click on your browser's 'Back' button to return to previous page

Rare Species by Town: M

Last Updated on 3/1/2003

The 'Most Recent Obs' field represents the most recent observation of a species in a town. An asterisk (*) indicates that the species was most recently observed within the past 25 years. However, many rare species are difficult to detect even though they are present, and Natural Heritage does not conduct methodical species surveys in each town on a consistent basis. Therefore, the fact that the 'Most Recent Obs' for a species may be several years old should not lead to the interpretation that the species no longer occurs in a town.

Only those rare species records that are less than 25 years old are used in Natural Heritage project review associated with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and the Massachusetts Endangered Species Act Regulations (321 CMR 10.00).

Click on a town below to view state listed species for that town. To print the species for a particular town, highlight the species using your mouse, go to Print under the File Menu, click on 'Selection' under 'Print Range' and click OK.

Malden	Marshfield	Medway	Middlefield	Milton	Mt. Washington
Manchester	Mashpee	Melrose	Middleton	Monroe	
Mansfield	Mattapoisett	Mendon	Milford	Monson	
Marblehead	Maynard	Merrimac	Millbury	Montague	
Marion	Medfield	Methuen	Millis	Monterey	
Marlborough	Medford	Middleborough	Millville	Montgomery	

Town		Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank
MALDEN		Amphibian	Ambystoma opacum	Marbled Salamander	T	
MALDEN		Reptile	Clemmys guttata	Spotted Turtle	SC	
MALDEN		Bird	Vermivora chrysoptera	Golden-Winged Warbler	E	
MALDEN		Beetle	Cicindela duodecimguttata	Twelve-Spotted Tiger Beetle	SC	
MALDEN		Beetle	Cicindela purpurea	Purple Tiger Beetle	SC	
			Cicindela	Hentz's		

Town		Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank	Most Recent Obs
MEDFORD		Amphibian	Hemidactylium scutatum	Four-Toed Salamander	SC		18--
MEDFORD		Mussel	Ligumia nasuta	Eastern Pondmussel	SC		
MEDFORD	*	Crustacean	Crangonyx aberrans	Mystic Valley Amphipod	SC		1982
MEDFORD		Beetle	Cicindela duodecimguttata	Twelve-Spotted Tiger Beetle	SC		1903
MEDFORD	*	Beetle	Cicindela rufiventris hentzii	Hentz's Redbelly Tiger Beetle	T		1988
MEDFORD	*	Butterfly/Moth	Rhodoecia aurantiago	A Noctuid Moth	T		1988
MEDFORD	*	Butterfly/Moth	Satyrium favonius	Oak Hairstreak	SC		1988
MEDFORD		Vascular Plant	Arabis missouriensis	Green Rock-Cress	T		1894
MEDFORD		Vascular Plant	Carex gracilescens	Slender Woodland Sedge	E		1870
MEDFORD		Vascular Plant	Carex recta	Saline Sedge	E		1882
MEDFORD		Vascular Plant	Clematis occidentalis	Purple Clematis	SC		1904
MEDFORD		Vascular Plant	Houstonia longifolia var longifolia	Long-Leaved Bluet	E		
MEDFORD		Vascular Plant	Liatris borealis	New England Blazing Star	SC		1891
MEDFORD		Vascular Plant	Prenanthes serpentaria	Lion's Foot	E		1894
MEDFORD		Vascular Plant	Ranunculus micranthus	Tiny-Flowered Buttercup	E		18--
MEDFORD		Vascular Plant	Sagittaria calycina var spongiosa	Estuary Arrowhead	E		1876
MEDFORD		Vascular Plant	Sphenopholis nitida	Shining Wedgegrass	T		1864

click on your browser's 'Back' button to return to previous page

Rare Species by County: Middlesex

Last Updated on 3/1/2003

Taxonomic Group	Scientific Name	Common Name	State Rank	Federal Rank	Most Recent Obs
Fish	Notropis bifrenatus	Bridle Shiner	SC		1996
Amphibian	Ambystoma jeffersonianum	Jefferson Salamander	SC		1912
Amphibian	Ambystoma laterale	Blue-Spotted Salamander	SC		2001
Amphibian	Ambystoma opacum	Marbled Salamander	T		2000
Amphibian	Hemidactylium scutatum	Four-Toed Salamander	SC		2000
Amphibian	Scaphiopus holbrookii	Eastern Spadefoot	T		1892
Reptile	Clemmys guttata	Spotted Turtle	SC		2001
Reptile	Clemmys insculpta	Wood Turtle	SC		2000
Reptile	Emydoidea blandingii	Blanding's Turtle	T		2001
Reptile	Terrapene carolina	Eastern Box Turtle	SC		1999
Bird	Accipiter striatus	Sharp-Shinned Hawk	SC	(PS)	1936
Bird	Ammodramus henslowii	Henslow's Sparrow	E		1994
Bird	Ammodramus savannarum	Grasshopper Sparrow	T	(PS)	1994
Bird	Bartramia longicauda	Upland Sandpiper	E		1993
Bird	Botaurus lentiginosus	American Bittern	E		2001
Bird	Circus cyaneus	Northern Harrier	T		1879
Bird	Cistothorus platensis	Sedge Wren	E		1993
Bird	Gallinula chloropus	Common Moorhen	SC	(PS)	1992
Bird	Gavia immer	Common Loon	SC		2000
Bird	Ixobrychus exilis	Least Bittern	E		1995
Bird	Podilymbus podiceps	Pied-Billed Grebe	E		1948
Bird	Rallus elegans	King Rail	T		1988

