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VEGETATIVE COMMUNITY SURVEY NAVAL SUPPORT ACTIVITY MIDSOUTH MILLINGTON SUPPACT TN

5/8/2006

ENSAFE INC

VEGETATIVE COMMUNITY SURVEY

NAVAL SUPPORT ACTIVITY MID-SOUTH
MILLINGTON, TENNESSEE

Revision: 0

Prepared for:

Naval Support Activity Mid-South
5722 Integrity Drive
Millington, Tennessee 38054-5045

Prepared by:

EnSafe Inc.
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Memphis, Tennessee 38134
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Appendix A Tennessee Department of Environment and Conservation and Division of Natural Heritage and Natural Heritage Inventory Records Search

EXECUTIVE SUMMARY

A vegetation survey was completed within the Naval Support Activity (NAVSUPPACT) Mid-South by EnSafe Inc. of Memphis, Tennessee, during fall 2005. This survey was completed to address management goals for fish and wildlife resources on NAVSUPPACT Mid-South and to ensure that the NAVSUPPACT Mid-South remains in compliance with applicable federal and state laws and regulations, particularly the Endangered Species Act, the Tennessee Non-Game and Endangered or Threatened Wildlife Species Conservation Act of 1974, and the Tennessee Rare Plant Protection and Conservation Act. The specific objectives of the vegetation survey were to:

1) Characterize vegetative communities in approximately 221 acres of unimproved and semi-improved areas on the installation.

2) Document presence or absence of federal or state listed rare, threatened, or endangered plant species within these areas.

3) Develop a baseline of information for future comparison.

4) Provide information for managing other biological resources within the NAVSUPPACT Mid-South.

Onsite pedestrian surveys were completed within approximately 221 acres in eight areas designated as unimproved and semi-improved lands on NAVSUPPACT Mid-South. Field surveys were conducted from October 17, 2005, through October 20, 2005. The results of the fall 2005 vegetation survey are as follows.

- There are five different forest/vegetation formations within the 221 unimproved and semi-improved acres.

- Of these five formations, four are forest formations and one is an annual forb vegetation formation.

- Forest formations within NAVSUPPACT Mid-South range from planted/cultivated evergreen closed-canopy forests to natural/semi-natural temporarily flooded or saturated deciduous or mixed evergreen/deciduous, closed or open canopy forests.

- Eight plant community types (based on dominant overstory and understory species) exist within the unimproved and semi-improved areas at NAVSUPPACT Mid-South.

- Two of these communities are herbaceous communities with little to no woody vegetation that occur associated with permanent or semi-permanent open waterbodies.

- One community type found within the installation is a pine monoculture with little to no understory; it appears to be routinely maintained in this state by brush clearing. This community type comprises only a small percentage of the 221 unimproved and semi-improved acres within NAVSUPPACT Mid-South.

- Five forested community types comprise the majority of the unimproved and semi-improved acres within NAVSUPPACT Mid-South.

- The forested communities adjacent to Big Creek in the southern portion of the installation had well developed overstory and mid-story vegetation, but little herbaceous ground cover and shrub understory.

- Forest communities in mesic or upland settings had higher amounts of vegetation structure and herbaceous ground cover.

- A total of 129 vegetative species were observed in the unimproved and semi-improved areas during the fall of 2005.

- Species richness was highest in the sycamore-green ash-cottonwood-box elder floodplain/riparian forest community in the vicinity of SWMU 2 (Area 1a) with approximately 80 vegetative species recorded from within this community during the fall survey.

- None of the 17 federal or state-listed threatened, endangered, or species of state concern were observed within the unimproved and semi-improved areas within NAVSUPPACT Mid-South during the onsite field surveys.

- The absence of federal or state-listed threatened, endangered, or species of state concern within the unimproved and semi-improved areas within NAVSUPPACT Mid-South is consistent with previous studies by the U.S. Fish and Wildlife Service (Merritt and Bingham, 1997).

Based on those findings, the following actions are recommended:

- Threatened and endangered species surveys should be completed on a routine basis (i.e., every five to seven years) at NAVSUPPACT Mid-South to ensure continued compliance with federal and state regulations for the protection of threatened or endangered species or species of state concern. Routine surveys will determine if any newly listed species in Shelby or Tipton counties occur within NAVSUPPACT Mid-South installation.

- Spring and summer vegetation surveys are recommended to be able to develop a more comprehensive list of plant species present in unimproved and semi-improved areas within NAVSUPPACT Mid-South.

- No active vegetation management is needed at this time within unimproved or semi-improved areas at NAVSUPPACT Mid-South in order to ensure compliance with federal and state regulations for the protection of threatened or endangered species or species of state concern.

1.0 INTRODUCTION

In 2001, an Integrated Natural Resources Management Plan (INRMP) was developed for the Naval Support Activity Mid-South (NAVSUPPACT Mid-South) located in Millington, Tennessee and for the Office of the Chief of Naval Operations. The plan was developed in accordance with the procedures of the Department of Defense, the U.S. Navy, and the Sikes Act Improvement Act of 1997 (16 U.S.C. §670a). The INRMP outlines goals, objectives, and actions over a 10-year period for the conservation, protection, and management of fish and wildlife resources on the 1,600-acre NAVSUPPACT Mid-South installation. One of the goals of the INRMP is to develop functioning, sustainable ecological communities at NAVSUPPACT Mid-South while ensuring the successful accomplishment of the installation's mission.

Specific management goals identified in the INRMP for fish and wildlife resources on NAVSUPPACT Mid-South were to:

- Manage NAVSUPPACT Mid-South on a regional ecosystem based approach that manages sensitive species and their associated ecosystems while protecting the operational functionality of the missions of the installation.

- Continue to remain in compliance with federal, state, and local laws and regulations governing fish and wildlife.

- Manage based on an ecosystem management approach rather than from a single species paradigm.

- Support multiple, non-consumptive uses of wildlife and provide habitat enhancement for non-game species, including neotropical birds.

- Employ a systematic approach to managing wildlife resources, utilizing a process that includes inventory, monitoring, modeling, management, assessment, and evaluation.

- Minimize wildlife-related health risks, safety risks, and environmental damage.

- Restore and maintain a diversity of wildlife in areas on the installation where there will be no conflict with the military mission.

- Maintain and involve partnerships with agencies and groups involved in wildlife management (e2M, 2001).

2.0 PURPOSE

The completion of a vegetation survey was identified as a necessary action to meet the management goals for fish and wildlife resources on NAVSUPPACT Mid-South, and to ensure that the NAVSUPPACT Mid-South remains in compliance with applicable federal and state laws and regulations (i.e., federal Endangered Species Act (*16 United States Code [U.S.C.] 1536*), Tennessee Nongame and Endangered or Threatened Wildlife Species Conservation Act of 1974 (*Tennessee Code Annotated §§70-8-101 et seq.*), and the Tennessee Rare Plant Protection and Conservation Act (*Tennessee Code Annotated §§70-8-301*).

In September 2005, NAVSUPPACT Mid-South contracted with EnSafe Inc. of Memphis, Tennessee, to complete the vegetation survey at the installation. The specific objectives of the vegetation survey were to:

1) Characterize vegetative communities in unimproved and semi-improved areas on the installation.

2) Document presence or absence of federal or state listed rare, threatened, or endangered plant species within the undeveloped areas.

3) Develop a baseline for future comparison.

4) Provide vegetative information needed to evaluate whether or not suitable habitat exists within unimproved and semi-improved areas to support a diverse assemblage of other biological resources.

3.0 DESCRIPTION OF PROJECT AREA

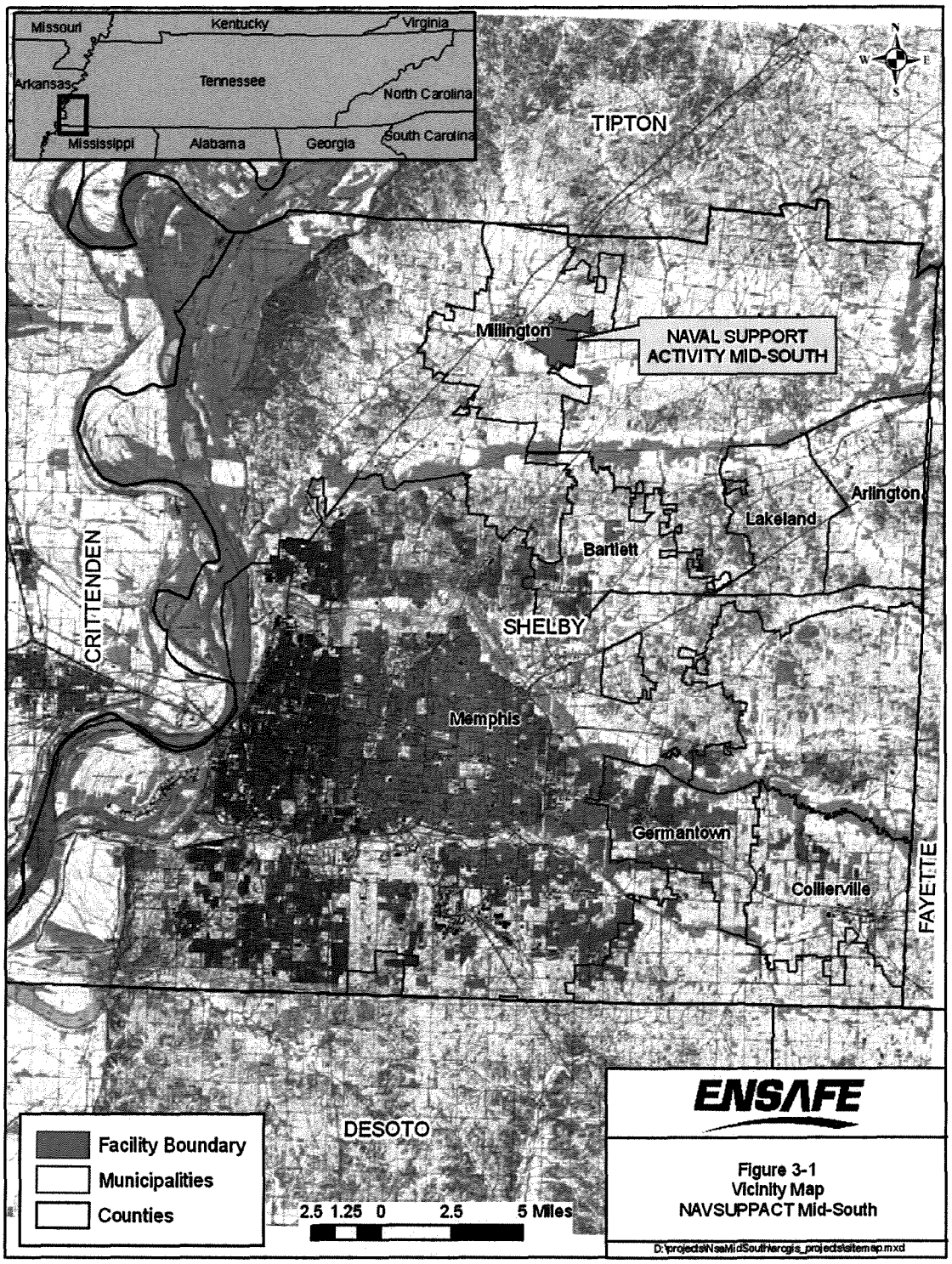
3.1 Project Location/Setting

The NAVSUPPACT Mid-South is located in southwest Tennessee in northern Shelby County, near the Shelby County and Tipton County line (Figure 3-1). The installation lies approximately 18 miles northeast of the city of Memphis and approximately 13 miles east of the Mississippi River (e2M, 2001). Currently, NAVSUPPACT Mid-South comprises approximately 1,600 acres of land within an urban/semi-urban setting. Approximately 13%, or 221 acres, within the installation are considered unimproved and semi-improved lands that are in forested land use (e2M, 2001). These unimproved and semi-improved lands are located primarily in the southern portion of the installation adjacent to the Big Creek. The land surrounding NAVSUPPACT Mid-South is primarily urban land that is interspersed with agricultural, commercial, and industrial land uses.

3.2 Physiographic Setting

The NAVSUPPACT Mid-South lies at the intersection of two distinct physiographic regions in Tennessee: the Mississippi Alluvial Plain physiographic region (also known as the Mississippi River Valley) and the Coastal Plain physiographic regions (Tennessee Department of Agriculture [TDA], undated) (Figure 3-2). The Mississippi Alluvial Plain covers approximately 637 square miles in Tennessee and is bounded by the Mississippi River on the west and the Loess Hill Bluffs and Loess Plains of the Coastal Plain physiographic region on the east. The Mississippi Alluvial Plain region is a broad, relatively flat region of Quarternary alluvial deposits of sand, silt, clay, and gravel.

The Coastal Plain physiographic region of Tennessee lies to the east of the Mississippi Alluvial Plain physiographic region. It is comprised of gently rolling, irregular plains, is an area of relatively low relief, and contains loess deposits up to 50-65 feet thick with the thinnest deposits located in the east. The Coastal Plain physiographic region is bounded by the Tennessee River on the east and includes the Loess Hill Bluffs (the belt of hills that rise 100 feet above the Mississippi River floodplain) on the west. This physiographic region of the state is divided into two components, the West Tennessee Plain to the west and the West Tennessee Uplands to the east (TDA, undated). The West Tennessee Plain component of the Coastal Plain province is a zone of less hilly, in some places nearly flat, terrain that slopes gently westward toward the Mississippi River. The most prominent topographic features of the Coastal Plain of West Tennessee are the loess bluffs and the broad flood plains of meandering streams. Topography is characterized as gently rolling, interrupted by small streams and drainage divides. Some gullied topography has developed and wetlands are common.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Lakeland
Bartlett
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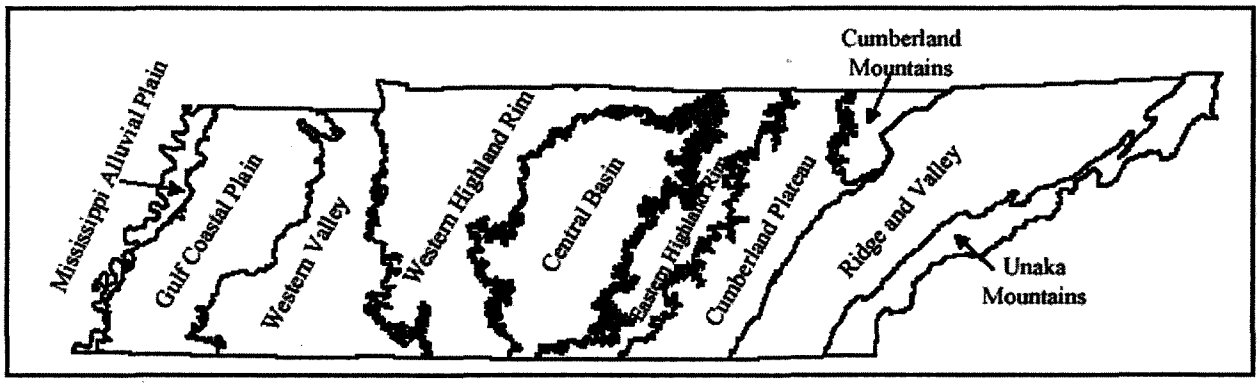

Figure 3-2: Tennessee Physiographic Regions
(from Tennessee Division of Natural Heritage [TDNH], 2004)

Much of the Mississippi River Alluvial Plain physiographic region was once covered in bottomland deciduous forest vegetation prior to extensive clearing for cultivation. Most of this region is now in cropland, with isolated areas of deciduous forest. The Coastal Plain region also is a productive agricultural, livestock, and poultry area. Oak-hickory and southern floodplain forests are the natural vegetation types of these regions, although much of the forest cover has been removed for cropland. The loess hills and plains are dominated by mixed mesophytic oak-hickory forests.

4.0 SURVEY METHODS

4.1 Literature Review

A literature review was completed as the first step in the vegetation survey. Local and regional studies describing ecosystems, terrestrial and wetland plant communities, and species distributions and habitats were obtained and reviewed. Data and reports from previous investigations of vegetative communities and threatened and endangered species on the NAVSUPPACT Mid-South installation were also reviewed. Specifically reviewed were previous accounts of communities, habitats, and threatened and endangered species summarized in the 2001 NAVSUPPACT Mid-South INRMP (e2M, 2001) and reported in a 1997 Endangered Species and Neotropical Bird Survey of the NAVSUPPACT Mid-South (Merritt and Bingham, 1997).

Current lists of federal and state threatened and endangered plant species and species of state concern in Shelby and Tipton Counties were downloaded from the Tennessee Division of Natural Heritage (TDNH) Web site. A search of the TDNH Natural Heritage Inventory Program database was conducted to identify the known occurrences of federal and state-listed threatened and endangered plant species and other elements of special concern within the NAVSUPPACT Mid-South and within a 1-mile and 4-mile radius of the installation.

Other information, including but not limited to black-and-white aerial photographs (U.S. Geological Survey DOQQ [USGS DOQQ], 1997), USGS topographic quadrangle maps (USGS DRG [DRG], 1986), global imaging system (GIS) data for the NAVSUPPACT Mid-South, the 1970 Shelby County Soil Survey (Soil Conservation Service [SCS], 1970), and hydric soil map units and map units containing hydric inclusions in Shelby County (Natural Resources Conservation Service [NRCS], 1990) were obtained and reviewed prior to the completion of the onsite field surveys.

4.2 Onsite Survey Area Delineation

Eight areas were identified in the INRMP as containing unimproved forests (Figure 4-1). A reconnaissance of these eight areas was completed by EnSafe on October 2, 2005. The purpose of this reconnaissance was to confirm that these areas (1) still existed within the installation's property boundaries, and (2) had not be converted to another land use or grounds category (i.e., improved or semi-improved space). Table 4-1 summarizes the locations of the eight areas investigated during the onsite field survey during the fall of 2005. These survey areas were designated on the basis of location within the installation only and not on the basis of vegetative composition or other biological or physical characteristics (e.g., soil, topography, wetland species, etc.)

Table 4-1
Location and Description of Seven Unimproved and Semi-Improved Areas Surveyed During the October 2005 Onsite Vegetative Community Field Survey

Area	Description
1	Area 1 is located in the southeastern corner of the NAVSUPPACT Mid-South installation north of and adjacent to Big Creek. This forested area includes the area inside the SWMU 2 fence, areas north of SWMU 2 to Polaris Drive, and two areas south of SWMU 2 adjacent to Big Creek.
2	Area 2 is a narrow strip of forest along the southern boundary of the NAVSUPPACT Mid-South installation. This forested strip is located outside of the perimeter gate south of Wasp Avenue and north of Big Creek between Honor Drive and Courage Avenue.
3	Area 3 is located south of Big Creek, west of Singleton Parkway, and north of Highway 385. This area includes the forested areas adjacent to the former sewage treatment lagoons (SWMU 9) and the lagoon shorelines.
4	Area 4 is located within the southwestern quarter of the installation. It is located on the southeast corner of the intersection of Wasp Avenue and Ticonderoga Street. This area includes the forests within the NAVSUPPACT Mid-South nature trail and segments to the south and east.
5	Area 5 is located in the far southwestern corner of the NAVSUPPACT Mid-South installation north of and adjacent to Big Creek, west of Wasp Avenue, and outside the perimeter gate.
6	Area 6 is a small stand of pines located on the eastern perimeter of the NAVSUPPACT Mid-South installation north of base housing along Corvus Loop and south of Essex Road.
7	Area 7 is located in the northeastern corner of the installation, north of Navy Road, and directly adjacent to Singleton Avenue and the Glen Eagle golf course large lake.
8	Area 8 is located in the northeastern corner of the installation north of Navy Road and between Bethuel Road and Nautilus Avenue. This area contains two small stands of pines.

4.3 Field Survey

Field surveys were completed in the eight areas the week of October 17 through October 20, 2005. Conditions at the time of field sampling were dry. With the exception of the months of July and August 2005, monthly precipitation totals in 2005 were below the long-term average monthly totals for the period of record (1940-2005) (Figure 4-2). Total annual precipitation for 2005 was 38.08 inches, 18.58 inches below the long-term average annual rainfall of 56.66 inches (SECC 2006).

A pedestrian survey was conducted in each survey area to maximize the number of habitats, microhabitats, and plant species observed. A species checklist was developed for each of the eight survey areas to obtain an estimate of species richness in each area and within the total survey area. Dominant species within the tree and sapling/shrub strata were to be recorded based on visual estimates of number, density, basal area, and cover. Dominant species were not recorded for the vine/liana or herbaceous strata. In general, these strata were absent or the number and abundance of herbaceous and vine species were too low to make an adequate assessment of dominants using visual estimates.

Separate species lists were recorded for different habitat types within each zone or where changes in habitat or species composition were observed. Plants that could not be identified onsite were collected and keyed out to genus when adequate diagnostic plant material was available to species level. Additional site data such as slope, aspect, topographic position, possible stand history or disturbance regime, soil surface, homogeneity of the vegetation, and photographs were collected or recorded.

Plant communities were characterized according to the National Vegetation Classification (NVC) system (Jennings et al., 2003; Federal Geographic Data Committee [FGDC], 1996; Maybury, 1999). The NVC system is a physiognomic and floristic hierarchical system that describes terrestrial ecological systems and their component "alliance" or "associations" that are found in landscapes with similar ecological processes, substrates, and/or environmental gradients and species composition (Jennings, 2003; Maybury, 1999). Under the NVC system, plant communities or associations are described by using both the dominant species (i.e., those that cover the greatest area) and by diagnostic species (i.e., those found consistently in some vegetation types but not others) regardless of whether they are large trees or diminutive understory plants (Maybury, 1999). As a result, this system describes plant communities with greater ecological specificity than what can be described using "cover type" or other type based solely on the

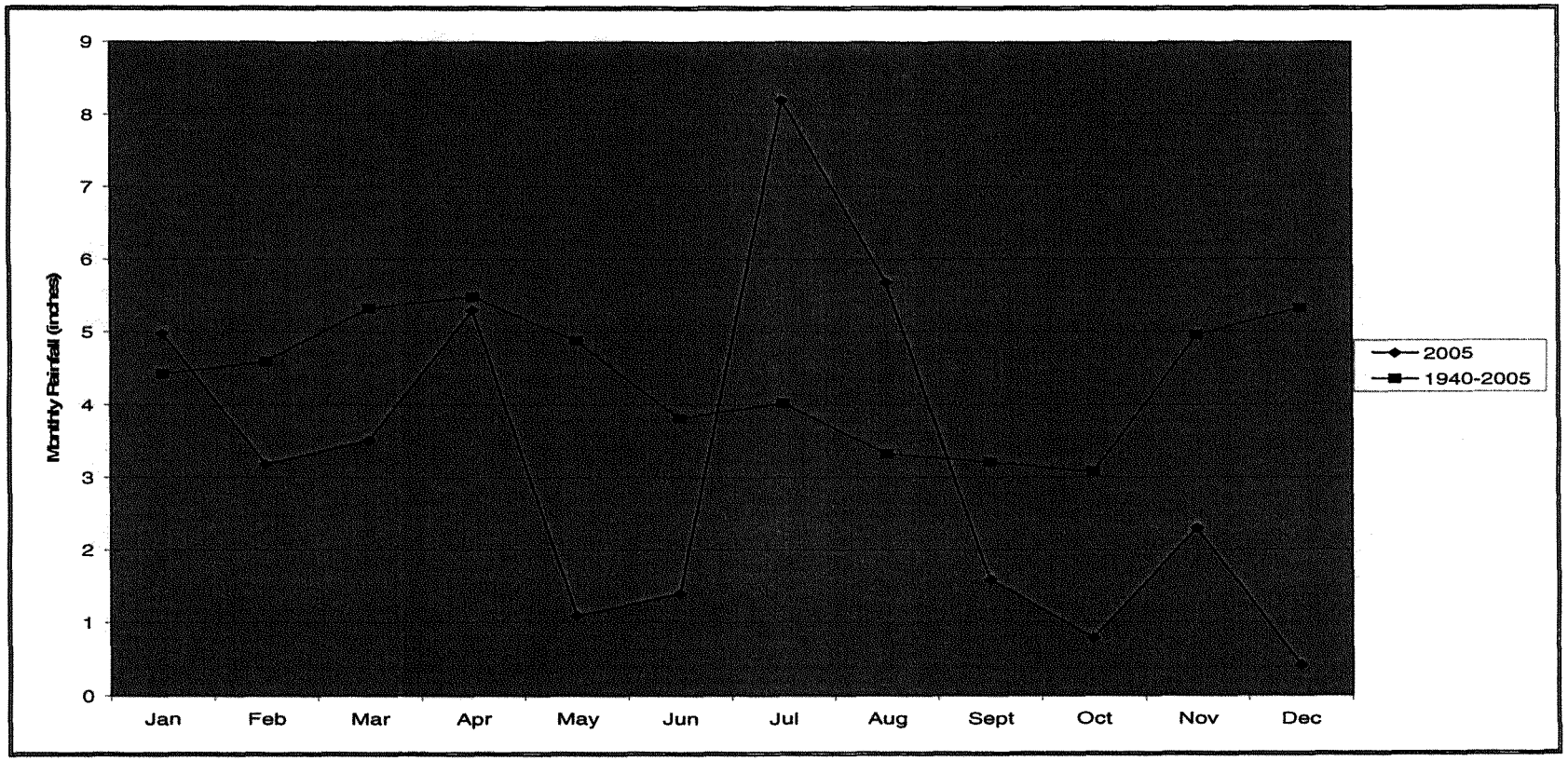

Figure 4-2: Comparison of 2005 Monthly Rainfall Totals With the Long-Term Average (1940-2005), Memphis International Airport (based on data from SECC 2006)

dominant species of the upper stratum. Because the level of data required to classify vegetation at NAVSUPPACT Mid-South to the association and/or alliance level was beyond the scope for this project, vegetation at NAVSUPPACT Mid-South was described in terms of its formation based on its physiognomic characteristics. Communities were then characterized based on dominant species in the canopy and understory strata, hydrologic setting, and disturbance regime.

During the pedestrian survey, each survey area was also observed and evaluated for the presence of habitats and the presence of individuals or populations of 17 state-listed threatened, endangered, or species of special concern recorded for Shelby and Tipton counties (Table 4-2). Even though a site-specific records search showed that only one of these species is known from within a 4-mile radius of the NAVSUPPACT Mid-South installation, a presence/absence survey was completed for all 17 species.

Table 4-2
State-Listed Threatened, Endangered, or Species of Special Concern in Tennessee Surveyed for within NAVSUPPACT Mid-South, October 17 – 20, 2005

Species Name	Common name	Federal Status	State Status	Habitat Type
Acmella oppositifolia	Creeping spot-flower	—	S	wet woods, seepage areas, river banks, swamps, pastures, marshy areas
Agalinis auriculata	Earleafved false foxglove	—	E	barrens in the coastal plain ecoregion
Aster praealtus	Willow aster	—	E	moist prairies and marshes
Carex oxylepis var. pubescens	Hairy sharp-scaled sedge	—	S	wooded bluff, floodplains
Carex reniformis	Reniform sedge	—	S	rich bottomland woods
Crataegus harbisonii	Harbison's hawthorn	—	E	dry, rocky calcareous woods
Hydrastis canadensis	Goldenseal	—	S-CE	moist to dry forests, rich soil over bedrock
Iris fulva	Copper Iris	—	T	shallow water in swamps, marshes, sloughs
Ophioglossum crotalophoroides	Bulbous Adder's-tongue	—	S	low ground, grassy slopes, meadows, old fields
Panax quinquefolia	American Ginseng	—	S-CE	shady, undisturbed, mesic sites
Panicum ensifolium	Small-leaved panic grass	—	S	moist pine barrens
Penstemon tubifloris	Small-flowered beardtongue	—	S	moist woods
Phacelia ranunculacea	Blue scorpion-weed	—	S	shaded alluvial forests, rich floodplain woods
Prenanthes crepidinea	Nodding rattlesnake root	—	E	moist woods, rich thickets, openings
Schisandra glabra	Red starvine	—	T	climax, mixed mesophytic forests on rich soils in bottomlands,

Table 4-2
State-Listed Threatened, Endangered, or Species of Special Concern in Tennessee Surveyed for within NAVSUPPACT Mid-South, October 17 – 20, 2005

Species Name	Common name	Federal Status	State Status	Habitat Type
				bluffs of creeks and rivers
Silene ovata	Ovate catchfly	—	E	open habitats, forest habitats, including floodplains; TN is near northern limit of range
Ulmus crassifolia	Cedar elm	—	S	limestone soils of floodplains, rich bottomlands, dry hills

Notes:
E — listed as endangered by the state of Tennessee
S — listed as a species of special concern in the state of Tennessee
T — listed as threatened by the state of Tennessee
CE — listed because of commercial exploitation

5.0 RESULTS

5.1 Physiognomic Classification

The majority of the 221 acres of unimproved and semi-improved forests within NAVSUPPACT Mid-South can be classified as temporarily flooded, cold-deciduous, closed-tree forests. From a physiognomic standpoint, vegetation in these areas can be described as having trees with overlapping crowns and between 60 and 100% canopy cover. Deciduous trees that drop their foliage every year in response to temperate winter conditions contribute to 75% of the total tree cover in this forest formation type. These forests may be temporarily flooded and surface water normally is present for brief periods during growing season. Generally, the water table usually lies well below soil surface; however, at NAVSUPPACT Mid-South, a seasonal high water table is close to the soil surface (i.e., 0-1 ft) during the growing season (SCS, 1970). Vegetation in these areas can be further described as natural to semi-natural, in that they are dominated by native or established vegetation that has not been routinely cultivated or treated with any annual management or manipulation regime. Flooding of these areas occurs at least every two years as a result of both overbank and backwater flooding in Big Creek. At NAVSUPPACT Mid-South, soils in this area are classified as Fayala and Waverly silt loams and these forest formations occur on flats and remnants of former natural levees adjacent to Big Creek. Figure 5-1 shows the distribution of this forest formation within NAVSUPPACT Mid-South. This forest formation occurs within areas labeled as 1a, 3a, and 5a.

Small areas of several other forest formations also exist at NAVSUPPACT Mid-South. Vegetation in areas mapped as 1b, 2, 4a, and 4b can be classified as saturated, mixed needle-leaved evergreen cold-deciduous, closed canopy forests. Similar to the temporarily flooded, cold-deciduous closed tree forest described above, this forest formation has between 60 and 100% canopy cover and trees with overlapping crowns. Needle-leaved evergreen species, however, contribute approximately 25% of the total canopy cover and cold deciduous tree species contribute 75% of the total canopy cover. Surface water is seldom present in these forest formations, but the substrate is saturated to surface for extended periods during the growing season (FGDC, 1996). Vegetation is natural to semi-natural, dominated by native or established vegetation that has not been routinely cultivated or treated with any annual management or manipulation regime. On NAVSUPPACT Mid-South, these forest formations occur on "historical" floodplain flats that have been modified by fill or levee construction and no longer occur in this hydrologic setting. Soils in this formation include Fayala silt loams and Filled Silty Loam (SCS, 1970).

Table 5-1
Plant Community Types within NAVSUPPACT Mid-South

Community Type (Based on Dominants)*	Survey Area Location (Figure 4-1)	Location Description	Community Map ID (Figure 5-2)	NVC System Formation (Figure 5-1)
Sycamore, green ash, cottonwood, box-elder floodplain forest	1	— SWMU 2 and south of SWMU 2 outside the perimeter fence adjacent to Big Creek.	1a	Temporarily flooded, natural/semi-natural cold-deciduous, closed-tree forest formation
Mixed hardwood-loblolly pine forest	1, 2, 4	— North of SWMU 2 to Polaris Drive, along southern boundary of the NAVSUPPACT Mid-South installation adjacent to Big Creek. — South of the perimeter gate and levee. — Forested strip east of nature trail area.	1b, 2, 4b	Saturated, mixed needle-leaved evergreen cold-deciduous, closed-canopy forest formation
Sycamore, cottonwood, maple, oak, pawpaw floodplain forest	3, 5	— Forested areas surrounding SWMU 9 lagoons. — Forests on north and south sides of levee road including forested flats and depressions/swales.	3a, 5a	Temporarily flooded, natural/semi-natural cold-deciduous, closed-tree forest formation
Emergent freshwater lacustrine fringe	3	— Shoreline perimeter around SWMU 9 lagoons.	3b	Saturated or seasonally flooded, temperate annual forb vegetation
Loblolly pine-American elm-sugarberry-cottonwood-oak forest	4	— Nature trail.	4a	Saturated, mixed needle-leaved evergreen, cold-deciduous, closed-canopy forest formation
Freshwater vernal pool	5	— Vernal pool on the south side of the levee road.	5b	Saturated or seasonally flooded, temperate, annual forb vegetation
Loblolly pine monoculture	6, 8	— Pine stand east perimeter near base housing along Corvus Loop and south of Essex Road, and north of Navy Road between Bethuel Road and Nautilus Avenue.	6, 8	Planted/cultivated, temperate or subpolar, needle-leaved evergreen, closed-canopy forest formation
Mixed hardwood forest-scrub and forest fringe	7	— Disturbed community between Singleton Avenue and the Glen Eagle golf course large lake	7	Temporarily flooded natural/semi-natural, cold-deciduous, closed-canopy forest formation; saturated natural/semi-natural, cold-deciduous, open-tree canopy forest

Vegetation in Areas 6 and 8 is classified as planted/cultivated, temperate or subpolar, needle-leaved evergreen, closed-canopy forest formation. Vegetation in these areas is highly managed. One hundred percent of the canopy is comprised of loblolly pine (*Pinus taeda*) in which there is significant overlapping of crowns of the individual trees and greater than 60% cover from this species. No sapling, shrub, vines, or herbaceous layers exist within these areas due to recent clearing of brush from the understory. Soils in these areas are classified as filled silty loam.

Vegetation in Area 7 is highly disturbed. From a physiognomic standpoint, it can be best classified as a mix of natural/semi-natural, temporarily flooded, cold-deciduous, closed-canopy forest and natural/semi-natural, saturated, cold-deciduous, open-tree-canopy forest. The temporarily flooded, cold-deciduous, closed-tree forest component has between 60 and 100% canopy cover and trees with overlapping crowns. Flooding of this component of Area 7 appears to be regular (at least annually) as a result of overflow from the adjacent golf course ponds. The cold-deciduous, open-tree-canopy component in Area 7 consists of vegetation with an open canopy where the tree crowns generally are not touching and where 20% to 60% cover is provided. Deciduous trees comprise 75% of the total tree cover in this area. Vegetation in this component reflects more recent disturbances in the area (e.g., construction of perimeter fence). Soil saturation due to a high water table during the early growing season appears to be a result of water levels in adjacent golf course ponds and not natural soil types or hydrology. Soils in Area 7 are mapped as Loring silt loam, which are moderately well-drained to well-drained with a weak fragipan at approximately 28 inches, and graded land silty materials, which is a highly disturbed soil map unit (SCS, 1970).

5.2 Plant Community/Floristic Composition

Based on physiognomic characteristics and floristic composition, a total of eight different plant community types were identified on the NAVSUPPACT Mid-South installation. Table 5-1 lists the plant community types within NAVSUPPACT Mid-South and their corresponding location within the installation. Figure 5-2 shows the distribution of plant community types on the NAVSUPPACT Mid-South installation.

Floristic composition of the plant communities on NAVSUPPACT Mid-South reflects the changes that have taken place at the NAVSUPPACT Mid-South as well as on the regional landscape. Plant communities that occur in the unimproved and semi-improved areas on NAVSUPPACT Mid-South are altered natural plant communities that contain elements of forest ecosystems that once existed throughout the local area, as well as elements that have been

established as a result of hydrologic, topographic, and vegetative alterations of the local landscape at NAVSUPPACT Mid-South. Alterations such as the channelization of Big Creek, the construction of the levee along the Big Creek drainage, headcutting in Big Creek, filling and grading, and agricultural and urban development in areas adjacent to Big Creek have resulted in altered hydrology, topography, soils, and, subsequently, plant communities at NAVSUPPACT Mid-South. In some areas of the base, such as in survey Area 7, the plant communities present are highly disturbed and have little resemblance to natural plant communities found in the region or local area. Plant communities in other areas on NAVSUPPACT Mid-South are intermediate between a number of floodplain and riparian community types, either indicating succession from one to another or reflecting disturbance regime. Consequently, none of the plant communities were described to the association level (i.e., community-type level) using the NVC system nomenclature. Therefore, for purposes of describing floristic characteristics of this survey, communities were described based on dominants in the overstory and understory layers.

5.2.1 Area 1

Survey Area 1 contains two plant communities: (1) a sycamore-green ash-cottonwood-boxelder floodplain/riparian forest community (Area 1a), and (2) a mixed hardwood-loblolly pine successional floodplain forest community (Area 1b).

The sycamore-green ash-cottonwood-boxelder community (Area 1a — Figure 5-2) is located in the vicinity of SWMU 2 and south to Big Creek. Dominant overstory/canopy species include sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), and Eastern cottonwood (*Populus deltoides*) in relatively equal amounts. The understory/sapling layer is dominated largely by three species: boxelder (*Acer negundo*), green ash, and American elm (*Ulmus americana*). Several other tree species are common throughout this community as components of the overstory and understory/sapling strata. These species include: willow oak (*Quercus phellos*), water oak (*Quercus nigra*), sugarberry (*Celtis laevigata*), red maple (*Acer rubrum*), black willow (*Salix nigra*), sweetgum (*Liquidambar styraciflua*), and roughleaf dogwood (*Cornus drummondii*). Trumpet creeper (*Campsis radicans*), poison ivy (*Toxicodendron radicans*), and Virginia creeper (*Parthenocissus quinquefolia*) were the dominant vines and false nettle (*Boehmeria cylindrica*) and ground ivy (*Glechoma hederacea*) were the dominant species in the herbaceous layer. Loblolly pine is a characteristic overstory tree species of this community in the SWMU 2 area, however, it is not present throughout all of the community in Area 1a or in other examples of this community at NAVSUPPACT Mid-South. Similarly, two herbaceous species: scouringrush horsetail (*Equisetum hyemale*) and Indian woodoats (*Chasmanthium latifolium*) were abundant along the banks near Big Creek in Area 1a, but were not common elsewhere in Area 1a or in this community

type at NAVSUPPACT Mid-South. Table 5-2 provides a list of species observed within this community in Area 1a during fall 2005. A total of 80 species were observed in this community in Area 1a during the survey.

The sycamore-green ash-cottonwood-boxelder community in Area 1a is comprised of tall to medium-size trees in the overstory and medium to small saplings trees in the understory. Mature and sapling tree density is moderate, and shrubs and vines were largely absent within this community in this area (Figure 5-3). Herbaceous ground cover was minimal to absent in the interior portions of this community. As a result, the sycamore-green ash-cottonwood-boxelder community in Area 1a has an overall open understory that is easy to walk through. An increase in herbaceous ground cover was observed along the natural levee immediate adjacent to Big Creek and in other clearings (e.g., near fence surrounding SWMU 2). There was 100% ground cover from leaf litter at the time of survey. Table 5-3 summarizes the dominant tree species in the canopy, the sapling/shrub, and vine layers.

