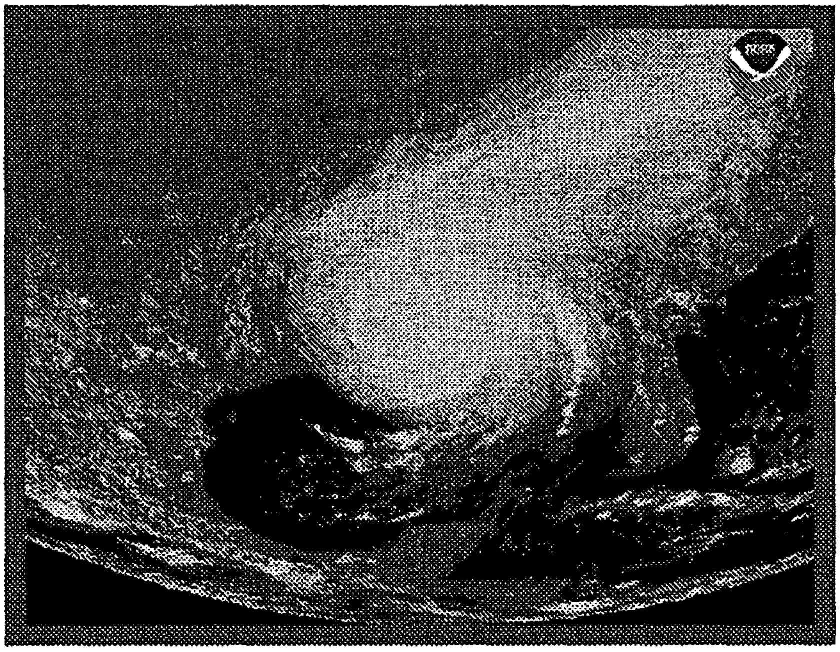
United States Environmental Protection Agency, Region 4



Quality Assurance Project Plan
Katrina Response
Environmental Soil and Sediment Sampling
Gulf Coast of Mississippi
September, 2005

Science and Ecosystem Support Division
980 College Station Road
Athens, GA 30605

Mississippi Department of Environmental Quality
2380 Highway 80 West
Jackson, Mississippi 39204

Title and Approval Sheet

Title: Quality Assurance Project Plan, Katrina Response Environmental Soil and Sediment Sampling, Gulf Coast of Mississippi

This quality assurance project plan (QAPP) has been prepared according to:
EPA Requirements for Quality Assurance Project Plans (EPA QA/R5 EPA/240/B-01/003, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC, March 2001 (USEPA, 2001).

This document will be used to ensure that environmental and related data collected, compiled, and/or generated for this project are of the type, quantity, and quality required for their intended purposes within the limitations of available resources.

Management Approvals:

Fred Sloan_ Date
Project Leader
Environmental Investigations Branch

Antonio Quinones, Chief Date
Environmental Investigations Branch

Marilyn Thornton, Chief Date
Quality Assurance Section
Management & Technical Services Branch

Distribution List

Phil Bass - MDEQ	phil_bass@deq.state.ms.us	601-961-5100
Richard Harrell - MDEQ	richard_harrell@deq.state.ms.us	601-961-5343
Ben Franco - EPA	franco.benjamin@epa.gov	404-562-8758
Mike Norman - EPA	norman.michael@epa.gov	404-562-8792
Lael Butler - EPA	butler.lael@epa.gov	404-562-8453
Terry Stilman - EPA	stilman.terry@epa.gov	404-562-8748
Trent Rainey – EPA	rainey.trent@epa.gov	703-355-8576
Don Rigger – EPA	rigger.don@epa.gov	404-562-8744
Barbara Scott – EPA	scott.barbara@epa.gov	404-562-8773
Scott Sudweeks – EPA	sudweeks.scott@epa.gov	404-562-8834
Beverly Banister - EPA	banister.beverly@epa.gov	404-562-9326
Franklin Hill - EPA	hill.franklin@epa.gov	404-562-8846
Alan Farmer - EPA	farmer.alan@epa.gov	404-562-8313
Gary Bennett - EPA	bennett.gary@epa.gov	706-355-8551
David Langston - EPA	langston.david@epa.gov	404-562-8478
Dana Tulis - EPA	tulis.dana@epa.gov	202-564-7938
Vanessa Vu – EPA	vu.vanessa@epa,gov	202-343-9874
Tom Armitage – EPA	armitage.thomas@epa.gov	202-343-9995
Science Advisory Board		