Bird	Tyto alba	Barn Owl	SC		1973
Bird	Vermivora chrysoptera	Golden-Winged Warbler	E		1982
Mammal	Synaptomys cooperi	Southern Bog Lemming	SC		1976
Segmented Worm	Macrobdella sestertia	New England Medicinal Leech	SC		18--
Mussel	Alasmidonta undulata	Triangle Floater	SC		2002
Mussel	Alasmidonta varicosa	Brook Floater (Swollen Wedgemussel)	E		1997
Mussel	Ligumia nasuta	Eastern Pondmussel	SC		2000
Mussel	Strophitus undulatus	Creeper	SC		2002
Mussel	Valvata sincera	Boreal Turret Snail	E		1977
Crustacean	Crangonyx aberrans	Mystic Valley Amphipod	SC		2001
Crustacean	Eubranchipus intricatus	Intricate Fairy Shrimp	SC		1998
Dragonfly/Damselfly	Aeshna mutata	Spatterdock Darner	E		1998
Dragonfly/Damselfly	Enallagma laterale	New England Bluet	SC		1967
Dragonfly/Damselfly	Gomphus abbreviatus	Spine-Crowned Clubtail	E		1904
Dragonfly/Damselfly	Gomphus borealis	Beaverpond Clubtail	SC		1918
Dragonfly/Damselfly	Gomphus descriptus	Harpoon Clubtail	E		1940
Dragonfly/Damselfly	Gomphus vastus	Cobra Clubtail	SC		1917
Dragonfly/Damselfly	Neurocordulia obsoleta	Umber Shadowdragon	SC		1997
Dragonfly/Damselfly	Ophiogomphus aspersus	Brook Snaketail	SC		1999
Dragonfly/Damselfly	Somatochlora forcipata		SC		2001
Dragonfly/Damselfly	Somatochlora georgiana	Coppery Emerald	E		1997
Dragonfly/Damselfly	Somatochlora kennedyi	Kennedy's Emerald	E		1939
Dragonfly/Damselfly	Somatochlora linearis	Mocha Emerald	SC		1999
Dragonfly/Damselfly	Stylurus scudderi	Zebra Clubtail	E		1997
Beetle	Cicindela duodecimguttata	Twelve-Spotted Tiger Beetle	SC		1935

Beetle	Cicindela purpurea	Purple Tiger Beetle	SC		1986
Beetle	Cicindela rufiventris hentzii	Hentz's Redbelly Tiger Beetle	T		1989
Beetle	Desmocerus palliatus	Elderberry Long-Horned Beetle	SC		1997
Butterfly/Moth	Acronicta albarufa	Barrens Daggermoth	T		1934
Butterfly/Moth	Apodrepanulatrix liberaria	New Jersey Tea Inchworm	E		1934
Butterfly/Moth	Bagisara rectifascia	Straight Lined Mallow Moth	SC		1878
Butterfly/Moth	Callophrys hesseli	Hessel's Hairstreak	SC		1996
Butterfly/Moth	Cicinnus melsheimeri	Melsheimer's Sack Bearer	T		
Butterfly/Moth	Cingilia catenaria	Chain Dot Geometer	SC		1930
Butterfly/Moth	Eacles imperialis	Imperial Moth	T		1934
Butterfly/Moth	Erynnis persius persius	Persius Duskywing	E		1975
Butterfly/Moth	Hemileuca maia	Barrens Buckmoth	SC		1919
Butterfly/Moth	Lithophane viridipallens	Pale Green Pinion Moth	SC		1934
Butterfly/Moth	Metarranthis apiciaria	Barrens Metarranthis Moth	E		1934
Butterfly/Moth	Pieris oleracea	Eastern Veined White	T		1934
Butterfly/Moth	Rhodoecia aurantiago	A Noctuid Moth	T		1988
Butterfly/Moth	Satyrium favonius	Oak Hairstreak	SC		1990
Vascular Plant	Adlumia fungosa	Climbing Fumitory	T		2000
Vascular Plant	Agrimonia pubescens	Hairy Agrimony	T		1986
Vascular Plant	Amelanchier sanguinea	Roundleaf Shadbush	SC		1905
Vascular Plant	Arabis missouriensis	Green Rock-Cress	T		2000
Vascular Plant	Arceuthobium pusillum	Dwarf Mistletoe	SC		1990
Vascular Plant	Aristida purpurascens	Purple Needlegrass	T		1913
Vascular Plant	Aristida tuberculosa	Seabeach Needlegrass	T		1882
Vascular Plant	Asclepias purpurascens	Purple Milkweed	E		1943

Vascular Plant	Asclepias verticillata	Linear-Leaved Milkweed	T		1999
Vascular Plant	Blephilia ciliata	Downy Wood-Mint	E		1881
Vascular Plant	Bolboschoenus fluviatilis	River Bulrush	SC		2001
Vascular Plant	Calamagrostis pickeringii	Reed Bentgrass	E		1899
Vascular Plant	Calystegia spithamaea	Low Bindweed	E		1999
Vascular Plant	Carex bushii	Bush's Sedge	E		1913
Vascular Plant	Carex glaucodea	Glaucescent Sedge	E		
Vascular Plant	Carex gracilescens	Slender Woodland Sedge	E		1932
Vascular Plant	Carex lenticularis	Shore Sedge	T		1882
Vascular Plant	Carex oligosperma	Few-Fruited Sedge	E		1992
Vascular Plant	Carex polymorpha	Variable Sedge	E		2000
Vascular Plant	Carex recta	Saline Sedge	E		1887
Vascular Plant	Carex tetanica	Fen Sedge	SC		1902
Vascular Plant	Carex trichocarpa	Hairy-Fruited Sedge	T		1885
Vascular Plant	Clematis occidentalis	Purple Clematis	SC		1904
Vascular Plant	Cyperus engelmannii	Engelmann's Umbrella-Sedge	T		2000
Vascular Plant	Cyperus houghtonii	Houghton's Flatsedge	E		1991
Vascular Plant	Deschampsia cespitosa ssp glauca	Tufted Hairgrass	E		1882
Vascular Plant	Dichanthelium mattamuskeetense	Mattamuskeet Panic-Grass	E		1892
Vascular Plant	Doellingeria infirma	Cornel-Leaved Aster	E		2000
Vascular Plant	Elymus villosus	Hairy Wild Rye	E		1882
Vascular Plant	Eriophorum gracile	Slender Cottongrass	T		1913
Vascular Plant	Eupatorium aromaticum	Lesser Snakeroot	E		1986
Vascular Plant	Galium boreale	Northern Bedstraw	E		1906
Vascular Plant	Gentiana andrewsii	Andrews' Bottle Gentian	E		1917
Vascular Plant	Houstonia longifolia var longifolia	Long-Leaved Bluet	E		2001