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Acanthacea													
Justicia ovata var. lanceolata	Looseflower water-willow									•			
Aceraceae													
Acer negundo	Boxelder	•	•	•	•	•	•		•			•	
Acer rubrum	Red maple	•			•		•	•	•			•	
Acer saccharinum	Silver maple	•		•								•	
Acer sacharum	Sugar maple	•							•				
Anacardiaceae													
Rhus copallinum var. latifolia	Winged sumac		•	•				•					
Rhus glabra	Smooth sumac		•	•				•					
Toxicodendron radicans	Poison ivy	•	•	•	•		•	•	•			•	
Anonaceae													
Asimina triloba	Pawpaw	•			•				•				
Apiaceae													
Hydrocotyle umbellata	Manyflower marsh pennywort					•							
Aquifoliaceae													
Ilex opaca	American holly	•	•										
Araceae													
Arisaema dracontium	Green dragon								•				

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Araliaceae													
Aralia spinosa	Devil's walking stick		•					•					
Asplenaceae													
Asplenium platyneuron	Ebony spleenwort	•											
Asteraceae													
Ageratina altissima	White snakeroot	•											
Ambrosia bidentata	Ragweed		•	•								•	
Cirsium discolor	Field thistle											•	
Conoclinium coelestinum	Blue mistflower		•										
Erigeron philadelphicus	Philadelphia fleabane	•											
Eupatorium serotinum	Late flowering thoroughwort	•					•						
Eupatorium perfoliatum	Boneset	•											
Lactuca floridana	Woodland lettuce	•											
Mikania scandens	Climbing hempweed	•		•									
Pluchea camphorata	Stink weed	•								•			
Solidago canadensis	Goldenrod	•	•				•					•	
Symphyotichum lateriflorum var. lateriflorum (= Aster lateriflorus)	Calico aster												
Symphyotrichum pilosum var. pilosum (= Aster pilosus)	Oldfield aster	•	•				•					•	
Xanthium strumarium	Cocklebur	•								•			

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Betulaceae													
Carpinus caroliniana	Ironwood				•				•				
Ostrya virginiana	Hophornbeam								•				
Bignoniaceae													
Campsis radicans	Trumpet vine	•	•	•	•		•		•			•	
Caprifoliaceae													
Lonicera japonica	Japanese honeysuckle	•	•	•	•		•		•			•	
Sambucus canadensis	American elder	•	•				•		•				
Caryophyllaceae													
Cerastium fontanum	Mouse-ear chickweed	•											
Stellaria pubera	Star chickweed					•							
Commelinaceae													
Commelina virginica	Virginia dayflower				•				•				
Tradescantia virginiana	Virginia spiderwort								•				
Convolvulaceae													
Ipomoea lacunose	White star	•											
Cornaceae													
Cornus drummondii	Roughleaf dogwood	•	•	•			•	•	•			•	

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Crassulacea													
Penthorum sedoides	Ditch stonecrop									•			
Cupressaceae													
Juniperus virginiana	Eastern red cedar	•		•			•		•			•	
Cyperaceae													
Carex sp.	Sedge	•	•						•	•		•	
Carex lupulina	Hop sedge	•											
Cyperus odoratus	Fragrant flatsedge						•			•			
Eleocharis engelmannii	Engelmann's spikerush									•		•	
Ebenaceae													
Dyospyros virginiana	Persimmon	•		•		•	•		•			•	
Equisetaceae													
Equisetum hyemale.	Scouringrush horsetail	•		•									
Fabaceae													
Albizia julibrissin	Mimosa	•	•	•			•						
Chamaecrista fasciculate	Partidge pea											•	
Gleditsia triacanthos	Honeylocust					•			•				
Robinia psuedoaccacia	Black locust			•								•	
Fagaceae													
Quercus falcata	Southern red oak	•			•								
Quercus michauxii	Swamp chestnut oak				•				•				

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Fagaceae (cont)													
Quercus nigra	Water oak	•	•	•	•		•	•	•			•	
Quercus pagoda	Cherrybark oak								•				
Quercus phellos	Willow oak	•	•				•	•	•			•	
Quercus shumardii	Shumard oak				•		•		•				
Quercus velutina	Black oak		•										
Geraniaceae													
Geranium carolinianum	Carolina cranesbill	•											
Hammamelidaceae													
Liquidambar styraciflua	Sweetgum	•	•	•	•	•	•	•	•			•	
Hippocastanaceae													
Aesculus pavia	Red buckeye				•				•				
Juglandaceae													
Carya alba (Syn = C. tomentosa)	Mockernut hickory				•		•		•				
Carya ovata	Shagbark hickory				•								
Juglans nigra	Black walnut						•		•				
Juncaceae													
Juncus effuses	Soft rush	•	•			•				•			
Lamiaceae													
Glechoma hederacea	Ground ivy	•											

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Lauraceae													
Cocculus carolinus	Carolina snailseed	•											
Lindera benzoin	Spicebush				•				•				
Sassafras albidum	Sassafras				•							•	
Liliaceae													
Allium vineale	Wild garlic	•											
Magnoliaceae													
Liriodendron tulipifera	Tulip tree	•				•		•	•				
Menispermaceae													
Calycocarpum lyoni	Cupseed	•											
Moraceae													
Broussonetia papyrifera	Paper mulberry	•					•		•				
Morus alba	White mulberry	•					•		•				
Morus rubra	Red mulberry	•	•		•		•		•				
Oleaceae													
Fraxinus americana	White ash	•				•	•			•			
Fraxinus pennsylvanica	Green ash	•	•	•	•		•	•	•			•	
Ligustrum sinense	Chinese privet	•	•	•	•		•	•	•			•	
Onagraceae													
Ludwigia alternifolia	Seedbox					•				•			
Ludwigia peploides	Floating primrose-willow									•			

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South
during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Ophioglossaceae													
Botrychium virginianum	Rattlesnake fern	•					•						
Passifloraceae													
Passiflora incarnate	Purple passionflower											•	
Phytolaceae													
Phytolacca americana	Pokeweed	•	•	•			•					•	
Pinaceae													
Pinus taeda	Loblolly pine	•	•	•			•	•			•	•	•
Platanaceae													
Platanus occidentalis	Sycamore	•	•		•	•	•		•				
Poaceae													
Andropogon virginicus	Broomsedge bluestem		•				•					•	
Arundinaria gigantea	Giant Cane				•				•				
Chasmanthium latifolium	Indian wood oats	•											
Cynodon dactylon	Bermuda grass						•						
Dichanthelium laxiflorum	Openflower rossette grasses	•	•	•					•				
Echinochloa crus-galli	Barnyard grass					•				•			
Elymus canadensis	Canada wildrye	•											
Leersia oryzoides	Rice cutgrass					•							
Phalaris arundinacea	Canary grass	•	•				•						
Setaria pumila	Yellow foxtail						•					•	
Sorgham halepense	Johnson grass	•	•									•	
Sporobolus junceus	Pineywoods dropseed		•										

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Polygonaceae													
Brunnichia ovata	Ladies' eardrops								•				
Polygonum hydropiperoides	Swamp smartweed		•			•						•	
Polygonum pennsylvanicum	Pennsylvania knotweed	•	•			•				•			
Rannunculaceae													
Clematis virginiana	Virgin's bower											•	
Ranunculus sp.	Buttercup	•											
Rhamnaceae													
Berchemia scandens	Alabama supplejack	•			•								
Rosaceae													
Prunus serotina	Black cherry	•	•		•							•	
Pyrus calleryana	Pear	•										•	
Rosa multiflora	Multiflora rose	•		•								•	
Rubus flagellaris	Northern dewberry	•			•		•						
Rubus trivialis	Southern dewberry	•	•	•			•		•			•	
Rubiaceae													
Mitchella repens	Partridge berry						•		•				
Salicaceae													
Populus deltoides	Cottonwood	•		•	•		•		•			•	
Salix nigra	Black willow	•		•			•		•	•		•	
Saururaceae													
Saururus cernuus	Lizard's tail								•				
Smilacacea													
Smilax bona-nox	Saw greenbriar	•			•								

Table 5-2
Plant Species Identified within NAVSUPPACT Mid-South during Fall 2005 Vegetation Survey

Species Name	Common Name	Area 1a	Area 1b	Area 2	Area 3a	Area 3b	Area 4a	Area 4b	Area 5a	Area 5b	Area 6	Area 7	Area 8
Smilax glauca	Cat greenbrier	•											
Smilax rotundifolia	Common greenbrier	•	•						•				
Ulmaceae													
Celtis laevigata	Sugarberry	•	•		•		•		•				
Celtis occidentalis	Hackberry	•		•			•						
Ulmus americana	American elm	•	•	•	•		•						
Ulmus rubra	Slippery elm	•	•						•				
Urticaceae													
Boehmeria cylindrica	False nettle	•	•		•		•		•	•			
Laportea canadensis	Canadian wood nettle				•								
Pilea pumila	Canadian clearweed				•								
Urtica dioica	Stinging nettle	•			•								
Tragia cordata	Heartleaf noseburn				•								
Violaceae													
Viola sororia	Common blue violet	•							•				
Vitaceae													
Ampelopsis arborea	Peppervine	•	•							•			
Parthenocissus quinquefolia	Virginia creeper	•		•	•		•		•			•	
Vitis palmata	Catbird grape	•	•				•		•				
Unidentified Fern		•							•				
Species Richness		**80**	**43**	**29**	**36**	**15**	**45**	**13**	**51**	**16**	**1**	**38**	**1**

Figure 5-3: Sycamore-green ash-cottonwood-boxelder community in Area 1a

Table 5-3
Dominant and Characteristic Species in the Overstory and Understory Layers in the Sycamore-Green Ash-Cottonwood-Boxelder Community in Area 1A

Species Name	Common Name	Overstory	Understory
Platanus occidentalis	Sycamore	X	
Fraxinus pennsylvanica	Green ash	X	X
Populus deltoids	Eastern cottonwood	X	
Acer negundo	Boxelder		X
Ulmus americana	American elm		X

Note:
c — characteristic but not dominant

The second community type in survey Area 1 (Area 1b — Figure 5-2) is a mixed hardwood-loblolly pine forest community that is intermediate between the floodplain forest communities adjacent to Big Creek, and upland oak-hickory forests common in the local area. This community type within Area 1b is dominated somewhat equally by loblolly pine, water oak, willow oak in the canopy and American elm, willow oak, and sweet gum in the sapling layers. In addition to these tree species, American elderberry (*Sambucus canadensis*), boxelder, sycamore, and rough leaved dogwood were common understory species in Area 1b. False nettle (*Boehmeria cylindrica*), broomsedge bluestem (*Andropogon virginicus*), Canada goldenrod (*Solidago canadensis*), lanceleaf ragweed (*Ambrosia bidentata*), and purple mistflower (*Conoclinium coelestinum*) were common in the herbaceous layer. Japanese honeysuckle (*Lonicera japonica*), trumpet creeper, and common greenbrier (*Smilax rotundifolia*) were dominant species in the vine layer. Two other species: devil's walking stick (*Aralia spinosa*) and winged sumac (*Rhus capollina*), are characteristic of this community at NAVSUPPACT but are not dominant. Table 5-2 provides a list of species observed within this community during fall 2005. Forty-three species were observed in this community in Area 1b during the survey.

This community comprises large to medium trees in the overstory and medium-size trees in the understory. Tree density in Area 1b is medium, but because the shrub and herbaceous layers are more developed in this community than in the adjacent sycamore-green ash-cottonwood-boxelder floodplain flat, the overall vegetative density is higher compared to sycamore-green ash-cottonwood-boxelder floodplain community to the south. Leaf litter, shrub, vine, and herbaceous species provided 100% ground cover at the time of the survey. Table 5-4 summarizes the dominant tree species in the canopy and the understory layer.

Table 5-4
Dominant and Characteristic Species in the Overstory and Understory Layers in the Mixed Hardwood-Loblolly Pine Forest Community in Area 1b

Species Name	Common Name	Overstory	Understory
Pinus taeda	Loblolly pine	X	
Quercus phellos	Willow oak	X	X
Quercus nigra	Water oak	X	
Liquidambar styraciflua	Sweetgum		X
Ulmus Americana	American elm		X
Aralia spinosa	Devil's walking stick		X[c]
Rhus copallinum	Winged sumac		X[c]

Note:
c — characteristic but not dominant

5.2.2 Area 2

Although Area 2 lies adjacent to Big Creek, the plant community in this area also is a mixed hardwood-loblolly pine forest that is intermediate between the riparian/floodplain forest community typically found on flats and natural levees adjacent to Big Creek and more xeric upland communities. In Area 2, this plant community is dominated by loblolly pine and green ash in the canopy and box-elder, willow oak, water oak, and green ash in the understory. Other tree species scattered consistently throughout this community as components of the overstory and/or the understory layer include Eastern cottonwood, hackberry (*Celtis occidentalis*), American elm, water oak, silver maple (*Acer saccharinum*), black willow, sweet gum, persimmon (*Diospyros virginiana*), rough leaved dogwood, and Chinese privet (*Ligustrum sinense*). Oaks are present in Area 2 but are less abundant than in Area 1b. Trumpet creeper, poison ivy, Japanese honeysuckle, Southern dewberry (*Rubus trivialis*), and Virginia creeper are the dominant species in the vine layer, and Canada goldenrod (*Solidago canadensis*) and scouringrush horsetail were the dominants observed in the herbaceous layer. Table 5-2 provides a list of species observed within this community during fall 2005. Twenty-nine species were observed in this community during the survey.

This community is comprised of tall to medium-size trees in the overstory and medium to small saplings in the understory. Tree and sapling density is moderate to high. Similar to Area 1b, the shrub and herbaceous layers were well developed in this community. There was 100% ground cover from leaf litter, shrubs, vines, and herbaceous species at the time of survey. Table 5-5 summarizes the dominant tree species in this community in Area 2.

Table 5-5
Dominant and Characteristic Species in the Overstory and Understory Layers in the Mixed Hardwood-Loblolly Pine Forest Community In Area 2

Species Name	Common Name	Overstory	Understory
Pinus taeda	Loblolly pine	X	
Fraxinus pennsylvanica	Green Ash	X	X
Quercus phellos	Willow Oak		X
Quercus nigra	Water oak		X
Liquidambar styraciflua	Sweetgum		X
Ulmus Americana	American elm		X
Ligustrum sinense	Chinese privet		X
Rhus alatus	Winged sumac		X[c]

Note:
C — characteristic but not dominant

5.2.3 Area 3

Area 3 contains two different plant communities: (1) a sycamore-Eastern cottonwood-red maple-pawpaw floodplain forest community, and (2) a freshwater emergent/lacustrine fringe community. The sycamore-cottonwood-red maple-pawpaw community is located to the south and west of the two former sewage treatment lagoons known as SWMU 9 (Area 3a — Figure 5-2). This community lies between SR-385 and Big Creek and contains several deep drains that appear to once have been part of the original channel of Big Creek prior to channelization. Dominant canopy species are sycamore and Eastern cottonwood in relatively equal amounts. The understory is dominated largely by two species: red maple and pawpaw (*Asimina triloba*). Several other tree species are common components of the overstory and understory but not dominant. These species include: American elm, green ash, water oak, sweet gum, ironwood (*Carpinus caroliniana*), boxelder, sugarberry, and spicebush (*Lindera benzoin*). Trumpet creeper, poison ivy, and Virginia creeper were the dominant vines; false nettle and Canadian woodnettle (*Laportea canadensis*) were the dominant herbaceous species. Occasional individuals of swamp chestnut oak (*Quercus michauxii*), shagbark hickory (*Carya ovata*), red mulberry (*Morus rubra*), Shumard oak (*Quercus shumardii*), Southern red oak (*Quercus falcata*) and red buckeye (*Aesculus pavia*) also occur throughout this community type. Although they are not dominant species, swamp chestnut oak and red buckeye are characteristic species that distinguish this community from similar communities throughout the local area. Giant cane (*Arundinaria gigantea*) was present in the southeast corner of this community but was not ubiquitous throughout the community. Table 5-2 provides a list of species observed within this community during fall 2005. Thirty-six species were observed in this community during the survey.

This community is comprised of tall trees in the overstory and medium trees to small saplings in the understory. Similar to the sycamore-green ash-cottonwood-boxelder floodplain forests adjacent to Big Creek on the north side of the creek, tree density was low to moderate in most areas (Figure 5-4). Shrubs and vines were largely absent within this community, and herbaceous ground cover was minimal to absent throughout large portions of this community. As a result, the understory was relatively open and easy to walk through. Herbaceous and vine cover was highest in the southeast corner, which appeared to be either disturbed or drier than the rest of this floodplain community. There was 100% ground cover from leaf litter at the time of survey. Table 5-6 summarizes the dominant tree species in the canopy and the sapling/shrub layer.

Figure 5-4: Sycamore-cottonwood-oak-maple-pawpaw floodplain community in Area 3a

Table 5-6
Dominant and Characteristic Species in the Overstory and Understory Layers in the Sycamore-Cottonwood-Oak-Red Maple-Pawpaw Community in Area 3a

Species Name	Common Name	Overstory	Understory
Platanus occidentalis	Sycamore	X	
Populus deltoides	Eastern cottonwood	X	
Acer rubrum	Red maple		X
Asimina triloba	Pawpaw		X
Quercus michauxii	Swamp chestnut oak		X[c]
Aesculus pavia	Red buckeye		X[c]

Note:
C — characteristic but not dominant

The second community type in survey Area 3 is the freshwater emergent lacustrine fringe vegetation that occurs on the shoreline and upper banks surrounding the former sewage treatment lagoons (3a-Figure 5-2). This community includes the emergent herbaceous species that exist along the shoreline in the drawdown zone of the lagoons and the woody and herbaceous

vegetation growing on banks/levees surrounding the lagoons. The levee banks are dominated by a mix of small to medium-size trees and numerous grasses that could not be identified during the fall survey. Dominant tree species surrounding the lagoons included persimmon, sycamore, tulip tree (*Liriodendron tulipifera*) and boxelder. Dominant herbaceous species observed at the time of the survey in the drawdown zone included star chickweed (*Stellaria pubera*), marsh pennywort (*Hydrocotyle umbellata*), barnyard grass (*Echinochloa crus-galli*), common bulrush (*Juncus effusus*), and rice cutgrass (*Leersia oryzoides*). Table 5-2 provides a list of species observed within this community during fall 2005. Fifteen species were identified in the lacustrine fringe community in Area 3a during the 2005 fall survey. This number likely only represents approximately 75% of the species potentially present in this community. Spring and summer vegetation surveys would assist in better characterizing the species composition within this community.

No woody vegetation exists within the drawdown zone of the shoreline. Approximately 35% of the drawdown zone was covered by herbaceous vegetation. The remaining 65% was bare ground. A very narrow fringe of herbs and graminoids lies on the upslope side of the drawdown zone (Figure 5-5). Vegetation in this zone is dense with approximately 80-100% herbaceous cover. Small trees are found on the top of the perimeter levee outside of the saturated/partially saturated zone around the lagoons. Table 5-7 summarizes the dominant species in this community around the shoreline and within the drawdown zones.

Figure 5-5: Freshwater lacustrine fringe wetland showing drawdown zone and woody fringe

Table 5-7
Dominant Species in the Drawdown Zone and the Upland Fringe in the Lacustrine Fringe Community Surrounding the Former Sewage Treatment Lagoons (Area 3b)

Species Name	Common Name	Drawdown	Upland Fringe
Platanus occidentalis	Sycamore		X
Diospyros virginiana	Persimmon		X
Acer negundo	Boxelder		X
Liriodendron tulipifera	Tulip tree		X
Hydrocotyle umbellifera	Marsh pennywort	X	
Stellaria pubera	Star chickweed	X	
Juncus effusus	Bulrush	X	
Echinochloa crus-galli	Barnyard grass	X	
Leersia orizoides	Rice cutgrass	X	

5.2.4 Area 4

Area 4, which is located in the vicinity of the base nature trail on the inside of the Big Creek levee, contains two different plant communities: (1) a loblolly pine-American elm-sugarberry-cottonwood-oak forest community, and (2) a mixed hardwood-loblolly pine forest community similar to that found in Areas 1b and 2. The loblolly pine-American elm-sugarberry-cottonwood-oak community is located in the area referred to on base as the nature trail (Area 4a — Figure 5-2) and is interspersed with paved walking trails. For mapping purposes, this community has been identified as Area 4a. The mixed hardwood-loblolly pine community located to the east of the nature trail area is mapped as Area 4b.

Dominant species in the loblolly-American elm-sugarberry-cottonwood-oak community included many of the same floodplain species commonly observed in the floodplain communities found along Big Creek (Areas 1a, 3a, and 5a). Dominant overstory species in Area 4a include sugarberry, American elm, Eastern cottonwood, sycamore, and willow oak. In contrast to the floodplain communities, where loblolly pine is generally absent, loblolly pine is also a dominant of the plant community in 4a. Eastern cottonwood, sugarberry, sycamore, and willow oak occur in the wetter areas of Area 4a. Dominant tree species in the understory layer included loblolly pine, green ash, red maple, boxelder, sweetgum, rough-leaved dogwood, American elm. Other common species in this community included pawpaw, persimmon, water oak, Chinese privet, and American elderberry. In addition, several ornamental species such as red osier dogwood (*Cornus sericea*) have been planted along the trails. Trumpet creeper, poison ivy, Virginia creeper, Japanese honeysuckle, and Southern dewberry were the dominant species in the vine layer. Dominant herbaceous species included false nettle and goldenrod. Table 5-2 provides a list of

species observed within this community during the fall of 2005. A total of 45 species were observed in this community during the survey.

This community is comprised of tall to medium-size trees in the overstory and medium to small saplings trees in the understory. Tree and sapling shrub density is moderate to moderately high in most areas (Figure 5-6). Herbaceous ground cover was low and there was 100% ground cover from leaf litter. An increase in herbaceous ground cover was observed along the entrance to the nature trail area where disturbance has occurred. Table 5-8 summarizes the dominant tree species in the canopy and the understory in Area 4a.

Figure 5-6: Loblolly-American Elm-sugarberry-cottonwood-oak forest community in Area 4a (Nature Trail)

Table 5-8
Dominant and Characteristic Species in the Overstory and Understory Layers in the Loblolly Pine-American Elm-Sugarberry-Cottonwood-Oak Forest Community in Area 4a

Species Name	Common Name	Overstory	Understory
Pinus taeda	Loblolly pine	X	X
Ulmus americana	American elm	X	X
Celtis laevigata	Sugarberry	X	
Platanus occidentalis	Sycamore	X	
Populus deltoides	Eastern cottonwood	X	
Quercus phellos	Willow oak	X	
Acer rubrum	Red maple		X
Fraxinus pennsylvanica	Green Ash	X	X
Acer negundo	Boxelder		X
Cornus drummondii	Roughleaf dogwood		X
Liquidambar styraciflua	Sweetgum		X

The second community type in survey Area 4 is the mixed hardwood-loblolly pine forest community that is similar to the plant community found in Areas 1b and 2. This community is dominated equally by loblolly pine, water oak, willow oak, American elm, sweet gum in the canopy and sapling layers. In addition to these tree species, American elderberry, boxelder, sycamore, and roughleaf dogwood were common understory species. Similar to the communities in Areas 1b and 2, two other characteristic understory species, devil's walking stick and winged sumac, are also present, but not dominant. False nettle, broomsedge bluestem, Canada golden rod, and ragweed were common in the herbaceous layer. Poison ivy, Japanese honeysuckle, trumpet vine, and common greenbrier were dominant species in the vine layer. Table 5-2 provides a list of species observed within this community during the fall of 2005. Thirteen species were observed in Area 4b during the survey.

This community comprises tall to medium-size trees in the overstory and understory. Similar to Areas 1b and 2, tree density is moderate and the shrub and herbaceous layers are well developed in this community, resulting in 100% ground cover from leaf litter, saplings, and herbaceous species at the time of survey. Table 5-9 summarizes the dominant tree species in the overstory and the understory layers of this community.

Table 5-9
Dominant and Characteristic Species in the Overstory and Understory Layers in the Mixed Hardwood-Loblolly Pine Forest Community in Area 4b

Species Name	Common Name	Overstory	Understory
Pinus taeda	Loblolly pine	X	X
Quercus phellos	Willow oak	X	X
Quercus nigra	Water oak	X	X
Liquidambar styraciflua	Sweetgum	X	X
Ulmus americana	American elm	X	X
Acer negundo	Boxelder		X
Platanus occidentalis	Sycamore		X
Cornus drummondii	Roughleaf dogwood		X
Aralia spinosa	Devil's walking stick		X[c]
Rhus copallinum	Winged sumac		X[c]

Note:
C — characteristic but not dominant

5.2.5 Area 5

Area 5 contains two different plant communities: (1) the sycamore-cottonwood-oak-red maple-pawpaw floodplain forest community and (2) a freshwater vernal pool. The sycamore-cottonwood-oak-red maple-pawpaw community is located on both sides of the levee road outside the perimeter fence in the southwest corner of the installation adjacent to Big Creek (Area 5a — Figure 5-2). Dominant canopy species included sycamore, Eastern cottonwood, willow oak, and water oak in relatively equal amounts. The understory is dominated largely by two species: pawpaw and red maple. Unlike the floodplain communities in Areas 1a and 3a, boxelder is not a dominant in the understory of the community in 5a. A number of other floodplain tree species are common throughout this community either as components of the overstory and/or understory including sugarberry, American elm, spicebush, slippery elm (*Ulmus rubra*), sugar maple (*Acer saccharum*), black willow, sweet gum, green ash, American elderberry, and roughleaf dogwood. Red buckeye was common in depressions and remnant channel scars within this community along with Eastern cottonwood. Although not dominant species, spicebush and red buckeye are characteristic species that distinguish this community from similar communities throughout the local area. Scattered individuals of red mulberry, honey locust (*Gleditsia triacanthos*), shagbark hickory, paper mulberry (*Broussonetia papyrifera*), swamp chestnut oak, Shumard oak, ironwood, hop hornbeam (*Ostrya virginica*), tulip tree, and cherrybark oak (*Quercus pagoda*) also occur in this community. A few individuals of black walnut (*Juglans nigra*) were present in the far western boundary of this community but were not common

throughout Area 5a. Japanese honeysuckle, trumpet creeper, poison ivy, and Virginia creeper were the dominant species in the vine layer. False nettle was the dominant herbaceous species throughout this community. Stands of giant cane, however, were present in portions of this community on the south side of the levee. Table 5-2 provides a list of species observed within this community during fall 2005. Fifty-one species were observed in this community during the survey.

This community comprises tall to medium-size trees in the overstory and medium-size trees in the understory. Tree density is moderate in most areas. Shrubs and vines were largely absent within this community, and with the exception of areas containing stands of giant cane, herbaceous ground cover was minimal to absent (Figure 5-7). In general, the community has an open understory that is easy to walk through. There was 100% ground cover from leaf litter at the time of survey. Table 5-10 summarizes the dominant tree species in the canopy and the understory.

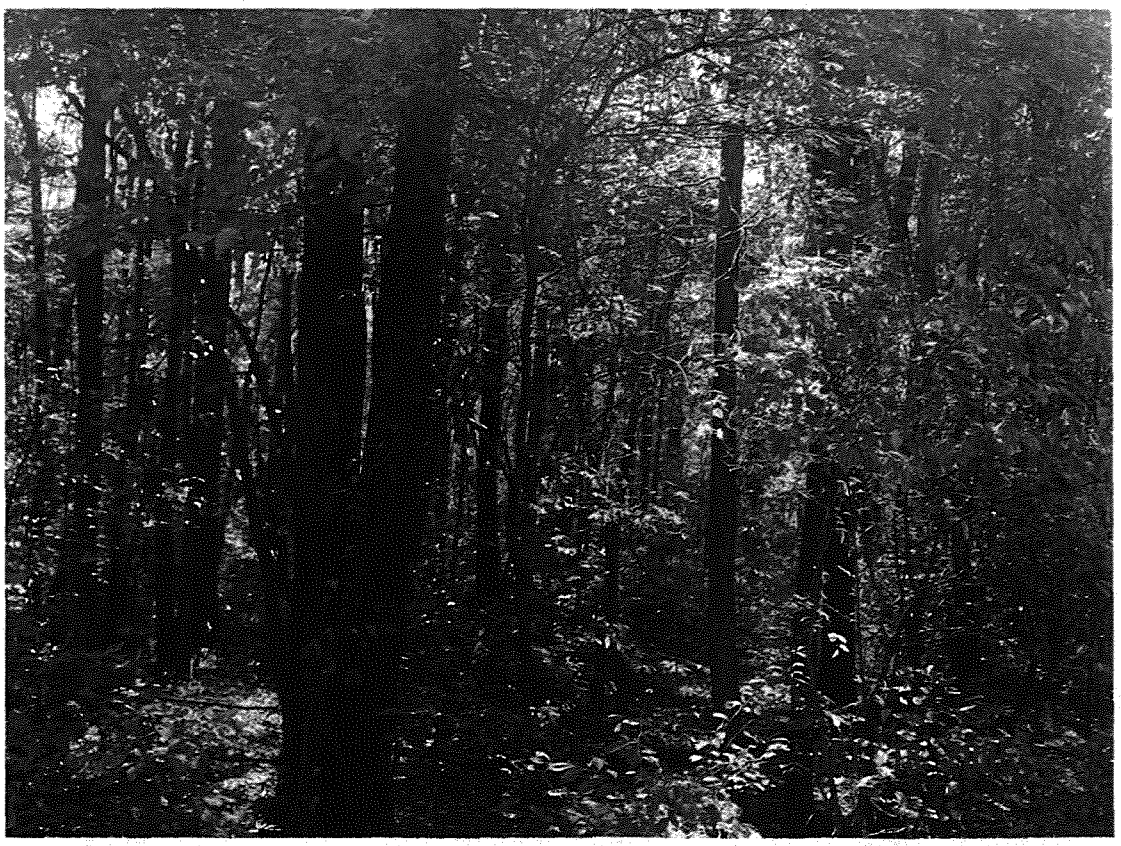

Figure 5-7: Sycamore-cottonwood-oak-red maple-pawpaw floodplain forest in Area 5a

Table 5-10
Dominant and Characteristic Species in the Overstory and Understory Layers in the Sycamore-Cottonwood-Oak-Red Maple-Pawpaw Community in Area 5a

Species Name	Common Name	Overstory	Understory
Platanus occidentalis	Sycamore	X	
Populus deltoides	Eastern cottonwood	X	
Quercus phellos	Willow oak	X	
Quercus nigra	Water oak	X	
Acer rubrum	Red maple		X
Asimina triloba	Pawpaw		X
Lindera benzoin	Spicebush		X[c]
Aesculus pavia	Red buckeye		X[c]

Note:
C — characteristic but not dominant

The second community type in survey Area 5 is a small, freshwater vernal pool wetland dominated by herbaceous species. This community occurs as an isolated opening within the surrounding forest south of the levee road (Area 5a — Figure 5-2). No water was present within the vernal pool during the fall 2005 survey, however; soils were relatively moist. Dominant species observed in the interior of the vernal pool include Engelmann's spikerush (*Eleocharis engelmannii*), bulrush, caric sedge (*Carex sp.*), and swamp smartweed (*Polygonum hydropiperoides*). Stinkweed (*Pluchea odorata*), ditch stonecrop (*Penthorum sedoides*), seedbox (*Ludwigia alternifolia*), false nettle, and loose-leaf water willow (*Justicia americana*) were dominant in the zone surrounding the interior. The exterior margins of this wetland were dominated by fragrant flatsedge (*Cyperus odoratus*), cocklebur (*Xanthium strumarium*), false nettle, and saplings of black willow and green ash. Table 5-2 provides a list of species observed within this community during fall 2005. Sixteen herbaceous and woody species were observed in this community in Area 5b during the survey.

This community comprises low growing annual and perennial herbaceous species in the interior of the vernal pool. Woody species are absent from the interior and intermediate zones of this community (Figure 5-8). Tree density is low along the vernal pool fringe and grades back into the surrounding forest. There was 80% ground cover from herbaceous species at the time of survey and approximately 20% bare ground in this community. Table 5-11 summarizes the dominant species in the herbaceous and woody fringe around the vernal pool.

Figure 5-8: Freshwater vernal pool community (5b) in an opening in the surrounding floodplain forest in survey Area 5.

Table 5-11
Dominant Species in the Interior and Exterior Zones, and Outer Fringe of the Freshwater Vernal Pool Community In Area 5b

Species Name	Common Name	Interior Zone	Exterior Zone	Wetland Fringe
Fraxinus pennsylvanica	Green ash			X
Salix nigra	Black willow			X
Cyperus odoratus	Flatsedge			X
Xanthium strumarium	Cocklebur			X
Bohmeria cylindrica	False nettle		X	X
Penthorum sedoides	Ditch stonecrop		X	
Pluchea odorata	Stinkweed		X	
Ludwigia alternifolia	Seedbox		X	
Justicia americana	Loose-leaf water willow		X	
Polygonum hydropiperiodes	Swamp smartweed	X		
Carex sp.	Caric sedge	X		
Juncus effusus	Bulrush	X		
Eleocharis engelmannii	Engelmann's spike rush	X		

5.2.6 Area 6

Area 6 contains only one plant community type, a loblolly pine monoculture. This community is a small, isolated, even-aged stand of loblolly pines. No other woody or herbaceous species are present in this community. The absence of other species is a result of clearing and maintenance of this community in a manicured state. As an even-aged monoculture, there is little vegetative structure and no microhabitats present within this community (Figure 5-9).

Figure 5-9: Loblolly pine monoculture in Area 6

5.2.7 Area 7

Area 7 is located directly adjacent to the large lakes on the western boundary of the Glen Eagle golf course (Area 7 – Figure 5-2). Onsite vegetative surveys revealed that the plant community in Area 7 is a highly disturbed vegetative community containing a mix of vegetation in varying stages of succession. The overall plant community in Area 7 can be described as a disturbed forest-scrub community. With the exception of a small silver maple sapling forest that is located north of and adjacent to the golf course lake, this community has no clear dominant overstory species. Roughleaf dogwood and silver maple, however, are the dominant understory species and Japanese honeysuckle and trumpet vine are the dominant vines.

This community comprises three "microhabitats" that appear to be separated on the basis of hydrology and disturbance. A closed canopy, narrow forest fringe occurs along the bank of the golf course lake. A small silver maple dominated forest occurs as part of this narrow fringe on the northwest side of the lake. The remainder of the community in survey Area 7 consists of a more open canopy/scrub microhabitat.

Common overstory species observed within the narrow fringe forest adjacent to the golf course lake include: black willow, cottonwood, loblolly pine, black cherry (*Prunus serotina*), and Eastern red cedar (*Juniperus virginiana*). Common understory trees include: willow oak, water oak, sweet gum, persimmon, sassafras (*Sassafras albidum*), black locust (*Robinia psuedoacacia*), boxelder, and roughleaf dogwood. Japanese honeysuckle, trumpet creeper, poison ivy, and Virginia creeper are the dominant species in the vine layer. Johnson grass (*Sorghum halepense*), and Canada goldenrod are the dominant herbaceous species within this fringe.

The small silver maple-dominated forest, located adjacent to the golf course lake on the northwest side, is a distinct microhabitat that appears to be located in a depression that was once a former open water area. This forest appears to be seasonally flooded as a result of overflow from the golf course lake or from collection of adjacent surface water runoff. Silver maple is the dominant sub-canopy species in this microhabitat (Figure 5-10). Overstory, shrub, and herbaceous ground cover layers are largely absent from this community; however, herbaceous ground cover increases toward the perimeter or edges of this microhabitat where inundation appears to decrease.

Figure 5-10: Seasonally flooded/inundated silver maple forest microhabitat on northwest fringe of Glen Eagle golf course lake in survey Area 7

The remainder of the community in Area 7 consists of a more open-canopy/scrub microhabitat that is largely dominated by roughleaf dogwood, Eastern red cedar, black cherry, and loblolly pine. In areas, the ground is covered 100% by Japanese honeysuckle and trumpet vine (Figure 5-11). In other areas, the ground is largely covered by broomsedge bluestem, ragweed, and goldenrod. Tree, sapling, shrub, vine, and herbaceous density is high in this plant community. Table 5-2 provides a list of species observed within Area 7 during fall 2005. Thirty-eight species were identified in this community during the survey.

Figure 5-11: Disturbed forest-scrub microhabitat in survey Area 7

5.2.8 Area 8

Similar to Area 6, Area 8 contains only one plant community type, a loblolly pine monoculture. This community is a small, isolated, even-aged stand of loblolly pines. No other woody or herbaceous species are present in this community. The absence of other species is a result of clearing and maintenance of this community in a manicured state. As an even aged monoculture, there is little vegetative structure and no microhabitats present within this community

5.3 Species Richness

One-hundred-seventeen species were observed during the fall 2005 survey of approximately 221 acres of unimproved and semi-improved grounds on NAVSUPPACT Mid-South (Table 5-2). Species richness was highest in community type 1a, the sycamore-green ash-Eastern cottonwood-boxelder floodplain forest near SWMU 2 (Figure 5-2, Area 1a).

5.4 Threatened and Endangered Species

The search of the Tennessee Division of Natural Heritage Natural Heritage Inventory Program records for federal and state-listed threatened, endangered, and special concern species in Shelby and Tipton Counties (TDNH, 2005) indicates that no federally listed threatened, endangered, or candidate plant species, or critical habitat subject to regulation under the Endangered Species Act (*16 United States Code [U.S.C.] 1536*) are known to occur in these two counties. In addition, the Natural Heritage Inventory Program database search completed for the installation and surrounding area indicates that no federally listed threatened, endangered, or candidate plant species, or critical habitat are known to occur on the NAVSUPPACT Mid-South or within a 4-mile radius of the installation. Threatened and endangered plant species studies conducted by the U.S Fish and Wildlife Service (USFWS) on the NAVSUPPACT Mid-South in 1997 also did not document the presence of any federally listed species within the NAVSUPPACT Mid-South installation (Merritt and Bingham, 1997). No federally listed plant species were observed within the NAVSUPPACT Mid-South during the fall 2005 survey.

The Tennessee Department of Natural Heritage records indicate that 17 state-listed rare, threatened, or endangered plant species occur in Shelby and Tipton Counties (Table 5-12). Thirteen of these species are known to occur in Shelby County. Ten are known to occur in Tipton County. Six of these 17 species occur in both Shelby and Tipton counties.

Seven of the 17 species shown in Table 5-12 are listed by the state as threatened (T) or endangered (E), subject to protection under the Rare Plant Protection and Conservation Act (*Tennessee Code Annotated §§70-8-301*). The remaining nine species are listed as species of special concern (S). The State of Tennessee defines an endangered species as a "species or subspecies whose prospects of survival or recruitment within the state are in jeopardy or likely to become so in the foreseeable future" (TDNH, 2004). A threatened species is defined as a "species or subspecies that is likely to become an endangered species in the foreseeable future." A species of state concern is defined as a "species or subspecies that is uncommon in Tennessee or has unique or highly specific habitat requirements or scientific value and therefore requires careful monitoring of its status."

Of the 17 state-listed plant species, three are known to occur within a 4-mile radius of the NAVSUPPACT Mid-South (Table 5-13). Tennessee Division of Natural Heritage records indicate that none of these three species are known to occur within the NAVSUPPACT Mid-South or within a 1-mile radius of the installation (Table 5-13 and see Appendix A).

Table 5-14 summarizes the results of the threatened and endangered species field surveys completed by EnSafe in October 2005. None of the 17 state-listed species were observed during the fall 2005 vegetation survey on the installation.

Table 5-12
State Listed Rare, Threatened, and Endangered Species Recorded as Occurring in Shelby and Tipton Counties, TN

Species Name	Common Name	Shelby County	Tipton County
Acmella oppositifolia	Creeping spot-flower	S	S
Agalinis auriculata	Earleafved false- foxglove		E
Aster prealtus	Willow aster	E	
Carex oxylepis var. pubescens	Hairy sharp-scaled sedge		S
Carex reniformis	Reniform sedge		S
Crataegus harbisonii	Harbison's hawthorn	E	
Hydrastis Canadensis	Goldenseal	S-CE	S-CE
Iris fulva	Copper Iris	T	
Ophioglossum crotalophoroides	Bulbous Adder's-tongue	S	
Panax quinquefolia	American Ginseng	S-CE	S-CE
Panicum ensifolium	Small-leaved panic grass		S
Penstemon tubifloris	Small-flowered beardtongue	S	
Phacelia ranunculacea	Blue scorpion-weed	S	S
Prenanthes crepidinea	Nodding rattlesnakeroot	E	E
Schisandra glabra	Red starvine	T	T
Silene ovata	Ovate catchfly	E	
Ulmus crassifolia	Cedar elm	S	

Notes:
E — listed as endangered by the state of Tennessee
T — listed as threatened by the state of Tennessee
S — listed as a species of special concern in the state of Tennessee
CE — listed because of commercial exploitation

Table 5-13
Rare, Threatened, and Endangered Species known to Occur within a 4-Mile Radius, 1-Mile Radius of and on the NAVSUPPACT Mid-South Installation

Species Name	Common Name	4-Mile Radius	1-Mile Radius	NSA Mid-South
Panax quinquefolia (S-CE)	American Ginseng	Yes	No	No
Phacelia ranunculacea (S)	Blue scorpion-weed	Yes	No	No
Prenanthes crepidinea (E)	Nodding rattlesnake root	Yes	No	No

Table 5-14
Results of T&E Species Habitat Survey Conducted on NAVSUPPACT Mid-South in October 2005

Species Name (state status)	Common Name	Observed on NSA Mid-South	Habitat Available
Acmella oppositifolia (S)	Creeping spot-flower	No	Yes
Agalinis auriculata (E)	Earleaf false foxglove	No	No
Aster prealtus (E)	Willow aster	No	No
Carex oxylepis var. pubescens (S)	Hairy sharp-scaled sedge	No	Yes
Carex reniformis (S)	Reniform sedge	No	Very little
Crataegus harbisonii (E)	Harbison's hawthorn	No	No
Hydrastis canadensis (S-CE)	Goldenseal	No	Very little
Iris fulva (T)	Copper Iris	No	Very little
Ophiglossum crotalophoroides (S)	Bulbous Adder's-tongue	No	Yes
Panax quinquefolia (S-CE)	American Ginseng	No	None to very little
Panicum ensifolium (S)	Small-leaved panic grass	No	No
Penstemon tubifloris (S)	Small-flowered beardtongue	No	Yes
Phacelia ranunculacea (S)	Blue scorpion-weed	No	Yes
Prenanthes crepidinea (E)	Nodding rattlesnake root	No	Yes
Schisandra glabra (T)	Red starvine	No	Little to none
Silene ovata (E)	Ovate catchfly	No	Yes
Ulmus crassifolia (S)	Cedar elm	No	Very little

Notes:
E — listed as endangered by the state of Tennessee
T — listed as threatened by the state of Tennessee
S — listed as a species of special concern in the state of Tennessee
CE — listed because of commercial exploitation

6.0 CONCLUSIONS

Onsite pedestrian surveys were completed from October 17, 2005, through October 20, 2005, and a review of available background information was completed. The following are the major findings from the 2005 vegetation survey completed in unimproved and semi-improved areas within the NAVSUPPACT Mid-South.

- There are five different forest/vegetation formations within the 221 unimproved and semi-improved acres.

- Of these five formations, four are forest formations and one is an annual forb vegetation formation.

- Forest formations within NAVSUPPACT Mid-South range from planted/cultivated evergreen closed-canopy forests to natural/semi-natural temporarily flooded or saturated deciduous or mixed evergreen/deciduous, closed or open canopy forests.

- Eight plant community types (based on dominant overstory and understory species) exist within the unimproved and semi-improved areas at NAVSUPPACT Mid-South.

- Two of these communities are herbaceous communities with little to no woody vegetation that occur associated with permanent or semi-permanent open waterbodies.

- One community type found within the installation is a pine monoculture with little to no understory; it appears to be routinely maintained in this state by brush clearing. This community type comprises only a small percentage of the 221 unimproved and semi-improved acres within NAVSUPPACT Mid-South.

- Five forested community types comprise the majority of the unimproved and semi-improved acres within NAVSUPPACT Mid-South.

- The forested communities adjacent to Big Creek in the southern portion of the installation had well developed overstory and mid-story vegetation, but little herbaceous ground cover and shrub understory.

- Forest communities in mesic or upland settings had higher amounts of vegetation structure and herbaceous ground cover.

- A total of 129 vegetative species were observed in the unimproved and semi-improved areas during the fall of 2005.

- Species richness was highest in the sycamore-green ash-cottonwood-box elder floodplain/riparian forest community in the vicinity of SWMU 2 (Area 1a) with approximately 80 vegetative species recorded from within this community during the fall survey.

- None of the 17 federal or state-listed threatened, endangered, or species of state concern were observed within the unimproved and semi-improved areas within NAVSUPPACT Mid-South during the onsite field surveys.

- The absence of federal or state-listed threatened, endangered, or species of state concern within the unimproved and semi-improved areas within NAVSUPPACT Mid-South is consistent with previous studies by the U.S. Fish and Wildlife Service (Merritt and Bingham, 1997).

7.0 RECOMMENDATIONS

The following vegetation management actions are recommended at NAVSUPPACT Mid-South:

- Threatened and endangered species surveys should be completed on a routine basis (i.e., every five to seven years) at NAVSUPPACT Mid-South to ensure continued compliance with federal and state regulations for the protection of threatened or endangered species or species of state concern. Routine surveys will determine if any newly listed species in Shelby or Tipton counties occur within NAVSUPPACT Mid-South installation.

- Spring and summer vegetation surveys are recommended to be able to develop a more comprehensive list of plant species present in unimproved and semi-improved areas within NAVSUPPACT Mid-South.

- No active vegetation management is needed at this time within unimproved or semi-improved areas at NAVSUPPACT Mid-South in order to ensure compliance with federal and state regulations for the protection of threatened or endangered species or species of state concern.

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L:\2006\NSA Mid-South\Vegetative Community Survey\NSA MidSouth Veg Rept Draft.doc

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Natural Heritage
7th Floor L&C Annex
401 Church Street
Nashville, Tennessee 37243
Phone 615/532-0431 Fax 615/532-0046

January 19, 2006

Lisa C. Gandy
Whitenton Group, Inc. Environmental Consultants
13280 Rivercrest Drive
Little Rock, AR 72212

Subject: Project Review: DNH 2006-001; NAVSUPPACT Mid-South Vegetation Survey

Dear Ms. Gandy:

Thank you for your letter and enclosures regarding the above mentioned project in Shelby County. We have reviewed the information submitted and find that rare species have been documented within a 1-mile radius of the project area. These species are listed below and correspond with the locations of the records documented on the attached map (reference 'Species_ID').