Table of Contents

1.0 INTRODUCTION

On August 31, 2005, Hurricane Katrina made landfall along the Gulf coast of the southeastern United States, causing unprecedented damage from eastern Louisiana to near Mobile, Alabama, due to the high winds and storm surge. During the week of October 3, 2005, the USEPA Region 4, Science and Ecosystem Support Division (SESD) will collect soil and sediment samples near impacted facilities in the affected areas in Mississippi to determine if flooding from the storm surge released hazardous constituents and materials. The facilities being investigated are located in the storm surge impacted portions of Hancock, Harrison and Jackson Counties in Mississippi. This investigation was requested by the Mississippi Department of Environmental Quality (MDEQ) and the USEPA, Region 4, Waste Management Division.

This Quality Assurance Project Plan (QAPP) for the collection of environmental samples in the three county Gulf coastal area of Mississippi was developed by the United States Environmental Protection Agency (EPA), Region 4, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA), of 1986 (EPA 1986). The EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5, 1998) was followed during the development of this QAPP.

Soil and sediment samples will be collected from impacted RMP (Risk Management Plan), Tier 2, and TRI (Toxic Release Inventory) facilities in the three counties. In addition, one facility, NCBC Gulfport, was selected because the recent flooding may have recontaminated a partially cleaned up site. All samples will be analyzed for metals (including mercury), volatile organic compounds and extractable organic compounds, including pesticides/PCBs, with the exception of one site (NCBC Gulfport) where samples will be analyzed for dioxins only. At the DuPont DeLisle facility, samples will also be analyzed for dioxin, in addition the parameters listed above. Samples from the Chevron Refinery – Pascagoula, First Chemical, and MS Phosphates complex will also be analyzed using gamma spectroscopy in addition to the parameters listed above. Split samples will be offered to each facility.

Where knowledge of site specific analytes is available (such as the NCBC and DuPont Delisle), the analyte list has been tailored for that situation. The analytical results will be evaluated to determine if these constituents are present in soils and sediments adjacent to the facilities, indicating a possible release to the environment, which may in turn lead to a more thorough assessment.

1.1 Background/Site Location

Maps have been prepared showing the locations of the facilities and the proposed sampling locations. See **Figures 1- 6** in **Appendix A**.

1.2 Site Histories\Status Post Katrina

These facilities were selected because they are located in areas of significant widespread damage, and are RMP, Tier II, or TRI facilities. All have reported damage from the effects of

Katrina. One additional facility (Naval Construction Battalion Center, Gulfport) was included because the possibility of re-contamination of a wetland due to the flooding exists. It should be noted that these facilities may be covered by more than one of these definitions.

Risk Management Plan (RMP) Facilities:

Initial reports from these facilities indicate no visible releases of hazardous constituents beyond their perimeters. However, due to the large amounts of chemicals used and/or manufactured by these facilities, an off-site examination has been deemed necessary. The following information was obtained from the South Programs Section, RCRA Programs Branch.

DuPont DeLisle - Pass Christian

Operational titanium dioxide refinery facility; MDEQ visited the site (2) days after the Hurricane along with Florida Emergency Responders. The storm surged over the site's levy (~ 20 feet) and the site was under 7-9 feet of water. There is significant mud and sediment from Bay St. Louis spread across the site; DuPont reports that they do not believe there is any process material in the sediments. All plant process ditches, sumps and trenches were cleaned prior to the storm and all containment and structures faired well. DuPont has been in contact with Mark Williams of MDEQ Solid Waste issues. There was nearly 100% retention in the Waste Management area; one small breech at WMU #11 of mostly stormwater occurred; this was repaired. There have been no known leaks/releases to the air or water. There was a minor chlorine leads on piping (barely noticeable by odor, much less that 1 lb released); repairs completed. Several railcars were blown off the rail: (13) chlorine tanks were on their sides. These have been righted and are being placed back on the rail. No spill or release of chlorine occurred from any railcars. Rainwater that contacts the coke and ore solid waste management unit is contained and pumped down the deepwell when the plant is operational. FeCL2 wastewater generated from the process is necessary to mix with solid waste management area stormwater for deepwell injection. DuPont is looking into a variety of concepts to manage the waste water since the FeCL2 wastes will not be generated and deepwell injection will not occur until the facility is 100%. Due to housing needs for employees and contractors, DuPont has brought (2) package sewer treatment facilities on site and contacted MDEQ concerning permit requirements for these units.