Vascular Plant	Hypericum ascyron	Giant St. John's-Wort	E		
Vascular Plant	Isoetes lacustris	Lake Quillwort	E		2001
Vascular Plant	Liatris borealis	New England Blazing Star	SC		2001
Vascular Plant	Linum medium var texanum	Rigid Flax	T		1961
Vascular Plant	Lipocarpha micrantha		T		1999
Vascular Plant	Listera cordata	Heartleaf Twayblade	E		1897
Vascular Plant	Ludwigia polycarpa	Many-Fruited False-Loosestrife	E		1986
Vascular Plant	Ludwigia sphaerocarpa	Round-Fruited False-Loosestrife	E		1908
Vascular Plant	Lygodium palmatum	Climbing Fern	SC		2000
Vascular Plant	Mimulus moschatus	Muskflower	E		1913
Vascular Plant	Myriophyllum alterniflorum	Alternate-Flowered Water-Milfoil	T		1903
Vascular Plant	Nuphar microphylla	Tiny Cow-Lily	E		1925
Vascular Plant	Ophioglossum pusillum	Adder's-Tongue Fern	T		1913
Vascular Plant	Oxalis violacea	Violet Wood-Sorrel	E		1999
Vascular Plant	Panicum philadelphicum	Philadelphia Panic-Grass	SC		1992
Vascular Plant	Platanthera dilatata	Leafy White Orchis	T		190-
Vascular Plant	Platanthera flava var herbiola	Pale Green Orchis	T		1921
Vascular Plant	Podostemum ceratophyllum	Threadfoot	SC		2001
Vascular Plant	Potamogeton friesii	Fries' Pondweed	E		1880
Vascular Plant	Potamogeton vaseyi	A Pondweed	E		2001
Vascular Plant	Prenanthes serpentaria	Lion's Foot	E		1946
Vascular Plant	Pycnanthemum clinopodioides	Basil Mountain-Mint	E		1886
Vascular Plant	Ranunculus micranthus	Tiny-Flowered Buttercup	E		1982
Vascular Plant	Rotala ramosior	Toothcup	E		2001
Vascular Plant	Sagittaria calycina	Estuary Arrowhead	E		1876

	var spongiosa				
Vascular Plant	Sagittaria teres	Terete Arrowhead	SC		1894
Vascular Plant	Scheuchzeria palustris	Pod-Grass	E		1999
Vascular Plant	Scirpus longii	Long's Bulrush	T		2001
Vascular Plant	Scleria triglomerata	Tall Nut-Sedge	E		1920
Vascular Plant	Senna hebecarpa	Wild Senna	E		2000
Vascular Plant	Sparganium natans	Small Bur-Reed	E		1996
Vascular Plant	Sphenopholis nitida	Shining Wedgegrass	T		1915
Vascular Plant	Sphenopholis pensylvanica	Swamp Oats	T		1961
Vascular Plant	Spiranthes vernalis	Grass-Leaved Ladies'-Tresses	T		1991
Vascular Plant	Suaeda calceoliformis	American Sea-Blite	SC		1912
Vascular Plant	Trisetum triflorum ssp molle	Spiked False Oats	E		1888
Vascular Plant	Viola adunca	Sand Violet	E		1914
Vascular Plant	Viola brittoniana	Britton's Violet	T		2000

MASSACHUSETTS AREAS OF CRITICAL ENVIRONMENTAL CONCERN
November 2003

Total Approximate Acreage: 240,900 acres
Approximate acreage and designation date follow ACEC names below.

Bourne Back River
(1,850 acres, 1989) Bourne

Canoe River Aquifer and Associated Areas
(17,200 acres, 1991) Easton, Foxborough, Mansfield, Norton, Sharon, and Taunton

Central Nashua River Valley
(12,900 acres,1996) Bolton, Harvard, Lancaster, and Leominster

Cranberry Brook Watershed
(1,050 acres, 1983) Braintree and Holbrook

Ellisville Harbor
(600 acres, 1980) Plymouth

Fowl Meadow and Ponkapoag Bog
(8,350 acres, 1992) Boston, Canton, Dedham, Milton, Norwood, Randolph, Sharon, and Westwood

Golden Hills
(500 acres, 1987) Melrose, Saugus, and Wakefield

Herring River Watershed
(4,450 acres, 1991) Bourne and Plymouth

Hinsdale Flats Watershed
(14,500 acres, 1992) Dalton, Hinsdale, Peru, and Washington

Hockomock Swamp
(16,950 acres, 1990) Bridgewater, Easton, Norton, Raynham, Taunton, and West Bridgewater

Inner Cape Cod Bay
(2,550 acres, 1985) Brewster, Eastham, and Orleans

Kampoosa Bog Drainage Basin
(1,350 acres, 1995) Lee and Stockbridge

Karner Brook Watershed
(7,000 acres, 1992) Egremont and Mount Washington

Miscoe-Warren-Whitehall Watersheds
(8,700 acres, 2000) Grafton, Hopkinton, and Upton

Neponset River Estuary
(1,300 acres, 1995) Boston, Milton, and Quincy

Parker River/Essex Bay
(25,500 acres, 1979) Essex, Gloucester, Ipswich, Newbury, and Rowley

Petapawag
(25,630 acres, 2002) Ayer, Dunstable, Groton, Pepperell, Tyngsborough

Pleasant Bay
(9,050 acres, 1987) Brewster, Chatham, Harwich, and Orleans

Pocasset River
(150 acres, 1980) Bourne

Rumney Marshes
(2,800 acres, 1988) Boston, Lynn, Revere, Saugus, and Winthrop

Sandy Neck/Barnstable Harbor
(8,850 acres, 1978) Barnstable and Sandwich

Schenob Brook Drainage Basin
(13,750 acres, 1990) Mount Washington and Sheffield

Squannassit
(37,450 acres, 2002) Ashby, Ayer, Groton, Harvard, Lancaster, Lunenburg, Pepperell, Shirley, Townsend