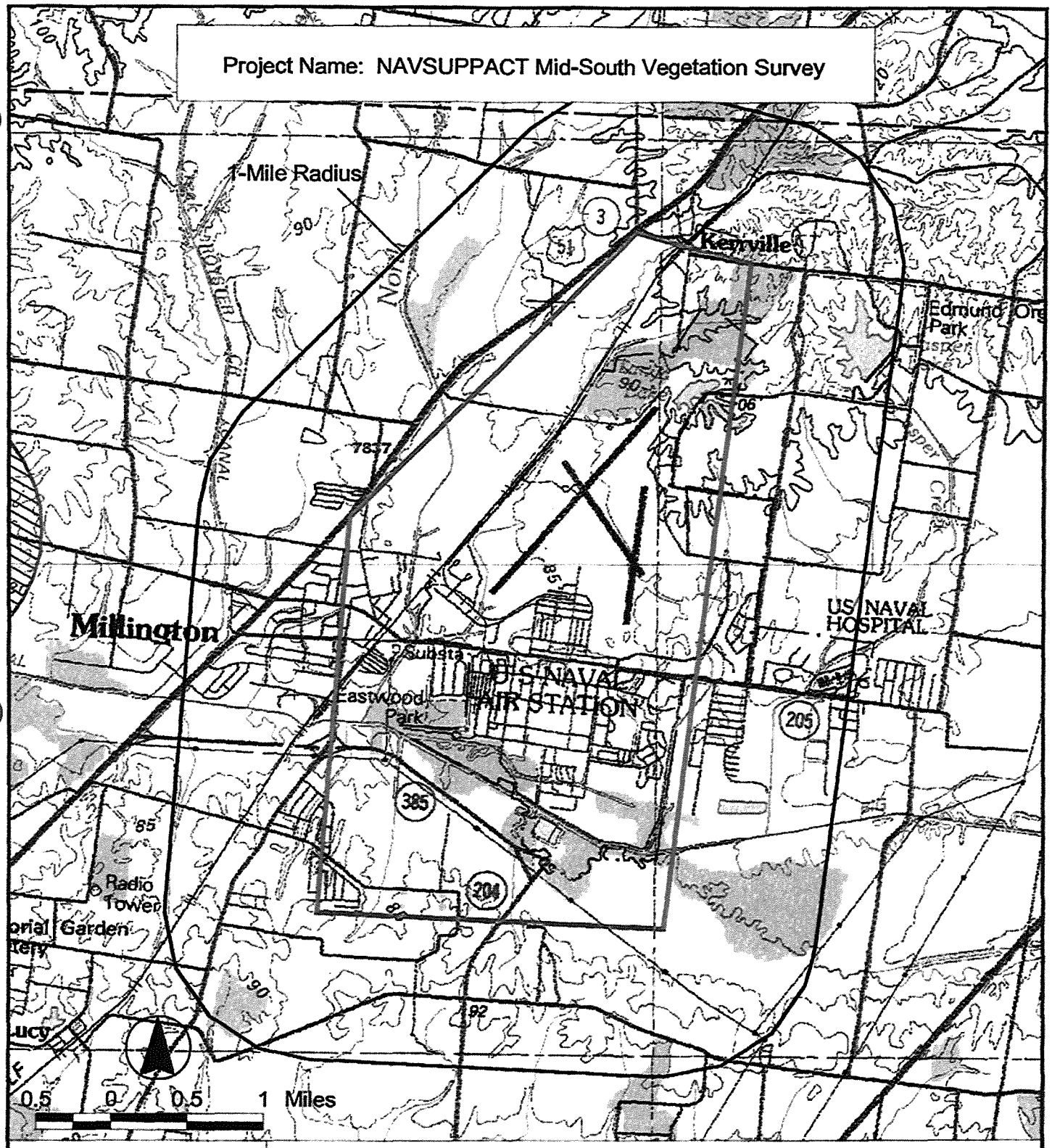
Species_ID	Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Vertebrate Animal						
7837	*Pituophis melanoleucus melanoleucu*	Northern Pine Snake		T	G4T4	S3

No rare plant species have been documented within a 1-mile radius of the site. However, rare plants have been documented in the surrounding area. I have attached a separate list of rare species that have been documented within a 4-mile radius of the project area. Consideration for these species should be given, if suitable habitat exists in the project area for these species.

No other natural areas, scenic rivers or ecologically sensitive sites were found to be within the project area. Please keep in mind, however, that not all areas of Tennessee have been surveyed and that a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. For additional information regarding Tennessee's rare and endangered species or interpretation of Status or Ranks, please visit our website at http://www.state.tn.us/environment/nh/.

Thank you for the opportunity to comment on the subject proposal and for considering Tennessee's rare species throughout the planning of this project. Should you have any questions, please do not hesitate to contact me at (615) 532-0440.

Sincerely,
Kirstin Condict, Data Manager



Project Location

Rare Species

Date Reviewed: 1/19/2006

TENNESSEE DIVISION OF NATURAL HERITAGE

14th Floor L&C Tower
401 Church Street
Nashville, TN 37243
Phone: 615.532.0440
www.state.tn.us/environment/nh

Rare Species Documented Within 4-Mile Radius
NAVSUPPACT Mid-South Vegetation Survey Site

Tennessee Division of Natural Heritage
www.state.tn.us/environment/nh/

		Federal Status	State Status	Global Rank	State Rank
Vascular Plant					
Panax quinquefolius	American Ginseng		S-CE	G3G4	S3S4
Phacelia ranunculacea	Blue Scorpion-weed		S	G4	S2S3
Prenanthes crepidinea	Nodding Rattlesnake-root		E	G3G4	S2
Vertebrate Animal					
Ictinia mississippiensis	Mississippi Kite		D	G5	S2S3
Limnothlypis swainsonii	Swainson's Warbler		D	G4	S3
Pituophis melanoleucus melanoleucus	Northern Pine Snake		T	G4T4	S3

Tennessee List of Rare Species by County

Tennessee Division of Natural Heritage
www.state.tn.us/environment/nh/

June 2005

Shelby

Vascular Plant		Federal Status	State Status	Global Rank	State Rank
Acmella oppositifolia	Creeping Spot-flower		S	G5	S2
Aster praealtus	Willow Aster		E	G5	S1
Crataegus harbisonii	Harbison's Hawthorn		E	G1	S1
Hydrastis canadensis	Goldenseal		S-CE	G4	S3
Iris fulva	Copper Iris		T	G5	S2
Ophioglossum crotalophoroides	Bulbous Adder's-tongue		S	G5	SH
Panax quinquefolius	American Ginseng		S-CE	G3G4	S3S4
Penstemon tubiflorus	Small-flowered Beardtongue		S	G5	S1
Phacelia ranunculacea	Blue Scorpion-weed		S	G3G4	S2S3
Prenanthes crepidinea	Nodding Rattlesnake-root		E	G3G4	S2
Schisandra glabra	Red Starvine		T	G3	S2
Silene ovata	Ovate Catchfly		E	G2G3	S2
Ulmus crassifolia	Cedar Elm		S	G5	S2

Invertebrate Animal		Federal Status	State Status	Global Rank	State Rank
Lampsilis siliquoidea	Fatmucket			G5	S2
Obovaria jacksoniana	Southern Hickorynut			G1G2	S1
Triodopsis multilineata	Striped Whitelip (=t. Webbhelix)			GNR	S1

Vertebrate Animal		Federal Status	State Status	Global Rank	State Rank
Ammocrypta beani	Naked Sand Darter		D	G5	S2
Chondestes grammacus	Lark Sparrow		T	G5	S1B
Corynorhinus rafinesquii	Eastern Big-eared Bat		D	G3G4	S3
Cycleptus elongatus	Blue Sucker		T	G3G4	S2
Dendroica cerulea	Cerulean Warbler		D	G4	S3B
Haliaeetus leucocephalus	Bald Eagle	LT	D	G4	S3
Hyla gratiosa	Barking Treefrog		D	G5	S3
Ictinia mississippiensis	Mississippi Kite		D	G5	S2S3
Limnothlypis swainsonii	Swainson's Warbler		D	G4	S3
Macroclemys temminckii	Alligator Snapping Turtle		D	G3G4	S2S3
Myotis sodalis	Indiana Bat	LE	E	G2	S1
Neotoma floridana illinoensis	Eastern Woodrat		D	G5T5	S3
Noturus stigmosus	Northern Madtom		D	G3	S3
Ophisaurus attenuatus longicaudus	Eastern Slender Glass Lizard		D	G5T5	S3
Pituophis melanoleucus melanoleucus	Northern Pine Snake		T	G4T4	S3
Sorex longirostris	Southeastern Shrew		D	G5	S4
Sterna antillarum athalassos	Interior Least Tern	LE	E	G4T2Q	S2S3B
Thryomanes bewickii	Bewick's Wren		E	G5	S1
Tyto alba	Common Barn-owl		D	G5	S3
Vireo bellii	Bell's Vireo			G5	SHB

Swain

Vascular Plant		Federal Status	State Status	Global Rank	State Rank
Abies fraseri	Fraser Fir		T	G2	S1S2

Vertebrate Animal		Federal Status	State Status	Global Rank	State Rank
Desmognathus wrighti	Pigmy Salamander		D	G3G4	S2
Glaucomys sabrinus coloratus	Carolina Northern Flying Squirrel	LE	E	G5T1	S1

Others		Federal Status	State Status	Global Rank	State Rank
Bazzania nudicaulis	A Liverwort		T	G2G3	S2
Leptodontium excelsum	Grandfather Mountain Leptodontium		E	G2	S1S2
Leptoscyphus cuneifolius	A Liverwort		E	G4G5	S1
Plagiochila corniculata	A Liverwort		S	G4?	S1S2
Sphenolobopsis pearsoni	Sphenolobopsis		E	G2?	S1

Tipton

Vascular Plant		Federal Status	State Status	Global Rank	State Rank
Acmella oppositifolia	Creeping Spot-flower		S	G5	S2
Agalinis auriculata	Earleaved False-foxglove		E	G3	S2
Carex oxylepis var. pubescens	Hairy Sharp-scaled Sedge		S	G5?T3	S1
Carex reniformis	Reniform Sedge		S	G4?	S1
Hydrastis canadensis	Goldenseal		S-CE	G4	S3
Panax quinquefolius	American Ginseng		S-CE	G3G4	S3S4
Panicum ensifolium	Small-leaved Panicgrass		S	G4	S2
Phacelia ranunculacea	Blue Scorpion-weed		S	G3G4	S2S3
Prenanthes crepidinea	Nodding Rattlesnake-root		E	G3G4	S2
Schisandra glabra	Red Starvine		T	G3	S2

Invertebrate Animal		Federal Status	State Status	Global Rank	State Rank
Obovaria jacksoniana	Southern Hickorynut			G1G2	S1
Villosa vibex	Southern Rainbow			G4Q	S2

Vertebrate Animal		Federal Status	State Status	Global Rank	State Rank
Ammocrypta beani	Naked Sand Darter		D	G5	S2
Ammocrypta vivax	Scaly Sand Darter		D	G5	S2
Cycleptus elongatus	Blue Sucker		T	G3G4	S2
Ictinia mississippiensis	Mississippi Kite		D	G5	S2S3
Macrhybopsis gelida	Sturgeon Chub		D	G3	S1
Macroclemys temminckii	Alligator Snapping Turtle		D	G3G4	S2S3
Notropis dorsalis	Bigmouth Shiner		D	G5	S1
Noturus stigmosus	Northern Madtom		D	G3	S3
Sistrurus miliarius streckeri	Western Pigmy Rattlesnake		T	G5T5	S2S3
Sterna antillarum athalassos	Interior Least Tern	LE	E	G4T2Q	S2S3B

Figure 4-1
Unimproved Areas on the NAVSUPPACT Mid-South (from INRMP 2001) Surveyed Fall 2005

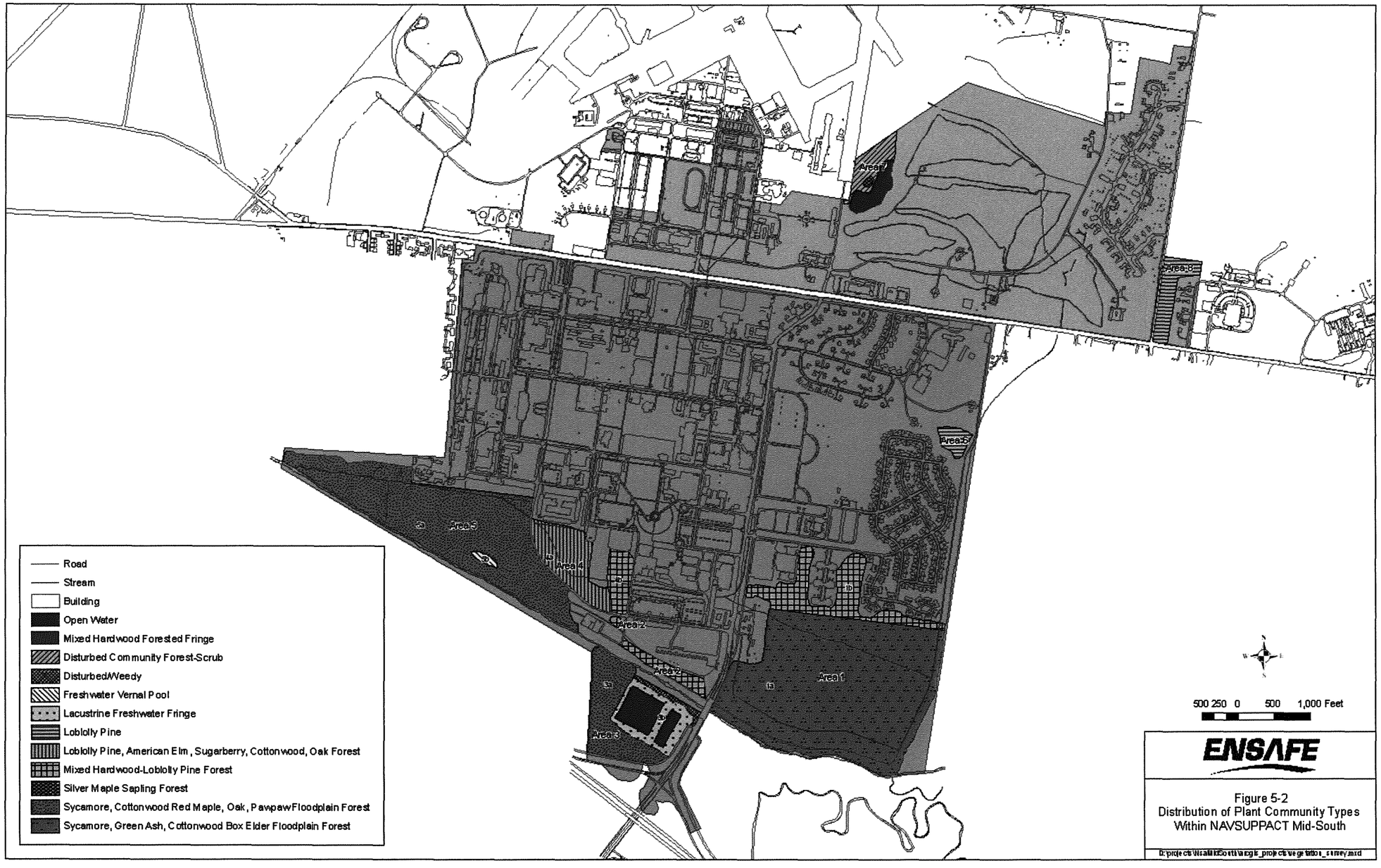


Figure 5-2
Distribution of Plant Community Types
Within NAVSUPPACT Mid-South

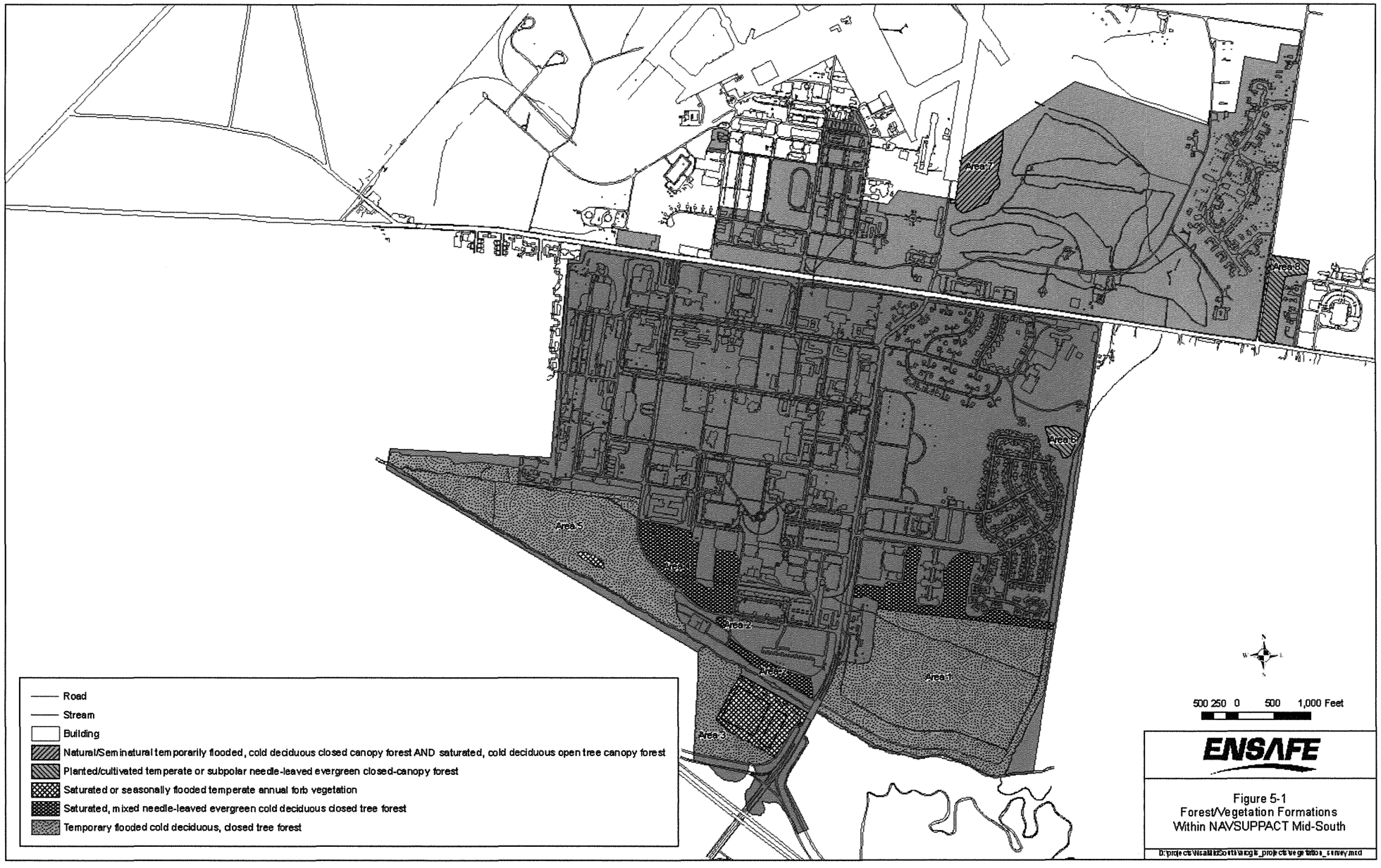


Figure 5-1
Forest/Vegetation Formations
Within NAVSUPPACT Mid-South

ANALYSIS RUN LOG

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-069

Instrument ID: THERMO ICAP 6500 **File Name:** IZK16A

Date: 11/16/2009 **Method:** P

Lab Sample ID	Client ID	D.F.	Time	Elements			
Blank		1	17:30	AL	CA	FE	MG
Std 1		1	17:35	AL	CA	FE	MG
ICV		1	17:40	AL	CA	FE	MG
ICB		1	17:45	AL	CA	FE	MG
PQL		1	17:50	AL	CA	FE	MG
ICSA		1	17:55	AL	CA	FE	MG
ICSAB		1	18:00	AL	CA	FE	MG
CCV		1	18:05	AL	CA	FE	MG
CCB		1	18:10	AL	CA	FE	MG
ZZZZZZ		1	18:15				
ZZZZZZ		1	18:20				
ZZZZZZ		1	18:25				
ZZZZZZ		20	18:30				
ZZZZZZ		1	18:35				
ZZZZZZ		1	18:40				
SC6669-002	039G10LF25	1	18:45			FE	
SC6669-003	039G02LF18	1	18:50			FE	
SC6669-004	039G12LF26	1	18:55			FE	
SC6669-005	039G11LF14	1	19:00			FE	
CCV		1	19:05	AL	CA	FE	MG
CCB		1	19:09	AL	CA	FE	MG
SC6669-006	039G03LF18	1	19:14			FE	
SC6734-004	039G04LF25	1	19:19			FE	
SC6734-006	039G22LF18	1	19:24			FE	
ZZZZZZ		1	19:29				
ZZZZZZ		1	19:34				
ZZZZZZ		1	19:39				
ZZZZZZ		5	19:44				
ZZZZZZ		1	19:49				
ZZZZZZ		1	19:54				
ZZZZZZ		1	19:59				
CCV		1	20:04	AL	CA	FE	MG
CCB		1	20:09	AL	CA	FE	MG
ZZZZZZ		1	20:14				
ZZZZZZ		1	20:19				
ZZZZZZ		1	20:24				
ZZZZZZ		1	20:29				
ZZZZZZ		1	20:34				
ZZZZZZ		1	20:39				
ZZZZZZ		1	20:44				
ZZZZZZ		1	20:49				
ZZZZZZ		1	20:54				
ZZZZZZ		1	20:59				
CCV		1	21:04	AL	CA	FE	MG
CCB		1	21:09	AL	CA	FE	MG
ZZZZZZ		1	21:14				
ZZZZZZ		1	21:18				
ZZZZZZ		1	21:24				
ZZZZZZ		1	21:29				
ZZZZZZ		1	21:34				

ANALYSIS RUN LOG

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-069

Instrument ID: THERMO ICAP 6500 **File Name:** IZK16A

Date: 11/16/2009 **Method:** P

Lab Sample ID	Client ID	D.F.	Time	Elements			
ZZZZZZ		1	21:39				
ZZZZZZ		1	21:44				
ZZZZZZ		1	21:49				
ZZZZZZ		1	21:53				
ZZZZZZ		1	21:58				
CCV		1	22:03	AL	CA	FE	MG
CCB		1	22:08	AL	CA	FE	MG
ZZZZZZ		1	22:13				
ZZZZZZ		1	22:18				
ZZZZZZ		1	22:23				
ZZZZZZ		5	22:28				
ZZZZZZ		1	22:33				
ZZZZZZ		1	22:38				
ZZZZZZ		1	22:43				
ZZZZZZ		1	22:48				
ZZZZZZ		1	22:53				
ZZZZZZ		1	22:58				
CCV		1	23:03	AL	CA	FE	MG
CCB		1	23:08	AL	CA	FE	MG
ZZZZZZ		1	23:13				
ZZZZZZ		1	23:18				
ZZZZZZ		1	23:23				
CCV		1	23:28	AL	CA	FE	MG
CCB		1	23:33	AL	CA	FE	MG
PQL		1	23:38	AL	CA	FE	MG
ICSA		1	23:42	AL	CA	FE	MG
ICSAB		1	23:48	AL	CA	FE	MG
CCV		1	23:53	AL	CA	FE	MG
CCB		1	23:58	AL	CA	FE	MG

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SC6669-2
Report Date: 12-NOV-09
Client PO:
Project: NSA Mid-South
SDG: NSA-069

Sample Description	Matrix	Date Sampled	Date Received
039G10LF25	AQ	28-OCT-09	29-OCT-09

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	J0.017 mg/L	.05	EPA 353.2	WG70713	30-OCT-09 09:03:12	N/A	N/A	CP	
Total Organic Carbon	U1.0 mg/L	1	EPA 415.1	WG71279	09-NOV-09 18:52:24	N/A	N/A	NC	

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Cert No E87604

Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SC6669-3
Report Date: 12-NOV-09
Client PO:
Project: NSA Mid-South
SDG: NSA-069

Sample Description	Matrix	Date Sampled	Date Received
039G02LF18	AQ	28-OCT-09	29-OCT-09

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG70713	30-OCT-09 09:06:29	N/A	N/A	CP	
Total Organic Carbon	1.6 mg/L	1	EPA 415.1	WG71279	09-NOV-09 19:04:14	N/A	N/A	NC	

600 Technology Way
P.O. Box 540, Scarborough, ME 04070
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http://katahdinlab.com
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Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SC6669-4
Report Date: 12-NOV-09
Client PO:
Project: NSA Mid-South
SDG: NSA-069

Sample Description	Matrix	Date Sampled	Date Received
039G12LF26	AQ	28-OCT-09	29-OCT-09

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	0.15 mg/L	.05	EPA 353.2	WG70713	30-OCT-09 09:07:35	N/A	N/A	CP	
Total Organic Carbon	U1.0 mg/L	1	EPA 415.1	WG71279	09-NOV-09 19:15:55	N/A	N/A	NC	

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Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SC6669-5
Report Date: 12-NOV-09
Client PO:
Project: NSA Mid-South
SDG: NSA-069

Sample Description	Matrix	Date Sampled	Date Received
039G11LF14	AQ	28-OCT-09	29-OCT-09

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG70713	30-OCT-09 09:08:41	N/A	N/A	CP	
Total Organic Carbon	U1.0 mg/L	1	EPA 415.1	WG71279	09-NOV-09 19:27:24	N/A	N/A	NC	

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Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SC6669-6
Report Date: 12-NOV-09
Client PO:
Project: NSA Mid-South
SDG: NSA-069

Sample Description	Matrix	Date Sampled	Date Received
039G03LF18	AQ	28-OCT-09	29-OCT-09

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG70713	30-OCT-09 09:09:47	N/A	N/A	CP	
Total Organic Carbon	1.2 mg/L	1	EPA 415.1	WG71279	09-NOV-09 19:39:08	N/A	N/A	NC	

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Report of Analytical Results

Client: Ronnie Moody
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SC6734-4
Report Date: 12-NOV-09
Client PO:
Project: NSA Mid-South
SDG: NSA-069

Sample Description	Matrix	Date Sampled	Date Received
039G04LF25	AQ	29-OCT-09	30-OCT-09

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG70713	30-OCT-09 13:59:05	N/A	N/A	CP	
Total Organic Carbon	1.2 mg/L	1	EPA 415.1	WG71279	09-NOV-09 19:51:06	N/A	N/A	NC	

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Report of Analytical Results

Client: Ronnie Moody
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SC6734-6
Report Date: 12-NOV-09
Client PO:
Project: NSA Mid-South
SDG: NSA-069

Sample Description	Matrix	Date Sampled	Date Received
039G22LF18	AQ	29-OCT-09	30-OCT-09

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG70713	30-OCT-09 14:00:11	N/A	N/A	CP	
Total Organic Carbon	1.7 mg/L	1	EPA 415.1	WG71279	09-NOV-09 20:29:53	N/A	N/A	NC	

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Quality Control Report

Blank Sample Summary Report

Nitrate As N

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG70713	EPA 353.2	30-OCT-09	N/A	U 0.050 mg/L	.05 mg/L

Nitrate+Nitrite As N

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG70713	EPA 353.2	30-OCT-09	N/A	U 0.050 mg/L	.05 mg/L

Nitrite As N

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG70713	EPA 353.2	30-OCT-09	N/A	U 0.050 mg/L	.05 mg/L

Total Organic Carbon

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG71279	EPA 415.1	09-NOV-09	N/A	U 1.0 mg/L	1 mg/L

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Laboratory Control Sample Summary Report

Nitrate As N

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG70713-2	LCS	WG70713	30-OCT-09	N/A	mg/L	1	1.0	102	80-120	

Nitrate+Nitrite As N

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG70713-2	LCS	WG70713	30-OCT-09	N/A	mg/L	1	1.0	102	80-120	

Nitrite As N

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG70713-6	LCS	WG70713	30-OCT-09	N/A	mg/L	1	1.0	103	80-120	

Total Organic Carbon

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG71279-2	LCS	WG71279	09-NOV-09	N/A	mg/L	50	51.	102	80-120	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Duplicate Sample Summary Report

Nitrate As N

Duplicate Sample ID	Original Sample ID	QC Batch	Analysis Date	Result Units	Sample Result	Duplicate Result	RPD(%)	RPD Limit
WG70713-3	SC6669-2	WG70713	30-OCT-09	mg/L	J 0.017	U 0.050	NC	20

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Matrix Spike Sample Summary Report

Nitrate As N

Matrix Spike Sample ID	Sample Type	Original Sample ID	QC Batch	Analysis Date	Result Units	Spike Amount	Sample Result	MS Result	Recovery (%)	Recovery Limit
WG70713-4	MS	SC6669-2	WG70713	30-OCT-09	mg/L	.5	J 0.017	0.54	104	75 - 125

microseeps
from insight comes solutions

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 1 of 24
Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Laboratory Results

Total pages in data package: 249

Lab Sample #	Client Sample ID
P0911065-01	014G02LS28
P0911065-02	014-G14LS18
P0911065-03	039G10LF25
P0911065-04	039G02LF18
P0911065-05	039G12LF26
P0911065-06	039G11LF14
P0911065-07	039G03LF18
P0911065-08	039G22LF18
P0911065-09	039G04LF25
P0911065-10	002G28DA17
P0911065-11	002G25DA17
P0911065-12	002G24DA17
P0911065-13	002G02DA17
P0911065-14	002G03DA17

Microseeps test results meet all the requirements of the NELAC standards or provide reasons and/or justification if they do not.

Approved By: Debbie Hallo **Date:** 11-24-09

Project Manager: Debbie Hallo

The analytical results reported here are reliable and usable to the precision expressed in this report. As required by some regulating authorities, a full discussion of the uncertainty in our analytical results can be obtained at our web site or through customer service. Unless otherwise specified, all results are reported on a wet weight basis.

As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.

Case Narrative:

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
014G02LS28	Vapor	P0911065-01	27 Oct. 09 13:25	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	11/9/09	sl
N Ethene		0.054	0.010	ug/L	AM20GAX	11/9/09	sl
N Hydrogen		1.100	0.600	nM	AM20GAX	11/9/09	sl
N Methane		200.000	0.015	ug/L	AM20GAX	11/9/09	sl
SemiVolatiles							
N Acetic Acid	J	0.037	0.070	mg/L	AM23G	11/9/09	kb
N Butyric Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Lactic Acid and HIBA	J	0.087	0.100	mg/L	AM23G	11/9/09	kb
N Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Propionic Acid		0.140	0.070	mg/L	AM23G	11/9/09	kb
N Pyruvic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
014-G14LS18	Vapor	P0911065-02	27 Oct. 09 13:45	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	J	0.005	0.010	ug/L	AM20GAX	11/9/09	sl
N Ethene		0.037	0.010	ug/L	AM20GAX	11/9/09	sl
N Hydrogen		1.600	0.600	nM	AM20GAX	11/9/09	sl
N Methane		85.000	0.015	ug/L	AM20GAX	11/9/09	sl
SemiVolatiles							
N Acetic Acid	J	0.061	0.070	mg/L	AM23G	11/9/09	kb
N Butyric Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Lactic Acid and HIBA	J	0.099	0.100	mg/L	AM23G	11/9/09	kb
N Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Propionic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Pyruvic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G10LF25	Vapor	P0911065-03	28 Oct. 09 11:15	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	J	0.002	0.010	ug/L	AM20GAX	11/9/09	sl
N Ethene	J	0.008	0.010	ug/L	AM20GAX	11/9/09	sl
N Hydrogen		3.500	0.600	nM	AM20GAX	11/9/09	sl
N Methane		21.000	0.015	ug/L	AM20GAX	11/9/09	sl
SemiVolatiles							
N Acetic Acid	J	0.043	0.070	mg/L	AM23G	11/9/09	kb
N Butyric Acid		0.130	0.070	mg/L	AM23G	11/9/09	kb
N Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Lactic Acid and HIBA	J	0.078	0.100	mg/L	AM23G	11/9/09	kb
N Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Propionic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Pyruvic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G02LF18	Vapor	P0911065-04	28 Oct. 09 11:20	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	11/9/09	sl
N Ethene		0.027	0.010	ug/L	AM20GAX	11/9/09	sl
N Hydrogen		2.300	0.600	nM	AM20GAX	11/9/09	sl
N Methane		1400.000	0.015	ug/L	AM20GAX	11/9/09	sl
SemiVolatiles							
N Acetic Acid	J	0.033	0.070	mg/L	AM23G	11/9/09	kb
N Butyric Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Lactic Acid and HIBA	J	0.062	0.100	mg/L	AM23G	11/9/09	kb
N Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Propionic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Pyruvic Acid		0.260	0.070	mg/L	AM23G	11/9/09	kb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G12LF26	Vapor	P0911065-05	28 Oct. 09 13:15	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	J	0.003	0.010	ug/L	AM20GAX	11/10/09	sl
N Ethene	J	0.004	0.010	ug/L	AM20GAX	11/10/09	sl
N Hydrogen		2.500	0.600	nM	AM20GAX	11/10/09	sl
N Methane		46.000	0.015	ug/L	AM20GAX	11/10/09	sl
SemiVolatiles							
N Acetic Acid	J	0.030	0.070	mg/L	AM23G	11/9/09	kb
N Butyric Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Hexanoic Acid		0.960	0.100	mg/L	AM23G	11/9/09	kb
N i-Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Lactic Acid and HIBA	J	0.074	0.100	mg/L	AM23G	11/9/09	kb
N Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Propionic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Pyruvic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G11LF14	Vapor	P0911065-06	28 Oct. 09 14:05	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	11/10/09	sl
N Ethene	J	0.005	0.010	ug/L	AM20GAX	11/10/09	sl
N Hydrogen		3.000	0.600	nM	AM20GAX	11/10/09	sl
N Methane		3.000	0.015	ug/L	AM20GAX	11/10/09	sl
SemiVolatiles							
N Acetic Acid	J	0.027	0.070	mg/L	AM23G	11/9/09	kb
N Butyric Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Lactic Acid and HIBA		0.110	0.100	mg/L	AM23G	11/9/09	kb
N Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Propionic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Pyruvic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G03LF18	Vapor	P0911065-07	28 Oct. 09 15:10	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	11/10/09	sl
N Ethene		0.014	0.010	ug/L	AM20GAX	11/10/09	sl
N Hydrogen		1.600	0.600	nM	AM20GAX	11/10/09	sl
N Methane		3100.000	0.015	ug/L	AM20GAX	11/10/09	sl
SemiVolatiles							
N Acetic Acid	J	0.038	0.070	mg/L	AM23G	11/9/09	kb
N Butyric Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Lactic Acid and HIBA	J	0.078	0.100	mg/L	AM23G	11/9/09	kb
N Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Propionic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Pyruvic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G22LF18	Vapor	P0911065-08	29 Oct. 09 10:40	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	11/10/09	sl
N Ethene		0.048	0.010	ug/L	AM20GAX	11/10/09	sl
N Hydrogen		1.300	0.600	nM	AM20GAX	11/10/09	sl
N Methane		3800.000	0.015	ug/L	AM20GAX	11/10/09	sl
SemiVolatiles							
N Acetic Acid	J	0.052	0.070	mg/L	AM23G	11/9/09	kb
N Butyric Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Hexanoic Acid	U	< 0.100	0.100	mg/L	AM23G	11/9/09	kb
N i-Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Lactic Acid and HIBA	J	0.077	0.100	mg/L	AM23G	11/9/09	kb
N Pentanoic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Propionic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb
N Pyruvic Acid	U	< 0.070	0.070	mg/L	AM23G	11/9/09	kb

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G04LF25	Vapor	P0911065-09	29 Oct. 09 10:40	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	11/10/09	sl
N Ethene	U	< 0.010	0.010	ug/L	AM20GAX	11/10/09	sl
N Hydrogen		1.500	0.600	nM	AM20GAX	11/10/09	sl
N Methane		6300.000	0.015	ug/L	AM20GAX	11/10/09	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	11/18/09	td
N Butyric Acid	U	< 1.0	1.0	mg/L	AM21G	11/18/09	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	11/18/09	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	11/18/09	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	11/18/09	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
002G28DA17	Vapor	P0911065-10	02 Nov. 09 12:10	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane		0.085	0.010	ug/L	AM20GAX	11/13/09	sl
N Ethene		0.670	0.010	ug/L	AM20GAX	11/13/09	sl
N Hydrogen		7.300	0.600	nM	AM20GAX	11/13/09	sl
N Methane		820.000	0.015	ug/L	AM20GAX	11/13/09	sl

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
002G25DA17	Vapor	P0911065-11	02 Nov. 09 13:03	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane		0.011	0.010	ug/L	AM20GAX	11/13/09	sl
N Ethene		0.020	0.010	ug/L	AM20GAX	11/13/09	sl
N Hydrogen		5.000	0.600	nM	AM20GAX	11/13/09	sl
N Methane		310.000	0.015	ug/L	AM20GAX	11/13/09	sl

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
002G24DA17	Vapor	P0911065-12	02 Nov. 09 14:10	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane		0.140	0.010	ug/L	AM20GAX	11/13/09	sl
N Ethene		1.000	0.010	ug/L	AM20GAX	11/13/09	sl
N Hydrogen		6.900	0.600	nM	AM20GAX	11/13/09	sl
N Methane		960.000	0.015	ug/L	AM20GAX	11/13/09	sl

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
002G03DA17	Vapor	P0911065-14	03 Nov. 09 10:15	04 Nov. 09 12:26

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane		0.290	0.010	ug/L	AM20GAX	11/13/09	sl
N Ethene		2.100	0.010	ug/L	AM20GAX	11/13/09	sl
N Hydrogen		4.400	0.600	nM	AM20GAX	11/13/09	sl
N Methane		780.000	0.015	ug/L	AM20GAX	11/13/09	sl

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Volatile Fatty Acids by Ion Chromatography
Analysis Method: Volatile Fatty Acids by Ion Chromatography

M091106018-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Acetic Acid	< 0.070	mg/L		0.070		- NA
Propionic Acid	< 0.070	mg/L		0.070		- NA
Butyric Acid	< 0.070	mg/L		0.070		- NA
Lactic Acid and HIBA	0.061	mg/L		0.100		- NA
Pyruvic Acid	< 0.070	mg/L		0.070		- NA
i-Pentanoic Acid	< 0.070	mg/L		0.070		- NA
Pentanoic Acid	< 0.070	mg/L		0.070		- NA
i-Hexanoic Acid	< 0.100	mg/L		0.100		- NA
Hexanoic Acid	< 0.100	mg/L		0.100		- NA

M091106018-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Acetic Acid	2.000	mg/L	2.00	100.00	70 - 130
Propionic Acid	2.000	mg/L	2.00	100.00	70 - 130
Butyric Acid	2.000	mg/L	2.00	100.00	70 - 130
Lactic Acid and HIBA	2.100	mg/L	2.00	105.00	70 - 130
Pyruvic Acid	2.000	mg/L	2.00	100.00	70 - 130
i-Pentanoic Acid	1.800	mg/L	2.00	90.00	70 - 130
Pentanoic Acid	1.900	mg/L	2.00	95.00	70 - 130
i-Hexanoic Acid	1.800	mg/L	2.00	90.00	70 - 130
Hexanoic Acid	1.800	mg/L	2.00	90.00	70 - 130

P0910127-01A-MS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Acetic Acid	2.000	mg/L	2.00	97.00	70 - 130
Propionic Acid	1.900	mg/L	2.00	95.00	70 - 130
Butyric Acid	1.900	mg/L	2.00	95.00	70 - 130
Lactic Acid and HIBA	2.000	mg/L	2.00	91.00	70 - 130
Pyruvic Acid	1.900	mg/L	2.00	95.00	70 - 130
-Pentanoic Acid	1.700	mg/L	2.00	85.00	70 - 130
Pentanoic Acid	1.900	mg/L	2.00	95.00	70 - 130
-Hexanoic Acid	1.800	mg/L	2.00	90.00	70 - 130
ic Acid	1.700	mg/L	2.00	85.00	70 - 130

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

P0910127-01A-MSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Acetic Acid	2.000	mg/L	2.00	97.00	70 - 130	0.00	0 - 30
Propionic Acid	2.000	mg/L	2.00	100.00	70 - 130	5.13	0 - 30
Butyric Acid	2.000	mg/L	2.00	100.00	70 - 130	5.13	0 - 30
Lactic Acid and HIBA	2.000	mg/L	2.00	91.00	70 - 130	0.00	0 - 30
Pyruvic Acid	2.000	mg/L	2.00	100.00	70 - 130	5.13	0 - 30
i-Pentanoic Acid	1.900	mg/L	2.00	95.00	70 - 130	11.11	0 - 30
Pentanoic Acid	1.900	mg/L	2.00	95.00	70 - 130	0.00	0 - 30
i-Hexanoic Acid	1.800	mg/L	2.00	90.00	70 - 130	0.00	0 - 30
Hexanoic Acid	1.700	mg/L	2.00	85.00	70 - 130	0.00	0 - 30

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Hydrogen by Bubble Strip

Analysis Method: Hydrogen by Bubble Strip

M091110010-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Hydrogen	< 0.600	nM		0.600		- NA

M091110010-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Hydrogen	11.000	nM	9.78	112.00	75 - 125

M091110010-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Hydrogen	11.000	nM	9.78	112.00	75 - 125	0.00	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 19 of 24
Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Light Hydrocarbons (C1-C4) by Bubblestrip

Analysis Method: Light Hydrocarbons (C1-C4) by Bubblestrip

M091110011-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Ethane	< 0.010	ug/L		0.010		- NA
Ethene	< 0.010	ug/L		0.010		- NA
Methane	< 0.015	ug/L		0.015		- NA

M091110011-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Ethane	2.800	ug/L	2.72	103.00	75 - 125
Ethene	6.700	ug/L	6.51	103.00	75 - 125
Methane	3.100	ug/L	3.09	100.00	75 - 125

M091110011-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Ethane	2.800	ug/L	2.72	103.00	75 - 125	0.00	0 - 20
Ethene	6.700	ug/L	6.51	103.00	75 - 125	0.00	0 - 20
Methane	3.100	ug/L	3.09	100.00	75 - 125	0.00	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Hydrogen by Bubble Strip

Analysis Method: Hydrogen by Bubble Strip

M091110026-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Hydrogen	< 0.600	nM		0.600		- NA

M091110026-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Hydrogen	12.000	nM	9.78	123.00	75 - 125

M091110026-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Hydrogen	12.000	nM	9.78	123.00	75 - 125	0.00	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 21 of 24
Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Light Hydrocarbons (C1-C4) by Bubblestrip

Analysis Method: Light Hydrocarbons (C1-C4) by Bubblestrip

M091110027-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Ethane	< 0.010	ug/L		0.010		- NA
Ethene	< 0.010	ug/L		0.010		- NA
Methane	< 0.015	ug/L		0.015		- NA

M091110027-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Ethane	2.800	ug/L	2.72	103.00	75 - 125
Ethene	6.600	ug/L	6.51	101.00	75 - 125
Methane	3.000	ug/L	3.09	97.00	75 - 125

M091110027-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Ethane	2.800	ug/L	2.72	103.00	75 - 125	0.00	0 - 20
Ethene	6.700	ug/L	6.51	103.00	75 - 125	1.50	0 - 20
Methane	3.100	ug/L	3.09	100.00	75 - 125	3.28	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 22 of 24
Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Hydrogen by Bubble Strip

Analysis Method: Hydrogen by Bubble Strip

M091113006-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Hydrogen	< 0.600	nM		0.600		- NA

M091113006-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Hydrogen	11.000	nM	9.78	112.00	75 - 125

M091113006-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Hydrogen	11.000	nM	9.78	112.00	75 - 125	0.00	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Light Hydrocarbons (C1-C4) by Bubblestrip

Analysis Method: Light Hydrocarbons (C1-C4) by Bubblestrip

M091113007-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Ethane	< 0.010	ug/L		0.010		- NA
Ethene	< 0.010	ug/L		0.010		- NA
Methane	< 0.015	ug/L		0.015		- NA

M091113007-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Ethane	2.800	ug/L	2.72	103.00	75 - 125
Ethene	6.600	ug/L	6.51	101.00	75 - 125
Methane	3.000	ug/L	3.09	97.00	75 - 125

M091113007-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Ethane	2.800	ug/L	2.72	103.00	75 - 125	0.00	0 - 20
Ethene	6.600	ug/L	6.51	101.00	75 - 125	0.00	0 - 20
Methane	3.100	ug/L	3.09	100.00	75 - 125	3.28	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

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Lab Proj #: P0911065
Report Date: 11/19/09
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Analysis of Volatile Fatty Acids in Water

Analysis Method: Analysis of Volatile Fatty Acids in Water

M091119033-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Acetic Acid	< 1.0	mg/L		1.0		- NA
Propionic Acid	< 1.0	mg/L		1.0		- NA
Butyric Acid	< 1.0	mg/L		1.0		- NA
Lactic Acid	< 25.0	mg/L		25.0		- NA
Pyruvic Acid	< 10.0	mg/L		10.0		- NA

M091119033-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Acetic Acid	120.0	mg/L	100.00	120.00	70 - 130
Propionic Acid	110.0	mg/L	100.00	110.00	70 - 130
Butyric Acid	110.0	mg/L	100.00	110.00	70 - 130
Lactic Acid	110.0	mg/L	100.00	110.00	70 - 130
Pyruvic Acid	89.0	mg/L	100.00	89.00	70 - 130

M091119033-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Acetic Acid	100.0	mg/L	100.00	100.00	70 - 130	18.18	0 - 20
Propionic Acid	96.0	mg/L	100.00	96.00	70 - 130	13.59	0 - 20
Butyric Acid	92.0	mg/L	100.00	92.00	70 - 130	17.82	0 - 20
Lactic Acid	94.0	mg/L	100.00	94.00	70 - 130	15.69	0 - 20
Pyruvic Acid	85.0	mg/L	100.00	85.00	70 - 130	4.60	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Chain of Custody Documents

Microseeps Lab. Proj. # NSA Mid South

CHAIN - OF CUSTODY RECORD

1 of 2

Microseeps COC cont. #

Phone: (412) 826-5245 Microseeps, Inc. - 220 William Pitt Way - Pittsburgh, PA 15238 Fax No.: (412) 826-3433

Company : Spectra Tech, Inc.