Aerial imagery indicates a small area of housing immediately north of the facility. This facility is located in **Figure 1**.

Chevron Refinery – Pascagoula

Operating refinery at 45% of capacity today. From the Chevron webpage...Press Release on 9/06: "Initial assessments of Chevron's Pascagoula Refinery show that a dike built following Hurricane Georges in 1998 was successful in preventing catastrophic damage. The breached section of the dike is expected to be repaired this week, but it will be days before a full estimate of damage is known or when operations can be safely brought back online."

No nearby housing areas were located on the aerial imagery. This facility is located in **Figure 2**.

First Chemical Corp. – Pascagoula

Initial contact was made with Mr. Al Biehle of DuPont Corporate Remedial Group on September 7. Most recent update came from Mr. Stephen Weishar, contractor for DuPont on September 14. The FCC facility is currently a major producer of aniline and nitrotoluene intermediates and derivatives, primarily nitrogen group substituted benzenes and toluenes. The site primarily produces aniline, nitrotoluene, and nitrobenzene. Other products are orthotoluidine, n-ethyl aniline (NEA) and n-ethylmorpholine (NEM), o-nitrotoluene (ONT), p-nitrotoluene (PNT), m-nitrotoluene (MNT), para-toluidine (PTOL), m-toluidine (MTOL), hydrogen, nitric acid, and various specialty products. No detailed assessment yet; however there was no heavy damage and no releases reported. The facility has 72 SWMUs and six AOCs. Initial contact was made with Mr. Al Biehle of DuPont Corporate Remedial Group on September 7. Two (removed hazardous waste) storage tanks were damaged, but the contents were transferred to temporary storage tanks. The facility will be out of operations for several weeks, but FCC hopes to be back in operation some time in October. A POTW to which the facility pipes its partially treated effluent was damaged; however, it may be out of commission for "months". The facility is looking for an alternate means to dispose of its wastewater.

No nearby housing areas were located on the aerial imagery. This facility is located in **Figure 2**.

Toxic Release Inventory (TRI) Facilities:

From the TRI website (http://www.epa.gov/tri/): The Toxics Release Inventory (TRI) is a publicly available EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain covered industry groups as well as federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990.

Information about these facilities is limited, but releases are known to have occurred due to the effects of Hurricane Katrina. Region 4 On-Scene Coordinators (OSCs) have responded to releases at the following facilities:

Omega Protein – Moss Point

No nearby housing areas were located on the aerial imagery. This facility is located in **Figure 3**.

Polychemie, Inc. – Pearlington

No nearby housing areas were located on the aerial imagery. This facility is located in **Figure 4**.

Ershigs Fiberglass – Biloxi

Housing was noted to the northwest, west and south in the aerial imagery. This facility is located in **Figure 5**.

Tier II Facility:

The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) has a requirement for facilities exceeding the EPCRA Chemicals and Reporting Thresholds specified in Sections 311/312 of the Act to submit a Tier II form.

Mississippi Phosphates – Pascagoula

No nearby housing areas were located on the aerial imagery. This facility is located in **Figure 2**.

Data from Region 4 OSCs indicates a leak of anhydrous ammonia from an above ground storage tank. This is a large facility that had the potential to release hazardous constituents beyond its' operational perimeter.

Potential Release From Superfund Site:

Naval Construction Battalion Center – Gulfport. NCBC Gulfport is located in the western part of the City of Gulfport, in Harrison County, Mississippi, approximately two miles north of the Gulf of Mexico. The off-base Area of Concern (AOC) is located immediately downgradient (north) of Outfall 3.