Waquoit Bay
(2,550 acres, 1979) Falmouth and Mashpee

Weir River
(950 acres, 1986) Cohasset, Hingham, and Hull

Wellfleet Harbor
(12,350 acres, 1989) Eastham, Truro, and Wellfleet

Westborough Cedar Swamp
(1,650 acres, 1975) Hopkinton and Westborough

Weymouth Back River
(950 acres, 1982) Hingham and Weymouth

Towns with ACECs within their Boundaries — November 2003

TOWN	ACEC
Ashby	Squannassit
Ayer	Petapawag
	Squannassit
Barnstable	Sandy Neck/Barnstable Harbor
Bolton	Central Nashua River Valley
Boston	Rumney Marshes
	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Bourne	Pocasset River
	Bourne Back River
	Herring River Watershed
Braintree	Cranberry Brook Watershed
Brewster	Pleasant Bay
	Inner Cape Cod Bay
Bridgewater	Hockomock Swamp
Canton	Fowl Meadow and Ponkapoag Bog
Chatham	Pleasant Bay
Cohasset	Weir River
Dalton	Hinsdale Flats Watershed
Dedham	Fowl Meadow and Ponkapoag Bog
Dunstable	Petapawag
Eastham	Inner Cape Cod Bay
	Wellfleet Harbor
Easton	Canoe River Aquifer
	Hockomock Swamp
Egremont	Karner Brook Watershed
Essex	Parker River/Essex Bay
Falmouth	Waquoit Bay
Foxborough	Canoe River Aquifer
Gloucester	Parker River/Essex Bay
Grafton	Miscoe-Warren-Whitehall Watersheds
Groton	Petapawag
	Squannassit
Harvard	Central Nashua River Valley
	Squannassit
Harwich	Pleasant Bay
Hingham	Weir River
	Weymouth Back River
Hinsdale	Hinsdale Flats Watershed
Holbrook	Cranberry Brook Watershed
Hopkinton	Miscoe-Warren-Whitehall Watersheds
	Westborough Cedar Swamp
Hull	Weir River
Ipswich	Parker River/Essex Bay
Lancaster	Central Nashua River Valley
	Squannassit
Lee	Kampoosa Bog Drainage Basin
Leominster	Central Nashua River Valley
Lunenburg	Squannassit
Lynn	Rumney Marshes
Mansfield	Canoe River Aquifer
Mashpee	Waquoit Bay
Melrose	Golden Hills
Milton	Fowl Meadow and Ponkapoag Bog
	Neponset River Estuary
Mt Washington	Karner Brook Watershed
	Schenob Brook
Newbury	Parker River/Essex Bay
Norton	Hockomock Swamp
	Canoe River Aquifer
Norwood	Fowl Meadow and Ponkapoag Bog
Orleans	Inner Cape Cod Bay
	Pleasant Bay
Pepperell	Petapawag
	Squannassit
Peru	Hinsdale Flats Watershed
Plymouth	Herring River Watershed
	Ellisville Harbor
Quincy	Neponset River Estuary
Randolph	Fowl Meadow and Ponkapoag Bog
Raynham	Hockomock Swamp
Revere	Rumney Marshes
Rowley	Parker River/Essex Bay
Sandwich	Sandy Neck/Barnstable Harbor
Saugus	Rumney Marshes
	Golden Hills
Sharon	Canoe River Aquifer
	Fowl Meadow and Ponkapoag Bog
Sheffield	Schenob Brook
Shirley	Squannassit
Stockbridge	Kampoosa Bog Drainage Basin
Taunton	Hockomock Swamp
	Canoe River Aquifer
Truro	Wellfleet Harbor
Townsend	Squannassit
Tyngsborough	Petapawag
Upton	Miscoe-Warren-Whitehall Watersheds
Wakefield	Golden Hills
Washington	Hinsdale Flats Watershed
Wellfleet	Wellfleet Harbor
W Bridgewater	Hockomock Swamp
Westborough	Westborough Cedar Swamp
Westwood	Fowl Meadow and Ponkapoag Bog
Weymouth	Weymouth Back River
Winthrop	Rumney Marshes

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0505126-02
HA-5
Sample Matrix: WATER

Date Collected: 11-MAY-2005 15:35
Date Received : 11-MAY-2005
Date Reported : 16-MAY-2005

Condition of Sample: Satisfactory

Field Prep: Field Filtered

Number & Type of Containers: 3-Plastic

Comments:
The Total Cyanide was analyzed on the unfiltered sample.

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Cyanide, Total	0.015	mg/l	0.005	4	335.2	0513 10:05	0513 17:11	DD
Dissolved Metals								
Lead, Dissolved	ND	mg/l	0.01	19	200.7	0513 17:00	0516 13:22	RW

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0505126

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 01-03 (WG201822-1)								
Cyanide, Total	ND	mg/l	0.005	4	335.2	0513 10:05	0513 17:01	DD
Blank Analysis for sample(s) 01-02 (WG201878-3)								
Dissolved Metals								
Lead, Dissolved	ND	mg/l	0.01	19	200.7	0513 17:00	0516 13:06	RW

REFERENCES

4. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

19. Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
ug/cart	Micrograms per Cartridge.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

ALPHA Job # L0505126

HALEY & ALDRICH
Haley & Aldrich, Inc.
465 Medford St.,
Suite 2200,
Boston, MA 02129-1400
Phone (617) 886-7400
Fax (617) 886-7600

CHAIN OF CUSTODY RECORD

Page 1 of 1

H&A FILE NO.	12355-600	LABORATORY	Alpha	DELIVERY DATE	
PROJECT NAME	Parcel 38, Skyline Condos	ADDRESS	Westborough	TURNAROUND TIME	STD
H&A CONTACT	Michael Capraro	CONTACT	K. O'Brien	PROJECT MANAGER	E. Steinbr

Sample No.	Date	Time	Depth	Type	VOA	ABNs PAH only	MCP Metals	Pesticides PCBs	VPH Full Suite C-ranges only	EPH Full Suite C-ranges only	TPH (specify)	TCLP (specify)	Reactivity Ignitability Corrosivity	①	②		Number of Containers
L0505126.01 HA-4	5/11/05	1335	—	W										X	X		2
.02 HA-5	"	1535	—	W										X	X		3

Analysis Requested

Comments (special instructions, precautions, additional method numbers, etc.)

Laboratory to use applicable DEP CAM methods, unless otherwise directed.

① Dissolved lead - field filtered *

② Amenable Cyanide

~~③ Amen~~

Sampled and Relinquished by	Received by
Sign [signature]	Sign [signature]
Print Kenneth Algiers	Print [signature]
Firm HSA	Firm [signature]
Date 5/11/05 Time 1615	Date 5/11/05 Time 1615
Relinquished by	**Received by**
Sign [signature]	Sign Gary Krasinski
Print	Print Gary Krasinski
Firm	Firm
Date Time	Date 5-11-05 Time 18:00
Relinquished by	**Received by**
Sign	Sign
Print	Print
Firm	Firm
Date Time	Date Time

LIQUID

												VOA Vial
												Amber Glass
										X	X	Plastic Bottle
										MD	AK	Preservative
										250	500	Volume

SOLID

												VOA Vial
												Amber Glass
												Clear Glass
												Preservative
												Volume

Sampling Comments

* HA-5 - 2x Amenable Cyanide samples: 1 field filtered, 1 not filtered

Please Call Michael Capraro prior to testing

Evidence samples were tampered with? YES NO

If YES, please explain in section below.

for explanation

PRESERVATION KEY

A Sample chilled	C NaOH	E H_2SO_4	G Methanol
B Sample filtered	D HNO_3	F HCL	H Water/NaHSO4 (circle)

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

If Presumptive Certainty Data Package is needed, initial all sections:

_____ The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

_____ Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

_____ This Chain of Custody Record (specify) _____ includes X does not include samples defined as Drinking Water Samples.