Co. Address : 132 Jefferson Ct., Oak Ridge, TN 37830

Phone # : 865/483-7210 Fax # : 865/483-7262

Proj. Manager : Paul Gentry

Proj. Name/Number : NSA Mid-South

Sampler's signature : Ronnie Moody

Cooler Temp.

Results to :

Invoice to :

Sample ID	Sample Description	Sample Type Water	Vapor	Solid	Date	Time	# bottles	Diss. Hydrogen	MEE water back	Volatile Hydrocarbons	Remarks :
Ø14GØ2LS28	GW	✓			10/27/09	1325	4	1	1	2	
Ø14G14LS18	GW	✓			10/27/09	1345	4	1	1	2	
Ø39G1ØLF25	GW	✓			10/28/09	1115	4	1	1	2	
Ø39GØ2LF18	GW	✓			10/28/09	1120	4	1	1	2	
Ø39G12LF26	GW	✓			10/28/09	1315	4	1	1	2	
Ø39G11LF14	GW	✓			10/28/09	1405	4	1	1	2	
Ø39GØ3LF18	GW	✓			10/28/09	1510	4	1	1	2	
Ø39G22LF18	GW	✓			10/29/09	1040	4	1	1	2	
Ø39GØ4LF25	GW	✓			10/29/09	1040	4	1	1	2	
ØØ2G28DA17	GW	✓			11/02/09	1210	2	1	1		
ØØ2G25DA17	GW	✓			11/02/09	1303	2	1	1		
ØØ2G24DA17	GW	✓			11/02/09	1410	2	1	1		

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Ronnie Moody	Spectratech	~~10/31/09~~	~~1520~~	Rem			
Relinquished by :	Company :	Date : 11/03/09	Time : 1800	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Accompany Samples YELLOW COPY : Laboratory File PINK COPY : Submitter

Microseeps Lab. Proj. #

CHAIN - OF CUSTODY RECORD

2 of 2

Microseeps COC cont. #

Phone: (412) 826-5245 Microseeps, Inc. - 220 William Pitt Way - Pittsburgh, PA 15238 Fax No.: (412) 826-3433

Company : Spectra Tech, Inc.

Co. Address :

Phone # : Fax # :

Proj. Manager :

Proj. Name/Number :

Sampler's signature :

Cooler Temp.

Results to :

Invoice to :

Sample ID	Sample Description	Sample Type Water	Vapor	Solid	Date	Time	# Bottles	Diss. Hydrogen	MEE water backup	Remarks :
ØØ2GØ2DA17	GW	✓			11/02/09	1445	2	1	1	
ØØ2GØ3DA17	GW	✓			11/03/09	1015	2	1	1	

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Accompany Samples YELLOW COPY : Laboratory File PINK COPY : Submitter

SPECTRA TECH, INC.
NSA MID-SOUTH
SDG: NSA-078
SD0798, SD0834

KATAHDIN ANALYTICAL SERVICES, INC.
600 TECHNOLOGY WAY
SCARBOROUGH, ME 04074

Katahdin
ANALYTICAL SERVICES

Cert. No. E87604

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SAMPLE DATA PACKAGE

SDG NARRATIVE
KATAHDIN ANALYTICAL SERVICES
SPECTRA TECH, INC.
CASE NSA MID-SOUTH
SDG: NSA-078
SD0798, SD0834

Sample Receipt

The following samples were received on February 17 and 18, 2010 and were logged in under Katahdin Analytical Services work order numbers SD0798 and SD0834 for a hardcopy due date of March 10, 2010.

KATAHDIN Sample No.	SPECTRA TECH Sample Identification
SD0798-1	039T021610
SD0798-2	039F021610
SD0798-3	039G10LF26
SD0798-4	039G02LF19
SD0834-1	039T021710
SD0834-2	039E021710
SD0834-3	039G03LF19
SD0834-4	039G11LF15
SD0834-5	039G22LF19
SD0834-6	039H22LF19
SD0834-7	039G04LF26
SD0834-8	039G12LF27

The samples were logged in for the analyses specified on the chain of custody form. All problems encountered and resolved during sample receipt have been documented on the applicable chain of custody forms.

We certify that the test results provided in this report meet all the requirements of the NELAC standards unless otherwise noted in this narrative or in the Report of Analysis.

Sample analyses have been performed by the methods as noted herein.

Should you have any questions or comments concerning this Report of Analysis, please do not hesitate to contact your Katahdin Analytical Services Project Manager, **Ms. Shelly Brown**. This narrative is an integral part of the Report of Analysis.

Organics Analysis

The samples of SDG NSA-078 were analyzed in accordance with "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods." SW-846, 2nd edition, 1982 (revised 1984), 3rd edition, 1986, and Updates I, II, IIA, and III 1996, 1998 & 2004, Office of Solid Waste and Emergency Response, U.S. EPA, for the specific methods listed below or on the Report of Analysis.

8260B Analysis

Sample SD0834-7 was used for the matrix spike (MS) and matrix spike duplicate (MSD), as per client request.

The reported percent recovery acceptance limits for the Laboratory Control Samples (LCSs) and surrogates are statistically derived for the full list of spiked compounds. The recoveries of the spiked analytes in the LCS, Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are compared to these acceptance limits. Katahdin standard operating procedure is to take corrective action only if the number of spiked analytes in the LCS that are outside of the QC limits is greater than the DoD QSM allowable number of exceedances. The LCS report consists of the full list of spiked analytes, but only the client's list of target analytes are evaluated. If the associated MS/MSD has greater than the allowable number of exceedances, no corrective action is taken, as long as the LCS is acceptable.

Samples SD0798-1, 2, 4, and SD0834-7 were manually integrated for the target analytes acetone, trans-1, 2-dichloroethene, and/or 1,2-dichloroethane. The specific reasons for the manual integrations are indicated on the raw data by the manual integration codes (M1-M11). These codes are further explained in the attachment following this narrative.

The independent check standard (file F8663a), associated with the initial calibration analyzed on the F instrument on 02/15/09, had low responses for four target analytes, which resulted in %D's that were greater than 20%. Since the independent check standard is also the LCS, which had recoveries that were within the laboratory established acceptance limits for all target compounds, the associated samples were not reanalyzed. The Independent Check Report consists of the full list of spiked analytes, but only the client's list of target analytes are evaluated.

There were no other protocol deviations or observations noted by the organics laboratory staff.

Metals Analysis

The samples of SDG NSA-078 were prepared and analyzed for metals in accordance with the "Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods." SW-846. 2nd edition, 1982 (revised 1984), 3rd edition, 1986, and Updates I, II, IIA, III, IIIA and IIIB 1996, 1998 & 2004, Office of Solid Waste and Emergency Response, U.S. EPA.

Inductively-Coupled Plasma (ICP) Atomic Emission Spectroscopic Analysis

Aqueous-matrix Katahdin Sample Numbers SD0798-(3 and 4) and SD0834-(3-5, 7, and 8) were digested for ICP analysis on 02/25/10 (QC Batch AB25ICW1) in accordance with USEPA Method 3010A.

ICP analyses of the SDG NSA-078 sample digestates were performed using a Thermo iCAP 6500 ICP spectrometer in accordance with USEPA Method 6010B. All samples were analyzed within holding times and all analytical run QC criteria were met.

Reporting of Metals Results

Analytical results for client samples and batch QC samples (preparation blanks and laboratory control samples) have been reported down to the laboratory's method detection limits (MDLs) throughout the accompanying data package. These MDLs have been adjusted for each sample based on the sample amounts used in preparation and analysis. Analytical results that are below the MDLs are flagged with "U" in the C-qualifier column.

Analytical results for instrument run QC samples (ICVs, ICBs, etc.) have been reported down to the laboratory's instrument detection limits (IDLs).

IDLs, MDLs, and PQLs are listed on Form 10 of the accompanying data package.

Wet Chemistry Analysis

The samples of SDG NSA-078 were analyzed in accordance with the specific methods listed on the Report of Analysis.

Analyses for nitrate and total organic carbon were performed according to "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79-020, 1979 Revised 1983, U.S. EPA.

All Wet Chemistry results were evaluated to Katahdin Analytical Services' Method Detection Limits (MDL). Measured concentrations that fall between the MDL and Katahdin's Practical Quantitation Limit (PQL) are flagged "J". Measured concentrations that are below the MDL are flagged "U" and reported as "U PQL", where "PQL" is the numerical value of the Practical Quantitation Limit.

All analyses were performed within analytical holding times, and all quality control criteria were met.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Operations Manager or the Quality Assurance Officer as verified by the following signature.

Leslie Dimond
03.08.10

Leslie Dimond
Quality Assurance Officer

Katahdin Analytical Services, Inc.

Manual Integration Codes For GC/MS, GC, HPLC and/or IC

M1	Peak splitting.
M2	Well defined peaks on the shoulders of the other peaks.
M3	There is additional area due to a coeluting interferant.
M4	There are negative spikes in the baseline.
M5	There are rising or falling baselines.
M6	The software has failed to detect a peak or misidentified a peak.
M7	Excessive peak tailing.
M8	Analysis such as GRO, DRO and TPH require a baseline hold.
M9	Peak was not completely integrated as in GC/MS.
M10	Primary ion was correctly integrated, but secondary or tertiary ion needed manual integration as in GC/MS.
M11	For GC analysis, when a sample is diluted by 1:10 or more, the surrogate is set to undetected and then the area under the surrogate is manually integrated.
M12	Manual integration saved in method due to TurboChrom floating point error.

Katahdin Analytical Services, Inc. **Sample Receipt Condition Report**

Client:	Spectra Tech	KAS PM:	SMB	Sampled By:	client
Project:		KIMS Entry By:	DD	Delivered By:	Fed Ex
KAS Work Order#:	5D0798 / 5D0804	KIMS Review By:		Received By:	DD
SDG #:	Cooler: 1 of 1			Date/Time Rec.:	2-17-10 0950

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?	✓				
2. Chain of Custody present in cooler?	✓				
3. Chain of Custody signed by client?	✓				
4. Chain of Custody matches samples?	✓				
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.	✓				Temp (°C): 4.8
Samples received at <6 °C w/o freezing?	✓				Note: Not required for metals analysis.
Ice packs or ice present?	✓				The lack of ice or ice packs (i.e. no attempt to begin cooling process) may not meet certain regulatory requirements and may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times 6hrs., but samples are not yet cool?				✓	Note: No cooling process required for metals analysis.
6. Volatiles free of headspace: **Aqueous:** No bubble larger than a pea	✓				
Soil/Sediment: Received in airtight container?				✓	
Received in methanol?				✓	
Methanol covering soil?				✓	
7. Trip Blank present in cooler?	✓				
8. Proper sample containers and volume?	✓				
9. Samples within hold time upon receipt?	✓				
10. Aqueous samples properly preserved? Metals, COD, NH3, TKN, O/G, phenol, TPO4, N+N, TOC, DRO, TPH – pH <2	✓				
Sulfide - >9				✓	
Cyanide – pH >12				✓	

* Log-In Notes to Exceptions: document any problems with samples or discrepancies or pH adjustments

Katahdin Analytical Services, Inc. **Sample Receipt Condition Report**

Client:	Spectra Tech	KAS PM:	SMB	Sampled By:	Client
Project:		KIMS Entry By:	DD	Delivered By:	Fed Ex
KAS Work Order#:	SD0834	KIMS Review By:		Received By:	DP
SDG #:	Cooler: 1 of 1			Date/Time Rec.:	2-18-10 0935

Receipt Criteria	Y	N	EX*	NA	Comments and/or Resolution
1. Custody seals present / intact?	✓				
2. Chain of Custody present in cooler?	✓				
3. Chain of Custody signed by client?	✓				
4. Chain of Custody matches samples?	✓				
5. Temperature Blanks present? If not, take temperature of any sample w/ IR gun.	✓				Temp (°C): 0.6
Samples received at <6 °C w/o freezing?	✓				Note: Not required for metals analysis.
Ice packs or ice present?	✓				The lack of ice or ice packs (i.e. no attempt to begin cooling process) may not meet certain regulatory requirements and may invalidate certain data.
If temp. out, has the cooling process begun (i.e. ice or packs present) and sample collection times 6hrs., but samples are not yet cool?				✓	Note: No cooling process required for metals analysis.
6. Volatiles free of headspace: **Aqueous:** No bubble larger than a pea	✓				
Soil/Sediment: Received in airtight container?				✓	
Received in methanol?				✓	
Methanol covering soil?				✓	
7. Trip Blank present in cooler?	✓				
8. Proper sample containers and volume?	✓				
9. Samples within hold time upon receipt?	✓				
10. Aqueous samples properly preserved? Metals, COD, NH3, TKN, O/G, phenol, TPO4, N+N, TOC, DRO, TPH – pH <2	✓				
Sulfide - >9				✓	
Cyanide – pH >12				✓	

* Log-In Notes to Exceptions: document any problems with samples or discrepancies or pH adjustments

Lab received sample #039G12LF27 for VOA, TOC, metals + Nitrate not on chain of custody. Lab added to log in.

Lab did not receive #039T021710 for VOA as indicated on COC.

Katahdin ANALYTICAL SERVICES
600 Technology Way
Scarborough, ME 04074
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Client: SPECTRA TECH, INC.
Contact: RONNIE MOODY
Phone #: (865) 483 7210
Fax #: (865) 483

Address: 132 JEFFERSON COURT
City: OAK RIDGE
State: TN
Zip Code: 37830

Purchase Order #:
Proj. Name / No.:
Katahdin Quote #:

Bill (if different than above): SAME
Address:

Sampler (Print / Sign):
Copies To:

LAB USE ONLY
WORK ORDER #: SD0798
KATAHDIN PROJECT NUMBER: +
REMARKS: SD0804

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT
AIRBILL NO:
TEMP°C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	VOC	TOC	NITRATE	IRON						
					Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N
	039T021610	2/16/10/0900	W	1	1									
	014G13LS19	2/16/10/1110	W	3	3									
	014G14LS19	2/16/10/1110	W	7	3	2	1	1						
	014G02LS29	2/16/10/1215	W	7	3	2	1	1						
	014G12LS19	2/16/10/1255	W	3	3									
	039F021610	2/16/10/1400	W	3	3									
	039G10LF26	2/16/10/1510	W	7	3	2	1	1						
	039G02LF19	2/16/10/1630	W	7	3	2	1	1						
		/												
		/												
		/												
		/												
		/												
		/												
		/												
		/												

OMMENTS

2-17-10 0950

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
	2/16/10 1800				
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Katahdin ANALYTICAL SERVICES
600 Technology Way
Scarborough, ME 04074
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Client: SPECTRA TECH INC
Contact: RONNIE MOODY
Phone #: (865) 483 7210
Fax #: (865) 483 7266
Address: 138 JEFFERSON COURT
City: OAK RIDGE
State: TN
Zip Code: 37830
Purchase Order #:
Proj. Name / No.: NSA MID-SOUTH
Katahdin Quote #:
Bill (if different than above): SAME
Address:
Sampler (Print / Sign): CLAYTON HAMILTON
Copies To:

LAB USE ONLY
WORK ORDER #:
KATAHDIN PROJECT NUMBER: SD0834

REMARKS:

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT
AIRBILL NO:
TEMP°C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	VOC (Filt. ☐Y ☒N)	TOC (Filt. ☐Y ☒N)	NITRATE (Filt. ☐Y ☒N)	TPH (Filt. ☐Y ☒N)	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N
	039T021710	2/17/10 / 0900	W	1	1				– not rec'd					
	039E021710	2/17/10 / 1030	W	3	3									
	039G03LF19	2/17/10 / 1045	W	7	3	2	1	1						
	39G11LF15	2/17/10 / 1125	W	7	3	2	1	1						
	039G22LF19	2/17/10 / 1238	W	7	3	2	1	1						
	039H22LF19	2/17/10 / 1238	W	3	3									
	039G04LF26	2/17/10 / 1532	W	7	3	2	1	1	MS/MSD					
	039G04LF26	2/17/10 / 1532	W	6	6									
	039G12LF27	2/17/10 / 1315	W	7	3	2	1	1						
		/												
		/												
		/												
		/												
		/												
		/												
		/												

OMMENTS

2-18-10 0935

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
	2/17/10 1800				
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Feb. 22, 2010
10:19 AM

Login Number: SD0798

Account: SPECTRA001 NoWeb
Spectra Tech, Inc.

Project: SPECTRANSA001

Primary Report Address:
Ronnie Moody
Spectra Tech, Inc.
132 Jefferson Court

Oak Ridge,TN 37830

Primary Invoice Address:
Accounts Payable
Spectra Tech, Inc.
132 Jefferson Court

Oak Ridge,TN 37830

Report CC Addresses:
Invoice CC Addresses:

Login Information

ANALYSIS INSTRUCTIONS	:	Rpt to MDL
CHECK NO.	:	
CLIENT PO#	:	
COOLER TEMPERATURE	:	4.8
DELIVERY SERVICES	:	Fed Ex
EDD FORMAT	:	KAS105QC-CSV
PM	:	SMB
PROJECT NAME	:	NSA Mid-South
QC LEVEL	:	IV
REGULATORY LIST	:	NFESC
REPORT INSTRUCTIONS	:	Email SDP & SDS as 1 file to Ron. Report to MDL. Send HC + CD w/PDF and EDD to Ron. Data summary needs all forms.
SDG ID	:	NSA-078
SDG STATUS	:	Begin

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SD0798-1	039T021610	16-FEB-10 09:00	17-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	SW8260-LIB-SEARCH			1	
Aqueous	S	SW8260-S	02-MAR-10	40mL Vial+HCl		

SD0798-2	039F021610	16-FEB-10 14:00	17-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	SW8260-LIB-SEARCH			3	
Aqueous	S	SW8260-S	02-MAR-10	40mL Vial+HCl		

SD0798-3	039G10LF26	16-FEB-10 15:10	17-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	E353.2-NITRATE	18-FEB-10	125mL Plastic	1	
Aqueous	S	E415.1-TOC	16-MAR-10	40 mL Vial+H2SO4	2	
Aqueous	S	SW3010-PREP	15-AUG-10		1	
Aqueous	S	SW6010-IRON	15-AUG-10	250mL Plastic+HNO3		
Aqueous	S	SW8260-LIB-SEARCH				
Aqueous	S	SW8260-S	02-MAR-10	40mL Vial+HCl	3	

SD0798-4	039G02LF19	16-FEB-10 16:30	17-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	E353.2-NITRATE	18-FEB-10	125mL Plastic	1	
Aqueous	S	E415.1-TOC	16-MAR-10	40 mL Vial+H2SO4	2	
Aqueous	S	SW3010-PREP	15-AUG-10		1	
Aqueous	S	SW6010-IRON	15-AUG-10	250mL Plastic+HNO3		
Aqueous	S	SW8260-LIB-SEARCH				
Aqueous	S	SW8260-S	02-MAR-10	40mL Vial+HCl	3	

Total Samples: 4 ***Total Analyses: 16***

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Feb. 18, 2010
03:34 PM

Login Number: SD0834

Account: SPECTRA001 NoWeb
Spectra Tech, Inc.

Project: SPECTRANSA001

Primary Report Address:
Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court

Oak Ridge,TN 37830
pgentry@spectratechinc.com

Primary Invoice Address:
Accounts Payable
Spectra Tech, Inc.
132 Jefferson Court

Oak Ridge,TN 37830

Report CC Addresses:
Invoice CC Addresses:

Login Information

ANALYSIS INSTRUCTIONS	:	Rpt to mdl
CHECK NO.	:	
CLIENT PO#	:	
COOLER TEMPERATURE	:	0.6
DELIVERY SERVICES	:	Fed Ex
EDD FORMAT	:	KAS105QC-CSV
PM	:	SMB
PROJECT NAME	:	NSA Mid-South
QC LEVEL	:	IV
REGULATORY LIST	:	NFESC
REPORT INSTRUCTIONS	:	Email SDP & SDS as 1 file to Ron. Report to MDL. Send HC + CD w/PDF and EDD to Ron. Data summary needs all forms.
SDG ID	:	NSA-078
SDG STATUS	:	End

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SD0834-1	039T021710	17-FEB-10 09:00	18-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
						no sample rec'd

SD0834-2	039E021710	17-FEB-10 10:30	18-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	SW8260-LIB-SEARCH			3	
Aqueous	S	SW8260-S	03-MAR-10	40mL Vial+HCl		

SD0834-3	039G03LF19	17-FEB-10 10:45	18-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	E353.2-NITRATE	19-FEB-10	125mL Plastic	1	
Aqueous	S	E415.1-TOC	17-MAR-10	40 mL Vial+H2SO4	2	
Aqueous	S	SW3010-PREP	16-AUG-10		1	
Aqueous	S	SW6010-IRON	16-AUG-10	250mL Plastic+HNO3		
Aqueous	S	SW8260-LIB-SEARCH				
Aqueous	S	SW8260-S	03-MAR-10	40mL Vial+HCl	3	

SD0834-4	039G11LF15	17-FEB-10 11:25	18-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	E353.2-NITRATE	19-FEB-10	125mL Plastic	1	
Aqueous	S	E415.1-TOC	17-MAR-10	40 mL Vial+H2SO4	2	
Aqueous	S	SW3010-PREP	16-AUG-10		1	
Aqueous	S	SW6010-IRON	16-AUG-10	250mL Plastic+HNO3		
Aqueous	S	SW8260-LIB-SEARCH				
Aqueous	S	SW8260-S	03-MAR-10	40mL Vial+HCl	3	

SD0834-5	039G22LF19	17-FEB-10 12:38	18-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
[illegible]	S	E353.2-NITRATE	19-FEB-10	125mL Plastic	1	
[illegible]	S	E415.1-TOC	17-MAR-10	40 mL Vial+H2SO4	2	
[illegible]	S	SW3010-PREP	16-AUG-10		1	
[illegible]	S	SW6010-IRON	16-AUG-10	250mL Plastic+HNO3		
Aqueous	S	SW8260-LIB-SEARCH				
Aqueous	S	SW8260-S	03-MAR-10	40mL Vial+HCl	3	

0000011

Katahdin
ANALYTICAL SERVICES

Katahdin Analytical Services

Login Chain of Custody Report (lno1)

Feb. 18, 2010
03:34 PM

Login Number: SD0834

Account: SPECTRA001 NoWeb
Spectra Tech, Inc.

Project: SPECTRANSA001

Laboratory Sample ID	Client Sample Number	Collect Date/Time	Receive Date	PR	Verbal Date	Due Date	Mailed
SD0834-6	039H22LF19	17-FEB-10 12:38	18-FEB-10			10-MAR-10	

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	SW8260-LIB-SEARCH			3	
Aqueous	S	SW8260-S	03-MAR-10	40mL Vial+HCl		

SD0834-7	039G04LF26	17-FEB-10 15:32	18-FEB-10	10-MAR-10

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	E353.2-NITRATE	19-FEB-10	125mL Plastic	1	MS/MSD for VOA only
Aqueous	S	E415.1-TOC	17-MAR-10	40 mL Vial+H2SO4	2	
Aqueous	S	MS/MSD-VOA				
Aqueous	S	SW3010-PREP	16-AUG-10		1	
Aqueous	S	SW6010-IRON	16-AUG-10	250mL Plastic+HNO3		
Aqueous	S	SW8260-LIB-SEARCH				
Aqueous	S	SW8260-S	03-MAR-10	40mL Vial+HCl	9	

SD0834-8	039G12LF27	17-FEB-10 13:15	18-FEB-10	10-MAR-10

Matrix		Product	Hold Date (shortest)	Bottle Type	Bottle Count	Comments
Aqueous	S	E353.2-NITRATE	19-FEB-10	125mL Plastic	1	
Aqueous	S	E415.1-TOC	17-MAR-10	40 mL Vial+H2SO4	2	
Aqueous	S	SW3010-PREP	16-AUG-10		1	
Aqueous	S	SW6010-IRON	16-AUG-10	250mL Plastic+HNO3		
Aqueous	S	SW8260-LIB-SEARCH				
Aqueous	S	SW8260-S	03-MAR-10	40mL Vial+HCl	3	

Total Samples: *7* ***Total Analyses:*** *35*

0000012

LA 000009

SAMPLE DATA SUMMARY PACKAGE

KATAHDIN ANALYTICAL SERVICES - ORGANIC DATA QUALIFIERS

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U Indicates the compound was analyzed for but not detected above the laboratory Practical Quantitation Limit.

* Compound recovery outside of quality control limits.

D Indicates the result was obtained from analysis of a diluted sample. Surrogate recoveries may not be calculable.

E Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.

J Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Limit (PQL), but above the Method Detection Limit (MDL).

or

J Used for Pesticide/Aroclor analyte when there is a greater than 40% difference for detected concentrations between the two GC columns.

B Indicates the analyte was detected in the laboratory method blank analyzed concurrently with the sample.

N Presumptive evidence of a compound based on a mass spectral library search.

A Indicates that a tentatively identified compound is a suspected aldol-condensation product.

P Used for Pesticide/Aroclor analyte when there is a greater than 25% difference for detected concentrations between the two GC columns. (for CLP methods only).

KATAHDIN ANALYTICAL SERVICES – INORGANIC DATA QUALIFIERS

(Refer to BOD Qualifiers Page for BOD footnotes)

The sampled date indicated on the attached Report(s) of Analysis (ROA) is the date for which a grab sample was collected or the date for which a composite sample was completed. Beginning and start times for composite samples can be found on the Chain-of-Custody.

U	Indicates the compound was analyzed for but not detected above the laboratory Practical Quantitation Limit.
E	Estimated value. This flag identifies compounds whose concentrations exceed the upper level of the calibration range of the instrument for that specific analysis.
J	Estimated value. The analyte was detected in the sample at a concentration less than the laboratory Practical Quantitation Limit (PQL), but above the Method Detection Limit (MDL).
I-7	The laboratory's Practical Quantitation Level could not be achieved for this parameter due to sample composition, matrix effects, sample volume, or quantity used for analysis.
A-4	Please refer to cover letter or narrative for further information.
MCL	Maximum Contaminant Level
NL	No limit
NFL	No Free Liquid Present
FLP	Free Liquid Present
NOD	No Odor Detected
TON	Threshold Odor Number
H1	Please note that the regulatory holding time for pH is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. pH for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.
H2	Please note that the regulatory holding time for DO is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. DO for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.
H3	Please note that the regulatory holding time for sulfite is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. Sulfite for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.
H4	Please note that the regulatory holding time for residual chlorine is "analyze immediately". Ideally, this analysis must be performed in the field at the time of sample collection. Residual chlorine for this sample was not performed at the time of sample collection. The analysis was performed as soon as possible after receipt by the laboratory.

METALS SAMPLE FLAGGING

FLAG	SPECIFIED MEANING
E	The reported value is estimated because of the presence of interference (as indicated by serial dilution).
N	Spiked sample recovery not within control limits.
*	Duplicate sample analysis not within control limits.
●	Analytical run QC sample (e.g. ICV, CCV, ICB, CCB, ICSA, ICSAB) not within control limits.
U	The analyte was not detected in the sample at a level greater than the instrument detection limit or greater than the method detection limit.
B	The analyte was detected in the sample at a concentration greater than the instrument detection limit or greater than the method detection limit, but less than the laboratory's Practical Quantitation Level (PQL).

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/16/10
Received Date: 02/17/10
Extraction Date:
Analysis Date: 22-FEB-2010 20:14
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0798-1
Client ID: 039T021610
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	J	3	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	U	1	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		92%				
17060-07-0	1,2-Dichloroethane-D4		94%				
2037-26-5	Toluene-D8		109%				
460-00-4	P-Bromofluorobenzene		118%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039T021610

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0798-1

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8792

Level: (low/med) LOW

Date Received: 02/17/10

% Moisture: not dec. _____

Date Analyzed: 02/22/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/16/10
Received Date: 02/17/10
Extraction Date:
Analysis Date: 22-FEB-2010 20:47
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0798-2
Client ID: 039F021610
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	J	4	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	U	1	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		93%				
17060-07-0	1,2-Dichloroethane-D4		95%				
2037-26-5	Toluene-D8		105%				
460-00-4	P-Bromofluorobenzene		115%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039F021610

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0798-2

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8793

Level: (low/med) LOW

Date Received: 02/17/10

% Moisture: not dec. _____

Date Analyzed: 02/22/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/16/10
Received Date: 02/17/10
Extraction Date:
Analysis Date: 22-FEB-2010 21:19
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0798-3
Client ID: 039G10LF26
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	U	1	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		98%				
17060-07-0	1,2-Dichloroethane-D4		97%				
2037-26-5	Toluene-D8		106%				
460-00-4	P-Bromofluorobenzene		114%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039G10LF26

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0798-3

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8794

Level: (low/med) LOW

Date Received: 02/17/10

% Moisture: not dec. _____

Date Analyzed: 02/22/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/16/10
Received Date: 02/17/10
Extraction Date:
Analysis Date: 22-FEB-2010 21:52
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0798-4
Client ID: 039G02LF19
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene		2	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	J	0.6	1.0	1	1	0.2
79-01-6	Trichloroethene		5	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		96%				
17060-07-0	1,2-Dichloroethane-D4		99%				
2037-26-5	Toluene-D8		105%				
460-00-4	P-Bromofluorobenzene		113%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039G02LF19

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0798-4

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8795

Level: (low/med) LOW

Date Received: 02/17/10

% Moisture: not dec. _____

Date Analyzed: 02/22/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 23-FEB-2010 00:34
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-2
Client ID: 039E021710
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	U	1	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		93%				
17060-07-0	1,2-Dichloroethane-D4		95%				
2037-26-5	Toluene-D8		104%				
460-00-4	P-Bromofluorobenzene		105%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039E021710

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0834-2

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8800

Level: (low/med) LOW

Date Received: 02/18/10

% Moisture: not dec. _____

Date Analyzed: 02/23/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 23-FEB-2010 01:06
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-3
Client ID: 039G03LF19
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	J	0.7	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	J	0.6	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene		40	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene		150	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene		1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		99%				
17060-07-0	1,2-Dichloroethane-D4		98%				
2037-26-5	Toluene-D8		103%				
460-00-4	P-Bromofluorobenzene		112%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039G03LF19

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0834-3

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8801

Level: (low/med) LOW

Date Received: 02/18/10

% Moisture: not dec. _____

Date Analyzed: 02/23/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 23-FEB-2010 01:38
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-4
Client ID: 039G11LF15
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	J	0.6	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		97%				
17060-07-0	1,2-Dichloroethane-D4		100%				
2037-26-5	Toluene-D8		101%				
460-00-4	P-Bromofluorobenzene		112%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039G11LF15

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0834-4

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8802

Level: (low/med) LOW

Date Received: 02/18/10

% Moisture: not dec. _____

Date Analyzed: 02/23/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 23-FEB-2010 12:57
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-5
Client ID: 039G22LF19
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74512
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	J	0.7	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	E	210	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		99%				
17060-07-0	1,2-Dichloroethane-D4		94%				
2037-26-5	Toluene-D8		102%				
460-00-4	P-Bromofluorobenzene		116%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039G22LF19

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0834-5

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8812

Level: (low/med) LOW

Date Received: 02/18/10

% Moisture: not dec. _____

Date Analyzed: 02/23/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 24-FEB-2010 15:11
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-5DL
Client ID: 039G22LF19
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74573
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	4	2.0	2	4	0.7
75-01-4	Vinyl chloride	U	4	2.0	2	4	0.5
74-83-9	Bromomethane	U	4	2.0	2	4	1.0
75-00-3	Chloroethane	U	4	2.0	2	4	1
75-35-4	1,1-Dichloroethene	U	2	2.0	1	2	0.7
75-15-0	Carbon Disulfide	U	2	2.0	1	2	0.5
75-09-2	Methylene Chloride	U	10	2.0	5	10	2
67-64-1	Acetone	U	10	2.0	5	10	4
156-60-5	trans-1,2-Dichloroethene	J	0.8	2.0	1	2	0.5
75-34-3	1,1-Dichloroethane	U	2	2.0	1	2	0.4
156-59-2	cis-1,2-Dichloroethene		200	2.0	1	2	0.4
67-66-3	Chloroform	U	2	2.0	1	2	0.6
56-23-5	Carbon Tetrachloride	U	2	2.0	1	2	0.4
71-55-6	1,1,1-Trichloroethane	U	2	2.0	1	2	0.4
78-93-3	2-Butanone	U	10	2.0	5	10	3
71-43-2	Benzene	U	2	2.0	1	2	0.5
107-06-2	1,2-Dichloroethane	U	2	2.0	1	2	0.4
79-01-6	Trichloroethene	U	2	2.0	1	2	0.6
78-87-5	1,2-Dichloropropane	U	2	2.0	1	2	0.5
75-27-4	Bromodichloromethane	U	2	2.0	1	2	0.7
10061-01-5	cis-1,3-dichloropropene	U	2	2.0	1	2	0.4
108-88-3	Toluene	U	2	2.0	1	2	0.5
108-10-1	4-methyl-2-pentanone	U	10	2.0	5	10	3
127-18-4	Tetrachloroethene	U	2	2.0	1	2	0.8
10061-02-6	trans-1,3-Dichloropropene	U	2	2.0	1	2	0.4
79-00-5	1,1,2-Trichloroethane	U	2	2.0	1	2	0.7
124-48-1	Dibromochloromethane	U	2	2.0	1	2	0.6
591-78-6	2-Hexanone	U	10	2.0	5	10	3
108-90-7	Chlorobenzene	U	2	2.0	1	2	0.4
100-41-4	Ethylbenzene	U	2	2.0	1	2	0.4
1330-20-7	Xylenes (total)	U	6	2.0	3	6	0.5
	m+p-Xylenes	U	4	2.0	2	4	1
95-47-6	o-Xylene	U	2	2.0	1	2	0.5
100-42-5	Styrene	U	2	2.0	1	2	0.5
75-25-2	Bromoform	U	2	2.0	1	2	0.5
79-34-5	1,1,2,2-Tetrachloroethane	U	2	2.0	1	2	0.8
1868-53-7	Dibromofluoromethane		94%				
17060-07-0	1,2-Dichloroethane-D4		94%				
2037-26-5	Toluene-D8		102%				
460-00-4	P-Bromofluorobenzene		120%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 23-FEB-2010 13:29
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-6
Client ID: 039H22LF19
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74512
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	J	0.8	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	E	220	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		101%				
17060-07-0	1,2-Dichloroethane-D4		96%				
2037-26-5	Toluene-D8		105%				
460-00-4	P-Bromofluorobenzene		112%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039H22LF19

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0834-6

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8813

Level: (low/med) LOW

Date Received: 02/18/10

% Moisture: not dec. _____

Date Analyzed: 02/23/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 24-FEB-2010 15:43
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-6DL
Client ID: 039H22LF19
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74573
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	4	2.0	2	4	0.7
75-01-4	Vinyl chloride	U	4	2.0	2	4	0.5
74-83-9	Bromomethane	U	4	2.0	2	4	1.0
75-00-3	Chloroethane	U	4	2.0	2	4	1
75-35-4	1,1-Dichloroethene	U	2	2.0	1	2	0.7
75-15-0	Carbon Disulfide	U	2	2.0	1	2	0.5
75-09-2	Methylene Chloride	U	10	2.0	5	10	2
67-64-1	Acetone	U	10	2.0	5	10	4
156-60-5	trans-1,2-Dichloroethene	J	0.7	2.0	1	2	0.5
75-34-3	1,1-Dichloroethane	U	2	2.0	1	2	0.4
156-59-2	cis-1,2-Dichloroethene		200	2.0	1	2	0.4
67-66-3	Chloroform	U	2	2.0	1	2	0.6
56-23-5	Carbon Tetrachloride	U	2	2.0	1	2	0.4
71-55-6	1,1,1-Trichloroethane	U	2	2.0	1	2	0.4
78-93-3	2-Butanone	U	10	2.0	5	10	3
71-43-2	Benzene	U	2	2.0	1	2	0.5
107-06-2	1,2-Dichloroethane	U	2	2.0	1	2	0.4
79-01-6	Trichloroethene	U	2	2.0	1	2	0.6
78-87-5	1,2-Dichloropropane	U	2	2.0	1	2	0.5
75-27-4	Bromodichloromethane	U	2	2.0	1	2	0.7
10061-01-5	cis-1,3-dichloropropene	U	2	2.0	1	2	0.4
108-88-3	Toluene	U	2	2.0	1	2	0.5
108-10-1	4-methyl-2-pentanone	U	10	2.0	5	10	3
127-18-4	Tetrachloroethene	U	2	2.0	1	2	0.8
10061-02-6	trans-1,3-Dichloropropene	U	2	2.0	1	2	0.4
79-00-5	1,1,2-Trichloroethane	U	2	2.0	1	2	0.7
124-48-1	Dibromochloromethane	U	2	2.0	1	2	0.6
591-78-6	2-Hexanone	U	10	2.0	5	10	3
108-90-7	Chlorobenzene	U	2	2.0	1	2	0.4
100-41-4	Ethylbenzene	U	2	2.0	1	2	0.4
1330-20-7	Xylenes (total)	U	6	2.0	3	6	0.5
	m+p-Xylenes	U	4	2.0	2	4	1
95-47-6	o-Xylene	U	2	2.0	1	2	0.5
100-42-5	Styrene	U	2	2.0	1	2	0.5
75-25-2	Bromoform	U	2	2.0	1	2	0.5
79-34-5	1,1,2,2-Tetrachloroethane	U	2	2.0	1	2	0.8
1868-53-7	Dibromofluoromethane		95%				
17060-07-0	1,2-Dichloroethane-D4		95%				
2037-26-5	Toluene-D8		108%				
460-00-4	P-Bromofluorobenzene		116%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 23-FEB-2010 14:01
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-7
Client ID: 039G04LF26
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74512
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene		1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	E	250	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene		39	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		102%				
17060-07-0	1,2-Dichloroethane-D4		97%				
2037-26-5	Toluene-D8		106%				
460-00-4	P-Bromofluorobenzene		114%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039G04LF26

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0834-7

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8814

Level: (low/med) LOW

Date Received: 02/18/10

% Moisture: not dec. _____

Date Analyzed: 02/23/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 24-FEB-2010 16:15
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-7DL
Client ID: 039G04LF26
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74573
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	4	2.0	2	4	0.7
75-01-4	Vinyl chloride	U	4	2.0	2	4	0.5
74-83-9	Bromomethane	U	4	2.0	2	4	1.0
75-00-3	Chloroethane	U	4	2.0	2	4	1
75-35-4	1,1-Dichloroethene	U	2	2.0	1	2	0.7
75-15-0	Carbon Disulfide	U	2	2.0	1	2	0.5
75-09-2	Methylene Chloride	U	10	2.0	5	10	2
67-64-1	Acetone	U	10	2.0	5	10	4
156-60-5	trans-1,2-Dichloroethene	J	1.0	2.0	1	2	0.5
75-34-3	1,1-Dichloroethane	U	2	2.0	1	2	0.4
156-59-2	cis-1,2-Dichloroethene		240	2.0	1	2	0.4
67-66-3	Chloroform	U	2	2.0	1	2	0.6
56-23-5	Carbon Tetrachloride	U	2	2.0	1	2	0.4
71-55-6	1,1,1-Trichloroethane	U	2	2.0	1	2	0.4
78-93-3	2-Butanone	U	10	2.0	5	10	3
71-43-2	Benzene	U	2	2.0	1	2	0.5
107-06-2	1,2-Dichloroethane	U	2	2.0	1	2	0.4
79-01-6	Trichloroethene		34	2.0	1	2	0.6
78-87-5	1,2-Dichloropropane	U	2	2.0	1	2	0.5
75-27-4	Bromodichloromethane	U	2	2.0	1	2	0.7
10061-01-5	cis-1,3-dichloropropene	U	2	2.0	1	2	0.4
108-88-3	Toluene	U	2	2.0	1	2	0.5
108-10-1	4-methyl-2-pentanone	U	10	2.0	5	10	3
127-18-4	Tetrachloroethene	U	2	2.0	1	2	0.8
10061-02-6	trans-1,3-Dichloropropene	U	2	2.0	1	2	0.4
79-00-5	1,1,2-Trichloroethane	U	2	2.0	1	2	0.7
124-48-1	Dibromochloromethane	U	2	2.0	1	2	0.6
591-78-6	2-Hexanone	U	10	2.0	5	10	3
108-90-7	Chlorobenzene	U	2	2.0	1	2	0.4
100-41-4	Ethylbenzene	U	2	2.0	1	2	0.4
1330-20-7	Xylenes (total)	U	6	2.0	3	6	0.5
	m+p-Xylenes	U	4	2.0	2	4	1
95-47-6	o-Xylene	U	2	2.0	1	2	0.5
100-42-5	Styrene	U	2	2.0	1	2	0.5
75-25-2	Bromoform	U	2	2.0	1	2	0.5
79-34-5	1,1,2,2-Tetrachloroethane	U	2	2.0	1	2	0.8
1868-53-7	Dibromofluoromethane		96%				
17060-07-0	1,2-Dichloroethane-D4		91%				
2037-26-5	Toluene-D8		98%				
460-00-4	P-Bromofluorobenzene		108%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 24-FEB-2010 12:32
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: SD0834-8RA
Client ID: 039G12LF27
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74573
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	2	1.0	2	2	0.4
75-01-4	Vinyl chloride	U	2	1.0	2	2	0.2
74-83-9	Bromomethane	U	2	1.0	2	2	0.5
75-00-3	Chloroethane	U	2	1.0	2	2	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene		2	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene		8	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		96%				
17060-07-0	1,2-Dichloroethane-D4		91%				
2037-26-5	Toluene-D8		101%				
460-00-4	P-Bromofluorobenzene		115%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