The source area of dioxin contamination for the off-base AOC is the Herbicide Orange Storage Area, designated as Site 8, at NCBC Gulfport. Between 1968 and 1977, Site 8 was used by the USAF as a storage area for drums containing the herbicide Agent Orange, also known as Herbicide Orange, prior to being shipped to Vietnam. Occasional spills and drum ruptures occurred during storage and handling of the Herbicide Orange. Dioxin migration has occurred primarily through erosion of dioxin-contaminated soil and sediment from Site 8 and its transport downstream via ditches and canals to a small wetland area at Turkey Creek. This wetland was in the process of being cleaned up (80% completion) when Katrina occurred, and there is a possibility that flooding may re-contaminated the remediated area.

Housing is present immediately adjacent to the wetland. This facility is located in **Figure 6**.

2.0 SAMPLING/DATA QUALITY OBJECTIVES

2.1 Data Quality Objectives

The Data Quality Objectives (DQO) process for Superfund has been used in developing this QAPP, in accordance with the Guidance for the DQO Process (EPA QA/G-4, 2000) was followed. DQOs are useful in identifying the study objectives and decisions to be made and the criteria by which the data will be assessed. These data are then used for decision making.

DQOs need to be established prior to data collection and integrated with the project planning process so that sufficient data of known quality are collected to support sound decision making. DQOs are developed using an interactive approach to decision-making based on detailed EPA guidance. The steps are:

- Problem statement
- Identify the decisions
- Identify the inputs into the decision
- Define the boundaries of the study
- Develop decision rules
- Specify tolerable limits on decision errors
- Optimize the design for obtaining data

2.1.1 Problem Statement

The initial step in the DQO process is to clearly define the problem so that the focus of the investigation will be clear. During the landfall of Hurricane Katrina, a massive storm surge flooded extensive portions of Hancock, Harrison and Jackson Counties in the Gulf Coast of Mississippi. Within this area are located many hazardous waste facilities. It is not known what effect, if any, the storm surge had on these facilities and the surrounding areas, with respect to release and dispersion of hazardous materials and chemicals, particularly to residential settings and sediment. The facilities selected for this investigation have had indications of a potential release to surrounding soils, or conditions prior to Katrina make a release to surrounding soils suspect. The problem is identifying these potential releases to surrounding soils and sediments. It must be strongly emphasized that this investigation is not intended to provide a comprehensive assessment of potential releases beyond the operational perimeters of these facilities. Rather, it is intended to provide a first look at these areas post-Katrina.

2.1.2 Identify the Decision

The purpose of this DQO step is to identify the decisions that must be supported with the collected data. The will help define the objectives of the field investigation. The decision needed is to determine what areas of the Mississippi Gulf Coast, in immediate proximity to the hazardous waste facilities, may be the site of a potential release of hazardous materials to surrounding soils and\or sediments. To provide the supporting data for this decision, SESD will write a report detailing the results of the investigation.

2.1.3 Decision Inputs

This step is used to identify the information needed to support the decisions. The primary inputs needed to support the decision are surface soil and sediment samples. Analytical results used in this decision making process will be definitive laboratory data, obtained from analysis by a contract laboratory obtained through the EPA's Contract Laboratory Program (CLP lab). All samples will be analyzed for metals (including mercury), volatile organic compounds and extractable organic compounds, including pesticides and PCBs, with the exception of samples from NCBC Gulfport where samples will be analyzed for dioxins only. Samples from the DuPont DeLisle facility will be analyzed for dioxins in addition to these parameters. Samples from the Chevron Refinery – Pascagoula, First Chemical, and MS Phosphates complex will also be analyzed using gamma spectroscopy in addition to the parameters listed above.

Surface soil samples will be five-point areal composites comprised of soil from the 0" to 3" interval at each aliquot location. The sample for volatile organic compounds will be collected from the central location. Sediment samples will also be collected from ditches or other surface water conveyances as grab samples in the vicinity of each site to determine if releases have occurred via these pathways.

2.1.4 Study Boundaries

The purpose of this step is to identify the boundaries of the study. The media of interest is surface soils and sediments adjacent to the selected RMP, Tier 2 and TRI facilities, as well as the wetland North of NCBC Gulfport. The study boundaries are defined below.

Study Area – The study area is the portions of Hancock, Harrison and Jackson counties flooded by the storm surge associated with Hurricane Katrina. Within the larger study area are the selected facilities. For each of the identified sites, the area to be investigated will consist of soils and\or sediments near the facility (but outside the perimeter), including ditches or storm water conveyances that may be present.

Sample Depth – Soil samples will be collected from the 0" to 3" below ground surface depth. Samples collected ditches will be from a similar interval.