_____ If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required, as appropriate. Laboratory should (specify if applicable) _____ analyze _____ hold for contingency testing the Drinking Water Field Duplicate and Drinking Water Trip Blank samples.

Required Reporting Limits and Data Quality Objectives

☐ RC-S1 ☐ S1 ☐ GW1
☐ RC-S2 ☐ S2 ☐ GW2
☐ RC-GW1 ☐ S3 ☐ GW3
☐ RC-GW2

WHITE - Laboratory CANARY - Project Manager PINK - Haley & Aldrich Laboratory GOLDENROD - Haley & Aldrich Contact

Form 3003 AUGUST 2003

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: Haley & Aldrich, Inc.

Address: 465 Medford Street, Suite 2200
Boston, MA 02129-1400

Attn: Mr. Steve Provencal

Project Number: 12355-600

Site: MYSTIC CENTER-PARCEL 38

Laboratory Job Number: L0504342

Date Received: 21-APR-2005

Date Reported: 28-APR-2005

Delivery Method: Alpha

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0504342-01	HA05-05 (OW)	
L0504342-02	HA05-04 (OW)	

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by: James Todaro
This document electronically signed

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0504342-01
HA05-05 (OW)
Sample Matrix: WATER

Date Collected: 21-APR-2005 10:20
Date Received : 21-APR-2005
Date Reported : 28-APR-2005

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 4-Amber,5-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Solids, Total Suspended	460	mg/l	5.0	4	160.2		0427 09:15	DT
Cyanide, Total	0.018	mg/l	0.005	4	335.2	0426 11:00	0426 17:28	DD
Cyanide, Amenable	ND	mg/l	0.010	4	335.1	0426 11:00	0426 17:05	JH
pH	7.04	SU	-	4	150.1		0421 21:30	DP
Oil & Grease, Hem-Grav	ND	mg/l	4.0	38	1664	0422 14:00	0425 11:30	AT
Total Metals				19	200.7			
Arsenic, Total	0.016	mg/l	0.005	19	200.7	0426 17:45	0427 13:45	RW
Lead, Total	0.045	mg/l	0.010	19	200.7	0426 17:45	0427 13:45	RW
Volatile Organics by GC/MS 624				5	624		0425 12:39	RY
Benzene	ND	ug/l	1.0					
Toluene	ND	ug/l	1.0					
Ethylbenzene	ND	ug/l	1.0					
p/m-Xylene	ND	ug/l	2.0					
o-xylene	ND	ug/l	1.0					
Xylene (Total)	ND	ug/l	1.0					
Methyl tert butyl ether	ND	ug/l	20.					
Surrogate(s)	Recovery		QC Criteria					
Pentafluorobenzene	95.0	%						
Fluorobenzene	96.0	%						
4-Bromofluorobenzene	86.0	%						
PNA's by GC/MS 625				5	625	0422 16:30	0425 23:00	HL
Acenaphthene	ND	ug/l	5.0					
2-Chloronaphthalene	ND	ug/l	6.0					
Fluoranthene	ND	ug/l	5.0					
Naphthalene	ND	ug/l	5.0					
Benzo(a)anthracene	ND	ug/l	5.0					
Benzo(a)pyrene	ND	ug/l	5.0					
Benzo(b)fluoranthene	ND	ug/l	5.0					
Benzo(k)fluoranthene	ND	ug/l	5.0					
Chrysene	ND	ug/l	5.0					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0504342-02
HA05-04 (OW)
Sample Matrix: WATER

Date Collected: 21-APR-2005 11:50
Date Received : 21-APR-2005
Date Reported : 28-APR-2005

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 4-Amber,5-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Solids, Total Suspended	59.	mg/l	5.0	4	160.2		0427 09:15	DT
Cyanide, Total	0.094	mg/l	0.005	4	335.2	0426 11:00	0426 17:28	DD
Cyanide, Amenable	0.015	mg/l	0.010	4	335.1	0426 11:00	0426 17:05	JH
pH	6.81	SU	-	4	150.1		0421 21:30	DP
Oil & Grease, Hem-Grav	ND	mg/l	4.0	38	1664	0422 14:00	0425 11:30	AT
Total Metals				19	200.7			
Arsenic, Total	ND	mg/l	0.005	19	200.7	0426 17:45	0427 13:48	RW
Lead, Total	ND	mg/l	0.010	19	200.7	0426 17:45	0427 13:48	RW
Volatile Organics by GC/MS 624				5	624		0425 13:15	RY
Benzene	ND	ug/l	1.0					
Toluene	ND	ug/l	1.0					
Ethylbenzene	ND	ug/l	1.0					
p/m-Xylene	ND	ug/l	2.0					
o-xylene	ND	ug/l	1.0					
Xylene (Total)	ND	ug/l	1.0					
Methyl tert butyl ether	ND	ug/l	20.					
Surrogate(s)	Recovery		QC Criteria					
Pentafluorobenzene	95.0	%						
Fluorobenzene	97.0	%						
4-Bromofluorobenzene	86.0	%						
PNA's by GC/MS 625				5	625	0422 16:30	0425 22:34	HL
Acenaphthene	ND	ug/l	4.8					
2-Chloronaphthalene	ND	ug/l	5.8					
Fluoranthene	ND	ug/l	4.8					
Naphthalene	ND	ug/l	4.8					
Benzo(a)anthracene	ND	ug/l	4.8					
Benzo(a)pyrene	ND	ug/l	4.8					
Benzo(b)fluoranthene	ND	ug/l	4.8					
Benzo(k)fluoranthene	ND	ug/l	4.8					
Chrysene	ND	ug/l	4.8					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0504342