039G12LF27

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: SD0834-8RA

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8829

Level: (low/med) LOW

Date Received: 02/18/10

% Moisture: not dec. _____

Date Analyzed: 02/24/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 22-FEB-2010 17:01
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: WG74492-2
Client ID: WG74492-Blank
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	1	1.0	1	1	0.4
75-01-4	Vinyl chloride	U	1	1.0	1	1	0.2
74-83-9	Bromomethane	U	1	1.0	1	1	0.5
75-00-3	Chloroethane	U	1	1.0	1	1	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	U	1	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		95%				
17060-07-0	1,2-Dichloroethane-D4		95%				
2037-26-5	Toluene-D8		109%				
460-00-4	P-Bromofluorobenzene		106%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

WG74492-Blank

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: WG74492-2

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8786

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 02/22/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 23-FEB-2010 11:22
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: WG74512-2
Client ID: WG74512-Blank
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74512
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	1	1.0	1	1	0.4
75-01-4	Vinyl chloride	U	1	1.0	1	1	0.2
74-83-9	Bromomethane	U	1	1.0	1	1	0.5
75-00-3	Chloroethane	U	1	1.0	1	1	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	U	1	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		100%				
17060-07-0	1,2-Dichloroethane-D4		96%				
2037-26-5	Toluene-D8		103%				
460-00-4	P-Bromofluorobenzene		112%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

WG74512-Blank

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: WG74512-2

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8809

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 02/23/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 24-FEB-2010 11:29
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: WG74573-2
Client ID: WG74573-Blank
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74573
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	1	1.0	1	1	0.4
75-01-4	Vinyl chloride	U	1	1.0	1	1	0.2
74-83-9	Bromomethane	U	1	1.0	1	1	0.5
75-00-3	Chloroethane	U	1	1.0	1	1	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	U	1	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		94%				
17060-07-0	1,2-Dichloroethane-D4		90%				
2037-26-5	Toluene-D8		105%				
460-00-4	P-Bromofluorobenzene		115%				

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE ID

WG74573-Blank

Lab Name: KATAHDIN ANALYTICAL SERVICES

Lab Code: KAS

Project: NSA MID-SOUTH

SDG No.: NSA-078

Matrix: (soil/water) WATER

Lab Sample ID: WG74573-2

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: F8827

Level: (low/med) LOW

Date Received: _____

% Moisture: not dec. _____

Date Analyzed: 02/24/10

GC Column: RTX-VMS ID: 0.18 (mm)

Dilution Factor: 1.0

Soil Extract Volume:_____(uL)

Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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FORM I VOA-TIC

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 26-FEB-2010 11:12
Report Date: 03/05/2010
Matrix: WATER
% Solids: NA

Lab ID: WG74632-2
Client ID: WG74632-Blank
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: TTC
Analysis Method: SW846 8260B
Lab Prep Batch: WG74632
Units: ug/l

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
74-87-3	Chloromethane	U	1	1.0	1	1	0.4
75-01-4	Vinyl chloride	U	1	1.0	1	1	0.2
74-83-9	Bromomethane	U	1	1.0	1	1	0.5
75-00-3	Chloroethane	U	1	1.0	1	1	0.6
75-35-4	1,1-Dichloroethene	U	1	1.0	1	1	0.4
75-15-0	Carbon Disulfide	U	1	1.0	1	1	0.2
75-09-2	Methylene Chloride	U	5	1.0	5	5	1
67-64-1	Acetone	U	5	1.0	5	5	2
156-60-5	trans-1,2-Dichloroethene	U	1	1.0	1	1	0.2
75-34-3	1,1-Dichloroethane	U	1	1.0	1	1	0.2
156-59-2	cis-1,2-Dichloroethene	U	1	1.0	1	1	0.2
67-66-3	Chloroform	U	1	1.0	1	1	0.3
56-23-5	Carbon Tetrachloride	U	1	1.0	1	1	0.2
71-55-6	1,1,1-Trichloroethane	U	1	1.0	1	1	0.2
78-93-3	2-Butanone	U	5	1.0	5	5	1
71-43-2	Benzene	U	1	1.0	1	1	0.3
107-06-2	1,2-Dichloroethane	U	1	1.0	1	1	0.2
79-01-6	Trichloroethene	U	1	1.0	1	1	0.3
78-87-5	1,2-Dichloropropane	U	1	1.0	1	1	0.2
75-27-4	Bromodichloromethane	U	1	1.0	1	1	0.3
10061-01-5	cis-1,3-dichloropropene	U	1	1.0	1	1	0.2
108-88-3	Toluene	U	1	1.0	1	1	0.3
108-10-1	4-methyl-2-pentanone	U	5	1.0	5	5	1
127-18-4	Tetrachloroethene	U	1	1.0	1	1	0.4
10061-02-6	trans-1,3-Dichloropropene	U	1	1.0	1	1	0.2
79-00-5	1,1,2-Trichloroethane	U	1	1.0	1	1	0.3
124-48-1	Dibromochloromethane	U	1	1.0	1	1	0.3
591-78-6	2-Hexanone	U	5	1.0	5	5	2
108-90-7	Chlorobenzene	U	1	1.0	1	1	0.2
100-41-4	Ethylbenzene	U	1	1.0	1	1	0.2
1330-20-7	Xylenes (total)	U	3	1.0	3	3	0.2
	m+p-Xylenes	U	2	1.0	2	2	0.6
95-47-6	o-Xylene	U	1	1.0	1	1	0.2
100-42-5	Styrene	U	1	1.0	1	1	0.2
75-25-2	Bromoform	U	1	1.0	1	1	0.2
79-34-5	1,1,2,2-Tetrachloroethane	U	1	1.0	1	1	0.4
1868-53-7	Dibromofluoromethane		110%				
17060-07-0	1,2-Dichloroethane-D4		113%				
2037-26-5	Toluene-D8		120%				
460-00-4	P-Bromofluorobenzene		121%				

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

	CLIENT SAMPLE ID	LAB SAMPLE ID	SMC1 DBF#	SMC2 DCA#	SMC3 TOL#	SMC4 BFB#	TOT OUT
01	WG74492-LCS	WG74492-1	99	95	107	118	0
02	WG74492-BLANK	WG74492-2	95	95	109	106	0
03	039T021610	SD0798-1	92	94	109	118	0
04	039F021610	SD0798-2	93	95	105	115	0
05	039G10LF26	SD0798-3	98	97	106	114	0
06	039G02LF19	SD0798-4	96	99	105	113	0
07	039E021710	SD0834-2	93	95	104	105	0
08	039G03LF19	SD0834-3	99	98	103	112	0
09	039G11LF15	SD0834-4	97	100	101	112	0
10	WG74512-LCS	WG74512-1	98	95	101	114	0
11	WG74512-BLANK	WG74512-2	100	96	103	112	0
12	039G22LF19	SD0834-5	99	94	102	116	0
13	039H22LF19	SD0834-6	101	96	105	112	0
14	039G04LF26	SD0834-7	102	97	106	114	0
15	WG74573-LCS	WG74573-1	97	91	108	119	0
16	WG74573-BLANK	WG74573-2	94	90	105	115	0
17	039G12LF27	SD0834-8RA	96	91	101	115	0
18	039G22LF19	SD0834-5DL	94	94	102	120	0
19	039H22LF19	SD0834-6DL	95	95	108	116	0
20	039G04LF26	SD0834-7DL	96	91	98	108	0
21	WG74632-LCS	WG74632-1	118	114	116	120	0
22	WG74632-BLANK	WG74632-2	110	113	120	121	0
23	039G04LF26MS	WG74632-3	116	115	120	120	0
24	039G04LF26MSD	WG74632-4	117	113	117	122	0
25							
26							
27							
28							

		QC LIMITS
SMC1 (DBF)	= Dibromofluoromethane	(68-128)
SMC2 (DCA)	= 1,2-Dichloroethane-D4	(67-135)
SMC3 (TOL)	= Toluene-D8	(65-128)
SMC4 (BFB)	= P-Bromofluorobenzene	(56-133)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

KATAHDIN ANALYTICAL SERVICES
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client: Spectra Tech, Inc.
Project: NSA Mid-South
PO No:
Sample Date: 02/17/10
Received Date: 02/18/10
Extraction Date:
Analysis Date: 02/26/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74632-3 & WG74632-4
Client ID: 039G04LF26MS & 039G04LF26MSD
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: TTC
Analysis Method: SW846 8260B
Lab Prep Batch: WG74632
Units: ug/l

COMPOUND	MS SPIKE	MSD SPIKE	SAMPLE CONC.	MS CONC.	MSD CONC.	MS %REC.	MSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Chloromethane	100	100	0.00	87	94	87	94	7	20	59-123
Vinyl chloride	100	100	0.00	82	89	82	89	8	20	64-131
Bromomethane	100	100	0.00	94	95	94	95	1	20	57-135
Chloroethane	100	100	0.00	104	113	104	113	8	20	53-157
1,1-Dichloroethene	100	100	0.00	111	118	111	118	6	20	88-127
Carbon Disulfide	100	100	0.00	118	128	118	128	8	20	71-129
Methylene Chloride	100	100	0.00	100	110	100	110	10	20	72-129
Acetone	100	100	0.00	91	100	91	100	9	20	62-172
trans-1,2-Dichloroethene	100	100	1.1	108	112	107	111	4	20	78-125
1,1-Dichloroethane	100	100	0.00	106	113	106	113	6	20	76-130
cis-1,2-Dichloroethene	100	100	246	351	360	105	114	2	20	85-123
Chloroform	100	100	0.00	104	113	104	113	8	20	78-128
Carbon Tetrachloride	100	100	0.00	104	110	104	110	6	20	87-126
1,1,1-Trichloroethane	100	100	0.00	105	113	105	113	7	20	77-125
2-Butanone	100	100	0.00	100	105	100	105	5	20	71-132
Benzene	100	100	0.00	98	111	98	111	12	20	86-116
1,2-Dichloroethane	100	100	0.00	104	109	104	109	5	20	81-125
Trichloroethene	100	100	39	137	151	98	112	10	20	79-121
1,2-Dichloropropane	100	100	0.00	99	108	99	108	9	20	84-118
Bromodichloromethane	100	100	0.00	102	109	102	109	7	20	85-122
cis-1,3-dichloropropene	100	100	0.00	100	104	100	104	4	20	83-119
Toluene	100	100	0.00	105	112	105	112	6	20	84-118
4-methyl-2-pentanone	100	100	0.00	106	120	106	120	12	20	83-122
Tetrachloroethene	100	100	0.00	103	108	103	108	5	20	47-155
trans-1,3-Dichloropropene	100	100	0.00	113	120	113	120	6	20	85-135
1,1,2-Trichloroethane	100	100	0.00	105	113	105	113	7	20	84-115
Dibromochloromethane	100	100	0.00	99	103	99	103	4	20	85-119
2-Hexanone	100	100	0.00	95	106	95	106	11	20	80-124
Chlorobenzene	100	100	0.00	100	102	100	102	2	20	89-113
Ethylbenzene	100	100	0.00	103	112	103	112	8	20	88-113
Xylenes (total)	300	300	0.00	320	329	107	110	3	20	89-116
m+p-Xylenes	200	200	0.00	213	219	106	110	3	20	88-116
o-Xylene	100	100	0.00	107	110	107	110	3	20	90-116
Styrene	100	100	0.00	108	101	108	101	7	20	88-117
Bromoform	100	100	0.00	101	100	101	100	1.0	20	86-117
1,1,2,2-Tetrachloroethane	100	100	0.00	95	103	95	103	8	20	79-121

 FORM III VOA-1 F8881.D & F8882.D

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/22/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74492-1
Client ID: WG74492-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Dichlorodifluoromethane	50	NA	43	85	29-164
Chloromethane	50	NA	48	96	59-123
Vinyl chloride	50	NA	42	85	64-131
Bromomethane	50	NA	42	83	57-135
Chloroethane	50	NA	46	93	53-157
Trichlorofluoromethane	50	NA	48	96	70-149
Diethyl Ether	50	NA	46	93	78-124
Tertiary-butyl alcohol	250	NA	229	92	11-151
1,1-Dichloroethene	50	NA	47	93	88-127
Carbon Disulfide	50	NA	50	100	71-129
Freon-113	50	NA	50	100	73-126
Iodomethane	50	NA	49	99	54-155
Acrolein	250	NA	211	84	62-135
Methylene Chloride	50	NA	46	91	72-129
Acetone	50	NA	46	92	62-172
Isobutyl Alcohol	1000	NA	1010	101	16-147
trans-1,2-Dichloroethene	50	NA	48	95	78-125
Allyl Chloride	50	NA	44	87	78-121
Methyl tert-butyl ether	100	NA	95	95	81-125
Acetonitrile	500	NA	498	100	61-125
Di-isopropyl ether	50	NA	47	95	81-123
Chloroprene	50	NA	47	94	75-128
Methacrylonitrile	500	NA	492	98	78-123
Propionitrile	500	NA	493	99	75-118
1,1-Dichloroethane	50	NA	48	95	76-130
Acrylonitrile	250	NA	240	96	76-120
Ethyl tertiary-butyl ether	50	NA	46	92	85-119
Vinyl Acetate	50	NA	46	92	56-129
cis-1,2-Dichloroethene	50	NA	52	104	85-123
1,2-Dichloroethylene (total)	100	NA	99	99	84-121
Methyl Methacrylate	50	NA	52	103	79-121
2,2-Dichloropropane	50	NA	40	80	70-132
Bromochloromethane	50	NA	50	100	85-117
Chloroform	50	NA	48	97	78-128
Carbon Tetrachloride	50	NA	47	94	87-126
Tetrahydrofuran	50	NA	51	102	74-123
1,1,1-Trichloroethane	50	NA	47	94	77-129
1,1-Dichloropropene	50	NA	47	95	87-118
2-Butanone	50	NA	50	100	71-132
Benzene	50	NA	48	95	86-116
Cyclohexane	50	NA	56	111	71-133
Ethyl Methacrylate	50	NA	52	104	80-125
Tertiary-amyl methyl ether	50	NA	46	92	80-121
1,2-Dichloroethane	50	NA	49	98	81-125
Trichloroethene	50	NA	49	97	79-121

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/22/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74492-1
Client ID: WG74492-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.		%REC.	QC. LIMITS
Dibromomethane	50	NA	51		102	85-117
1,2-Dichloropropane	50	NA	48		96	84-118
Bromodichloromethane	50	NA	51		103	85-122
cis-1,3-dichloropropene	50	NA	51		102	83-119
1,4-Dioxane	1000	NA	714		71	10-149
2-Chloroethylvinylether	50	NA	50		99	39-135
Toluene	50	NA	50		100	84-118
4-methyl-2-pentanone	50	NA	62	*	123	83-122
Tetrachloroethene	50	NA	64		128	47-155
trans-1,3-Dichloropropene	50	NA	56		113	85-135
1,1,2-Trichloroethane	50	NA	50		101	84-115
Dibromochloromethane	50	NA	50		100	85-119
1,3-Dichloropropane	50	NA	52		103	80-119
1,2-Dibromoethane	50	NA	51		103	84-116
2-Hexanone	50	NA	57		115	80-124
Chlorobenzene	50	NA	46		92	89-113
Ethylbenzene	50	NA	48		96	88-113
1,1,1,2-Tetrachloroethane	50	NA	50		100	88-118
Xylenes (total)	150	NA	155		103	89-116
m+p-Xylenes	100	NA	101		101	88-116
o-Xylene	50	NA	54		108	90-116
Styrene	50	NA	52		103	88-117
Bromoform	50	NA	53		106	86-117
Isopropylbenzene	50	NA	58		116	96-136
cis-1,4-Dichloro-2-Butene	50	NA	42		83	59-136
trans-1,4-Dichloro-2-Butene	50	NA	42		85	63-132
Bromobenzene	50	NA	46		91	84-113
N-Propylbenzene	50	NA	50		99	83-121
1,1,2,2-Tetrachloroethane	50	NA	49		98	79-121
1,3,5-Trimethylbenzene	50	NA	48		97	80-123
2-Chlorotoluene	50	NA	48		97	81-120
1,2,3-Trichloropropane	50	NA	44		88	77-120
4-Chlorotoluene	50	NA	48		97	81-122
tert-Butylbenzene	50	NA	47		94	84-121
Pentachloroethane	50	NA	25		50	19-186
1,2,4-Trimethylbenzene	50	NA	48		96	83-118
P-Isopropyltoluene	50	NA	55		111	88-121
1,3-Dichlorobenzene	50	NA	48		96	86-110
1,4-Dichlorobenzene	50	NA	47		94	86-111
N-Butylbenzene	50	NA	54		108	78-121
sec-Butylbenzene	50	NA	53		106	82-122
1,2-Dichlorobenzene	50	NA	49		98	86-112
1,2-Dibromo-3-Chloropropane	50	NA	46		93	67-124
1,3,5-Trichlorobenzene	50	NA	49		98	77-120
Hexachlorobutadiene	50	NA	50		99	73-113

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/22/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74492-1
Client ID: WG74492-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74492
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
1,2,4-Trichlorobenzene	50	NA	54	108	76-126
1,2,3-Trimethylbenzene	50	NA	46	91	85-119
Naphthalene	50	NA	47	94	62-126
1,2,3-Trichlorobenzene	50	NA	48	95	70-122
Methyl Acetate	50	NA	42	85	70-132
Methylcyclohexane	50	NA	57	115	73-125
1-Chlorohexane	50	NA	51	102	73-119
Total Alkylbenzenes	350	NA	356	102	85-119

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/23/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74512-1
Client ID: WG74512-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74512
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Dichlorodifluoromethane	50	NA	46	91	29-164
Chloromethane	50	NA	50	100	59-123
Vinyl chloride	50	NA	44	87	64-131
Bromomethane	50	NA	42	84	57-135
Chloroethane	50	NA	51	102	53-157
Trichlorofluoromethane	50	NA	54	108	70-149
Diethyl Ether	50	NA	48	96	78-124
Tertiary-butyl alcohol	250	NA	195	78	11-151
1,1-Dichloroethene	50	NA	51	102	88-127
Carbon Disulfide	50	NA	55	110	71-129
Freon-113	50	NA	56	112	73-126
Iodomethane	50	NA	55	109	54-155
Acrolein	250	NA	257	103	62-135
Methylene Chloride	50	NA	48	97	72-129
Acetone	50	NA	50	100	62-172
Isobutyl Alcohol	1000	NA	909	91	16-147
trans-1,2-Dichloroethene	50	NA	50	99	78-125
Allyl Chloride	50	NA	50	99	78-121
Methyl tert-butyl ether	100	NA	102	102	81-125
Acetonitrile	500	NA	499	100	61-125
Di-isopropyl ether	50	NA	49	99	81-123
Chloroprene	50	NA	52	105	75-128
Methacrylonitrile	500	NA	496	99	78-123
Propionitrile	500	NA	483	97	75-118
1,1-Dichloroethane	50	NA	53	106	76-130
Acrylonitrile	250	NA	248	99	76-120
Ethyl tertiary-butyl ether	50	NA	49	98	85-119
Vinyl Acetate	50	NA	56	112	56-129
cis-1,2-Dichloroethene	50	NA	56	111	85-123
1,2-Dichloroethylene (total)	100	NA	105	105	84-121
Methyl Methacrylate	50	NA	47	95	79-121
2,2-Dichloropropane	50	NA	49	98	70-132
Bromochloromethane	50	NA	51	102	85-117
Chloroform	50	NA	52	103	78-128
Carbon Tetrachloride	50	NA	51	103	87-126
Tetrahydrofuran	50	NA	51	102	74-123
1,1,1-Trichloroethane	50	NA	51	101	77-129
1,1-Dichloropropene	50	NA	52	104	87-118
2-Butanone	50	NA	52	103	71-132
Benzene	50	NA	50	101	86-116
Cyclohexane	50	NA	56	112	71-133
Ethyl Methacrylate	50	NA	48	96	80-125
Tertiary-amyl methyl ether	50	NA	50	100	80-121
1,2-Dichloroethane	50	NA	52	104	81-125
Trichloroethene	50	NA	52	104	79-121

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/23/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74512-1
Client ID: WG74512-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74512
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Dibromomethane	50	NA	52	104	85-117
1,2-Dichloropropane	50	NA	50	100	84-118
Bromodichloromethane	50	NA	52	105	85-122
cis-1,3-dichloropropene	50	NA	50	100	83-119
1,4-Dioxane	1000	NA	569	57	10-149
2-Chloroethylvinylether	50	NA	44	87	39-135
Toluene	50	NA	52	104	84-118
4-methyl-2-pentanone	50	NA	57	114	83-122
Tetrachloroethene	50	NA	50	100	47-155
trans-1,3-Dichloropropene	50	NA	59	118	85-135
1,1,2-Trichloroethane	50	NA	52	105	84-115
Dibromochloromethane	50	NA	48	97	85-119
1,3-Dichloropropane	50	NA	49	98	80-119
1,2-Dibromoethane	50	NA	52	104	84-116
2-Hexanone	50	NA	53	106	80-124
Chlorobenzene	50	NA	49	98	89-113
Ethylbenzene	50	NA	53	106	88-113
1,1,1,2-Tetrachloroethane	50	NA	50	100	88-118
Xylenes (total)	150	NA	154	103	89-116
m+p-Xylenes	100	NA	102	102	88-116
o-Xylene	50	NA	52	103	90-116
Styrene	50	NA	48	97	88-117
Bromoform	50	NA	48	96	86-117
Isopropylbenzene	50	NA	60	120	96-136
cis-1,4-Dichloro-2-Butene	50	NA	44	87	59-136
trans-1,4-Dichloro-2-Butene	50	NA	47	94	63-132
Bromobenzene	50	NA	47	94	84-113
N-Propylbenzene	50	NA	54	109	83-121
1,1,2,2-Tetrachloroethane	50	NA	51	102	79-121
1,3,5-Trimethylbenzene	50	NA	54	108	80-123
2-Chlorotoluene	50	NA	48	97	81-120
1,2,3-Trichloropropane	50	NA	47	94	77-120
4-Chlorotoluene	50	NA	53	105	81-122
tert-Butylbenzene	50	NA	55	109	84-121
Pentachloroethane	50	NA	48	97	19-186
1,2,4-Trimethylbenzene	50	NA	56	111	83-118
P-Isopropyltoluene	50	NA	58	115	88-121
1,3-Dichlorobenzene	50	NA	50	100	86-110
1,4-Dichlorobenzene	50	NA	49	99	86-111
N-Butylbenzene	50	NA	57	114	78-121
sec-Butylbenzene	50	NA	58	115	82-122
1,2-Dichlorobenzene	50	NA	49	97	86-112
1,2-Dibromo-3-Chloropropane	50	NA	50	99	67-124
1,3,5-Trichlorobenzene	50	NA	52	104	77-120
Hexachlorobutadiene	50	NA	54	108	73-113

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/23/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74512-1
Client ID: WG74512-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74512
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
1,2,4-Trichlorobenzene	50	NA	55	110	76-126
1,2,3-Trimethylbenzene	50	NA	51	102	85-119
Naphthalene	50	NA	47	94	62-126
1,2,3-Trichlorobenzene	50	NA	47	94	70-122
Methyl Acetate	50	NA	43	87	70-132
Methylcyclohexane	50	NA	61	123	73-125
1-Chlorohexane	50	NA	56	112	73-119
Total Alkylbenzenes	350	NA	391	112	85-119

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/24/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74573-1
Client ID: WG74573-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74573
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Dichlorodifluoromethane	50	NA	43	85	29-164
Chloromethane	50	NA	50	99	59-123
Vinyl chloride	50	NA	44	89	64-131
Bromomethane	50	NA	43	86	57-135
Chloroethane	50	NA	50	99	53-157
Trichlorofluoromethane	50	NA	53	105	70-149
Diethyl Ether	50	NA	48	97	78-124
Tertiary-butyl alcohol	250	NA	175	70	11-151
1,1-Dichloroethene	50	NA	52	104	88-127
Carbon Disulfide	50	NA	55	110	71-129
Freon-113	50	NA	52	103	73-126
Iodomethane	50	NA	55	110	54-155
Acrolein	250	NA	242	97	62-135
Methylene Chloride	50	NA	49	98	72-129
Acetone	50	NA	49	98	62-172
Isobutyl Alcohol	1000	NA	844	84	16-147
trans-1,2-Dichloroethene	50	NA	49	98	78-125
Allyl Chloride	50	NA	48	96	78-121
Methyl tert-butyl ether	100	NA	104	104	81-125
Acetonitrile	500	NA	479	96	61-125
Di-isopropyl ether	50	NA	49	97	81-123
Chloroprene	50	NA	49	98	75-128
Methacrylonitrile	500	NA	486	97	78-123
Propionitrile	500	NA	475	95	75-118
1,1-Dichloroethane	50	NA	51	102	76-130
Acrylonitrile	250	NA	241	96	76-120
Ethyl tertiary-butyl ether	50	NA	48	96	85-119
Vinyl Acetate	50	NA	58	115	56-129
cis-1,2-Dichloroethene	50	NA	55	111	85-123
1,2-Dichloroethylene (total)	100	NA	104	104	84-121
Methyl Methacrylate	50	NA	48	97	79-121
2,2-Dichloropropane	50	NA	51	103	70-132
Bromochloromethane	50	NA	53	105	85-117
Chloroform	50	NA	52	105	78-128
Carbon Tetrachloride	50	NA	51	103	87-126
Tetrahydrofuran	50	NA	52	103	74-123
1,1,1-Trichloroethane	50	NA	50	100	77-129
1,1-Dichloropropene	50	NA	52	103	87-118
2-Butanone	50	NA	51	102	71-132
Benzene	50	NA	52	105	86-116
Cyclohexane	50	NA	60	119	71-133
Ethyl Methacrylate	50	NA	52	104	80-125
Tertiary-amyl methyl ether	50	NA	48	96	80-121
1,2-Dichloroethane	50	NA	54	108	81-125
Trichloroethene	50	NA	53	105	79-121

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/24/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74573-1
Client ID: WG74573-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74573
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.		%REC.	QC. LIMITS
Dibromomethane	50	NA	51		103	85-117
1,2-Dichloropropane	50	NA	52		104	84-118
Bromodichloromethane	50	NA	54		107	85-122
cis-1,3-dichloropropene	50	NA	52		104	83-119
1,4-Dioxane	1000	NA	669		67	10-149
2-Chloroethylvinylether	50	NA	42		84	39-135
Toluene	50	NA	53		106	84-118
4-methyl-2-pentanone	50	NA	60		119	83-122
Tetrachloroethene	50	NA	53		105	47-155
trans-1,3-Dichloropropene	50	NA	61		121	85-135
1,1,2-Trichloroethane	50	NA	55		110	84-115
Dibromochloromethane	50	NA	52		105	85-119
1,3-Dichloropropane	50	NA	50		101	80-119
1,2-Dibromoethane	50	NA	51		103	84-116
2-Hexanone	50	NA	56		112	80-124
Chlorobenzene	50	NA	50		101	89-113
Ethylbenzene	50	NA	52		103	88-113
1,1,1,2-Tetrachloroethane	50	NA	54		107	88-118
Xylenes (total)	150	NA	161		107	89-116
m+p-Xylenes	100	NA	106		106	88-116
o-Xylene	50	NA	55		110	90-116
Styrene	50	NA	55		111	88-117
Bromoform	50	NA	52		104	86-117
Isopropylbenzene	50	NA	60		119	96-136
cis-1,4-Dichloro-2-Butene	50	NA	41		81	59-136
trans-1,4-Dichloro-2-Butene	50	NA	41		81	63-132
Bromobenzene	50	NA	48		95	84-113
N-Propylbenzene	50	NA	55		109	83-121
1,1,2,2-Tetrachloroethane	50	NA	51		102	79-121
1,3,5-Trimethylbenzene	50	NA	54		108	80-123
2-Chlorotoluene	50	NA	51		101	81-120
1,2,3-Trichloropropane	50	NA	48		95	77-120
4-Chlorotoluene	50	NA	49		99	81-122
tert-Butylbenzene	50	NA	56		112	84-121
Pentachloroethane	50	NA	48		97	19-186
1,2,4-Trimethylbenzene	50	NA	54		108	83-118
P-Isopropyltoluene	50	NA	60		121	88-121
1,3-Dichlorobenzene	50	NA	52		104	86-110
1,4-Dichlorobenzene	50	NA	48		97	86-111
N-Butylbenzene	50	NA	56		113	78-121
sec-Butylbenzene	50	NA	53		107	82-122
1,2-Dichlorobenzene	50	NA	53		107	86-112
1,2-Dibromo-3-Chloropropane	50	NA	48		96	67-124
1,3,5-Trichlorobenzene	50	NA	53		105	77-120
Hexachlorobutadiene	50	NA	57	*	114	73-113

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/24/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74573-1
Client ID: WG74573-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: HCG
Analysis Method: SW846 8260B
Lab Prep Batch: WG74573
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
1,2,4-Trichlorobenzene	50	NA	58	117	76-126
1,2,3-Trimethylbenzene	50	NA	51	102	85-119
Naphthalene	50	NA	51	101	62-126
1,2,3-Trichlorobenzene	50	NA	51	101	70-122
Methyl Acetate	50	NA	42	83	70-132
Methylcyclohexane	50	NA	58	117	73-125
1-Chlorohexane	50	NA	56	112	73-119
Total Alkylbenzenes	350	NA	389	111	85-119

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/26/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74632-1
Client ID: WG74632-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: TTC
Analysis Method: SW846 8260B
Lab Prep Batch: WG74632
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Dichlorodifluoromethane	50	NA	38	76	29-164
Chloromethane	50	NA	46	93	59-123
Vinyl chloride	50	NA	44	87	64-131
Bromomethane	50	NA	44	87	57-135
Chloroethane	50	NA	50	100	53-157
Trichlorofluoromethane	50	NA	55	110	70-149
Diethyl Ether	50	NA	54	109	78-124
Tertiary-butyl alcohol	250	NA	174	70	11-151
1,1-Dichloroethene	50	NA	56	111	88-127
Carbon Disulfide	50	NA	59	119	71-129
Freon-113	50	NA	59	119	73-126
Iodomethane	50	NA	60	119	54-155
Acrolein	250	NA	276	110	62-135
Methylene Chloride	50	NA	52	103	72-129
Acetone	50	NA	58	116	62-172
Isobutyl Alcohol	1000	NA	840	84	16-147
trans-1,2-Dichloroethene	50	NA	54	108	78-125
Allyl Chloride	50	NA	56	112	78-121
Methyl tert-butyl ether	100	NA	106	106	81-125
Acetonitrile	500	NA	484	97	61-125
Di-isopropyl ether	50	NA	54	109	81-123
Chloroprene	50	NA	55	110	75-128
Methacrylonitrile	500	NA	532	106	78-123
Propionitrile	500	NA	502	100	75-118
1,1-Dichloroethane	50	NA	53	105	76-130
Acrylonitrile	250	NA	257	103	76-120
Ethyl tertiary-butyl ether	50	NA	53	107	85-119
Vinyl Acetate	50	NA	59	118	56-129
cis-1,2-Dichloroethene	50	NA	54	108	85-123
1,2-Dichloroethylene (total)	100	NA	108	108	84-121
Methyl Methacrylate	50	NA	50	100	79-121
2,2-Dichloropropane	50	NA	54	107	70-132
Bromochloromethane	50	NA	52	104	85-117
Chloroform	50	NA	54	108	78-128
Carbon Tetrachloride	50	NA	50	101	87-126
Tetrahydrofuran	50	NA	50	101	74-123
1,1,1-Trichloroethane	50	NA	52	104	77-129
1,1-Dichloropropene	50	NA	51	102	87-118
2-Butanone	50	NA	58	115	71-132
Benzene	50	NA	51	103	86-116
Cyclohexane	50	NA	63	126	71-133
Ethyl Methacrylate	50	NA	51	102	80-125
Tertiary-amyl methyl ether	50	NA	49	99	80-121
1,2-Dichloroethane	50	NA	50	101	81-125
Trichloroethene	50	NA	52	104	79-121

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/26/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74632-1
Client ID: WG74632-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: TTC
Analysis Method: SW846 8260B
Lab Prep Batch: WG74632
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.	%REC.	QC. LIMITS
Dibromomethane	50	NA	51	102	85-117
1,2-Dichloropropane	50	NA	50	100	84-118
Bromodichloromethane	50	NA	52	104	85-122
cis-1,3-dichloropropene	50	NA	51	102	83-119
1,4-Dioxane	1000	NA	502	50	10-149
2-Chloroethylvinylether	50	NA	53	106	39-135
Toluene	50	NA	51	102	84-118
4-methyl-2-pentanone	50	NA	58	115	83-122
Tetrachloroethene	50	NA	51	102	47-155
trans-1,3-Dichloropropene	50	NA	59	118	85-135
1,1,2-Trichloroethane	50	NA	50	99	84-115
Dibromochloromethane	50	NA	48	96	85-119
1,3-Dichloropropane	50	NA	49	97	80-119
1,2-Dibromoethane	50	NA	50	99	84-116
2-Hexanone	50	NA	54	109	80-124
Chlorobenzene	50	NA	49	98	89-113
Ethylbenzene	50	NA	52	103	88-113
1,1,1,2-Tetrachloroethane	50	NA	50	101	88-118
Xylenes (total)	150	NA	162	108	89-116
m+p-Xylenes	100	NA	109	109	88-116
o-Xylene	50	NA	53	106	90-116
Styrene	50	NA	53	106	88-117
Bromoform	50	NA	50	100	86-117
Isopropylbenzene	50	NA	60	120	96-136
cis-1,4-Dichloro-2-Butene	50	NA	41	82	59-136
trans-1,4-Dichloro-2-Butene	50	NA	46	92	63-132
Bromobenzene	50	NA	46	92	84-113
N-Propylbenzene	50	NA	56	111	83-121
1,1,2,2-Tetrachloroethane	50	NA	48	97	79-121
1,3,5-Trimethylbenzene	50	NA	51	103	80-123
2-Chlorotoluene	50	NA	50	99	81-120
1,2,3-Trichloropropane	50	NA	45	89	77-120
4-Chlorotoluene	50	NA	52	104	81-122
tert-Butylbenzene	50	NA	52	105	84-121
Pentachloroethane	50	NA	47	94	19-186
1,2,4-Trimethylbenzene	50	NA	51	102	83-118
P-Isopropyltoluene	50	NA	59	117	88-121
1,3-Dichlorobenzene	50	NA	50	100	86-110
1,4-Dichlorobenzene	50	NA	49	98	86-111
N-Butylbenzene	50	NA	56	111	78-121
sec-Butylbenzene	50	NA	56	113	82-122
1,2-Dichlorobenzene	50	NA	49	98	86-112
1,2-Dibromo-3-Chloropropane	50	NA	46	92	67-124
1,3,5-Trichlorobenzene	50	NA	53	105	77-120
Hexachlorobutadiene	50	NA	55	110	73-113

KATAHDIN ANALYTICAL SERVICES
LAB CONTROL SAMPLE

Client:
Project: NSA Mid-South
PO No:
Sample Date:
Received Date:
Extraction Date:
Analysis Date: 02/26/10
Report Date: 03/05/2010
Matrix: WATER

Lab ID: WG74632-1
Client ID: WG74632-LCS
SDG: NSA-078
Extracted by:
Extraction Method: SW846 5030
Analyst: TTC
Analysis Method: SW846 8260B
Lab Prep Batch: WG74632
Units: ug/l

COMPOUND	LCS SPIKE	SAMPLE CONC.	LCS CONC.		%REC.	QC. LIMITS
1,2,4-Trichlorobenzene	50	NA	53		107	76-126
1,2,3-Trimethylbenzene	50	NA	48		97	85-119
Naphthalene	50	NA	44		88	62-126
1,2,3-Trichlorobenzene	50	NA	45		91	70-122
Methyl Acetate	50	NA	46		91	70-132
Methylcyclohexane	50	NA	69	*	138	73-125
1-Chlorohexane	50	NA	59		118	73-119
Total Alkylbenzenes	350	NA	381		109	85-119

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG74492-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: F8786 Lab Sample ID: WG74492-2

Date Analyzed: 02/22/10 Time Analyzed: 1701

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS-F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG74492-LCS	WG74492-1	F8784	02/22/10	1557
02	039T021610	SD0798-1	F8792	02/22/10	2014
03	039F021610	SD0798-2	F8793	02/22/10	2047
04	039G10LF26	SD0798-3	F8794	02/22/10	2119
05	039G02LF19	SD0798-4	F8795	02/22/10	2152
06	039E021710	SD0834-2	F8800	02/23/10	0034
07	039G03LF19	SD0834-3	F8801	02/23/10	0106
08	039G11LF15	SD0834-4	F8802	02/23/10	0138
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COMMENTS:

FORM IVVOA

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG74512-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: F8809 Lab Sample ID: WG74512-2

Date Analyzed: 02/23/10 Time Analyzed: 1122

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS-F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG74512-LCS	WG74512-1	F8807	02/23/10	1005
02	039G22LF19	SD0834-5	F8812	02/23/10	1257
03	039H22LF19	SD0834-6	F8813	02/23/10	1329
04	039G04LF26	SD0834-7	F8814	02/23/10	1401
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COMMENTS:

FORM IVVOA

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG74573-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: F8827 Lab Sample ID: WG74573-2

Date Analyzed: 02/24/10 Time Analyzed: 1129

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS-F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG74573-LCS	WG74573-1	F8825	02/24/10	1009
02	039G12LF27	SD0834-8RA	F8829	02/24/10	1232
03	039G22LF19	SD0834-5DL	F8834	02/24/10	1511
04	039H22LF19	SD0834-6DL	F8835	02/24/10	1543
05	039G04LF26	SD0834-7DL	F8836	02/24/10	1615
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COMMENTS:

FORM IVVOA

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE ID

WG74632-BLANK

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: F8872 Lab Sample ID: WG74632-2

Date Analyzed: 02/26/10 Time Analyzed: 1112

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS-F

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	WG74632-LCS	WG74632-1	F8870	02/26/10	0957
02	039G04LF26MS	WG74632-3	F8881	02/26/10	1558
03	039G04LF26MSD	WG74632-4	F8882	02/26/10	1630
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COMMENTS:

FORM IVVOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: FB395 BFB Injection Date: 02/15/10

Instrument ID: GCMS-F BFB Injection Time: 0959

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.1
75	30.0 - 60.0% of mass 95	36.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.9 (1.0)1
174	Greater than 50.0% of mass 95	87.8
175	5.0 - 9.0% of mass 174	6.2 (7.1)1
176	95.0 - 101.0% of mass 174	84.2 (96.0)1
177	5.0 - 9.0% of mass 176	6.8 (8.1)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		VSTD050F15B	F8657	02/15/10	1105
02		VSTD200F15A	F8658	02/15/10	1148
03		VSTD100F15A	F8659	02/15/10	1220
04		VSTD020F15A	F8660	02/15/10	1252
05		VSTD005F15A	F8661	02/15/10	1323
06		VSTD001F15A	F8662	02/15/10	1355
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FORM V VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: FB400 BFB Injection Date: 02/22/10

Instrument ID: GCMS-F BFB Injection Time: 1455

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.6
75	30.0 - 60.0% of mass 95	41.6
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	84.8
175	5.0 - 9.0% of mass 174	7.3 (8.7)1
176	95.0 - 101.0% of mass 174	80.7 (95.2)1
177	5.0 - 9.0% of mass 176	5.4 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		VSTD050F22A	F8783	02/22/10	1526
02	WG74492-LCS	WG74492-1	F8784	02/22/10	1557
03	WG74492-BLANK	WG74492-2	F8786	02/22/10	1701
04	039T021610	SD0798-1	F8792	02/22/10	2014
05	039F021610	SD0798-2	F8793	02/22/10	2047
06	039G10LF26	SD0798-3	F8794	02/22/10	2119
07	039G02LF19	SD0798-4	F8795	02/22/10	2152
08	039E021710	SD0834-2	F8800	02/23/10	0034
09	039G03LF19	SD0834-3	F8801	02/23/10	0106
10	039G11LF15	SD0834-4	F8802	02/23/10	0138
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FORM V VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: FB401 BFB Injection Date: 02/23/10

Instrument ID: GCMS-F BFB Injection Time: 0856

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.6
75	30.0 - 60.0% of mass 95	40.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	80.2
175	5.0 - 9.0% of mass 174	6.5 (8.1)1
176	95.0 - 101.0% of mass 174	80.4 (100.2)1
177	5.0 - 9.0% of mass 176	5.3 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		VSTD050F23A	F8806	02/23/10	0923
02	WG74512-LCS	WG74512-1	F8807	02/23/10	1005
03	WG74512-BLANK	WG74512-2	F8809	02/23/10	1122
04	039G22LF19	SD0834-5	F8812	02/23/10	1257
05	039H22LF19	SD0834-6	F8813	02/23/10	1329
06	039G04LF26	SD0834-7	F8814	02/23/10	1401
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FORM V VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: FB402 BFB Injection Date: 02/24/10

Instrument ID: GCMS-F BFB Injection Time: 0901

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.7
75	30.0 - 60.0% of mass 95	40.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	74.2
175	5.0 - 9.0% of mass 174	3.8 (5.1)1
176	95.0 - 101.0% of mass 174	74.3 (100.2)1
177	5.0 - 9.0% of mass 176	5.1 (6.9)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		VSTD050F24A	F8824	02/24/10	0926
02	WG74573-LCS	WG74573-1	F8825	02/24/10	1009
03	WG74573-BLANK	WG74573-2	F8827	02/24/10	1129
04	039G12LF27	SD0834-8RA	F8829	02/24/10	1232
05	039G22LF19	SD0834-5DL	F8834	02/24/10	1511
06	039H22LF19	SD0834-6DL	F8835	02/24/10	1543
07	039G04LF26	SD0834-7DL	F8836	02/24/10	1615
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FORM V VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID: FB404 BFB Injection Date: 02/26/10

Instrument ID: GCMS-F BFB Injection Time: 0850

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	26.3
75	30.0 - 60.0% of mass 95	37.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	53.8
175	5.0 - 9.0% of mass 174	4.6 (8.6)1
176	95.0 - 101.0% of mass 174	53.8 (100.1)1
177	5.0 - 9.0% of mass 176	4.6 (8.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		VSTD050F26A	F8869	02/26/10	0914
02	WG74632-LCS	WG74632-1	F8870	02/26/10	0957
03	WG74632-BLANK	WG74632-2	F8872	02/26/10	1112
04	039G04LF26MS	WG74632-3	F8881	02/26/10	1558
05	039G04LF26MSD	WG74632-4	F8882	02/26/10	1630
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FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date(s): 02/15/10 02/15/10

Column: RTX-VMS ID: 0.18 (mm) Calibration Time(s): 1105 1355

LAB FILE ID: RF1: F8662 RF5: F8661 RF20: F8660
RF50: F8657 RF100: F8659 RF200: F8658

COMPOUND	RF1	RF5	RF20	RF50	RF100	RF200	CURVE	COEFF. A1	%RSD OR R^2	MAX %RSD OR R^2
Chloromethane	0.786	0.671	0.786	0.767	0.802	0.758	AVRG	0.76163636	6.198	15.000
Vinyl chloride	0.658	0.567	0.652	0.629	0.684	0.561	AVRG	0.62526768	8.115	15.000
Bromomethane	0.464	0.371	0.389	0.375	0.373	0.331	AVRG	0.38378254	11.411	15.000
Chloroethane	0.292	0.258	0.274	0.267	0.227	0.210	AVRG	0.25458457	12.010	15.000
1,1-Dichloroethene	0.403	0.345	0.377	0.386	0.386	0.352	AVRG	0.37495964	5.933	15.000
Carbon Disulfide	1.260	1.068	1.161	1.182	1.188	1.090	AVRG	1.15849656	6.055	15.000
Methylene Chloride	0.578	0.417	0.443	0.467	0.466	0.432	AVRG	0.46728996	12.348	15.000
Acetone	0.191	0.148	0.160	0.150	0.183	0.166	AVRG	0.16605917	10.592	15.000
trans-1,2-Dichloroethene	0.476	0.381	0.419	0.427	0.449	0.422	AVRG	0.42904969	7.469	15.000
1,1-Dichloroethane	0.985	0.897	0.957	0.982	1.015	0.910	AVRG	0.95776703	4.802	15.000
cis-1,2-Dichloroethene	0.502	0.486	0.558	0.563	0.576	0.538	AVRG	0.53744495	6.727	15.000
Chloroform	0.832	0.826	0.895	0.902	0.882	0.865	AVRG	0.86700254	3.663	15.000
Carbon Tetrachloride	0.334	0.285	0.322	0.333	0.325	0.326	AVRG	0.32098838	5.655	15.000
1,1,1-Trichloroethane	0.706	0.602	0.676	0.694	0.694	0.641	AVRG	0.66893501	5.968	15.000
2-Butanone	0.309	0.320	0.337	0.324	0.347	0.339	AVRG	0.32943554	4.246	15.000
Benzene	1.089	1.067	1.095	1.137	1.098	1.021	AVRG	1.08447948	3.562	15.000
1,2-Dichloroethane	0.341	0.389	0.383	0.403	0.398	0.387	AVRG	0.38362315	5.726	15.000
Trichloroethene	0.303	0.296	0.293	0.301	0.300	0.286	AVRG	0.29649520	2.039	15.000
1,2-Dichloropropane	0.291	0.279	0.326	0.305	0.318	0.289	AVRG	0.30152350	6.056	15.000
Bromodichloromethane	0.336	0.349	0.377	0.392	0.390	0.375	AVRG	0.36991439	6.119	15.000
cis-1,3-dichloropropene	0.378	0.422	0.461	0.475	0.486	0.436	AVRG	0.44305259	8.967	15.000
Toluene	0.662	0.615	0.649	0.687	0.636	0.590	AVRG	0.63998327	5.347	15.000
4-methyl-2-pentanone	0.345	0.347	0.388	0.383	0.346	0.278	AVRG	0.34771716	11.357	15.000
Tetrachloroethene	0.334	0.280	0.290	0.308	0.299	0.274	AVRG	0.29744689	7.349	15.000
trans-1,3-Dichloropropene	0.333	0.342	0.375	0.389	0.374	0.340	AVRG	0.35892345	6.484	15.000
1,1,2-Trichloroethane	0.208	0.223	0.229	0.235	0.223	0.209	AVRG	0.22119293	4.775	15.000
Dibromochloromethane	0.351	0.351	0.375	0.400	0.405	0.404	AVRG	0.38098627	6.796	15.000
2-Hexanone	0.324	0.307	0.347	0.337	0.324	0.305	AVRG	0.32398693	5.055	15.000
Chlorobenzene	0.978	0.902	0.947	0.951	0.932	0.885	AVRG	0.93267459	3.694	15.000
Ethylbenzene	0.460	0.405	0.438	0.470	0.452	0.435	AVRG	0.44342214	5.180	15.000
Xylenes (total)							AVRG			0.000
m+p-Xylenes	0.525	0.505	0.552	0.568	0.540	0.502	AVRG	0.53221221	4.915	15.000
o-Xylene	0.467	0.505	0.519	0.539	0.527	0.510	AVRG	0.51117553	4.878	15.000
Styrene	0.832	0.853	0.906	0.974	0.934	0.879	AVRG	0.89644479	5.862	15.000
Bromoform	0.215	0.231	0.250	0.270	0.270	0.268	AVRG	0.25083667	9.314	15.000
1,1,2,2-Tetrachloroethane	0.875	0.945	0.974	0.925	0.965	0.957	AVRG	0.94043344	3.847	15.000
Dibromofluoromethane	0.555	0.594	0.631	0.624	0.653	0.612	AVRG	0.61166265	5.546	15.000
1,2-Dichloroethane-D4	0.571	0.603	0.575	0.572	0.588	0.609	AVRG	0.58644861	2.833	15.000
Toluene-D8	0.916	0.970	1.040	1.050	1.014	0.932	AVRG	0.98704750	5.690	15.000
P-Bromofluorobenzene	0.336	0.358	0.369	0.378	0.367	0.353	AVRG	0.36026919	3.991	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date(s): 02/15/10 02/15/10

Column: RTX-VMS ID: 0.18 (mm) Calibration Time(s): 1105 1355

Average %RSD test result.