Temporal Boundaries – It is anticipated that the field investigation will be conducted the week of October 3, 2005. Additional time may be required due to the scope of the project or delays due to inclement weather. All efforts will be made to obtain quick turnaround on the analytical results to expedite decision making

Physical Boundaries - No sampling will be conducted beneath any concrete or asphalt paved areas or from under any structures. Also, no samples will be collected in the immediate vicinity of any downed power lines or under any unstable structures that may pose a collapse hazard to the sampling team.

2.1.5 Decision Rule

Data will be released to decision makers prior to issuance of the final report to expedite action where warranted. The Technical Services Section in the Superfund Remedial and Technical Services Branch, in consultation with the Regional program responsible for the facilities and sites sampled, will review the data and make a preliminary assessment whether soil or sediments may have been adversely impacted and whether exposure to contaminated soil or sediment may pose an actionable human health risk. Results of the preliminary assessment will be shared with the Office of Emergency Management and responsible program in the Region for decisions on any further evaluations and appropriate response actions. Data from the gamma spectroscopy analyses will be sent to Jon Richards (Region 4, Waste Management Division) for evaluation.

2.1.6 Error Limits

Because of inherent variability introduced through sample collection, mixing, storage, transportation, and analysis, it is important to specify the acceptable decision error rates. Decision errors will be reduced by using standard, published protocols for sampling and analytical procedures. Sampling protocols will follow the EISOPQAM while analytical procedures will follow the current CLP SOW, the regional SOW for dioxins, and the NAREL GAM-01 for gamma spectroscopy.

2.1.7 Optimize Sampling Design

The final step in the DQO process is the development of a sampling design that takes into account data needs, key decisions, and environmental variables, such as physical and site constraints, and how the spatial and temporal boundaries of the contamination and population at risk will be identified. The work plan, as included in this QAPP, was developed based on the integration of aerial imagery of the affected areas (pre-Katrina) and the EPA facility registry. Due to the time-critical nature of the investigation, a reconnaissance of each area is not practical or possible. As such, each sample team will approach each site with generic protocols for sampling. As stated in **Section 3.3**, up to 5 samples will be collected adjacent to each facility. Sediment samples will also be collected from ditches or other conveyances that leave the property. It must be noted that sample locations were selected using 1:24,000 topographic maps and quarter-quad digital orthographic quads. These maps are the most current available, but are still several years old. In addition, they may be inaccurate by as much as 20' to 40'.

Samples will be collected on an authoritative basis, from areas deemed most likely to be impacted. Specifically, soils will be sampled adjacent to facility perimeters and sediment samples from drainage pathways. If samples cannot be safely collected, the sampling team will note the location and report it to the field project leader. Proposed sampling locations are presented in **Table 1**.

DuPont DeLisle, see **Figure 7**.

Two grab sediment samples will be collected from ditches draining the facility to St. Louis Bay. Three additional composite surface soil samples will be collected between the facility and a residential area immediately north of the facility.

Chevron Refinery – Pascagoula, First Chemical Corporation, and Mississippi Phosphates, see **Figure 8**.

Because these selected facilities are adjacent to each other, sampling will occur around these facilities as a unit. Grab sediment samples will be collected from Bayou Cassotte north of the facilities, from the Chevron Ditch south of the facilities, and the unnamed ditch originating on the east side of the facilities. In addition, three composite surface soil samples will be collected beyond the northern perimeter of the facility complex, and three additional composite soil samples will be collected south of the facility complex.

Omega Protein, see **Figure 9**.

Three grab sediment samples will be collected from the north bank of the Escatawpa River, two at the facility and one downgradient. No upland soil samples are proposed for this facility because Morton International (which is not listed for sampling in this effort) is immediately north.

Port Bienville Industrial Park (Polychemie, Inc.), see **Figure 10**.

Grab sediment samples will be collected at the three indicated locations to determine if a potential release occurred as the storm surge receded. Two composite surface soil samples will be collected at the indicated locations to determine if contaminants may have moved further inland from the facility on the rising flood waters.

Ershigs Fiberglass, see **Figure 11**.

Four composite surface soil samples will be collected as shown, to determine if contaminants may have been deposited between the facility and nearby housing. An additional grab sediment sample will be collected from a small inlet draining the facility to Biloxi Bay.