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Solids, Total Suspended for sample(s) 01-02 (L0504285-02, WG200375-2)					
Solids, Total Suspended	4800	4700	mg/l	2	20
Cyanide, Total for sample(s) 01-02 (L0504281-02, WG200243-4)					
Cyanide, Total	ND	ND	mg/l	NC	30
Cyanide, Amenable for sample(s) 01-02 (L0504342-01, WG200245-3)					
Cyanide, Amenable	ND	ND	mg/l	NC	
pH for sample(s) 01-02 (L0504284-01, WG199936-2)					
pH	8.3	8.4	SU	0	
Oil & Grease, Hem-Grav for sample(s) 01-02 (L0503992-01, WG200143-4)					
Oil & Grease, Hem-Grav	46.	48.	mg/l	4	
Total Metals for sample(s) 01-02 (L0504388-01, WG200330-1)					
Lead, Total	ND	ND	mg/l	NC	
Volatile Organics by GC/MS 624 for sample(s) 01-02 (L0504388-02, WG200261-2)					
Methylene chloride	ND	ND	ug/l	NC	
1,1-Dichloroethane	ND	ND	ug/l	NC	
Chloroform	ND	ND	ug/l	NC	
Carbon tetrachloride	ND	ND	ug/l	NC	
1,2-Dichloropropane	ND	ND	ug/l	NC	
Dibromochloromethane	ND	ND	ug/l	NC	
1,1,2-Trichloroethane	ND	ND	ug/l	NC	
2-Chloroethylvinyl ether	ND	ND	ug/l	NC	
Tetrachloroethene	ND	ND	ug/l	NC	
Chlorobenzene	ND	ND	ug/l	NC	
Trichlorofluoromethane	ND	ND	ug/l	NC	
1,2-Dichloroethane	ND	ND	ug/l	NC	
1,1,1-Trichloroethane	2.1	ND	ug/l	NC	
Bromodichloromethane	ND	ND	ug/l	NC	
trans-1,3-Dichloropropene	ND	ND	ug/l	NC	
cis-1,3-Dichloropropene	ND	ND	ug/l	NC	
Bromoform	ND	ND	ug/l	NC	
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC	
Benzene	ND	ND	ug/l	NC	
Toluene	ND	ND	ug/l	NC	
Ethylbenzene	ND	ND	ug/l	NC	
Chloromethane	ND	ND	ug/l	NC	
Bromomethane	ND	ND	ug/l	NC	
Vinyl chloride	ND	ND	ug/l	NC	
Chloroethane	ND	ND	ug/l	NC	
1,1-Dichloroethene	ND	ND	ug/l	NC	
trans-1,2-Dichloroethene	ND	ND	ug/l	NC	
cis-1,2-Dichloroethene	ND	ND	ug/l	NC	
Trichloroethene	2.0	1.8	ug/l	11	
1,2-Dichlorobenzene	ND	ND	ug/l	NC	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0504342

Continued

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Hydrocarbon Scan by GC 8100M for sample(s) 01-02 (L0504342-01, WG200051-3)					
Transformer Oil	ND	ND	mg/l	NC	40
Unknown Hydrocarbon	ND	ND	mg/l	NC	40
Surrogate(s)	Recovery				QC Criteria
o-Terphenyl	57.0	58.0	%	2	40-140

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0504342

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS 624 LCS for sample(s) 01-02 (WG200261-5)		
p/m-Xylene	109	
o-Xylene	104	
XYLENE (TOTAL)	108	
Styrene	115	
Acetone	118	
Carbon disulfide	116	
2-Butanone	110	
Vinyl acetate	101	
4-Methyl-2-pentanone	77	
2-Hexanone	93	
Acrolein	118	
Acrylonitrile	82	
Surrogate(s)		
Pentafluorobenzene	104	
Fluorobenzene	105	
4-Bromofluorobenzene	96	
PNA's by GC/MS 625 LCS for sample(s) 01-02 (WG200077-2)		
Acenaphthene	80	
2-Chloronaphthalene	81	
Fluoranthene	89	
Anthracene	50	
Pyrene	85	
Surrogate(s)		
Nitrobenzene-d5	96	
2-Fluorobiphenyl	83	
4-Terphenyl-d14	92	
Hydrocarbon Scan by GC 8100M LCS for sample(s) 01-02 (WG200051-2)		
Petroleum Spike	90	40-140
Surrogate(s)		
o-Terphenyl	89	40-140
Cyanide, Total SPIKE for sample(s) 01-02 (L0503908-02, WG200243-3)		
Cyanide, Total	106	80-120
Oil & Grease, Hem-Grav SPIKE for sample(s) 01-02 (L0503954-03, WG200143-3)		
Oil & Grease, Hem-Grav	87	
Total Metals SPIKE for sample(s) 01-02 (L0504388-02, WG200330-2)		
Arsenic, Total	101	
Lead, Total	102	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0504342

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS 624 SPIKE for sample(s) 01-02 (L0504388-02, WG200261-1)		
4-Bromofluorobenzene	91	
PNA's by GC/MS 625 SPIKE for sample(s) 01-02 (L0504342-02, WG200077-3)		
Acenaphthene	82	
2-Chloronaphthalene	82	
Fluoranthene	91	
Anthracene	53	
Pyrene	86	
Surrogate(s)		
Nitrobenzene-d5	97	
2-Fluorobiphenyl	85	
4-Terphenyl-d14	94	

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0504342

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 01-02 (WG200261-6)							
Volatile Organics by GC/MS 624 continued				5 624		0425 10:22	RY
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	ND	ug/l	1.0				
Trichloroethene	ND	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	1.0				
Styrene	ND	ug/l	1.0				
Acetone	ND	ug/l	10.				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	20.				
Acrylonitrile	ND	ug/l	10.				
Surrogate(s)	Recovery		QC Criteria				
Pentafluorobenzene	95.0	%					
Fluorobenzene	101.	%					
4-Bromofluorobenzene	91.0	%					
Blank Analysis for sample(s) 01-02 (WG200077-1)							
PNA's by GC/MS 625				5 625	0422 16:30	0425 20:52	HL
Acenaphthene	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	6.0				
Fluoranthene	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Benzo(a)anthracene	ND	ug/l	5.0				
Benzo(a)pyrene	ND	ug/l	5.0				
Benzo(b)fluoranthene	ND	ug/l	5.0				
Benzo(k)fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				
Anthracene	ND	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)pyrene	ND	ug/l	7.0				
Pyrene	ND	ug/l	5.0				
1-Methylnaphthalene	ND	ug/l	5.0				

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

4. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

5. Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).

19. Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

38. N-Hexane Extractable Material (HEM) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM) by Extraction and Gravimetry (Oil and Grease and Total Petroleum Hydrocarbons), EPA-821-B-94-004, October 1994.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
ug/cart	Micrograms per Cartridge.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

Summary of steps involved in analyses to determine load deflection curves (abb.)