Calculate Average %RSD: 7.042803288
Maximum Average %RSD: 15.00000000

Note: Passes Average %RSD Test.

FORM VI VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date: 02/22/10 Time: 1526

Lab File ID: F8783 Init. Calib. Date(s): 02/15/10 02/15/10

Init. Calib. Times: 1105 1355

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF OR AMOUNT	RRF50.000 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Chloromethane	0.7620000	0.8194900	0.1	7.54		AVRG
Vinyl chloride	0.6250000	0.5478600	0.01	-12.34	20.00	AVRG
Bromomethane	0.3840000	0.3186300	0.01	-17.02		AVRG
Chloroethane	0.2550000	0.2487400	0.01	-2.45		AVRG
1,1-Dichloroethene	0.3750000	0.3775400	0.1	0.68	20.00	AVRG
Carbon Disulfide	1.1580000	1.1227000	0.01	-3.05		AVRG
Methylene Chloride	0.4670000	0.4501500	0.01	-3.61		AVRG
Acetone	0.1660000	0.1452100	0.01	-12.52		AVRG
trans-1,2-Dichloroethene	0.4290000	0.4380800	0.01	2.12		AVRG
1,1-Dichloroethane	0.9580000	0.9694600	0.1	1.20		AVRG
cis-1,2-Dichloroethene	0.5370000	0.5553700	0.01	3.42		AVRG
Chloroform	0.8670000	0.8959600	0.01	3.34	20.00	AVRG
Carbon Tetrachloride	0.3210000	0.3146400	0.01	-1.98		AVRG
1,1,1-Trichloroethane	0.6690000	0.6780500	0.01	1.35		AVRG
2-Butanone	0.3290000	0.3304600	0.01	0.44		AVRG
Benzene	1.0840000	1.0866000	0.01	0.24		AVRG
1,2-Dichloroethane	0.3840000	0.3766900	0.01	-1.90		AVRG
Trichloroethene	0.2960000	0.2869100	0.01	-3.07		AVRG
1,2-Dichloropropane	0.3010000	0.2929400	0.01	-2.68	20.00	AVRG
Bromodichloromethane	0.3700000	0.3837100	0.01	3.70		AVRG
cis-1,3-dichloropropene	0.4430000	0.4288000	0.01	-3.20		AVRG
Toluene	0.6400000	0.6368600	0.01	-0.49	20.00	AVRG
4-methyl-2-pentanone	0.3480000	0.3562300	0.01	2.36		AVRG
Tetrachloroethene	0.2980000	0.3167100	0.01	6.28		AVRG
trans-1,3-Dichloropropene	0.3590000	0.3261800	0.01	-9.14		AVRG
1,1,2-Trichloroethane	0.2210000	0.2276400	0.01	3.00		AVRG
Dibromochloromethane	0.3810000	0.3744900	0.01	-1.71		AVRG
2-Hexanone	0.3240000	0.3255100	0.01	0.47		AVRG
Chlorobenzene	0.9320000	0.9041000	0.3	-2.99		AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date: 02/22/10 Time: 1526

Lab File ID: F8783 Init. Calib. Date(s): 02/15/10 02/15/10

Init. Calib. Times: 1105 1355

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF OR AMOUNT	RRF50.000 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE	
Ethylbenzene	0.4430000	0.4422900	0.01	-0.16	20.00	AVRG	
Xylenes (total)	0.0000000	0.5432300	0.01	0.00		AVRG	<-
m+p-Xylenes	0.5320000	0.5457000	0.01	2.58		AVRG	
o-Xylene	0.5110000	0.5382800	0.01	5.34		AVRG	
Styrene	0.8960000	0.9223700	0.01	2.94		AVRG	
Bromoform	0.2510000	0.2581900	0.1	2.86		AVRG	
1,1,2,2-Tetrachloroethane	0.9400000	0.9177500	0.3	-2.37		AVRG	
Dibromofluoromethane	0.6120000	0.6215700	0.01	1.56		AVRG	
1,2-Dichloroethane-D4	0.5860000	0.5561600	0.01	-5.09		AVRG	
Toluene-D8	0.9870000	1.0072000	0.01	2.05		AVRG	
P-Bromofluorobenzene	0.3600000	0.4034100	0.01	12.06		AVRG	

FORM VII PEST

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date: 02/23/10 Time: 0923

Lab File ID: F8806 Init. Calib. Date(s): 02/15/10 02/15/10

Init. Calib. Times: 1105 1355

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF OR AMOUNT	RRF50.000 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Chloromethane	0.7620000	0.8671600	0.1	13.80		AVRG
Vinyl chloride	0.6250000	0.6067800	0.01	-2.92	20.00	AVRG
Bromomethane	0.3840000	0.3340400	0.01	-13.01		AVRG
Chloroethane	0.2550000	0.2765500	0.01	8.45		AVRG
1,1-Dichloroethene	0.3750000	0.3942600	0.1	5.14	20.00	AVRG
Carbon Disulfide	1.1580000	1.3419000	0.01	15.88		AVRG
Methylene Chloride	0.4670000	0.4586000	0.01	-1.80		AVRG
Acetone	0.1660000	0.1536200	0.01	-7.46		AVRG
trans-1,2-Dichloroethene	0.4290000	0.4673900	0.01	8.95		AVRG
1,1-Dichloroethane	0.9580000	0.9971700	0.1	4.09		AVRG
cis-1,2-Dichloroethene	0.5370000	0.5801000	0.01	8.03		AVRG
Chloroform	0.8670000	0.9322100	0.01	7.52	20.00	AVRG
Carbon Tetrachloride	0.3210000	0.3493600	0.01	8.83		AVRG
1,1,1-Trichloroethane	0.6690000	0.7294300	0.01	9.03		AVRG
2-Butanone	0.3290000	0.3257700	0.01	-0.98		AVRG
Benzene	1.0840000	1.1283000	0.01	4.09		AVRG
1,2-Dichloroethane	0.3840000	0.4060300	0.01	5.74		AVRG
Trichloroethene	0.2960000	0.3293800	0.01	11.28		AVRG
1,2-Dichloropropane	0.3010000	0.3070600	0.01	2.01	20.00	AVRG
Bromodichloromethane	0.3700000	0.3990800	0.01	7.86		AVRG
cis-1,3-dichloropropene	0.4430000	0.4534000	0.01	2.35		AVRG
Toluene	0.6400000	0.6681200	0.01	4.39	20.00	AVRG
4-methyl-2-pentanone	0.3480000	0.3553700	0.01	2.12		AVRG
Tetrachloroethene	0.2980000	0.3267600	0.01	9.65		AVRG
trans-1,3-Dichloropropene	0.3590000	0.3860200	0.01	7.53		AVRG
1,1,2-Trichloroethane	0.2210000	0.2393200	0.01	8.29		AVRG
Dibromochloromethane	0.3810000	0.4020300	0.01	5.52		AVRG
2-Hexanone	0.3240000	0.3315800	0.01	2.34		AVRG
Chlorobenzene	0.9320000	0.9876200	0.3	5.97		AVRG

FORM VII PEST

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date: 02/23/10 Time: 0923

Lab File ID: F8806 Init. Calib. Date(s): 02/15/10 02/15/10

Init. Calib. Times: 1105 1355

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF OR AMOUNT	RRF50.000 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE	
Ethylbenzene	0.4430000	0.4615700	0.01	4.19	20.00	AVRG	
Xylenes (total)	0.0000000	0.6038500	0.01	0.00		AVRG	<-
m+p-Xylenes	0.5320000	0.6104500	0.01	14.75		AVRG	
o-Xylene	0.5110000	0.5906600	0.01	15.59		AVRG	
Styrene	0.8960000	0.9926000	0.01	10.78		AVRG	
Bromoform	0.2510000	0.2694900	0.1	7.37		AVRG	
1,1,2,2-Tetrachloroethane	0.9400000	0.9529200	0.3	1.37		AVRG	
Dibromofluoromethane	0.6120000	0.6031100	0.01	-1.45		AVRG	
1,2-Dichloroethane-D4	0.5860000	0.5498200	0.01	-6.17		AVRG	
Toluene-D8	0.9870000	1.0561000	0.01	7.00		AVRG	
P-Bromofluorobenzene	0.3600000	0.4161200	0.01	15.59		AVRG	

FORM VII PEST

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date: 02/24/10 Time: 0926

Lab File ID: F8824 Init. Calib. Date(s): 02/15/10 02/15/10

Init. Calib. Times: 1105 1355

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF OR AMOUNT	RRF50.000 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Chloromethane	0.7620000	0.8747400	0.1	14.80		AVRG
Vinyl chloride	0.6250000	0.6316100	0.01	1.06	20.00	AVRG
Bromomethane	0.3840000	0.3510400	0.01	-8.58		AVRG
Chloroethane	0.2550000	0.2633500	0.01	3.27		AVRG
1,1-Dichloroethene	0.3750000	0.3987200	0.1	6.32	20.00	AVRG
Carbon Disulfide	1.1580000	1.3291000	0.01	14.78		AVRG
Methylene Chloride	0.4670000	0.4723200	0.01	1.14		AVRG
Acetone	0.1660000	0.1539700	0.01	-7.25		AVRG
trans-1,2-Dichloroethene	0.4290000	0.4457400	0.01	3.90		AVRG
1,1-Dichloroethane	0.9580000	0.9962500	0.1	3.99		AVRG
cis-1,2-Dichloroethene	0.5370000	0.5487600	0.01	2.19		AVRG
Chloroform	0.8670000	0.8949900	0.01	3.23	20.00	AVRG
Carbon Tetrachloride	0.3210000	0.3273000	0.01	1.96		AVRG
1,1,1-Trichloroethane	0.6690000	0.6918400	0.01	3.41		AVRG
2-Butanone	0.3290000	0.3229500	0.01	-1.84		AVRG
Benzene	1.0840000	1.0986000	0.01	1.35		AVRG
1,2-Dichloroethane	0.3840000	0.3964200	0.01	3.23		AVRG
Trichloroethene	0.2960000	0.3036500	0.01	2.58		AVRG
1,2-Dichloropropane	0.3010000	0.3015100	0.01	0.17	20.00	AVRG
Bromodichloromethane	0.3700000	0.3801000	0.01	2.73		AVRG
cis-1,3-dichloropropene	0.4430000	0.4471000	0.01	0.92		AVRG
Toluene	0.6400000	0.6493400	0.01	1.46	20.00	AVRG
4-methyl-2-pentanone	0.3480000	0.3690600	0.01	6.05		AVRG
Tetrachloroethene	0.2980000	0.3119900	0.01	4.69		AVRG
trans-1,3-Dichloropropene	0.3590000	0.3811900	0.01	6.18		AVRG
1,1,2-Trichloroethane	0.2210000	0.2344600	0.01	6.09		AVRG
Dibromochloromethane	0.3810000	0.3815900	0.01	0.15		AVRG
2-Hexanone	0.3240000	0.3199400	0.01	-1.25		AVRG
Chlorobenzene	0.9320000	0.9192000	0.3	-1.37		AVRG

FORM VII PEST

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date: 02/24/10 Time: 0926

Lab File ID: F8824 Init. Calib. Date(s): 02/15/10 02/15/10

Init. Calib. Times: 1105 1355

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF OR AMOUNT	RRF50.000 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE	
Ethylbenzene	0.4430000	0.4383300	0.01	-1.05	20.00	AVRG	
Xylenes (total)	0.0000000	0.5619600	0.01	0.00		AVRG	<-
m+p-Xylenes	0.5320000	0.5645400	0.01	6.12		AVRG	
o-Xylene	0.5110000	0.5567900	0.01	8.96		AVRG	
Styrene	0.8960000	0.9701200	0.01	8.27		AVRG	
Bromoform	0.2510000	0.2552500	0.1	1.69		AVRG	
1,1,2,2-Tetrachloroethane	0.9400000	0.9976500	0.3	6.13		AVRG	
Dibromofluoromethane	0.6120000	0.5900300	0.01	-3.59		AVRG	
1,2-Dichloroethane-D4	0.5860000	0.5428300	0.01	-7.37		AVRG	
Toluene-D8	0.9870000	0.9661700	0.01	-2.11		AVRG	
P-Bromofluorobenzene	0.3600000	0.3987700	0.01	10.77		AVRG	

FORM VII PEST

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date: 02/26/10 Time: 0914

Lab File ID: F8869 Init. Calib. Date(s): 02/15/10 02/15/10

Init. Calib. Times: 1105 1355

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF OR AMOUNT	RRF50.000 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
Chloromethane	0.7620000	0.7837500	0.1	2.85		AVRG
Vinyl chloride	0.6250000	0.5732600	0.01	-8.28	20.00	AVRG
Bromomethane	0.3840000	0.3397500	0.01	-11.52		AVRG
Chloroethane	0.2550000	0.2670300	0.01	4.72		AVRG
1,1-Dichloroethene	0.3750000	0.3717500	0.1	-0.87	20.00	AVRG
Carbon Disulfide	1.1580000	1.2736000	0.01	9.98		AVRG
Methylene Chloride	0.4670000	0.4528700	0.01	-3.02		AVRG
Acetone	0.1660000	0.1852700	0.01	11.61		AVRG
trans-1,2-Dichloroethene	0.4290000	0.4363400	0.01	1.71		AVRG
1,1-Dichloroethane	0.9580000	0.9730700	0.1	1.57		AVRG
cis-1,2-Dichloroethene	0.5370000	0.5323500	0.01	-0.86		AVRG
Chloroform	0.8670000	0.9072100	0.01	4.64	20.00	AVRG
Carbon Tetrachloride	0.3210000	0.3175300	0.01	-1.08		AVRG
1,1,1-Trichloroethane	0.6690000	0.6742000	0.01	0.78		AVRG
2-Butanone	0.3290000	0.3485000	0.01	5.93		AVRG
Benzene	1.0840000	1.0847000	0.01	0.06		AVRG
1,2-Dichloroethane	0.3840000	0.3828700	0.01	-0.29		AVRG
Trichloroethene	0.2960000	0.3026300	0.01	2.24		AVRG
1,2-Dichloropropane	0.3010000	0.3017600	0.01	0.25	20.00	AVRG
Bromodichloromethane	0.3700000	0.3832000	0.01	3.57		AVRG
cis-1,3-dichloropropene	0.4430000	0.4387000	0.01	-0.97		AVRG
Toluene	0.6400000	0.6670200	0.01	4.22	20.00	AVRG
4-methyl-2-pentanone	0.3480000	0.3734300	0.01	7.31		AVRG
Tetrachloroethene	0.2980000	0.2942500	0.01	-1.26		AVRG
trans-1,3-Dichloropropene	0.3590000	0.3712700	0.01	3.42		AVRG
1,1,2-Trichloroethane	0.2210000	0.2354700	0.01	6.55		AVRG
Dibromochloromethane	0.3810000	0.3562000	0.01	-6.51		AVRG
2-Hexanone	0.3240000	0.3197600	0.01	-1.31		AVRG
Chlorobenzene	0.9320000	0.8885000	0.3	-4.67		AVRG

FORM VII PEST

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Instrument ID: GCMS-F Calibration Date: 02/26/10 Time: 0914

Lab File ID: F8869 Init. Calib. Date(s): 02/15/10 02/15/10

Init. Calib. Times: 1105 1355

GC Column: RTX-VMS ID: 0.18 (mm)

COMPOUND	RRF OR AMOUNT	RRF50.000 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE	
Ethylbenzene	0.4430000	0.4121100	0.01	-6.97	20.00	AVRG	
Xylenes (total)	0.0000000	0.5412200	0.01	0.00		AVRG	<-
m+p-Xylenes	0.5320000	0.5401100	0.01	1.52		AVRG	
o-Xylene	0.5110000	0.5434600	0.01	6.35		AVRG	
Styrene	0.8960000	0.9468600	0.01	5.68		AVRG	
Bromoform	0.2510000	0.2515400	0.1	0.22		AVRG	
1,1,2,2-Tetrachloroethane	0.9400000	0.9493000	0.3	0.99		AVRG	
Dibromofluoromethane	0.6120000	0.6953400	0.01	13.62		AVRG	
1,2-Dichloroethane-D4	0.5860000	0.6391900	0.01	9.08		AVRG	
Toluene-D8	0.9870000	1.1659000	0.01	18.13		AVRG	
P-Bromofluorobenzene	0.3600000	0.4560800	0.01	26.69		AVRG	

FORM VII PEST

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID (Standard): F8783 Date Analyzed: 02/22/10

Instrument ID: GCMS-F Time Analyzed: 1526

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	665638	6.99	1165210	8.15	946238	11.89
UPPER LIMIT	1331276	7.49	2330420	8.65	1892476	12.39
LOWER LIMIT	332819	6.49	582605	7.65	473119	11.39

	CLIENT SAMPLE ID	LAB SAMPLE ID						
01	WG74492-LCS	WG74492-1	692299	6.98	1155102	8.15	931833	11.88
02	WG74492-BLANK	WG74492-2	700618	6.97	1152359	8.13	919053	11.88
03	039T021610	SD0798-1	656219	6.95	1050827	8.11	885139	11.88
04	039F021610	SD0798-2	648211	6.95	1055596	8.12	905005	11.88
05	039G10LF26	SD0798-3	628965	6.95	1054182	8.12	886816	11.88
06	039G02LF19	SD0798-4	632861	6.94	1025113	8.12	875946	11.89
07	039E021710	SD0834-2	633940	6.95	1033070	8.12	848666	11.87
08	039G03LF19	SD0834-3	601664	6.94	1010754	8.12	819900	11.87
09	039G11LF15	SD0834-4	609992	6.94	1024853	8.11	849604	11.88
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-D5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID (Standard): F8783 Date Analyzed: 02/22/10

Instrument ID: GCMS-F Time Analyzed: 1526

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	436182	14.95				
UPPER LIMIT	872364	15.45				
LOWER LIMIT	218091	14.45				

	CLIENT SAMPLE ID	LAB SAMPLE ID						
01	WG74492-LCS	WG74492-1	445841	14.96				
02	WG74492-BLANK	WG74492-2	416166	14.96				
03	039T021610	SD0798-1	418714	14.94				
04	039F021610	SD0798-2	411273	14.94				
05	039G10LF26	SD0798-3	401670	14.94				
06	039G02LF19	SD0798-4	393907	14.96				
07	039E021710	SD0834-2	364539	14.95				
08	039G03LF19	SD0834-3	399949	14.95				
09	039G11LF15	SD0834-4	392521	14.95				
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

IS4 (DCB) = 1,4-Dichlorobenzene-D4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID (Standard): F8806 Date Analyzed: 02/23/10

Instrument ID: GCMS-F Time Analyzed: 0923

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	645453	6.97	1096793	8.14	875037	11.89
UPPER LIMIT	1290906	7.47	2193586	8.64	1750074	12.39
LOWER LIMIT	322727	6.47	548397	7.64	437519	11.39

	CLIENT SAMPLE ID	LAB SAMPLE ID						
01	WG74512-LCS	WG74512-1	667629	6.97	1138416	8.13	960025	11.88
02	WG74512-BLANK	WG74512-2	655870	6.97	1146708	8.13	917092	11.88
03	039G22LF19	SD0834-5	639280	6.97	1071834	8.13	912914	11.89
04	039H22LF19	SD0834-6	639870	6.97	1076980	8.13	894760	11.89
05	039G04LF26	SD0834-7	630195	6.96	1044981	8.13	844523	11.88
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IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-D5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID (Standard): F8806 Date Analyzed: 02/23/10

Instrument ID: GCMS-F Time Analyzed: 0923

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD		414081	14.95				
UPPER LIMIT		828162	15.45				
LOWER LIMIT		207041	14.45				
CLIENT SAMPLE ID	LAB SAMPLE ID						
01 WG74512-LCS	WG74512-1	429594	14.95				
02 WG74512-BLANK	WG74512-2	417553	14.95				
03 039G22LF19	SD0834-5	405722	14.95				
04 039H22LF19	SD0834-6	404754	14.95				
05 039G04LF26	SD0834-7	380001	14.95				
06							
07							
08							
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IS4 (DCB) = 1,4-Dichlorobenzene-D4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID (Standard): F8824 Date Analyzed: 02/24/10

Instrument ID: GCMS-F Time Analyzed: 0926

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD		656145	6.98	1146684	8.14	910205	11.88
UPPER LIMIT		1312290	7.48	2293368	8.64	1820410	12.38
LOWER LIMIT		328073	6.48	573342	7.64	455103	11.38
CLIENT SAMPLE ID	LAB SAMPLE ID						
01 WG74573-LCS	WG74573-1	664180	6.97	1126460	8.13	910787	11.88
02 WG74573-BLANK	WG74573-2	673868	6.97	1134056	8.13	907734	11.89
03 039G12LF27	SD0834-8RA	653094	6.97	1102396	8.13	887015	11.89
04 039G22LF19	SD0834-5DL	612543	6.98	1020806	8.14	873621	11.88
05 039H22LF19	SD0834-6DL	610362	6.98	999013	8.14	827100	11.89
06 039G04LF26	SD0834-7DL	605180	6.97	1041467	8.13	826153	11.88
07							
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19							
20							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-D5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID (Standard): F8824 Date Analyzed: 02/24/10

Instrument ID: GCMS-F Time Analyzed: 0926

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD		412311	14.96				
UPPER LIMIT		824622	15.46				
LOWER LIMIT		206156	14.46				
CLIENT SAMPLE ID	LAB SAMPLE ID						
01 WG74573-LCS	WG74573-1	424658	14.96				
02 WG74573-BLANK	WG74573-2	417985	14.95				
03 039G12LF27	SD0834-8RA	399048	14.95				
04 039G22LF19	SD0834-5DL	384573	14.96				
05 039H22LF19	SD0834-6DL	380376	14.95				
06 039G04LF26	SD0834-7DL	387906	14.95				
07							
08							
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20							

IS4 (DCB) = 1,4-Dichlorobenzene-D4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID (Standard): F8869 Date Analyzed: 02/26/10

Instrument ID: GCMS-F Time Analyzed: 0914

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(PFB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD		595587	7.01	1031255	8.17	884601	11.90
UPPER LIMIT		1191174	7.51	2062510	8.67	1769202	12.40
LOWER LIMIT		297794	6.51	515628	7.67	442301	11.40
CLIENT SAMPLE ID	LAB SAMPLE ID						
01 WG74632-LCS	WG74632-1	624200	7.01	1109065	8.17	900503	11.90
02 WG74632-BLANK	WG74632-2	637023	7.00	1050143	8.17	871771	11.90
03 039G04LF26MS	WG74632-3	583768	7.01	1029996	8.16	809831	11.90
04 039G04LF26MSD	WG74632-4	608858	7.01	1052764	8.16	872896	11.89
05							
06							
07							
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17							
18							
19							
20							

IS1 (PFB) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-D5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: NSA MID-SOUTH SDG No.: NSA-078

Lab File ID (Standard): F8869 Date Analyzed: 02/26/10

Instrument ID: GCMS-F Time Analyzed: 0914

GC Column: RTX-VMS ID: 0.18 (mm) Heated Purge: (Y/N) N

	IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	417862	14.97				
UPPER LIMIT	835724	15.47				
LOWER LIMIT	208931	14.47				

	CLIENT SAMPLE ID	LAB SAMPLE ID						
01	WG74632-LCS	WG74632-1	421586	14.97				
02	WG74632-BLANK	WG74632-2	406902	14.97				
03	039G04LF26MS	WG74632-3	400182	14.97				
04	039G04LF26MSD	WG74632-4	407737	14.97				
05								
06								
07								
08								
09								
10								
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12								
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15								
16								
17								
18								
19								
20								

IS4 (DCB) = 1,4-Dichlorobenzene-D4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID:** 039G10LF26

Matrix: WATER **SDG Name:** NSA-078

Percent Solids: 0.00 **Lab Sample ID:** SD0798-003

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted MDL
7439-89-6	IRON, TOTAL	1300			P	1	100	5.17

Bottle ID: F

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID:** 039G02LF19

Matrix: WATER **SDG Name:** NSA-078

Percent Solids: 0.00 **Lab Sample ID:** SD0798-004

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted MDL
7439-89-6	IRON, TOTAL	21600			P	1	100	5.17

Bottle ID: F

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID:** 039G03LF19

Matrix: WATER **SDG Name:** NSA-078

Percent Solids: 0.00 **Lab Sample ID:** SD0834-003

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted MDL
7439-89-6	IRON, TOTAL	9040			P	1	100	5.17

Bottle ID: F

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID:** 039G11LF15

Matrix: WATER **SDG Name:** NSA-078

Percent Solids: 0.00 **Lab Sample ID:** SD0834-004

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted MDL
7439-89-6	IRON, TOTAL	3780			P	1	100	5.17

Bottle ID: F

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID:** 039G22LF19

Matrix: WATER **SDG Name:** NSA-078

Percent Solids: 0.00 **Lab Sample ID:** SD0834-005

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted MDL
7439-89-6	IRON, TOTAL	22300			P	1	100	5.17

Bottle ID: F

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID:** 039G04LF26

Matrix: WATER **SDG Name:** NSA-078

Percent Solids: 0.00 **Lab Sample ID:** SD0834-007

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted MDL
7439-89-6	IRON, TOTAL	22200			P	1	100	5.17

Bottle ID: L

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services **Client Field ID:** 039G12LF27

Matrix: WATER **SDG Name:** NSA-078

Percent Solids: 0.00 **Lab Sample ID:** SD0834-008

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	Adjusted PQL	Adjusted MDL
7439-89-6	IRON, TOTAL	1130			P	1	100	5.17

Bottle ID: F

Comments:

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: ICV

File: IAB26A Feb 26, 2010 12:06

Analyte	True	Found	%R (1)
ALUMINUM	10000.0	10530.00	105.3
CALCIUM	10000.0	10400.00	104.0
IRON	10000.0	10490.00	104.9
MAGNESIUM	10000.0	10320.00	103.2

SAMPLE: CCV

File: IAB26A Feb 26, 2010 12:30

Analyte	True	Found	%R (1)
ALUMINUM	12500.0	13000.00	104.0
CALCIUM	12500.0	13040.00	104.3
IRON	12500.0	12960.00	103.7
MAGNESIUM	12500.0	12360.00	98.9

(1) Control Limits: Mercury 80-120; Other Metals 90-110

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: CCV

File: IAB26A Feb 26, 2010 13:26

Analyte	True	Found	%R (1)
ALUMINUM	12500.0	12910.00	103.3
CALCIUM	12500.0	12950.00	103.6
IRON	12500.0	12930.00	103.4
MAGNESIUM	12500.0	12640.00	101.1

SAMPLE: CCV

File: IAB26A Feb 26, 2010 14:22

Analyte	True	Found	%R (1)
ALUMINUM	12500.0	12700.00	101.6
CALCIUM	12500.0	12620.00	101.0
IRON	12500.0	12690.00	101.5
MAGNESIUM	12500.0	12460.00	99.7

(1) Control Limits: Mercury 80-120; Other Metals 90-110

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: CCV

File: IAB26A Feb 26, 2010 15:18

Analyte	True	Found	%R (1)
ALUMINUM	12500.0	12730.00	101.8
CALCIUM	12500.0	12610.00	100.9
IRON	12500.0	12710.00	101.7
MAGNESIUM	12500.0	12510.00	100.1

SAMPLE: CCV

File: IAB26A Feb 26, 2010 16:14

Analyte	True	Found	%R (1)
ALUMINUM	12500.0	12760.00	102.1
CALCIUM	12500.0	12670.00	101.4
IRON	12500.0	12700.00	101.6
MAGNESIUM	12500.0	12530.00	100.2

(1) Control Limits: Mercury 80-120; Other Metals 90-110

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: CCV

File: IAB26A Feb 26, 2010 17:10

Analyte	True	Found	%R (1)
ALUMINUM	12500.0	12860.00	102.9
CALCIUM	12500.0	12820.00	102.6
IRON	12500.0	12780.00	102.2
MAGNESIUM	12500.0	12620.00	101.0

SAMPLE: CCV

File: IAB26A Feb 26, 2010 17:29

Analyte	True	Found	%R (1)
ALUMINUM	12500.0	12940.00	103.5
CALCIUM	12500.0	12950.00	103.6
IRON	12500.0	12860.00	102.9
MAGNESIUM	12500.0	12740.00	101.9

(1) Control Limits: Mercury 80-120; Other Metals 90-110

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: CCV

File: IAB26A Feb 26, 2010 17:52

Analyte	True	Found	%R (1)
ALUMINUM	12500.0	12790.00	102.3
CALCIUM	12500.0	12720.00	101.8
IRON	12500.0	12610.00	100.9
MAGNESIUM	12500.0	12010.00	96.1

(1) Control Limits: Mercury 80-120; Other Metals 90-110

Katahdin Analytical Services A0000089

2C

PQL STANDARD FOR AA AND ICP

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: PQL

File: IAB26A Feb 26, 2010 12:16

Analyte	TRUE	FOUND	% R
ALUMINUM	300.0	298.70	99.6
CALCIUM	50.0	50.63	101.3
IRON	100.0	104.80	104.8
MAGNESIUM	50.0	51.88	103.8

SAMPLE: PQL

File: IAB26A Feb 26, 2010 17:38

Analyte	TRUE	FOUND	% R
ALUMINUM	300.0	300.70	100.2
CALCIUM	50.0	47.21	94.4
IRON	100.0	104.00	104.0
MAGNESIUM	50.0	54.28	108.6

3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: ICB

File: IAB26A Feb 26, 2010 12:11

Analyte	Result	C
ALUMINUM	16.80	U
CALCIUM	11.40	U
IRON	5.10	J
MAGNESIUM	5.47	U

SAMPLE: CCB

File: IAB26A Feb 26, 2010 12:35

Analyte	Result	C
ALUMINUM	16.80	U
CALCIUM	11.40	U
IRON	6.84	J
MAGNESIUM	7.82	J

SAMPLE: CCB

File: IAB26A Feb 26, 2010 13:30

Analyte	Result	C
ALUMINUM	16.80	U
CALCIUM	11.40	U
IRON	9.13	J
MAGNESIUM	9.91	J

3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: CCB

File: IAB26A Feb 26, 2010 14:27

Analyte	Result	C
ALUMINUM	16.80	U
CALCIUM	11.40	U
IRON	11.64	J
MAGNESIUM	12.46	J

SAMPLE: CCB

File: IAB26A Feb 26, 2010 15:23

Analyte	Result	C
ALUMINUM	16.80	U
CALCIUM	11.40	U
IRON	12.27	J
MAGNESIUM	10.86	J

SAMPLE: CCB

File: IAB26A Feb 26, 2010 16:18

Analyte	Result	C
ALUMINUM	16.80	U
CALCIUM	11.40	U
IRON	15.63	J
MAGNESIUM	13.85	J

3A

INITIAL AND CONTINUING CALIBRATION BLANKS

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: CCB

File: IAB26A Feb 26, 2010 17:14

Analyte	Result	C
ALUMINUM	28.65	J
CALCIUM	11.40	U
IRON	16.83	J
MAGNESIUM	16.69	J

SAMPLE: CCB

File: IAB26A Feb 26, 2010 17:33

Analyte	Result	C
ALUMINUM	16.80	U
CALCIUM	11.40	U
IRON	18.75	J
MAGNESIUM	18.74	J

SAMPLE: CCB

File: IAB26A Feb 26, 2010 17:57

Analyte	Result	C
ALUMINUM	31.39	J
CALCIUM	22.91	J
IRON	25.71	J
MAGNESIUM	40.77	J

3P

PREPARATION BLANKS

Lab Name: Katahdin Analytical Services **Sample ID:** PBWAB25ICW1

Matrix: WATER **SDG Name:** NSA-078

QC Batch ID: AB25ICW1

Concentration Units : ug/L

Analyte	RESULT	C
IRON	5.170	U

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: ICSA

File: IAB26A Feb 26, 2010 12:20

Analyte	TRUE	FOUND	% R
ALUMINUM	500000	526300	105.3
CALCIUM	500000	497100	99.4
IRON	200000	198700	99.4
MAGNESIUM	500000	503600	100.7

SAMPLE: ICSAB

File: IAB26A Feb 26, 2010 12:25

Analyte	TRUE	FOUND	% R
ALUMINUM	500000	525600	105.1
CALCIUM	500000	488600	97.7
IRON	200000	192900	96.5
MAGNESIUM	500000	486200	97.2

ICP INTERFERENCE CHECK SAMPLE

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Concentration Units: ug/L

SAMPLE: ICSA

File: IAB26A Feb 26, 2010 17:42

Analyte	TRUE	FOUND	% R
ALUMINUM	500000	514400	102.9
CALCIUM	500000	490000	98.0
IRON	200000	190600	95.3
MAGNESIUM	500000	438500	87.7

SAMPLE: ICSAB

File: IAB26A Feb 26, 2010 17:47

Analyte	TRUE	FOUND	% R
ALUMINUM	500000	512700	102.5
CALCIUM	500000	483000	96.6
IRON	200000	188900	94.5
MAGNESIUM	500000	402100	80.4

LABORATORY CONTROL SAMPLES

Lab Name: Katahdin Analytical Services **Sample ID:** LCSWAB25ICW1

Matrix: WATER **SDG Name:** NSA-078

QC Batch ID: AB25ICW1

Concentration Units : ug/L

Analyte	TRUE	FOUND	% R	LIMITS (%)	
IRON	1000.0	1082.00	108.2	80	120

INSTRUMENT DETECTION LIMITS

Lab Name: Katahdin Analytical Services **Instrument Code:** I

Instrument Name: THERMO ICAP 6500 **Date:** 1/20/2010

Concentration Units: ug/L

Analyte	CRDL	IDL	M
ALUMINUM	300	16.80	P
CALCIUM	50	11.40	P
IRON	100	4.56	P
MAGNESIUM	50	5.47	P

METHOD DETECTION LIMITS

Lab Name: Katahdin Analytical Services **Instrument Code:** I

Instrument Name: THERMO ICAP 6500 **Date:** 2/26/2009

Analyte	MDL	Units	M	EPA Prep./Anal. Method
IRON	5.17	ug/L	P	SW846 3010A / SW846 6010B

ICP INTERELEMENT CORRECTION FACTORS

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Instrument Name THERMO ICAP 6500 **Instrument ID:** I **Date:** 10/14/2009

	Wavelength	Interelement Correction Factors for:												
nalyte	(nm)	Al	Ca	Fe	Mg	As	Cr	Co	Cu	Mn	Mo	Ni	Ti	V
.UMINUM	396.15	0.0	0.0002630	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0296000	0.0	0.0	0.0
ITIMONY	206.88	-0.0000123	0.0	0.0000429	0.0	-0.0001490	0.0072100	0.0	0.0	0.0	-0.0018200	-0.0003890	0.0	-0.0019100
SENIC	189.04	-0.0000126	0.0	-0.0002690	0.0	0.0	0.0002520	0.0	0.0	0.0	0.0004800	0.0	0.0	0.0
RIUM	455.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RYLLIUM	313.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0004960	0.0000362
RON	208.96	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0044500	0.0	0.0	0.0
DMIUM	226.50	0.0	0.0	0.0000744	0.0	0.0	0.0	-0.0000220	0.0	0.0	0.0	-0.0000800	0.0000084	0.0
LCIUM	315.89	0.0	0.0	0.0	0.0	0.0	-0.0002580	0.0010500	0.0	0.0	0.0	0.0	0.0	0.0
ROMIUM	267.72	0.0	0.0	-0.0000086	0.0	0.0	0.0	0.0	0.0	0.0001110	-0.0000210	0.0	0.0	0.0000720
BALT	228.62	0.0	0.0	0.0000131	0.0	0.0	-0.0000926	0.0	0.0	0.0	0.0000180	0.0002140	0.0022200	0.0
PPER	327.40	0.0	0.0	0.0000372	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0006350	0.0002980
N	259.94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0005620	0.0	0.0	0.0
AD	220.35	-0.0001130	0.0	0.0000223	0.0	0.0000560	0.0	0.0000943	0.0003720	0.0	-0.0013200	-0.0001000	-0.0002260	0.0
HIUM	670.78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GNESIUM	285.21	0.0	0.0	0.0000116	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGANESE	257.61	-0.0000090	0.0	-0.0000200	0.0000244	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LYBDENUM	202.03	0.0	0.0	0.0	0.0	0.0	0.0001080	0.0	0.0	-0.0001990	0.0	0.0	0.0	-0.0001440
KEL	231.60	0.0	0.0	-0.0000243	0.0	0.0	0.0	0.0004080	0.0	0.0	0.0009630	0.0	0.0	0.0
ASSIUM	766.49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENIUM	196.09	-0.0000054	0.0	-0.0001580	0.0	-0.0000872	0.0	-0.0004270	0.0	0.0009180	0.0	0.0	0.0	0.0000290
CON	251.61	0.0	0.0	-0.0001410	0.0	0.0	0.0	0.0	0.0	0.0	0.0092000	0.0	-0.0008610	0.0
VER	328.07	0.0	0.0	-0.0002340	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0001960	0.0
DIUM	589.59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ONTIUM	421.55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALLIUM	190.86	0.0000090	0.0	-0.0000047	0.0	0.0	0.0	0.0048300	0.0001070	-0.0018500	-0.0001640	0.0	-0.0011600	-0.0036200
	189.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANIUM	334.90	0.0	0.0	0.0	0.0	0.0	0.0001290	0.0	0.0	0.0	0.0003760	0.0	0.0	0.0
NIUM	409.01	-0.0000045	0.0	0.0002100	0.0	-0.0006230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NADIUM	292.40	0.0	0.0	0.0000079	0.0	0.0	-0.0027700	0.0	0.0	0.0	-0.0072600	0.0	0.0009220	0.0
C	206.20	0.0	0.0	0.0	0.0	0.0	-0.0005230	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ICP LINEAR RANGES

Lab Name: Katahdin Analytical Services **Instrument Code:** I

Instrument Name: THERMO ICAP 6500 **Date:** 1/12/2010

Concentration Units: ug/L

Analyte	Integration Time (sec)	Linear Range	M
ALUMINUM	5.00	1000000	P
CALCIUM	5.00	1000000	P
IRON	5.00	500000	P
MAGNESIUM	5.00	500000	P

PREPARATION LOG

Lab Name: Katahdin Analytical Services **QC Batch ID:** AB25ICW1

Matrix: WATER **SDG Name:** NSA-078

Method: P **Prep Date:** 02/25/2010

Client ID	Lab Sample ID	Initial (L)	Final (L)
LCSWAB25ICW1	LCSWAB25ICW1	0.05	0.05
PBWAB25ICW1	PBWAB25ICW1	0.05	0.05
039G10LF26	SD0798-003	0.05	0.05
039G02LF19	SD0798-004	0.05	0.05
039G03LF19	SD0834-003	0.05	0.05
039G11LF15	SD0834-004	0.05	0.05
039G22LF19	SD0834-005	0.05	0.05
039G04LF26	SD0834-007	0.05	0.05
039G12LF27	SD0834-008	0.05	0.05