Naval Construction Battalion Center (NCBC Gulfport), see **Figure 12**.

Table 1 Sample Rationale and Locations			
Facility	Sample ID	Location	Rationale
DuPont DeLisle	DU-SD-001	Dirt road and Ditch Southwest of Site	Evaluate potential for hazardous constituents to have drained from site via ditch.
DuPont DeLisle	DU-SD-002	Dirt road and Ditch South of Site	Evaluate potential for hazardous constituents to have drained from site via ditch.
DuPont DeLisle	DU-SF-003	Immediately North of Site	Evaluate potential for hazardous constituents to have moved North with storm surge.
DuPont DeLisle	DU-SF-004	Immediately North of Site	Evaluate potential for hazardous constituents to have moved North with storm surge.
DuPont DeLisle	DU-SF-005	Immediately North of Site	Evaluate potential for hazardous constituents to have moved North with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SD-001	Bayou Cassotte, North of complex	Evaluate potential for hazardous constituents to have moved North with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SD-002	Chevron Ditch, South of complex	Evaluate potential for hazardous constituents to have moved drained with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SD-003	Unnamed ditch, Southeast of complex	Evaluate potential for hazardous constituents to have drained South with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SF-004	North of complex	Evaluate potential for hazardous constituents to have moved North with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SF-005	North of complex	Evaluate potential for hazardous constituents to have moved North with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SF-006	North of complex	Evaluate potential for hazardous constituents to have moved North with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SF-007	North of complex	Evaluate potential for hazardous constituents to have moved North with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SF-008	South of complex	Evaluate potential for hazardous constituents to have moved South with storm surge.

Table 1, Continued			
Chevron, First Chemical, MS Phosphates	CFM-SF-009	South of complex	Evaluate potential for hazardous constituents to have moved South with storm surge.
Chevron, First Chemical, MS Phosphates	CFM-SF-010	South of complex	Evaluate potential for hazardous constituents to have moved South with storm surge.
Omega Protein	OP-SD-001	Bank of Escatawpa River, South of Site	Evaluate potential for hazardous constituents to have drained South with storm surge.
Omega Protein	OP-SD-002	Bank of Escatawpa River, South of Site	Evaluate potential for hazardous constituents to have drained South with storm surge.
Omega Protein	OP-SD-003	Bank of Escatawpa River, downstream of Site	Evaluate potential for hazardous constituents to have moved downstream with storm surge.
Polychemie	PO-SD-001	Wetland North of Site	Evaluate potential for hazardous constituents to have drained North with storm surge
Polychemie	PO-SD-002	Canal West of Site	Evaluate potential for hazardous constituents to have drained West with storm surge
Polychemie	PO-SD-003	Canal downgradient of Site	Evaluate potential for hazardous constituents to have moved downgradient with storm surge
Polychemie	PO-SF-004	Southeast of Site	Evaluate potential for hazardous constituents to have moved Southeast with storm surge
Polychemie	PO-SF-005	Southwest of Site	Evaluate potential for hazardous constituents to have moved Southwest with storm surge
Ershigs Fiberglass, Inc.	ER-SF-001	Northwest of Site	Evaluate potential for hazardous constituents to have moved Northwest with storm surge
Ershigs Fiberglass, Inc.	ER-SF-002	West of Site	Evaluate potential for hazardous constituents to have moved West with storm surge
Ershigs Fiberglass, Inc.	ER-SF-003	Southwest of Site	Evaluate potential for hazardous constituents to have moved Southwest with storm surge
Ershigs Fiberglass, Inc.	ER-SF-004	South of Site	Evaluate potential for hazardous constituents to have moved South with storm surge
Ershigs Fiberglass, Inc.	ER-SD-005	Southeast of Site	Evaluate potential for hazardous constituents to have drained Southwest with storm surge

Table 1, Continued			
NCBC Gulfport	NC-SD-001	Wetland North of NCBC	Evaluate potential for TCDD to have redoposited in remediated portion of wetland due to storm surge
NCBC Gulfport	NC-SD-002	Wetland North of NCBC	Evaluate potential for TCDD to have redoposited in remediated portion of wetland due to storm surge
NCBC Gulfport	NC-SD-003	Wetland North of NCBC	Evaluate potential for TCDD to have redoposited in remediated portion of wetland due to storm surge
NCBC Gulfport	NC-SD-004	Wetland North of NCBC	Evaluate potential for TCDD to have redoposited in remediated portion of wetland due to storm surge
NCBC Gulfport	NC-SD-005	Wetland North of NCBC	Evaluate potential for TCDD to have redoposited in remediated portion of wetland due to storm surge