1) Summarize subsurface information and define soil properties
2) Establish appropriate non linear soil spring input parameters (different for shafts and piles and for EE and STR states)
3) Establish stiffness of pier cap (rigid, flexible~~, or free~~). Results are sensitive to stiffness ~~our~~ assumptions
   a. Rigid:
      i. Apply load at center of cap. Location of load application is not sensitive as long as it is statically equivalent.
      ii. Simpler to model
   b. Flexible:
      1. Need to model actual point of load application
      2. More detailed modeling.
   ~~c. Free – not applicable?~~
4) Establish connection of piles and cap (fixed, pinned, or other)
   a. Fixed:
      i. Simpler to model
      ii. Smaller deflections (refer to attachment)
   b. Pinned:
      i. Simpler to model
      ii. Larger deflections (refer to attachment)
   c. Other: if condition is something in-between fixed and pinned, then modeling this connection would be ~~complicated~~ cumbersome and assumptions made will have large influence on results.
5) Establish appropriate foundation structural stiffness parameters (different for shafts and piles)
6) Set-up FBPier model geometry for one set of scour and limit state assumptions
7) Set up loading information for load deflection curve
8) Run the analyses
9) Summarize output in the form of charts/tables

ALPHA ANALYTICAL LABORATORIES

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(508) 898-9220 www.alphalab.com

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: Haley & Aldrich, Inc.

Address: 465 Medford Street, Suite 2200
Boston, MA 02129-1400

Attn: Mr. Steve Provencal

Project Number: 12355-640

Site: SKYLINE AT STATION LANDING

Laboratory Job Number: L0512267

Date Received: 13-OCT-2005

Date Reported: 21-OCT-2005

Delivery Method: Alpha

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0512267-01	HA05-04	

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by: _____
Technical Director

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0512267-01
HA05-04
Sample Matrix: WATER

Date Collected: 13-OCT-2005 11:35
Date Received : 13-OCT-2005
Date Reported : 21-OCT-2005

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 8-Amber,6-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Solids, Total Suspended	36.	mg/l	5.0	4	160.2		1018 14:50	DT
Cyanide, Total	ND	mg/l	0.005	4	335.2	1015 11:00	1017 15:49	DD
Cyanide, Amenable	ND	mg/l	0.010	4	335.1	1019 11:00	1019 17:00	DD
Chlorine, Total Residual	ND	mg/l	0.05	4	330.1		1013 23:45	DP
TPH	ND	mg/l	4.00	74	1664A	1014 14:00	1017 12:30	AT
Chromium, Hexavalent	ND	mg/l	0.02	30	3500CR-D	1014 01:00	1014 01:00	DD
Total Metals				19	200.7			
Antimony, Total	ND	mg/l	0.005	3	200.9	1019 19:10	1021 00:27	PY
Arsenic, Total	ND	mg/l	0.005	19	200.7	1019 19:10	1020 08:49	MG
Cadmium, Total	ND	mg/l	0.0002	4	213.2	1019 19:10	1020 15:21	PY
Chromium, Total	ND	mg/l	0.01	19	200.7	1019 19:10	1020 08:49	MG
Copper, Total	ND	mg/l	0.01	19	200.7	1019 19:10	1020 08:49	MG
Iron, Total	14.	mg/l	0.05	19	200.7	1019 19:10	1020 08:49	MG
Lead, Total	ND	mg/l	0.001	3	200.9	1019 19:10	1020 21:11	PY
Mercury, Total	ND	mg/l	0.0002	4	245.2	1019 19:15	1020 10:17	HG
Nickel, Total	ND	mg/l	0.025	19	200.7	1019 19:10	1020 08:49	MG
Selenium, Total	ND	mg/l	0.005	19	200.7	1019 19:10	1020 08:49	MG
Silver, Total	ND	mg/l	0.0004	4	272.2	1019 19:10	1020 18:23	PY
Zinc, Total	ND	mg/l	0.05	19	200.7	1019 19:10	1020 08:49	MG
Pesticides by GC 504				14	504.1	1021 11:30	1021 14:10	JB
1,2-Dibromoethane	ND	ug/l	0.019					
Volatile Organics by GC/MS 624				5	624		1017 11:17	MM
Methylene chloride	ND	ug/l	5.0					
1,1-Dichloroethane	ND	ug/l	1.5					
Chloroform	ND	ug/l	1.5					
Carbon tetrachloride	ND	ug/l	1.0					
1,2-Dichloropropane	ND	ug/l	3.5					
Dibromochloromethane	ND	ug/l	1.0					
1,1,2-Trichloroethane	ND	ug/l	1.5					
2-Chloroethylvinyl ether	ND	ug/l	10.					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0512267-01
HA05-04

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
SVOC's by GC/MS 8270 cont'd				1	8270C	1021 09:30	1021 15:14	RL
1,2,4-Trichlorobenzene	ND	ug/l	4.9					
Hexachlorobenzene	ND	ug/l	4.9					
Bis(2-chloroethyl)ether	ND	ug/l	4.9					
1-Chloronaphthalene	ND	ug/l	4.9					
2-Chloronaphthalene	ND	ug/l	5.9					
1,2-Dichlorobenzene	ND	ug/l	4.9					
1,3-Dichlorobenzene	ND	ug/l	4.9					
1,4-Dichlorobenzene	ND	ug/l	4.9					
3,3'-Dichlorobenzidine	ND	ug/l	49.					
2,4-Dinitrotoluene	ND	ug/l	5.9					
2,6-Dinitrotoluene	ND	ug/l	4.9					
Azobenzene	ND	ug/l	4.9					
Fluoranthene	ND	ug/l	4.9					
4-Chlorophenyl phenyl ether	ND	ug/l	4.9					
4-Bromophenyl phenyl ether	ND	ug/l	4.9					
Bis(2-chloroisopropyl)ether	ND	ug/l	4.9					
Bis(2-chloroethoxy)methane	ND	ug/l	4.9					
Hexachlorobutadiene	ND	ug/l	9.8					
Hexachlorocyclopentadiene	ND	ug/l	9.8					
Hexachloroethane	ND	ug/l	4.9					
Isophorone	ND	ug/l	4.9					
Naphthalene	ND	ug/l	4.9					
Nitrobenzene	ND	ug/l	4.9					
NDPA/DPA	ND	ug/l	15.					
n-Nitrosodi-n-propylamine	ND	ug/l	4.9					
Bis(2-ethylhexyl)phthalate	ND	ug/l	9.8					
Butyl benzyl phthalate	ND	ug/l	4.9					
Di-n-butylphthalate	ND	ug/l	4.9					
Di-n-octylphthalate	ND	ug/l	4.9					
Diethyl phthalate	ND	ug/l	4.9					
Dimethyl phthalate	ND	ug/l	4.9					
Benzo(a)anthracene	ND	ug/l	4.9					
Benzo(a)pyrene	ND	ug/l	4.9					
Benzo(b)fluoranthene	ND	ug/l	4.9					
Benzo(k)fluoranthene	ND	ug/l	4.9					
Chrysene	ND	ug/l	4.9					
Acenaphthylene	ND	ug/l	4.9					
Anthracene	ND	ug/l	4.9					
Benzo(ghi)perylene	ND	ug/l	4.9					
Fluorene	ND	ug/l	4.9					
Phenanthrene	ND	ug/l	4.9					
Dibenzo(a,h)anthracene	ND	ug/l	4.9					
Indeno(1,2,3-cd)pyrene	ND	ug/l	6.8					
Pyrene	ND	ug/l	4.9					
Benzo(e)pyrene	ND	ug/l	4.9					
Biphenyl	ND	ug/l	4.9					
Perylene	ND	ug/l	4.9					
Aniline	ND	ug/l	9.8					
4-Chloroaniline	ND	ug/l	4.9					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0512267