ANALYSIS RUN LOG

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Instrument ID: THERMO ICAP 6500 **File Name:** IAB26A

Date: 2/26/2010 **Method:** P

Lab Sample ID	Client ID	D.F.	Time	Elements			
Blank		1	11:57	AL	CA	FE	MG
Std 1		1	12:02	AL	CA	FE	MG
ICV		1	12:06	AL	CA	FE	MG
ICB		1	12:11	AL	CA	FE	MG
PQL		1	12:16	AL	CA	FE	MG
ICSA		1	12:20	AL	CA	FE	MG
ICSAB		1	12:25	AL	CA	FE	MG
CCV		1	12:30	AL	CA	FE	MG
CCB		1	12:35	AL	CA	FE	MG
PBWAB25ICW1		1	12:39			FE	
LCSWAB25ICW1		1	12:44			FE	
ZZZZZZ		1	12:49				
ZZZZZZ		1	12:53				
SD0798-003	039G10LF26	1	12:58			FE	
SD0798-004	039G02LF19	1	13:03			FE	
SD0834-003	039G03LF19	1	13:07			FE	
SD0834-004	039G11LF15	1	13:12			FE	
SD0834-005	039G22LF19	1	13:16			FE	
SD0834-007	039G04LF26	1	13:21			FE	
CCV		1	13:26	AL	CA	FE	MG
CCB		1	13:30	AL	CA	FE	MG
SD0834-008	039G12LF27	1	13:35			FE	
ZZZZZZ		5	13:40				
ZZZZZZ		5	13:44				
ZZZZZZ		5	13:49				
ZZZZZZ		5	13:54				
ZZZZZZ		5	13:58				
ZZZZZZ		5	14:03				
ZZZZZZ		25	14:08				
ZZZZZZ		5	14:13				
ZZZZZZ		5	14:17				
CCV		1	14:22	AL	CA	FE	MG
CCB		1	14:27	AL	CA	FE	MG
ZZZZZZ		5	14:31				
ZZZZZZ		5	14:36				
ZZZZZZ		5	14:41				
ZZZZZZ		5	14:45				
ZZZZZZ		5	14:50				
ZZZZZZ		5	14:55				
ZZZZZZ		5	14:59				
ZZZZZZ		5	15:04				
ZZZZZZ		1	15:09				
ZZZZZZ		1	15:13				
CCV		1	15:18	AL	CA	FE	MG
CCB		1	15:23	AL	CA	FE	MG
ZZZZZZ		5	15:27				
ZZZZZZ		1	15:32				
ZZZZZZ		1	15:36				
ZZZZZZ		1	15:41				
ZZZZZZ		1	15:46				

ANALYSIS RUN LOG

Lab Name: Katahdin Analytical Services **SDG Name:** NSA-078

Instrument ID: THERMO ICAP 6500 **File Name:** IAB26A

Date: 2/26/2010 **Method:** P

Lab Sample ID	Client ID	D.F.	Time	Elements			
ZZZZZZ		1	15:50				
ZZZZZZ		1	15:55				
ZZZZZZ		1	16:00				
ZZZZZZ		1	16:04				
ZZZZZZ		1	16:09				
CCV		1	16:14	AL	CA	FE	MG
CCB		1	16:18	AL	CA	FE	MG
ZZZZZZ		5	16:23				
ZZZZZZ		1	16:28				
ZZZZZZ		1	16:32				
ZZZZZZ		1	16:37				
ZZZZZZ		10	16:42				
ZZZZZZ		5	16:46				
ZZZZZZ		5	16:51				
ZZZZZZ		10	16:56				
ZZZZZZ		50	17:01				
ZZZZZZ		10	17:05				
CCV		1	17:10	AL	CA	FE	MG
CCB		1	17:14	AL	CA	FE	MG
ZZZZZZ		10	17:19				
ZZZZZZ		10	17:24				
CCV		1	17:29	AL	CA	FE	MG
CCB		1	17:33	AL	CA	FE	MG
PQL		1	17:38	AL	CA	FE	MG
ICSA		1	17:42	AL	CA	FE	MG
ICSAB		1	17:47	AL	CA	FE	MG
CCV		1	17:52	AL	CA	FE	MG
CCB		1	17:57	AL	CA	FE	MG

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Ronnie Moody
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SD0798-3
Report Date: 04-MAR-10
Client PO:
Project: NSA Mid-South
SDG: NSA-078

Sample Description	Matrix	Date Sampled	Date Received
039G10LF26	AQ	16-FEB-10	17-FEB-10

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	J0.048 mg/L	.05	EPA 353.2	WG74362	18-FEB-10 09:36:23	N/A	N/A	CP	
Total Organic Carbon	U1.0 mg/L	1	EPA 415.1	WG74774	03-MAR-10 12:23:49	N/A	N/A	CP	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Ronnie Moody
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SD0798-4
Report Date: 04-MAR-10
Client PO:
Project: NSA Mid-South
SDG: NSA-078

Sample Description	Matrix	Date Sampled	Date Received
039G02LF19	AQ	16-FEB-10	17-FEB-10

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG74362	18-FEB-10 09:39:40	N/A	N/A	CP	
Total Organic Carbon	2.0 mg/L	1	EPA 415.1	WG74774	03-MAR-10 13:26:53	N/A	N/A	CP	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SD0834-3
Report Date: 04-MAR-10
Client PO:
Project: NSA Mid-South
SDG: NSA-078

Sample Description	Matrix	Date Sampled	Date Received
039G03LF19	AQ	17-FEB-10	18-FEB-10

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG74362	18-FEB-10 11:19:36	N/A	N/A	CP	
Total Organic Carbon	1.5 mg/L	1	EPA 415.1	WG74774	03-MAR-10 14:03:44	N/A	N/A	CP	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SD0834-4
Report Date: 04-MAR-10
Client PO:
Project: NSA Mid-South
SDG: NSA-078

Sample Description	Matrix	Date Sampled	Date Received
039G11LF15	AQ	17-FEB-10	18-FEB-10

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG74362	18-FEB-10 11:17:24	N/A	N/A	CP	
Total Organic Carbon	U1.0 mg/L	1	EPA 415.1	WG74774	03-MAR-10 14:15:37	N/A	N/A	CP	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SD0834-5
Report Date: 04-MAR-10
Client PO:
Project: NSA Mid-South
SDG: NSA-078

Sample Description	Matrix	Date Sampled	Date Received
039G22LF19	AQ	17-FEB-10	18-FEB-10

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG74362	18-FEB-10 11:18:30	N/A	N/A	CP	
Total Organic Carbon	2.3 mg/L	1	EPA 415.1	WG74774	03-MAR-10 14:27:39	N/A	N/A	CP	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SD0834-7
Report Date: 04-MAR-10
Client PO:
Project: NSA Mid-South
SDG: NSA-078

Sample Description	Matrix	Date Sampled	Date Received
039G04LF26	AQ	17-FEB-10	18-FEB-10

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	U0.050 mg/L	.05	EPA 353.2	WG74362	18-FEB-10 11:21:47	N/A	N/A	CP	
Total Organic Carbon	2.0 mg/L	1	EPA 415.1	WG74774	03-MAR-10 14:40:02	N/A	N/A	CP	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Report of Analytical Results

Client: Paul Gentry
Spectra Tech, Inc.
132 Jefferson Court
Oak Ridge,TN 37830

Lab Sample ID: SD0834-8
Report Date: 04-MAR-10
Client PO:
Project: NSA Mid-South
SDG: NSA-078

Sample Description	Matrix	Date Sampled	Date Received
039G12LF27	AQ	17-FEB-10	18-FEB-10

Parameter	Result	Adj PQL	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Analyst	Footnotes
Nitrate As N	0.22 mg/L	.05	EPA 353.2	WG74362	18-FEB-10 11:20:41	N/A	N/A	CP	
Total Organic Carbon	U1.0 mg/L	1	EPA 415.1	WG74774	03-MAR-10 14:51:48	N/A	N/A	CP	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Blank Sample Summary Report

Nitrate As N

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG74362	EPA 353.2	18-FEB-10	N/A	U 0.050 mg/L	.05 mg/L

Nitrite As N

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG74362	EPA 353.2	18-FEB-10	N/A	U 0.050 mg/L	.05 mg/L

Total Organic Carbon

Samp Type	QC Batch	Anal. Method	Anal. Date	Prep. Date	Result	PQL
MBLANK	WG74774	EPA 415.1	03-MAR-10	N/A	U 1.0 mg/L	1 mg/L

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Laboratory Control Sample Summary Report

Nitrate As N

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG74362-2	LCS	WG74362	18-FEB-10	N/A	mg/L	1	0.97	97	80-120	

Nitrite As N

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG74362-3	LCS	WG74362	18-FEB-10	N/A	mg/L	1	0.96	96	80-120	

Total Organic Carbon

Lab Sample Id	Samp Type	QC Batch	Analysis Date	Prep Date	Units	Spike Amt.	Result	Recovery	Acceptance Range	RPD
WG74774-2	LCS	WG74774	03-MAR-10	N/A	mg/L	50	48.	96	80-120	

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Duplicate Sample Summary Report

Nitrate As N

Duplicate Sample ID	Original Sample ID	QC Batch	Analysis Date	Result Units	Sample Result	Duplicate Result	RPD(%)	RPD Limit
WG74362-4	SD0798-3	WG74362	18-FEB-10	mg/L	J 0.048	U 0.050	NC	20

Total Organic Carbon

Duplicate Sample ID	Original Sample ID	QC Batch	Analysis Date	Result Units	Sample Result	Duplicate Result	RPD(%)	RPD Limit
WG74774-3	SD0798-3	WG74774	03-MAR-10	mg/L	U 1.0	U 1.0	NC	20

Katahdin
ANALYTICAL SERVICES

Cert No E87604

Quality Control Report

Matrix Spike Sample Summary Report

Nitrate As N

Matrix Spike Sample ID	Sample Type	Original Sample ID	QC Batch	Analysis Date	Result Units	Spike Amount	Sample Result	MS Result	Recovery (%)	Recovery Limit
WG74362-5	MS	SD0798-3	WG74362	18-FEB-10	mg/L	.5	J 0.048	0.57	105	75 - 125

Total Organic Carbon

Matrix Spike Sample ID	Sample Type	Original Sample ID	QC Batch	Analysis Date	Result Units	Spike Amount	Sample Result	MS Result	Recovery (%)	Recovery Limit
WG74774-4	MS	SD0798-3	WG74774	03-MAR-10	mg/L	100	U 1.0	98.	98	75 - 125

microseeps
from insight comes solutions

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 1 of 13
Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Laboratory Results

Total pages in data package: 127

Lab Sample #	Client Sample ID
P1002197-01	014G14LS19
P1002197-02	014G02LS29
P1002197-03	039G10LF26
P1002197-04	039G02LF19
P1002197-05	039G03LF19
P1002197-06	039G11LF15
P1002197-07	039G22LF19
P1002197-08	039G12LF27
P1002197-09	039G04LF26

Microseeps test results meet all the requirements of the NELAC standards or provide reasons and/or justification if they do not.

Approved By: Debbie Hallo **Date:** 3-4-10

Project Manager: Debbie Hallo

The analytical results reported here are reliable and usable to the precision expressed in this report. As required by some regulating authorities, a full discussion of the uncertainty in our analytical results can be obtained at our web site or through customer service. Unless otherwise specified, all results are reported on a wet weight basis.

As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.

Case Narrative: The RPD for the MS/MSD analyses for butyric acid was outside of control limits.

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 2 of 13
Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
014G14LS19	Vapor	P1002197-01	16 Feb. 10 11:10	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	J	0.002	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene	J	0.008	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		1.000	0.600	nM	AM20GAX	2/22/10	sl
N Methane		42.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 3 of 13
Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
014G02LS29	Vapor	P1002197-02	16 Feb. 10 12:15	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene	J	0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		3.900	0.600	nM	AM20GAX	2/22/10	sl
N Methane		70.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 4 of 13
Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G10LF26	Vapor	P1002197-03	16 Feb. 10 15:10	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene	J	0.003	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		2.700	0.600	nM	AM20GAX	2/22/10	sl
N Methane		24.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers. J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 5 of 13
Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G02LF19	Vapor	P1002197-04	16 Feb. 10 16:30	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene	J	0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		2.700	0.600	nM	AM20GAX	2/22/10	sl
N Methane		830.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G03LF19	Vapor	P1002197-05	17 Feb. 10 10:45	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene	J	0.005	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		1.500	0.600	nM	AM20GAX	2/22/10	sl
N Methane		2400.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 7 of 13
Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G11LF15	Vapor	P1002197-06	17 Feb. 10 11:25	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		1.600	0.600	nM	AM20GAX	2/22/10	sl
N Methane		44.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G22LF19	Vapor	P1002197-07	17 Feb. 10 12:38	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene		0.220	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		1.200	0.600	nM	AM20GAX	2/22/10	sl
N Methane		3900.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G12LF27	Vapor	P1002197-08	17 Feb. 10 13:15	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	J	0.009	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		1.100	0.600	nM	AM20GAX	2/22/10	sl
N Methane		26.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 10 of 13
Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
039G04LF26	Vapor	P1002197-09	17 Feb. 10 15:32	18 Feb. 10 11:22

Analyte(s)	Flag	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis							
N Ethane	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Ethene	U	< 0.010	0.010	ug/L	AM20GAX	2/22/10	sl
N Hydrogen		1.200	0.600	nM	AM20GAX	2/22/10	sl
N Methane		4800.000	0.015	ug/L	AM20GAX	2/22/10	sl
SemiVolatiles							
N Acetic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Butyric Acid	UM	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Lactic Acid	U	< 25.0	25.0	mg/L	AM21G	3/2/10	td
N Propionic Acid	U	< 1.0	1.0	mg/L	AM21G	3/2/10	td
N Pyruvic Acid	U	< 10.0	10.0	mg/L	AM21G	3/2/10	td

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Light Hydrocarbons (C1-C4) by Bubblestrip
Analysis Method: Light Hydrocarbons (C1-C4) by Bubblestrip

M100222021-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Ethane	< 0.010	ug/L		0.010		- NA
Ethene	< 0.010	ug/L		0.010		- NA
Methane	< 0.015	ug/L		0.015		- NA

M100222021-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Ethane	2.900	ug/L	2.72	107.00	75 - 125
Ethene	6.900	ug/L	6.51	106.00	75 - 125
Methane	3.200	ug/L	3.09	103.00	75 - 125

M100222021-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Ethane	2.900	ug/L	2.72	107.00	75 - 125	0.00	0 - 20
Ethene	7.000	ug/L	6.51	107.00	75 - 125	1.44	0 - 20
Methane	3.200	ug/L	3.09	103.00	75 - 125	0.00	0 - 20

[ ] Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Hydrogen by Bubble Strip

Analysis Method: Hydrogen by Bubble Strip

M100222036-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Hydrogen	< 0.600	nM		0.600		- NA

M100222036-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Hydrogen	9.900	nM	9.78	101.00	75 - 125

M100222036-LCSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Hydrogen	10.000	nM	9.78	102.00	75 - 125	1.01	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Client Name: Spectra Tech
Contact: Paul Gentry
Address: 132 Jefferson Court
Oak Ridge, TN 37830-4821

Page: Page 13 of 13
Lab Proj #: P1002197
Report Date: 03/04/10
Client Proj Name: NAS Mid South
Client Proj #: N62467-05-G

Prep Method: Analysis of Volatile Fatty Acids in Water

Analysis Method: Analysis of Volatile Fatty Acids in Water

M100303025-MB

	Result		TrueSpikeConc.	RDL	%Recovery	Ctl Limits
Acetic Acid	< 1.0	mg/L		1.0		- NA
Propionic Acid	< 1.0	mg/L		1.0		- NA
Butyric Acid	< 1.0	mg/L		1.0		- NA
Lactic Acid	< 25.0	mg/L		25.0		- NA
Pyruvic Acid	< 10.0	mg/L		10.0		- NA

M100303025-LCS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Acetic Acid	120.0	mg/L	100.00	120.00	70 - 130
Propionic Acid	120.0	mg/L	100.00	120.00	70 - 130
Butyric Acid	110.0	mg/L	100.00	110.00	70 - 130
Lactic Acid	95.0	mg/L	100.00	95.00	70 - 130
Pyruvic Acid	96.0	mg/L	100.00	96.00	70 - 130

02197-01A-MS

	Result		TrueSpikeConc.	%Recovery	Ctl Limits
Acetic Acid	110.0	mg/L	100.00	110.00	70 - 130
Propionic Acid	100.0	mg/L	100.00	100.00	70 - 130
Butyric Acid	89.0	mg/L	100.00	89.00	70 - 130
Lactic Acid	110.0	mg/L	100.00	110.00	70 - 130
Pyruvic Acid	100.0	mg/L	100.00	100.00	70 - 130

P1002197-01A-MSD

	Result		TrueSpikeConc.	%Recovery	Ctl Limits	RPD	RPD Ctl Limits
Acetic Acid	120.0	mg/L	100.00	120.00	70 - 130	8.70	0 - 20
Propionic Acid	120.0	mg/L	100.00	120.00	70 - 130	18.18	0 - 20
Butyric Acid	110.0	mg/L	100.00	110.00	70 - 130	21.11	0 - 20
Lactic Acid	110.0	mg/L	100.00	110.00	70 - 130	0.00	0 - 20
Pyruvic Acid	110.0	mg/L	100.00	110.00	70 - 130	9.52	0 - 20

Outlined Results indicate results outside of Control limits

Data Qualifiers: J - estimated value, U - Non detect, R - Poor surrogate recovery, M - Recovery/RPD poor for MS/MSD, SAMP/DUP, B - detected in blank, S - field sample as received did not meet NELAC sample acceptance criteria, L - Subcontracted Lab used, N - NELAC certified analysis

Chain of Custody Documents

Microseeps Lab. Proj. #

CHAIN - OF CUSTODY RECORD

Microseeps COC cont. #

Phone: (412) 826-5245 | Microseeps, Inc. - 220 William Pitt Way - Pittsburgh, PA 15238 | Fax No. : (412) 826-3433

mpany : SPECTRA TECH INC

. Address : 132 JEFFERSON COURT, OAK RIDGE, TN 37830

one # : 865 483 7210 Fax # : 865 483 7262

oj. Manager : RONNIE MOODY

oj. Name/Number : NSA MID-SOUTH

mpler's signature :

Cooler Temp.

Results to : RONNIE MOODY

Invoice to : SAME

Parameters Requested

Sample ID	Sample Description	Sample Type Water	Vapor	Solid	Date	Time	# Bottles	VFA	NEF	H_2									Remarks :
14G14LS19	WATER/AIR	✓	✓		2/16/10	1110	4	2	1	1									
14G02LS29	WATER/AIR	✓	✓		2/16/10	1215	4	2	1	1									
39G10LF26	WATER/AIR	✓	✓		2/16/10	1510	4	2	1	1									
39G02LF19	WATER/AIR	✓	✓		2/16/10	1630	4	2	1	1									
39G03LF19	WATER/AIR	✓	✓		2/17/10	1045	4	2	1	1									
39G11LF15	WATER/AIR	✓	✓		2/17/10	1125	4	2	1	1									
39G22LF19	WATER/AIR	✓	✓		2/17/10	1238	4	2	1	1									
39G12LF27	WATER/AIR	✓	✓		2/17/10	1315	4	2	1	1									
39G04LF26	WATER/AIR	✓	✓		2/17/10	1532	4	2	1	1									

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
	SPECTRA TECH INC	2/17/10	1800				
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Accompany Samples YELLOW : Laboratory File PINK COPY : Submitter

Appendix B
VOC and Geochemical Summary Tables

Table B-2
Geochemical Results

Parameter	Date	Monitoring Well										
		039G02LF	039G03LF	039G04LF	039G05LF	039G10LF	039G11LF	039G12LF	039G13LF	039G14LF	039G15LF	039G22LF
Dissolved Oxygen (mg/L)	Jan-05	0.56	0.98	0.39	0.56	0.56	0.63	0.5	0.7	2.32	0.58	0.34
	Apr-05	0.88	0.93	0.8	0.5	1.03	0.67	0.4	0.78	0.92	0.93	2.25
	Jul-05	0.74	0.64	0.44	0.33	0.33	0.47	0.32	0.4	0.98	0.56	0.19
	Oct-05	1.38	0.4	0.38	0.38	0.50	1.6	0.44	0.50	1.00	0.40	0.40
	Jun-06	1.17	0.66	0.53	1.04	1.09	0.28	0.9	0.56	0.23	0.81	0.75
	Aug-06	1.05	2.07	2.82	1.91	1.41	0.81	1.42	1.52	1.09	4.8*	0.82
	Oct-06	0.61	1.49	0.55	0.60	1.46	1.30	0.76	0.79	1.57	0.96	0.39
	Feb-07	1.24	1.07	1.33	0.92	0.67	0.87	1.07	0.74	1.31	0.73	0.59
	May-07	1.25	1.27	1.18	1.24	3.48	1.04	1.45	3.52	2.52	0.74	1.14
	Aug-07	3.8*	0.7	0.5	NS	0.94	NS	0.41	8.3*	NS	NS	0.29
	Nov-07	0.50	0.51	1.51	NS	0.95	NS	0.90	1.28	NS	NS	1.90
	Feb-08	2.26	1.98	0.47	NS	1.17	NS	0.75	1.78	NS	NS	0.43
	May-08	1.10	0.69	1.10	NS	1.17	NS	1.00	1.18	NS	NS	0.84
	Aug-08	0.97	0.35	1.31	NS	1.10	NS	0.50	0.67	NS	NS	1.63
	Nov-08	0.52	0.84	0.48	NS	0.97	NS	0.83	0.99	NS	NS	0.81
	Feb-09	1.52	2.00	0.77	NS	0.50	NS	1.40	1.80	NS	NS	0.60
	May-09	1.93	2.13	1.07	NS	2.79	NS	1.27	2.13	NS	NS	1.67
	Aug-09	0.62	0.62	0.29	well closed	1.94	0.81	0.65	well closed	NS	NS	0.42
	Oct-09	1.04	0.78	0.93	well closed	0.62	0.34	0.71	well closed	NS	NS	4.70
	Feb-10	4.49	0.72	1.97	well closed	0.47	0.20	0.24	well closed	NS	NS	1.94
ORP (mV)	Jan-05	-47	47.1	-28.4	-33.7	-56	-18.3	6	79	15.9	-528.7	-158.3
	Apr-05	-36	19.9	-22.7	-20.2	2.6	14.3	34.1	132	34.7	54.7	-46.2
	Jul-05	-11	137.1	-81.8	-1.2	48.9	-157.8	41.1	87.7	54.4	205.3	-137.3
	Oct-05	-8.1	-54.9	-17.4	-28.0	-104.1	-33.9	0.5	-120.7	0.1	-123.8	-99.6
	Jun-06	-90.8	-109.6	-25.4	-13.2	-57.40	35.7	-64.8	3.5	-66	-62.5	-111.7
	Aug-06	223.1	-181.4	-158.1	0.7	127.60	-185.2	-22.4	55	165.5	-75.5	-104
	Oct-06	-14.2	139.4	-17.9	-7.6	24.7	3.0	36.0	184.0	36.0	-109.0	-38.0
	Feb-07	-23.9	178.3	-4.0	-39.3	9.9	15.7	40.2	14.3	134.1	-95.8	-43.4
	May-07	-77.1	-198.2	-59.0	-39.2	-9.8	-17.6	-202.1	92.8	14.2	-100.4	-232.8
	Aug-07	45	-86	-81	NS	-18	NS	-1	59	NS	NS	-157
	Nov-07	-56	-72	-121	NS	5	NS	-184	-52	NS	NS	-138
	Feb-08	-36	-84	-68	NS	-103	NS	-30	160	NS	NS	-78
	May-08	1	-56.7	-167.1	NS	-277.8	NS	-275.2	341.3	NS	NS	-174.4
	Aug-08	-43	-97.9	-53.2	NS	47.6	NS	3.7	97	NS	NS	-36.2
	Nov-08	-47	-97.2	-68.4	NS	-1	NS	-23.8	35.1	NS	NS	-51.6
	Feb-09	-159.2	-238.1	-57.9	NS	2.7	NS	-186.6	-5	NS	NS	-170
	May-09	-137.8	-133.8	12.8	NS	-217.1	NS	110.7	110.3	NS	NS	7.4
	Aug-09	-89.4	-80.8	-39.5	well closed	153.8	NS	58.3	well closed	NS	NS	-79.0
	Oct-09	-25.7	-76.2	-62.2	well closed	-58.2	NS	-6.5	well closed	NS	NS	-22.2
	Feb-10	-32	-104.4	-73.6	well closed	-5.2	NS	-26	well closed	NS	NS	-78.2

Table B-2
Geochemical Results

Parameter	Date	Monitoring Well										
		039G02LF	039G03LF	039G04LF	039G05LF	039G10LF	039G11LF	039G12LF	039G13LF	039G14LF	039G15LF	039G22LF
Hydrogen (nM)	Jan-05	1.4	1	1.50	1.6	1.5	2.7	1.2	1.2	NS	NS	NS
	Apr-05	1.7	1.2	1.1	0.92	1	0.75	1.7	0.93	0.81	0.6	2.3
	Jul-05	19	2.1	2	1.9	1.5	4.5	1.9	2.1	2.5	1.9	2
	Oct-05	14	28.0	12	20	560	3.3	74	17	3.40	61	1.4
	Jun-06	9	2.2	55	2.4	1.5	3.4	1.1	45	4.60	5.7	37
	Aug-06	2.7	1.9	1.4	3.2	2	1.7	1.9	3.2	1.40	1.6	1.7
	Oct-06	2	1.3	1.3	2	1.4	1.4	2	1.40	1.1	1.2	1.3
	Feb-07	1.9	1.0	1.2	0.76	0.79	1.5	2.4	2.40	1.2	0.93	NS
	May-07	3.1	1.6	2.7	NS	NS	NS	1.6	1.70	NS	NS	1.4
	Aug-07	6	6.2	2.6	NS	18	NS	1.5	2.60	NS	NS	NS
	Nov-07	2.7	5.3	1.9	NS	2.1	NS	1.9	3.40	NS	NS	NS
	Feb-08	2.6	2.3	2.6	NS	3.3	NS	2.5	2.70	NS	NS	2.9
	May-08	1.5	1.2	1.6	NS	2.1	NS	1.3	3.50	NS	NS	1.4
	Aug-08	84	44.0	63	NS	470	NS	32	12.00	NS	NS	140
	Nov-08	3.1	2.9	1.7	NS	260	NS	2.3	3.70	NS	NS	1.9
	Feb-09	1.3	2.2	1.7	NS	2.5	NS	2.1	5.60	NS	NS	1.4
	May-09	1.10	5.70	0.61	NS	2.70	NS	0.74	1.4	NS	NS	1.40
	Aug-09	5.80	2.30	1.20	well closed	1.40	1.5	2.90	well closed	NS	NS	1.30
	Oct-09	2.30	1.60	1.50	well closed	3.50	3	2.50	well closed	NS	NS	1.30
	Feb-10	2.70	1.50	1.20	well closed	2.70	1.6	1.10	well closed	NS	NS	1.20
Methane (µg/L)	Jan-05	28	3.7	62.0	71.0	30.0	0.19	5.7	1.0	NS	NS	NS
	Apr-05	23	24.0	39.0	55.0	27.0	0.0	5.0	0.5	1.1	34.0	18.0
	Jul-05	20	1.9	87.0	57.0	8.0	0.43	12.0	1.6	6.2	150.0	2700.0
	Oct-05	46	970	610	35	7.5	2.1	0.4	9.9	5.8	1200	16000
	Jun-06	91	830	4300	66	0.052	0.21	0.12	2.4	100	15000	11000
	Aug-06	160	2200	9000	53	2.6	1.2	71	3.5	35	15000	12000
	Oct-06	730	18	14000	57	1.9	0.64	20	8	2.7	11000	16000
	Feb-07	170	2700	5200	0.26	0.89	0.53	1.5	0.99	1.3	1000	32000
	May-07	680	1.1	9200	NS	19	NS	19	0.087	NS	NS	7200
	Aug-07	440	5600	12000	NS	4.6	NS	21	0.81	NS	NS	NS
	Nov-07	2400	4100	13000	NS	16	NS	22	0.18	NS	NS	26000
	Feb-08	1500	5800	12000	NS	37	NS	43	0.25	NS	NS	14000
	May-08	5745	11819	3029	NS	38.86	NS	168.95	2.66	NS	NS	186016
	Aug-08	2600	4700	13000	NS	45	NS	300	0.26	NS	NS	4800
	Nov-08	2200	240	8500	NS	45	NS	210	8.7	NS	NS	6600
	Feb-09	1200	2400	7700	NS	73	NS	16	1.9	NS	NS	8700
	May-09	1000	3700	7400	NS	27	NS	6.2	0.46	NS	NS	
	Aug-09	1400	3300	7800	well closed	25	18	38	well closed	NS	NS	7700
	Oct-09	1500	3200	6400	well closed	21	3	46	well closed	NS	NS	3900
	Feb-10	830	2500	4900	well closed	24	44	26	well closed	NS	NS	4000

Table B-2
Geochemical Results

Parameter	Date	Monitoring Well											
		039G02LF	039G03LF	039G04LF	039G05LF	039G10LF	039G11LF	039G12LF	039G13LF	039G1	039G14LF	039G15LF	039G22LF
Alkalinity (mg/L)	Jan-05	300	360	360	220	140	80	140	100	380	0.27	4.46	4.96
	Apr-05	360	300	400	180	140	140	160	120	160	2.57	0.81	2.9
	Jul-05	75	380	420	200	140	120	120	120	100	0.28	0.13	8.73
	Oct-05	220	340	380	220	140	120	120	100	100	0.02	3.12	2.66
	Jun-06	300	360	340	140	120	100	100	80	120	4.84	1.92	2.90
	Aug-06	300	340	300	180	100	80	80	80	80	0.04	2.61	1.07
	Oct-06	360	360	340	220	140	60	140	100	100	0.03	2.72	3.05
	Feb-07	340	380	340	220	160	120	120	120	100	0.03	2.39	1.54
	May-07	360	420	420	NS	180	NS	160	120	NS	NS	NS	2.79
	Aug-07	360	460	480	NS	180	NS	160	160	NS	NS	NS	2.94
	Nov-07	300	260	360	NS	105	NS	75	85	NS	NS	NS	2.05
	Feb-08	280	400	400	NS	200	NS	120	160	NS	NS	NS	1.38
	May-08	360	380	400	NS	200	NS	180	140	NS	NS	NS	2.47
	Aug-08	340	480	440	NS	200	NS	160	120	NS	NS	NS	2.76
	Nov-08	320	420	420	NS	180	NS	140	120	NS	NS	NS	3.13
	Feb-09	340	440	360	NS	200	NS	140	140	NS	NS	NS	2.93
	May-09	340	400	520	NS	180	NS	140	400	NS	NS	NS	1.31
	Aug-09	340	400	380	well closed	200	160	190	well closed	NS	NS	NS	1.2
	Oct-09	320	380	380	well closed	180	120	140	well closed	NS	NS	NS	0.94
	Feb-10	340	300	360	well closed	160	140	200	well closed	NS	NS	NS	1.06
Chloride (mg/L)	Jan-05	20	50	20	70	10	10	20	10	10	NS	NS	NS
	Apr-05	20	45	20	90	10	10	20	10	15	NS	1.1	0.34
	Jul-05	30	30	20	60	10	10	15	10	15	NS	NS	NS
	Oct-05	20	45	15	70	10	15	10	10	10	NS	NS	NS
	Jun-06	15	40	15	60	10	10	10	10	10	NS	<0.01	<0.01
	Aug-06	20	35	15	60	10	5	10	10	10	NS	NS	NS
	Oct-06	45	40	15	55	10	10	10	10	10	NS	NS	NS
	Feb-07	15	35	15	60	10	10	10	10	10	NS	<0.01	0.042
	May-07	20	40	35	NS	15	NS	15	15	NS	NS	NS	<0.01
	Aug-07	15	30	15	NS	10	NS	10	10	NS	NS	NS	NS
	Nov-07	40	40	40	NS	20	NS	40	40	NS	NS	NS	<0.025
	Feb-08	25	30	15	NS	10	NS	10	15	NS	NS	NS	<0.01
	May-08	20	35	15	NS	10	NS	10	10	NS	NS	NS	<156.25
	Aug-08	20	40	15	NS	15	NS	10	10	NS	NS	NS	<0.01
	Nov-08	20	35	15	NS	15	NS	10	10	NS	NS	NS	0.01 U
	Feb-09	20	35	15	NS	15	NS	10	10	NS	NS	NS	0.01 U
	May-09	20	30	15	NS	10	NS	10	30	NS	NS	NS	0.04
	Aug-09	10	25	15	well closed	10	10	15	well closed	NS	NS	NS	0.01 U
	Oct-09	20	35	15	well closed	15	10	10	well closed	NS	NS	NS	0.01 U
	Feb-10	20	40	20	well closed	10	15	15	well closed	NS	NS	NS	0.01 U

Table B-2
Geochemical Results

Parameter	Date	Monitoring Well										
		039G02LF	039G03LF	039G04LF	039G05LF	039G10LF	039G11LF	039G12LF	039G13LF	039G14LF	039G15LF	039G22LF
Ethene (µg/L)	Jan-05	0.140	0.0078	0.031	0.011	0.18	0.013	0.180	0.014	NS	NS	NS
	Apr-05	0.022	0.05	0.022	0.012	0.1	0.0067	0.014	0.01	NS	0.78	0.87
	Jul-05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jun-06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Aug-06	0.021	<0.01	0.01 J	0.01 J	0.04	0.01 J	0.017	0.007 J	NS	<0.01	<0.01
	Oct-06	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Feb-07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NS	<0.01	<0.025
	May-07	<0.01	0.009 J	<0.01	NS	0.046	NS	0.007 J	0.012	NS	NS	<0.01
	Aug-07	0.032	<0.01	<0.01	NS	0.017	NS	0.011	0.014	NS	NS	NS
	Nov-07	<0.01	<0.01	<0.01	NS	0.009 J	NS	0.004 J	0.004 J	NS	NS	0.029
	Feb-08	<0.01	<0.01	<0.01	NS	0.019	NS	0.008 J	0.012	NS	NS	<0.01
	May-08	<145.85	<145.85	<29.17	NS	<2.92	NS	<14.59	<2.92	NS	NS	<145.85
	Aug-08	0.01 J	<0.01	<0.01	NS	0.026	NS	0.026	0.023	NS	NS	0.023
	Nov-08	0.01 U	0.01 U	0.01 U	NS	0.007 J	NS	0.005 J	0.004 J	NS	NS	0.01 U
	Feb-09	0.01 U	0.006 J	0.01 U	NS	0.013	NS	0.011	0.012	NS	NS	0.01 U
	May-09	0.004 J	0.01 U	0.01 U	NS	0.019	0.01 U	0.003 J	0.005 J	NS	NS	0.04
	Aug-09	0.026	0.006 J	0.01 U	well closed	0.01 U	0.007 J	0.009 J	well closed	NS	NS	0.019
	Oct-09	0.027 J	0.014 J	0.01 U	well closed	0.008 J	0.005 J	0.004 J	well closed	NS	NS	0.048 J
	Feb-10	0.01 U	0.005 J	0.01 U	well closed	0.003 J	0.01 U	0.01 J	well closed	NS	NS	0.22 J
TOC (mg/L)	Jan-05	0.8 J	0.8 J	1.2	0.8 J	0.4 J	0.3 J	0.5 J	1.0 U	0.6 J	0.9 J	4.4
	Apr-05	0.94 J	0.97 J	1.1	0.75 J	0.48 J	1.0 U	0.32 J	1.0 U	0.39 J	1.1	2.2
	Jul-05	1.0	1.7	1.4	0.72 J	0.47	1.0 U	1.0	1.0	0.41	0.56	34
	Oct-05	1.0	0.8 J	1.1	0.8 J	1.0 U	0.48 J	0.36 J	1.0 U	1.0 U	32.0	1.2
	Jun-06	1.0 U	1.0 U	1.4	9.5	1.0 U	1.0 U	1.7	1.0 U	8.7	31.0	1.1
	Aug-06	1.0	1.1	1.4	0.74 J	0.51 J	0.34 J	0.34 J	0.40 J	1.0	33.0	2.5
	Oct-06	1.3	1.6	1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	2.7	20.0
	Feb-07	1.6	1.6	1.6	1.4	0.98 J	0.69 J	0.67 J	0.71 J	1.3	2.2	1.4
	May-07	1.8	1.3	2.0	NS	1.0 U	NS	1.0 U	1.0 U	NS	NS	1.9
	Aug-07	3.6	2.4	2.1	NS	1.0 U	NS	1.0 U	1.9	NS	NS	3.6
	Nov-07	1.1	1.1	1.2	NS	1.0 U	NS	1.0 U	1.0 U	NS	NS	1.2
	Feb-08	1.4	1.6	1.7	NS	1.1	NS	0.60 J	0.62 J	NS	NS	1.5
	May-08	2.2	1.7	1.6	NS	0.75 J	NS	0.45 J	0.44 J	NS	NS	1.5
	Aug-08	1.5	1.8	1.3	NS	0.54 J	NS	0.30 J	0.35 J	NS	NS	2.0
	Nov-08	1.5	1.0	0.0	NS	0.0	NS	0.0	0.0	NS	NS	1.2
	Feb-09	1.7	1.3	1.5	NS	0.3	NS	0.41 J	0.43 J	NS	NS	1.6
	May-09	1.6	2	1.5	NS	1 U	NS	1 U	2.2	NS	NS	1.6
	Aug-09	3.4	1.6	1.3	well closed	1 U	1 U	1 U	well closed	NS	NS	1.3
	Oct-09	1.6	1.2	1.2	well closed	1 U	1 U	1 U	well closed	NS	NS	1.7
	Feb-10	2	1.5	2	well closed	1 U	1 U	1 U	well closed	NS	NS	2.3

Notes:

*	Erroneous reading
(1)	Sample was diluted 50/50 and multiplied by dillution factor of 2.
mg/L	milligram per liter
µg/L	microgram per liter
mV	millivolt
nM	nanomolar
NS	Not Sampled
NA	Not Analyzed
OR	Over Range

Appendix C
Groundwater Sampling Forms

NSA Mid-South
Quarterly Monitoring Event (SMWU 14 and 39)
Water Level Data (in feet)
May-09

Well ID	Water Level (below TOC)	TOC Elevation	Groundwater Elevation	Well ID	Water Level (below TOC)	TOC Elevation	Groundwater Elevation
014G01LS	5.57	269.17	263.60	039G02LF	12.13	263.47	251.34
014G02LS	5.93	270.12	264.19	039G03LF	11.32	262.33	251.01
014G03LS	7.17	271.09	263.92	039G04LF	12.49	263.17	250.68
014G05LS	8.46	270.12	261.66	039G05LF	11.99	262.43	250.44
014G10LS	6.57	270.83	264.26	039G10LF	13.20	263.59	250.39
014G12LS	4.13	268.33	264.20	039G11LF	12.59	263.05	250.46
014G13LS	4.61	268.41	263.80	039G12LF	12.03	262.61	250.58
014G14LS	5.70	268.17	262.47	039G13LF	12.77	263.76	250.99
014G06LF	NM	NM	NM	039G14LF	11.83	262.75	250.92
014G07LF	NM	NM	NM	039G15LF	11.85	262.64	250.79
				039G22LF	12.27	262.92	250.65

Notes:
NM = Do Not Measure

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5-13-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: May 2009		
WELL ID: 39-03-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: mostly Sunny, Breezy	AMBIENT TEMP: 74°		
REVIEWED BY:	PERSONNEL: B.B., D.H.		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 11.45	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 0934	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC TOC Total Iron Nitrate VFA M.E.E Hydrogen		

MNA FIELD RESULTS

FERROUS IRON	~~1.81~~ 2.70	mg/L	CHLORIDE	30	mg/L
SULFIDE	0.169	mg/L	ALKALINITY	400	mg/L
SULFATE	39(1)	mg/L	CO_2	185	mg/L
AMMONIA-NITROGEN	2.08	mg/L	PHOSPHORUS		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	0943	0948	0953	0958	1003							
pH (units):	6.77	6.79	6.78	6.78	6.77							
Conductivity (mS/cm):	0.888	0.889	0.889	0.889	0.888							
Turbidity (NTU):	60.9	66.4	73.9	73.1	67.9							
DO (mg/L):	2.32	3.16	2.36	2.33	2.13							
Temperature (°C):	19.92	20.01	20.17	19.99	20.09							
ORP (mV):	-139.1	-139.1	-135.2	-134.3	-133.8							
Volume Purged (gal):	0.25	0.40	0.50	0.65	0.80							
Depth to Water (ft):	11.50	11.50	11.50	11.50	11.50							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
039G03LF16	5-13-09	1010	10 Hso 1A	Ø	

COMMENTS: 1044 Begin microsepps. 120 ml/min = 30 min

Purge water placed in drum# _____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: MAY 2009		
WELL ID: 39-22-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 72°F		
REVIEWED BY:	PERSONNEL: CLH JAB		

WELL DIA: 2" FL	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 12.36	START:	FINISH:
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0924	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Iron, VFA MEE+14	

MNA FIELD RESULTS

FERROUS IRON	1.31	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	3	mg/L
SULFIDE	0.260	mg/L	ALKALINITY	420	mg/L	AMMONIA-NITROGEN	2.6	mg/L
SULFATE	44	mg/L	CO_2	175	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	938	943	950	955	1000	1005	1010	1015				
pH (units):	6.43	6.39	6.35	6.33	6.31	6.03	6.00	6.43				
Conductivity (mS/cm):	0.720	0.718	0.719	0.721	0.721	0.721	.721	0.721				
Turbidity (NTU):	67.5	75.7	75.7	93.3	87.9	106.2	126.0	149.0				
DO (mg/L):	2.25	1.98	1.91	1.80	1.69	1.60	1.66	1.67				
Temperature (°C):	19.54	19.57	19.56	19.59	19.69	19.75	19.74	19.79				
ORP (mV):	82.2	66.4	46.7	36.6	30.3	40.1	37.5	7.4				
Volume Purged (gal):	0.5	0.9	1.4	1.6	1.83	2.05	2.4	2.6				
Depth to Water (ft):	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4				
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0396-22LF/G	5/13/09	1020	11		

Purging/Sampling Device Decon Process:

COMMENTS:

ge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/13/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: MAY 2009		
WELL ID: 39-09-LF	LOCATION: SWMU #39		
WEATHER CONDITIONS: Ptly Cloudy Windy	AMBIENT TEMP: 75		
REVIEWED BY:	PERSONNEL: Clet JAB		

WELL DIA: 2" Fluush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 12.61	START:	FINISH:
DEPTH TO WATER from TOC (ft.):	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: ~~1200~~ 1256	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC Total Fe, Nitrate, MEEth VFA	

