Club		SAMPLER(S) SIGNATURE: Jonathan McGin		SAMPLER NAME (PRINT): Jonathan McGin		SAMPLES RECEIVED AT 1.6 °C			
TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month. Tendering of samples to LIAL for analytical testing constitutes agreement by buyer/sampler to LIAL's Standard terms									
LABORATORY ID #	MATRIX	TYPE	PH	RES. CHLORINE	DATE	TIME	SAMPLE # LOCATION	# OF CONTAINERS	
1. 5090916	S	G			9/18/15	3:33	AS-2 (12-18) > Hold	X	1
2.						3:36	AS-2 (18-24)	X	
3.						3:09	AS-3 (0-3)	X	
4.						3:12	AS-3 (3-6)	X	
5.						3:16	AS-3 (6-12) > Hold	X	
6.						3:20	AS-3 (12-18)	X	
7.						3:25	AS-3 (18-24)	X	
8.						12:02	AS-4 (0-3)	X	
9.						12:04	AS-4 (3-6)	X	
10.						12:08	AS-4 (6-12) > Hold	X	
11.						12:11	AS-4 (12-18)	X	
12.						12:13	AS-4 (18-24)	X	
13.						12:19	AS-5 (0-3)	X	
14.						12:20	AS-5 (3-6) > Hold	X	

Hold until approved by STM

TURNAROUND REQUIRED:  NORMAL  STAT

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE: 9/18/15	PRINTED NAME: Jonathan McGin	RECEIVED BY (SIGNATURE)	DATE: 9-17-15	PRINTED NAME: Ben Lamberson
RELINQUISHED BY (SIGNATURE)	TIME: 4:30	RECEIVED BY (SIGNATURE)	TIME: 4:30	DATE: 9-15-15	PRINTED NAME: Ben Lamberson
				TIME: 5:17P	





# CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

CLIENT NAME/ADDRESS APV 572 West Huntington Rd Pelham, NY 11747		CONTACT: Steve McGin		SAMPLE(S) SEALED YES / NO		5090916		
PHONE: 477-5665		FAX:		CORRECT CONTAINER(S) YES / NO		(FOR LAB USE ONLY)		
PROJECT LOCATION: Indian Hill Golf Club		EMAIL:		SAMPLER NAME (PRINT) Jonathan McGin				
TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month. Tending of samples to LIAL for analytical testing constitutes agreement by buyer/sampler to LIAL's Standard terms		SAMPLER RECEIVED AT 2.6°C		ANALYSIS REQUIRED SPLITS Held + Atrac				
LABORATORY ID # <small>For Laboratory Use Only</small>	MATRIX	TYPE	PH	RES CHLORINE	DATE	TIME	SAMPLE # LOCATION	# OF CONTAINERS
1.	S G			1	9/8/15	12:23	AS-5 (6-12) 7 Hold	1
2.	S G			1	9/8/15	12:26	AS-5 (12-18) 7 Hold	1
3.	S G			1	9/8/15	12:30	AS-5 (18-24)	1
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								

TURNAROUND REQUIRED:  NORMAL  STAT BY / /

COMMENTS / INSTRUCTIONS  
Hold until approved by STM

RECEIVED BY (SIGNATURE) [Signature]  
RECEIVED BY (SIGNATURE) [Signature]

DATE 9/9/15  
TIME 7:30  
DATE 9-5-15  
TIME 5:17

PRINTED NAME Jonathan McGin  
PRINTED NAME [Signature]