Continued

Parameter	% Recovery	QC Criteria
SVOC's by GC/MS 8270 LCS for sample(s) 01 (WG218164-2)		
Anthracene	45	
Pyrene	82	
Hexachloropropene	65	
P-Chloro-M-Cresol	79	
2-Chlorophenol	61	
2-Nitrophenol	72	
4-Nitrophenol	44	
2,4-Dinitrophenol	75	
Pentachlorophenol	80	
Phenol	28	
Surrogate(s)		
2-Fluorophenol	42	
Phenol-d6	37	
Nitrobenzene-d5	72	
2-Fluorobiphenyl	78	
2,4,6-Tribromophenol	84	
4-Terphenyl-d14	90	
PAH by GC/MS SIM 8270M LCS for sample(s) 01 (WG217688-2)		
Acenaphthene	48	46-118
2-Chloronaphthalene	51	
Fluoranthene	82	
Anthracene	56	
Pyrene	89	26-127
Pentachlorophenol	64	9-103
Surrogate(s)		
2-Fluorophenol	36	21-120
Phenol-d6	32	10-120
Nitrobenzene-d5	50	23-120
2-Fluorobiphenyl	47	43-120
2,4,6-Tribromophenol	54	10-120
4-Terphenyl-d14	64	33-120
Polychlorinated Biphenyls LCS for sample(s) 01 (WG218153-2)		
Aroclor 1242/1016	68	30-150
Aroclor 1260	74	30-150
Surrogate(s)		
2,4,5,6-Tetrachloro-m-xylene	51	30-150
Decachlorobiphenyl	69	30-150
Cyanide, Total SPIKE for sample(s) 01 (L0511914-02, WG217464-3)		
Cyanide, Total	101	80-120

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

3. Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

4. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

5. Methods for the Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A, Part 136, 40 CFR (Code of Federal Regulations).

14. Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.

19. Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

74. Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
ug/cart	Micrograms per Cartridge.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

ALPHA Job # L0512267

HALEY & ALDRICH

Haley & Aldrich, Inc.
465 Medford St.,
Suite 2200,
Boston, MA 02129-1400

CHAIN OF CUSTODY RECORD

Phone (617) 886-7400
Fax (617) 886-7600
Page 1 of 1

H&A FILE NO.	12355-640	LABORATORY	Alpha Analytical	DELIVERY DATE	10/13/05
PROJECT NAME	Skyline at Station Landing	ADDRESS	Westborough, MA	TURNAROUND TIME	4 day
H&A CONTACT	K. Alepidis	CONTACT	Katie O'Brien	PROJECT MANAGER	P. Ormond

Analysis Requested

Sample No.	Date	Time	Depth	Type	(1) VOA	(2) ABNs PAH only	(3) MCP Metals	(4) Pesticides PCBs	(5) VPH Full Suite C-ranges only	(6) EPH Full Suite C-ranges only	(7) TPH (624)	(8) TCLP (8260)	(9) Reactivity Ignitability Corrosivity	(10)			Number of Containers
~~HA05~~ HA05-04	10/13	1135	–	Aq	X	X	X	X	X	X	X	X	X	X			16

Comments (special instructions, precautions, additional method numbers, etc.)

Laboratory to use applicable DEP CAM methods, unless otherwise directed.

(1) 624
(2) Total Metals
(3) TSS
(4) TRC, Hex Cr
(5) TPH-1664
(6) TCN
(7) 625
(8) PAH-SIM
(9) PCB
(10) Amenable CN

(16)

Sampled and Relinquished by	Received by
Sign [signature]	Sign [signature]
Print Ken Alepidis	Print Desmond Crawford
Firm H&A	Firm H&A
Date 10/13/05 Time 1415	Date 10/13/05 Time 1415
Relinquished by	**Received by**
Sign [signature]	Sign [signature]
Print Desmond Crawford	Print [signature]
Firm H&A	Firm
Date 10/13/05 Time 1700	Date 10/13 Time 1700
Relinquished by	**Received by**
Sign [signature]	Sign [signature]
Print	Print
Firm	Firm
Date 10/13 Time 1900	Date 10/13 Time 1900

LIQUID

VOA Vial	X									
Amber Glass					X		X	X	X	
Plastic Bottle		X	X	X		X				
Preservative	A	AD	A	A	AF	AC	A	A	A	
Volume	40ml	250	1L	1L	1L	250	1L	1L	1L	

SOLID

VOA Vial										
Amber Glass										
Clear Glass										
Preservative										
Volume										

Sampling Comments

Please contact Katie O'Brien prior to testing for complete list of analyses & test methods – project NPDES-RGP for Ken Alepidis

– 2 samples submitted for metals 1 is field filtered one is not

Evidence samples were tampered with? YES NO
If YES, please explain in section below.

please use appropriate

PRESERVATION KEY

A Sample chilled	C NaOH	E H_2SO_4	G Methanol
B Sample filtered	D HNO_3	F HCL	H Water/NaHSO4 (circle)

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

If Presumptive Certainty Data Package is needed, initial all sections:

_____ The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

_____ Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

_____ This Chain of Custody Record (specify) _____ includes ___X___ does not include samples defined as Drinking Water Samples.

_____ If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required, as appropriate. Laboratory should (specify if applicable) _____ analyze _____ hold for contingency testing the Drinking Water Field Duplicate and Drinking Water Trip Blank samples.

Required Reporting Limits and Data Quality Objectives

☐ RC-S1 ☐ S1 ☐ GW1
☐ RC-S2 ☐ S2 ☐ GW2
☐ RC-GW1 ☐ S3 ☐ GW3
☐ RC-GW2