MNA FIELD RESULTS

FERROUS IRON	1.14	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	9.67	mg/L
SULFIDE	0.274	mg/L	ALKALINITY	520	mg/L	AMMONIA-NITROGEN	2.47	mg/L
SULFATE	5	mg/L	CO_2	285	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	1230	1235	1240	1245	1250	1255						
pH (units):	6.47	6.47	6.45	6.45	6.42	6.37						
Conductivity (mS/cm):	0.729	0.731	0.730	0.732	0.730	0.730						
Turbidity (NTU):	~~72.60~~	83.3	83.4	96.9	97.2	101.7						
DO (mg/L):	1.52	1.42	1.28	1.13	1.07	1.07						
Temperature (C°):	20.34	20.37	20.39	20.42	20.45	20.30						
ORP (mV):	73.7	55.3	35.4	22.0	16.2	12.8						
Volume Purged (gal):	0.6	0.9	1.20	1.50	1.80	2.0						
Depth to Water (ft):	12.65	12.67	12.67	12.67	12.67	12.67						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039G04LF23	5/13/09	1256	11	—	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/12/2009	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: May 2009		
WELL ID: 39-10-LF	LOCATION: ~~SM~~ SWMU 39		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 71°		
REVIEWED BY:	PERSONNEL: RB DH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 13.21	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: ~~1330~~ 1340	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC Total Iron Microbes Nitrate VFA	

MNA FIELD RESULTS

FERROUS IRON	0.74	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	0	mg/L
SULFIDE	0.018	mg/L	ALKALINITY	180	mg/L	AMMONIA-NITROGEN	0.52	mg/L
SULFATE	11	mg/L	CO_2	175	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED Pnuematic

Time (hh:mm):	1355	1400	1405	1410	1415							
pH (units):	6.29	6.25	6.25	6.26	6.22							
Conductivity (mS/cm):	.317	.345	.316	.342	.341							
Turbidity (NTU):	4.69	3.83	2.99	2.68	2.36							
DO (mg/L):	21.78	6.37	4.47	3.37	2.79							
Temperature (°C):	20.62	20.68	20.69	20.63	20.70							
ORP (mV):	-220.8	-228.1	-231.2	-224.1	-217.1							
Volume Purged (gal):	1.56	1.9	2.1	2.4	~~2.6~~							
Depth to Water (ft):	13.81	13.57	13.50	13.55	13.5							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED Pnuematic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039 G10 LF 23	5/12/2009	1430			
039 G10 LF 23	5/12/2009				

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: MAY 2009		
WELL ID: 39-12-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: Sunny Wind NE	AMBIENT TEMP: 75		
REVIEWED BY:	PERSONNEL: CHH JAB		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 12.05	VOLUME PURGED (gal): 3.3	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 13:35	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, FE MEE+H, NITRATE VFA	

MNA FIELD RESULTS

FERROUS IRON	1.07	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	X	mg/L
SULFIDE	0.009	mg/L	ALKALINITY	140	mg/L	AMMONIA-NITROGEN	0.13	mg/L
SULFATE	6	mg/L	CO_2	110	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: BLADDER

Time (hh:mm):	1349	1354	1400	1405	1410	1415	1420					
pH (units):	6.18	6.17	6.16	6.16	6.16	6.17	6.17					
Conductivity (mS/cm):	0.224	0.223	0.222	0.223	0.226	0.230	0.234					
Turbidity (NTU):	2.96	1.02	1.87	3.0	4.52	.98	.72					
DO (mg/L):	1.87	1.66	1.47	1.40	1.37	1.31	1.27					
Temperature (C°):	19.55	19.56	19.57	19.56	19.59	19.63	19.67					
ORP (mV):	160.2	155.9	143.2	135.0	126.2	117.2	110.7					
Volume Purged (gal):	0.5	1.15	1.6	1.85	2.2	2.5	2.85					
Depth to Water (ft):	12.05	12.05	12.05	12.05	12.05	12.05	12.05					
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: BLADDER

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039-12LF 24	5/12/09	1427	11	—	

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: May 2009		
WELL ID: 39-02-LF	LOCATION: ~~Millington~~ SWMU 39		
WEATHER CONDITIONS: Partly Cloudy	AMBIENT TEMP: 68		
REVIEWED BY:	PERSONNEL: RB DH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: ~~11:00~~	FINISH:
DEPTH TO WATER from TOC (ft.): 12.11	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1100	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: ~~DOC~~ VOC TOC Microscopy	
	VFA Total Iron Nitrate	

MNA FIELD RESULTS

FERROUS IRON	2.00	mg/L	CHLORIDE	20	mg/L
SULFIDE	0.501	mg/L	ALKALINITY	340	mg/L
SULFATE	3	mg/L	CO_2	250	mg/L
AMMONIA-NITROGEN	0.78	mg/L	PHOSPHORUS	2	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED Pneumatic

Time (hh:mm):	11:23	11:28	11:32	11:37	11:42							
pH (units):	6.43	6.43	6.40	6.44	6.56							
Conductivity (mS/cm):	0.708	.640	.705	.634	.692							
Turbidity (NTU):	209	209	185	169	167							
DO (mg/L):	15.51	5.68	5.27	3.67	1.95							
Temperature (°C):	20.16	20.16	19.99	20.00	20.02							
ORP (mV):	-143.5	-141.5	-140.7	-139.5	-137.8							
Volume Purged (gal):	1.10	1.40	1.50	2.20	2.80							
Depth to Water (ft):	12.35	12.36	12.36	12.46	12.41							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☑ Pump Description: QED Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
039G02LF16	5/12/2009	1150	9	None	
039G02LF16	5/12/2009		1	None	Microscopy

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 5/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA - Mid-South	EVENT: MW 2009		
WELL ID: 039613LF 23	LOCATION: FSMW 39		
WEATHER CONDITIONS: Sunny, light wind	AMBIENT TEMP: 65		
REVIEWED BY:	PERSONNEL: CGH JAB		

WELL DIA: 2" Flush	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: 1248	FINISH:
DEPTH TO WATER from TOC (ft.): 12.76	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1248	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): 3.7	
	ANALYSIS: VOC TOC Fe VFA Nitrate	

MNA FIELD RESULTS

FERROUS IRON	0.18	mg/L	CHLORIDE	13	mg/L	PHOSPHORUS	Q	mg/L
SULFIDE	0.036	mg/L	ALKALINITY	120	mg/L	AMMONIA-NITROGEN	0.26	mg/L
SULFATE	7	mg/L	CO_2	160	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: QED Pneumatic

Time (hh:mm):	11:14	11:20	11:25	1130	1135	1140						
pH (units):	6.19	6.17	6.17	6.15	6.15	6.15						
Conductivity (mS/cm):	.233	.235	.236	0.234	0.233	0.234						
Turbidity (NTU):	1.96	1.74	.53	0.85	1.94	1.82						
DO (mg/L):	7.36	7.00	6.73	5.59	6.33	5.97						
Temperature (C°):	20.05	20.38	20.46	20.22	20.02	20.24						
ORP (mV):	123.9	119.5	118.1	113.2	115.2	110.3						
Volume Purged (gal):	.5	.92	1.05	1.5	1.82	1.84						
Depth to Water (ft):	12.85	12.85	12.85	12.85	12.85	12.85						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039613LF 23	5-12-09	1143	11		

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE
ENSAFE INC.
P.O. Box 341315 • Memphis, TN 38184-1315
(901) 372-7962

JOB SWMU 14 & 39 Water Levels
SHEET NO. August 2009 TO
CALCULATED BY DATE 8/11/09
CHECKED BY DATE
SCALE

14-02-LS	8.15	14-09-LF	7.88
14-12-LS	6.14	14-10-LF	8.15
14-13-LS	6.84	14-11-LF	7.07
14-14-LS	7.70		

39-02-LF	~~14.47~~ 13.09	39-14-LF	12.78
39-03-LF	12.33		
39-04-LF	14.47		
39-10-LF	14.20		
39-12-LF	12.98		
39-13-LF	13.56		
39-22-LF	13.24		

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 8/11/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: August 2009		
WELL ID: 39-02-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 83°F		
REVIEWED BY:	PERSONNEL: R.A. & B.S.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 13.09	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1345	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, VFA, Hydrogen M.E.E., M.E.E (back-up)	

MNA FIELD RESULTS

FERROUS IRON	0.52(1) mg/L	CHLORIDE	10 mg/L	PHOSPHORUS	733 mg/L
SULFIDE	0.784 (2) mg/L	ALKALINITY	348 mg/L	AMMONIA-NITROGEN	1.95 mg/L
SULFATE	6 mg/L	CO_2	255 mg/L	-	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1432	1455	1500	1505	1510	1515						
pH (units):	6.43	6.56	6.44	6.39	6.40	6.39						
Conductivity (mS/cm):	0.660	0.676	0.640	0.642	0.609	0.594						
Turbidity (NTU):	—	513	1,760	1,568	2895	2,709						
DO (mg/L):	2.93	3.40	3.53	1.86	1.34	0.62						
Temperature (C°):	24.42	28.45	24.13	24.26	21.88	21.10						
ORP (mV):	-79.3	-76.1	-80.5	-84.1	-87.5	-89.4						
Volume Purged (gal):	0.50	0.50	0.55	0.60	0.80	1.3						
Depth to Water (ft):	13.10	13.16	13.16	13.16	13.25	13.33						

Well Goes Dry While Purging ☐

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039G02LF17	8/11/09	1520	11	Ø	

Purging/Sampling Device Decon Process:

COMMENTS: 135 ml/min (25 min)

Purge water placed in drum#_____

EMSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 8-11-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MIDSOUTH	EVENT: AUGUST 2009		
WELL ID: 039G10LF	LOCATION: SWMU 039		
WEATHER CONDITIONS: CLOUDY	AMBIENT TEMP: 85°		
REVIEWED BY:	PERSONNEL: CH, JKH, LCB		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: ~~1355~~	FINISH:
DEPTH TO WATER from TOC (ft.): 14.46	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1355	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total Iron, Methane, VFA	

MNA FIELD RESULTS

FERROUS IRON	0.74	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	2	mg/L
SULFIDE	0.067	mg/L	ALKALINITY	200	mg/L	AMMONIA-NITROGEN	0.65	mg/L
SULFATE	29	mg/L	CO_2	200	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: Pneumatic QED

Time (hh:mm):	1407	1412	1417	1422	1427							
pH (units):	6.46	6.37	6.33	6.30	6.28							
Conductivity (mS/cm):	0.360	0.358	0.356	0.357	0.358							
Turbidity (NTU):	240.0	174.0	142.0	88.3	64.10							
DO (mg/L):	3.16	2.74	2.46	2.17	1.94							
Temperature (C°):	21.44	21.41	21.39	21.39	21.44							
ORP (mV):	152.6	153.1	153.3	153.5	153.8							
Volume Purged (gal):	0.5	0.8	1.0	1.4	1.8							
Depth to Water (ft):	14.46	14.46	14.46	14.46	14.46							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039G10LF 24	8-11-09	~~1355~~	11		
		1440			

Purging/Sampling Device Decon Process:

COMMENTS:

rge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 08/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA mississippi	EVENT: August 09		
WELL ID: 39-22-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 79°		
REVIEWED BY:	PERSONNEL: B.S., E.A		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 13.29	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0907	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, NITRATE, MEE, DIS. HYDRO, Total Iron VFA	

MNA FIELD RESULTS

FERROUS IRON	1.20	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	X	mg/L
SULFIDE	0.153	mg/L	ALKALINITY	300	mg/L	AMMONIA-NITROGEN	1.82	mg/L
SULFATE	12	mg/L	CO_2	210	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	0920	0925	0930	0935	0940							
pH (units):	6.37	6.38	6.39	6.40	6.40							
Conductivity (mS/cm):	0.733	0.729	0.726	0.724	0.723							
Turbidity (NTU):	98.2	97.1	102.5	104.3	99.6							
DO (mg/L):	1.79	0.99	0.71	0.52	0.42							
Temperature (C°):	19.71	19.63	19.61	19.60	19.59							
ORP (mV):	-97.6	-92.8	-93.9	-88.8	-79.0							
Volume Purged (gal):	0.6	0.9	1.2	1.5	1.8							
Depth to Water (ft):	13.28	13.28	13.28	13.28	13.28							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039G22LF17	08/12/09	0942		✓	

Purging/Sampling Device Decon Process:

COMMENTS:

ge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 08/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: August 09		
WELL ID: 39-03-LF	LOCATION: Swamp 39		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 78°		
REVIEWED BY:	PERSONNEL: [redacted] B.S., B.A.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 12.38	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1101	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, NITRATE, TOTAL IRON, MEE, UFA	

MNA FIELD RESULTS

FERROUS IRON	1.98	mg/L	CHLORIDE	25	mg/L	PHOSPHORUS	7.0	mg/L
SULFIDE	0.215	mg/L	ALKALINITY	400	mg/L	AMMONIA-NITROGEN	1.3	mg/L
SULFATE	66 (18)	mg/L	CO_2	210	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1121	1126	1131	1136	1141							
pH (units):	6.73	6.73	6.74	6.74	6.74							
Conductivity (mS/cm):	0.719	0.713	0.711	0.710	0.709							
Turbidity (NTU):	114	116	109.0	100.9	101.2							
DO (mg/L):	2.40	1.32	0.84	0.71	0.62							
Temperature (C°):	20.57	20.46	20.20	20.20	20.16							
ORP (mV):	-88.5	-92.9	-84.6	-98.6	-80.8							
Volume Purged (gal):	0.6	0.80	1.15	1.50	1.80							
Depth to Water (ft):	12.52	12.52	12.52	12.52	12.52							
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
[redacted] 039G03LF16	08/12/09	1143	11	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

[illegible]rge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 8-12-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MIDSOUTH	EVENT: AUGUST '09		
WELL ID: 039G12LF	LOCATION: SWMU 039		
WEATHER CONDITIONS: MOSTLY SUNNY, HOT	AMBIENT TEMP: 90°		
REVIEWED BY:	PERSONNEL: CH, LB, KH		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: ~~1110~~	FINISH:
DEPTH TO WATER from TOC (ft.): 13.04	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1110	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, TOTAL IRON, NITRATE, MEE, VFA, H	

MNA FIELD RESULTS

FERROUS IRON	1.20	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	~~0~~	mg/L
SULFIDE	0.020	mg/L	ALKALINITY	190	mg/L	AMMONIA-NITROGEN	0.52	mg/L
SULFATE	4	mg/L	CO_2	120	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: Pneumatic

Time (hh:mm):	1135	1140	1145	1150	1155	1200						
pH (units):	6.47	6.33	6.34	6.36	6.36	6.39						
Conductivity (mS/cm):	0.233	0.231	0.232	0.239	0.243	0.250						
Turbidity (NTU):	22.8	15.2	11.6	1.57	3.85	1.04						
DO (mg/L):	2.60	1.40	1.12	0.87	0.80	0.65						
Temperature (C°):	19.93	19.95	19.87	19.87	19.86	19.86						
ORP (mV):	55.5	57.0	57.9	57.8	58.1	58.3						
Volume Purged (gal):	0.5	1.0	1.5	2.0	2.5	3.0						
Depth to Water (ft):	13.07	13.07	13.07	13.07	13.07	13.07						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039G12LF24	8-12-09	1205	11		

Purging/Sampling Device Decon Process:

COMMENTS:

ge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 08/12/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: August 09		
WELL ID: 04 39-04-LF	LOCATION: Sump 39		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 80°		
REVIEWED BY:	PERSONNEL: B.S., R.A.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 13.54	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1252	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, TOTAL IRON, NITRATE, MEE, DISS. GAS, VFA	

MNA FIELD RESULTS

FERROUS IRON	1.09	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	mg/L
SULFIDE	0.110	mg/L	ALKALINITY	380	mg/L	AMMONIA-NITROGEN	3.12 mg/L
SULFATE	23	mg/L	CO_2	235	mg/L		mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: Bladder

Time (hh:mm):	1307	1312	1317	1322	1327	1332						
pH (units):		6.31	6.30	6.30	6.30	6.29						
Conductivity (mS/cm):		0.719	0.718	0.718	0.718	0.717						
Turbidity (NTU):		91.9	83.5	78.3	77.1	74.6						
DO (mg/L):	0.95	1.16	0.51	0.40	0.32	0.29						
Temperature (C°):	20.12	20.06	19.92	19.97	19.91	19.91						
ORP (mV):		-41.0	-46.3	-49.1	-43.2	-39.5						
Volume Purged (gal):		0.70	1.4	1.8	2.3	2.6						
Depth to Water (ft):		13.60	13.60	13.63	13.63	13.63						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
~~039~~G04LF16	08/12/09	1335	11	✓	

Purging/Sampling Device Decon Process:

COMMENTS:

ge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 8-12-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MIDSOUTH	EVENT: AUGUST 09		
WELL ID: 039611LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: SUNNY	AMBIENT TEMP: 80°		
REVIEWED BY:	PERSONNEL: CH, KH, LB		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: ~~900~~	FINISH:
DEPTH TO WATER from TOC (ft.): 13.100	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0900	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, TOTAL IRON, Nitrate, VFA, MEE, H	

MNA FIELD RESULTS

FERROUS IRON	1.60	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	8	mg/L
SULFIDE	0.258	mg/L	ALKALINITY	160	mg/L	AMMONIA-NITROGEN	1.3	mg/L
SULFATE	3	mg/L	CO_2	110	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Pneumatic

Time (hh:mm):	0927	0932	0937	0942	0947	0952	0957					
pH (units):	6.10	6.11	6.12	6.15	6.16	6.17	6.18					
Conductivity (mS/cm):	0.229	0.227	0.226	0.224	0.224	0.223	0.223					
Turbidity (NTU):	1400	916	457	331	280	196	185					
DO (mg/L):	2.47	1.54	1.28	1.08	0.97	0.89	0.81					
Temperature (C°):	20.54	20.50	20.48	20.46	20.48	20.49	20.46					
ORP (mV):	64.7	64.8	64.9	64.6	64.5	64.0	63.8					
Volume Purged (gal):	0.5	1.0	1.3	1.7	2.0	2.5	2.7					
Depth to Water (ft):	13.62	13.62	13.62	13.62	13.62	13.62	13.62					
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039611LF13	8-12-09	1000	11		

Purging/Sampling Device Decon Process:

COMMENTS:

ge water placed in drum#_____

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NSA Mid-South
Quarterly Monitoring Event (SMWU 14 and 39)
Water Level Data (in feet)
Nov-09

Well ID	Water Level (below TOC)	TOC Elevation	Groundwater Elevation	Well ID	Water Level (below TOC)	TOC Elevation	Groundwater Elevation
[redacted]	A	269.17	—	039G02LF	12.55	263.47	250.92
014G02LS	6.93	270.12	263.19	039G03LF	11.82	262.33	250.51
~~014G03LS~~	A	271.09	—	039G04LF	12.91	263.17	250.26
~~014G05LS~~	A	270.12	—	~~039G05LF~~	A	262.43	—
[redacted]	7.46	270.83	263.37	039G10LF	13.59	263.59	250.00
014G12LS	5.37	268.33	262.96	039G11LF	12.96	263.05	250.09
014G13LS	5.70	268.41	262.71	039G12LF	12.40	262.61	250.21
014G14LS	5.81	268.17	262.36	~~039G13LF~~	A	263.76	—
014G11LS	6.52	269.96	263.44	039G14LF	12.23	262.75	250.52
014G09LS	6.65	269.96	263.31	039G15LF	12.31	262.64	250.33
				039G22LF	12.68	262.92	250.24

Notes:
NM = Do Not Measure

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 10/28/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NAVY LTM NSA Mid-South	EVENT: Nov 2009 annual		
WELL ID: 039G10LF	LOCATION: NSA Mid-South		
WEATHER CONDITIONS: cloudy	AMBIENT TEMP: 56°F		
REVIEWED BY:	PERSONNEL: Clayton Hamilton, Ronnie Moody		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 13.60	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 10.25	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOCs, TOCs, iron, nitrate, VFA, diss H, MEE	

MNA FIELD RESULTS

FERROUS IRON	0.88	mg/L	CHLORIDE	15	mg/L
SULFIDE	0.084	mg/L	ALKALINITY	180	mg/L
SULFATE	5	mg/L	CO_2	175	mg/L
AMMONIA-NITROGEN	0.13	mg/L	PHOSPHORUS	0	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: ~~Peristaltic~~ Pneumatic

Time (hh:mm):	1050	1055	1100	1105	1110							
pH (units):	6.39	6.38	6.37	6.36	6.35							
Conductivity (mS/cm):	0.335	0.335	0.333	0.329	0.327							
Turbidity (NTU):	118	102.8	78.2	64.1	57.0							
DO (mg/L):	1.77	1.09	0.77	0.75	0.62							
Temperature (°C):	19.96	20.02	20.09	20.13	20.17							
ORP (mV):	-47.4	-55.3	-59.1	-59.8	-58.2							
Volume Purged (gal):	0.7	0.9	1.15	1.4	1.6							
Depth to Water (ft):	13.90	13.90	13.90	13.90	13.90							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: ~~Peristaltic~~ Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
Ø39G1ØLF25	10/28/09	1115	11	NO	

COMMENTS:

Purge water placed in drum# Temp

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 10-28-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: October 2009		
WELL ID: 39-02-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: mostly Cloudy	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: BB, JB		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /	
DEPTH TO WATER from TOC (ft.): 12.55	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1026	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, M.E.E., Hydrogen (Air Vial)		

MNA FIELD RESULTS

FERROUS IRON	2.63	mg/L	CHLORIDE	20	mg/L
SULFIDE	0.723	mg/L	ALKALINITY	820	mg/L
SULFATE	9	mg/L	CO_2	230	mg/L
AMMONIA-NITROGEN	0.52	mg/L	PHOSPHORUS	2	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1039	1044	1049	1054	1059	1104	1109	1114				
pH (units):	6.50	6.49	6.49	6.49	6.48	6.47	6.47	6.47				
Conductivity (mS/cm):	0.590	0.590	0.589	0.586	0.581	0.566	0.562	0.560				
Turbidity (NTU):	334.0	333.0	394.0	516.0	990.0	1315.0	1612.0	1590.0				
DO (mg/L):	1.64	1.41	1.25	1.18	1.19	1.16	1.10	1.04				
Temperature (°C):	19.29	19.40	19.59	19.65	19.63	19.70	20.04	20.01				
ORP (mV):	-29.7	-31.2	-32.0	-31.1	-29.4	-25.5	-25.6	-25.7				
Volume Pumped (gal):	0.50	0.70	0.90	1.10	1.30	1.50	1.70	1.90				
Depth to Water (ft):	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62				
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
039G02LF18	10-28-09	1120		Ø	

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 10-28-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: 39-12-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: mostly Sunny	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B.B., J.B.		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 12.36	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1238	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, M.E.E., Hydrogen (Air Val), VFAs		

MNA FIELD RESULTS

FERROUS IRON	0.96	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.002	mg/L	ALKALINITY	140	mg/L
SULFATE	21	mg/L	CO_2	135	mg/L
AMMONIA-NITROGEN	0.39	mg/L	PHOSPHORUS	Ø	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1246	1251	1256	1301	1306							
pH (units):	6.25	6.25	6.25	6.24	6.25							
Conductivity (mS/cm):	0.209	0.214	0.218	0.218	0.221							
Turbidity (NTU):	10.38	3.18	2.81	1.43	0.61							
DO (mg/L):	1.69	1.14	0.87	0.75	0.71							
Temperature (C°):	19.89	19.45	19.66	19.67	19.58							
ORP (mV):	-11.6	-9.2	-8.0	-6.5	-6.5							
Volume Purged (gal):	0.50	0.80	1.10	1.40	1.70							
Depth to Water (ft):	12.37	12.37	12.37	12.37	12.37							
									Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
039G12LF26	10-28-09	1315	10+1	Ø	

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 10/28/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 2009 Annual		
WELL ID: 39-11-LF14	LOCATION: SWMU 39		
WEATHER CONDITIONS: Mostly Sunny 60s	AMBIENT TEMP: 64°F		
REVIEWED BY:	PERSONNEL: CGH, RM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 12.91	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 13:15	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Nitrate, Total Fe, 8/EA Diss H, MEE	

MNA FIELD RESULTS

FERROUS IRON	1.80	mg/L	CHLORIDE	10	mg/L
SULFIDE	0.183	mg/L	ALKALINITY	120	mg/L
SULFATE	44	mg/L	CO_2	175	mg/L
AMMONIA-NITROGEN	0.65	mg/L	PHOSPHORUS	Ø	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: Pneumatic

Time (hh:mm):	13:35	13:40	13:45	13:50	13:55							
pH (units):	6.18	6.18	6.18	6.18	6.19							
Conductivity (mS/cm):	0.217	0.215	0.213	0.212	0.210							
Turbidity (NTU):	1304	675	526	448	333							
DO (mg/L):	0.57	0.47	0.44	0.37	0.34							
Temperature (°C):	20.50	20.48	20.49	20.48	20.41							
ORP (mV):	36.0	35.8	35.9	36.1	36.2							
Volume Purged (gal):	0.75	1.00	1.25	1.50	1.75							
Depth to Water (ft):	12.93	12.93	12.93	12.93	12.93							

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
39-11-LF14	10/28/09	14:05	11	—	

COMMENTS:

Purge water placed in drum# TEMP

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 10-28-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 4th Quarter 2009		
WELL ID: 039G03LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: mostly Sunny	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: BB, JB		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 11.78	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1422	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Total Iron, Nitrate, Volital Fatty Acids, M.E.E, Hydrogen (Air Lab)	

MNA FIELD RESULTS

FERROUS IRON	2.70	mg/L	CHLORIDE	35	mg/L
SULFIDE	0.118	mg/L	ALKALINITY	380	mg/L
SULFATE	52 (1)	mg/L	CO_2	200	mg/L
AMMONIA-NITROGEN	1.69	mg/L	PHOSPHORUS	6.33	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1435	1440	1445	1450	1455	1500	1505					
pH (units):	6.79	6.78	6.77	6.79	6.77	6.78	6.77					
Conductivity (mS/cm):	0.703	0.703	0.702	0.700	0.699	0.692	0.690					
Turbidity (NTU):	48.6	46.1	50.7	57.1	60.6	59.3	58.3					
DO (mg/L):	2.60	1.89	1.29	1.02	0.86	0.81	0.78					
Temperature (C°):	20.40	20.05	19.86	19.93	19.87	19.84	19.80					
ORP (mV):	-63.7	-64.8	-68.8	-72.1	-74.5	-75.6	-76.2					
Volume Purged (gal):	0.35	0.50	0.75	0.90	1.05	1.20	1.35					
Depth to Water (ft):	11.86	11.86	11.86	11.86	11.86	11.86	11.86					
								Well Goes Dry While Purging ☐				

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
039G03LF18	10-28-09	~~1500~~ 1510		Ø	

COMMENTS:

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 10/29/09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT: Nov 09 Annual		
WELL ID: Ø39G04LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: Rain	AMBIENT TEMP: 58°F		
REVIEWED BY:	PERSONNEL: CAH, RM		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 12.77	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 09:50	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, Form Bacl, Nitrate, TOC, VFA, MEtH	

MNA FIELD RESULTS

FERROUS IRON	0.93	mg/L	CHLORIDE	15	mg/L
SULFIDE	0.667	mg/L	ALKALINITY	380	mg/L
SULFATE	25	mg/L	CO_2	175	mg/L
AMMONIA-NITROGEN	2.6	mg/L	PHOSPHORUS	3	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Pneumatic

Time (hh:mm):	1010	1015	1020	1025	1030	1035						
pH (units):	6.66	6.67	6.62	6.64	6.59	6.59						
Conductivity (mS/cm):	0.747	0.737	0.726	0.720	0.715	0.722						
Turbidity (NTU):	92.5	91.5	92.2	90.3	86.6	82.5						
DO (mg/L):	0.84	0.60	0.50	0.55	0.50	0.43						
Temperature (°C):	19.16	19.21	19.24	19.27	19.30	19.33						
ORP (mV):	-60.5	-61.6	-61.7	-61.4	-62.0	-62.2						
Volume Purged (gal):	0.50	0.75	1.00	1.25	1.50	1.75						
Depth to Water (ft):	12.80	12.80	12.80	12.80	12.80	12.80						

Well Goes Dry While Purging ☐

Sample Data

☐ Bailer ☒ Pump Description: Pneumatic

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
Ø39G04LF25	10/29/09	10:40	11	NO	

COMMENTS:

Purge water placed in drum# TEMP

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 10-29-09	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: 4th Quarter (October) 2009		
WELL ID: ~~39-G-22-18~~ 39-22-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS: Raining	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B.B., J.B.		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /	
DEPTH TO WATER from TOC (ft.): 12.55	VOLUME PURGED (gal): /		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 0935	FINISH: 1040	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal): ≈		
	ANALYSIS:		

MNA FIELD RESULTS

FERROUS IRON	0.94	mg/L	CHLORIDE	15	mg/L
SULFIDE	0.294	mg/L	ALKALINITY	380	mg/L
SULFATE	9	mg/L	CO_2	165	mg/L
AMMONIA-NITROGEN	1.56	mg/L	PHOSPHORUS	3	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	0946	0951	0956	1001	1006	1011	1016	1019	1024	1029	1034
pH (units):	6.52	6.50	6.50	6.51	6.51	6.51	6.51	6.51	6.50	6.50	6.50
Conductivity (mS/cm):	2.031	2.291	2.439	2.317	2.714	2.970	3.038	2.911	2.908	2.956	2.947
Turbidity (NTU):	96.4	114.0	123.0	145.0	174.0	254	256	241	241	243	238
DO (mg/L):	2.97	2.51	2.58	2.81	3.00	3.39	3.36	4.23	4.54	4.79	4.80
Temperature (°C):	18.22	18.34	18.42	18.50	18.29	17.82	17.74	17.74	17.22	17.03	16.97
ORP (mV):	-41.0	-38.7	-35.0	-32.8	-31.3	-26.1	-23.1	-22.1	-21.5	-21.7	-22.2
Volume Purged (gal):	0.20	0.35	0.50	0.65	0.80	0.95	1.10	1.25	1.40	1.55	1.70
Depth to Water (ft):	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46
								Well Goes Dry While Purging ☐			

Sample Data

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
039G22LF18	10-29-09	1040	11	Ø	

COMMENTS:

Purge water placed in drum#_____

NSA Mid-South
Quarterly Monitoring Event (SMWU 14 and 39)
Water Level Data (in feet)
Feb-10

Well ID	Water Level (below TOC)	TOC Elevation	Groundwater Elevation
014G02LS	5.81	270.12	264.31
014G09LS	5.73	269.96	264.23
014G10LS	6.81	270.83	264.02
014G11LS	6.16	269.96	263.80
014G12LS	5.86	268.33	262.47
014G13LS	5.27	268.41	263.14
014G14LS	4.68	268.17	263.49

Well ID	Water Level (below TOC)	TOC Elevation	Groundwater Elevation
039G02LF	10.13	263.47	253.34
039G03LF	9.45	262.33	252.88
039G04LF	10.45	263.17	252.72
039G10LF	11.15	263.59	252.44
039G11LF	10.51	263.05	252.54
039G12LF	9.95	262.61	252.66
039G14LF	9.75	262.75	253.00
039G15LF	9.70	262.64	252.94
039G22LF	10.22	262.92	252.70

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 02/16/10	JOB NUMBER: 088880	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: February 2010		
WELL ID: 39 6 02 LF	LOCATION: SWMU-39		
WEATHER CONDITIONS: Cloudy	AMBIENT TEMP: 41°F		
REVIEWED BY:	PERSONNEL: R.A. & B.B.		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 10.13	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: ~~1414~~ 1535	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS:		

MNA FIELD RESULTS

FERROUS IRON	1.17	mg/L	CHLORIDE	20	mg/L	PHOSPHORUS	1.33	mg/L
SULFIDE	0.550	mg/L	ALKALINITY	340	mg/L	AMMONIA-NITROGEN	0.65	mg/L
SULFATE	17	mg/L	CO_2	110	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1555	1600	1605	1610	1615	1620						
pH (units):	6.87	6.97	7.00	7.18	7.16	7.12						
Conductivity (mS/cm):	0.650	0.645	0.649	0.653	0.650	0.649						
Turbidity (NTU):	316	339	310	305	296							
DO (mg/L):	3.50	3.85	3.91	4.12	4.26	4.49						
Temperature (C°):	11.73	11.36	11.91	11.35	10.29	9.91						
ORP (mV):	-41.6	-39.9	-38.7	-37.6	-34.5	-31.7						
Volume Purged (gal):	0.35	0.45	0.55	0.65	0.75	0.85						
Depth to Water (ft):	10.18	10.18	10.18	10.18	10.18	10.18						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039602LF19	02/16/10	1630	11	—	

Purging/Sampling Device Decon Process:

COMMENTS: Discovered faulty ~~air~~ air compressor controller fitting. Picked up replacement fitting at Lowe's

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 2-17-10	JOB NUMBER: 088880	PHASE:	TASK:
PROJECT: NSA Mid-South	EVENT:		
WELL ID: 039603LF19	LOCATION: NSA, Midsouth		
WEATHER CONDITIONS:	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B. Bister, R. Bailey		

WELL DIA: 2in	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 9.52 After Pump development	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 0950	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, Nitrate, TOC, Total Fe, Hydrogen, MEE, VFAs,	

MNA FIELD RESULTS

FERROUS IRON	1.85	mg/L	CHLORIDE	40	mg/L	PHOSPHORUS	Ø	mg/L
SULFIDE	0.166	mg/L	ALKALINITY	300	mg/L	AMMONIA-NITROGEN	1.95	mg/L
SULFATE	2	mg/L	CO_2	110	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) Recalibrated for turbidity. ☐ Bailer ☒ Pump Description: ~~Peristaltic~~ QED

Time (hh:mm):	1015	1020	1025	1030	1035							
pH (units):	6.79	6.79	6.79	6.79	6.80							
Conductivity (mS/cm):	0.846	0.836	0.829	0.825	0.825							
Turbidity (NTU):	48.10	57.30	64.70	49.9	58.4							
DO (mg/L):	1.36	1.10	0.96	0.81	0.72							
Temperature (C°):	16.84	17.05	17.16	17.24	17.37							
ORP (mV):	-93.9	-99.1	-100.9	-102.0	-104.4							
Volume Purged (gal):	0.75	1.05	1.45	1.80	2.15							
Depth to Water (ft):	~~9.34~~	9.63	9.63	9.63	9.63							
	9.63							Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: ~~Peristaltic~~ QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039603LF19	02-17-2010	1045	11	Ø	

Purging/Sampling Device Decon Process:

COMMENTS: Micro Seeps: Flow rate - 258 mL/min, will let run for 15min. (1053-1108).

Purge water placed in drum#_____

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 2-17-10	JOB NUMBER: 085880	PHASE:	TASK:
PROJECT: NSA Midsouth	EVENT: 1st Qtr, 2010		
WELL ID: 03964LF26	LOCATION: Millington, TN		
WEATHER CONDITIONS: Sunny, Breezy / cool	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: R Bailey, B Bristor		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 10.56	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: ~~1345~~ 1354	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC, TOC, Microseeps, VFA, Nitrate, Total Iron	

MNA FIELD RESULTS

FERROUS IRON	0.70	mg/L	CHLORIDE	20	mg/L	PHOSPHORUS	3	mg/L
SULFIDE	0.231	mg/L	ALKALINITY	360	mg/L	AMMONIA-NITROGEN	1.43	mg/L
SULFATE	53 (1)	mg/L	CO_2	165	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☒ Pump Description: Bladder

Time (hh:mm):	1447	1452	1457	1502	1507	1512	1517	1522				
pH (units):	6.59	6.59	6.58	6.58	6.57	6.57	6.57	6.57				
Conductivity (mS/cm):	0.836	0.836	0.836	0.835	0.834	0.835	0.836	0.835				
Turbidity (NTU):	159.00	139.00	131.00	126.00	111.00	108.20	99.6	97.4				
DO (mg/L):	3.38	2.96	2.60	2.52	~~3.50~~ 2.19	2.12	2.05	1.97				
Temperature (C°):	17.94	18.14	18.29	18.29	18.14	18.25	18.22	18.22				
ORP (mV):	-72.4	-73.2	-74.1	-72.8	-72.4	-72.8	-73.6	-73.6				
Volume Purged (gal):	1.45	1.90	2.50	2.95	3.50	3.95	4.35	4.75				
Depth to Water (ft):	10.65	10.65	10.65	10.65	10.65	10.65	10.65	10.65				
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: Bladder Pump

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
03964LF26	2-17-10	1532	17	Ø	ms/msD this well

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum# Tank

ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 2/16/10	JOB NUMBER:	PHASE:	TASK:
PROJECT:	EVENT: Feb 2010		
WELL ID: 39-10-LF	LOCATION: Summit 39		
WEATHER CONDITIONS:	AMBIENT TEMP: 29		
REVIEWED BY:	PERSONNEL: CBH GPS		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 11.11	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START:	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC Nitrate Iron Microscopes VFA TOC	

MNA FIELD RESULTS

FERROUS IRON	0.69	mg/L	CHLORIDE	10	mg/L	PHOSPHORUS	Ø	mg/L
SULFIDE	0.031	mg/L	ALKALINITY	160	mg/L	AMMONIA-NITROGEN	0.65	mg/L
SULFATE	4	mg/L	CO_2	65	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: PNEUMATIC

Time (hh:mm):	1430	1435	1440	1445	1450	1455	1500					
pH (units):	6.48	6.40	6.37	6.35	6.33	6.32	6.32					
Conductivity (mS/cm):	0.391	0.383	0.378	0.373	0.369	0.366	366					
Turbidity (NTU):	49.7	4.6	31.0	26.9	19.1	14.7						
DO (mg/L):	0.93	0.75	0.67	0.61	0.57	0.50	0.47					
Temperature (C°):	17.48	17.58	17.70	17.75	17.72	17.77	17.83					
ORP (mV):	-8.7	-6.9	-6.4	-5.4	-5.4	-5.4	-5.2					
Volume Purged (gal):	0.9	1.10	1.30	1.50	1.7	2.0	2.5					
Depth to Water (ft):	11.60	11.60	11.60	11.60	11.60	11.60	11.60					
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: PNEUMATIC

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039G10LF26	2/16/10	1510	11	—	—

Purging/Sampling Device Decon Process:

COMMENTS:

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 2/17/10	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA Mid South	EVENT: Feb 2010		
WELL ID: 39-U-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS:	AMBIENT TEMP: 30-35°		
REVIEWED BY:	PERSONNEL: CGH GPS		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 10.57	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 10:44	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS: VOC TOC NITRATE, Field, MICROBIOLOGY VFA	

MNA FIELD RESULTS

FERROUS IRON	1.04	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	0	mg/L
SULFIDE	0.080	mg/L	ALKALINITY	140	mg/L	AMMONIA-NITROGEN	0.52	mg/L
SULFATE	22	mg/L	CO_2	85	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: PNEUMATIC (QED)

Time (hh:mm):	1055	1100	1105	1110	1115	1120						
pH (units): *	*5.0	*5.0	*5.0	*5.0	*5.0	*6.0						
Conductivity (mS/cm):	0.228	0.231	0.237	0.244	0.252	0.262						
Turbidity (NTU):	443	296	220	146	128	84.9						
DO (mg/L):	0.53	0.42	0.31	0.27	0.22	0.20						
Temperature (C°):	19.23	19.32	19.29	19.39	19.54	19.53						
ORP (mV):	-13.5	-14.6	-16.2	-16.9	-16.3	-16.6						
Volume Purged (gal):	1.50	1.70	2.50	2.90	3.50	4.50						
Depth to Water (ft):	10.60	10.60	10.60	10.60	10.60	10.60						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: PNEUMATIC

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
0396LLF15	2/17/10	1125	11	—	—

Purging/Sampling Device Decon Process:

COMMENTS: *pH results from pH indicator paper

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 2/17/10	JOB NUMBER:	PHASE:	TASK:
PROJECT: NSA MID-SOUTH	EVENT: Feb 2010		
WELL ID: 39-12-LF	LOCATION: SWMU # 39		
WEATHER CONDITIONS: Clear Windy	AMBIENT TEMP: 30-35°F		
REVIEWED BY:	PERSONNEL: CGH, GPS		

WELL DIA: 2"	WELL DEVELOPMENT		
TOTAL DEPTH from TOC (ft.):	START:	FINISH:	
DEPTH TO WATER from TOC (ft.): 10.02	VOLUME PURGED (gal):		
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING		
1 VOLUME OF WATER (gal):	START: 1235	FINISH:	
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):		
	ANALYSIS: VOC, TOC, NITRATE, IRON, MICROBIOLOGY, MNA		

MNA FIELD RESULTS

FERROUS IRON	0.67	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	Q	mg/L
SULFIDE	Q	mg/L	ALKALINITY	200	mg/L	AMMONIA-NITROGEN	0.26	mg/L
SULFATE	2	mg/L	CO_2	95	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT SAMPLING ☐ Bailer ☒ Pump Description: QED

Time (hh:mm):	1245	1250	1255	1300	1305	1310						
* pH (units):	5.00	5.00	5.00	5.0	5.0	5.0						
Conductivity (mS/cm):	0.249	0.265	0.266	0.275	0.287	0.295						
Turbidity (NTU):	3.03	1.53	0.0	0.0	0.0	0.0						
DO (mg/L):	0.55	0.41	0.34	0.30	0.26	0.24						
Temperature (°C):	18.28	18.37	18.39	18.45	18.59	18.52						
ORP (mV):	-0.7	-12.4	-19.3	-23.3	-25.5	-26.6						
Volume Purged (gal):	0.80	1.40	1.90	2.3	2.80	3.30						
Depth to Water (ft):	10.04	10.04	10.04	10.04	10.04	10.04						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☒ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
~~039612LF27~~ 039612LF27	2/17/10	1315	11	—	—
Purging/Sampling Device Decon Process:					

COMMENTS: pH measurement called by PH Paper

Purge water placed in drum#_____

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ENSAFE

WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 2-17-10	JOB NUMBER: 088880	PHASE:	TASK:
PROJECT: NJA midsoth	EVENT:		
WELL ID: 39-22-LF	LOCATION: SWMU 39		
WEATHER CONDITIONS:	AMBIENT TEMP:		
REVIEWED BY:	PERSONNEL: B.B. R.A.		

WELL DIA: 2"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.):	START: /	FINISH: /
DEPTH TO WATER from TOC (ft.): 10.29	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.):	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal):	START: 1141	FINISH:
3 VOLUMES OF WATER (gal):	VOLUME PURGED (gal):	
	ANALYSIS:	

MNA FIELD RESULTS

FERROUS IRON	1.06	mg/L	CHLORIDE	15	mg/L	PHOSPHORUS	2	mg/L
SULFIDE	0.190	mg/L	ALKALINITY	400	mg/L	AMMONIA-NITROGEN	2.08	mg/L
SULFATE	8	mg/L	CO_2	145	mg/L			mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT (SAMPLING) ☐ Bailer ☑ Pump Description: QED

Time (hh:mm):	1203	1208	1213	1218	1223	1228						
pH (units):	6.59	6.59	6.58	6.59	6.60	6.57						
Conductivity (mS/cm):	0.840	0.835	0.836	0.838	0.847	0.845						
Turbidity (NTU):	62.4	54.3	64.1	64.9	65.3	63.5						
DO (mg/L):	4.22	3.66	2.69	2.32	2.04	1.94						
Temperature (C°):	17.76	17.92	18.01	18.10	18.08	18.12						
ORP (mV):	-73.5	-74.8	-76.9	-77.8	-79.4	-78.2						
Volume Purged (gal):	1.20	1.60	1.95	2.30	2.75	3.20						
Depth to Water (ft):	10.35	10.35	10.35	10.35	10.35	10.34						
								Well Goes Dry While Purging ☐				

SAMPLE DATA

☐ Bailer ☑ Pump Description: QED

Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 um)	Remarks
039G22LF19	2-17-10	1238	11	Ø	

Purging/Sampling Device Decon Process:

COMMENTS:

ge water placed in drum# TANK