3.0 INVESTIGATION MANAGEMENT PLAN

3.1 Field Project Responsibilities

The overall field investigation/sampling phase of the project and any field decisions will be the responsibility of the Field Project Leader, Mike Neill. The Field Project Leader will be responsible for the following field activities:

- Ensure that all field activities are communicated and coordinated with the On-Scene Coordinator, Benjamin Franco.
- Monitoring overall field project quality control.
- Coordinating field scheduling of work with other Section and Division activities.
- Overseeing and managing field technical resources including non-sampling field activities.
- Coordinating sample analyses with the laboratory.

The site Health and Safety Officer (HSO), Jon Vail, will be responsible for monitoring the health and safety of the sampling/investigative personnel.

The following is a partial list of the personnel that will be involved in the field operations for the Katrina Response Environmental Assessment and their responsibilities:

- Mike Neill, Field Project Leader
- Jonathan Vail, HSO
- Dan Thoman, Sample Team Leader
- Brian Striggow, Sample Team Leader
- Stacy Box, Sample Team Leader
- Sharon Matthews, Sample Team Leader
- Steve Pilcher, ESAT Contract Support for Sample Processing and Shipment

This list is subject to change and may be supplemented by other resources, including contract personnel, to be provided on an as-needed basis. All field investigators are required to have 40 hours of hazardous waste site safety training, and specific knowledge and expertise of sample collection and safety techniques in accordance with the Region 4 EPA *Environmental Investigations Standard Operating Procedures and Quality Assurance Manual* (EISOPQAM), November 2001.

3.2 Site Control and Access

Post-Katrina conditions regarding control and access at each location are not known. It is likely that, at some locations, ingress and egress controls are no longer present or operable. Residents may be present, as well as construction workers mobilized for the clean-up effort. Any people present on-site will be asked to remain clear of sampling activities for their own safety. If investigation activities cannot, in the opinion of the field project leader, safety officer, or sample team leaders, be conducted due to the proximity of unauthorized persons, then operations will cease until such time as they can be safely resumed.

Access arrangements for RMP facilities will be made by Lael Butler, Chief, South Programs Section, RCRA Programs Branch. Access arrangements for TRI and Tier II facilities will be made by Ben Franco. Access to the NCBC will be arranged by Michelle Thornton. If SESD is refused access to the site, this will be recorded in the field log book and sampling personnel will immediately leave the property until such time as permission or authority to sample can be obtained or re-established.

During the investigation, field vehicles will be located such that they do not interrupt or impede flow of traffic through the area. Each field vehicle will maintain a copy of this QAPP and the site-specific Health and Safety Plan during all investigation activities.

3.3 Sample Collection and Handling Procedures

All samples will be collected, containerized, preserved, handled, and documented in accordance with the EISOPQAM. A copy of the manual, in addition to the site-specific Health and Safety Plan, will be maintained by the field project leader for reference during all phases of the field sampling activities. If any deviations in sampling procedures are used, these deviations should be discussed and approved by the field project leader and will be recorded in the field log books.

The surface soil samples will, where appropriate, be collected as 5-point composites ("X" pattern, with aliquots in center and on corners) using stainless steel hand augers. The corners of the pattern will be 100' from the center. The pattern size, however, should be appropriate to characterize the area in question and it may be appropriate, at some locations, to use an irregular pattern. The aliquot pattern actually used will be sketched in the field book. The central aliquot location for each sample will be located using GPS to at least one meter accuracy and the locations of the other aliquots will be determined by measuring the azimuth and distance from the central aliquot to the outer aliquots. Each aliquot will be comprised of the 0" to 3" below ground surface interval. All grass, roots and other vegetative material, as well as small rocks or stones, will be removed from the sample matrix during sample mixing, prior to containerization.

Sediment samples will be collected at the selected locations using stainless steel scoops, stainless steel spoons and/or stainless steel hand augers. The depth to be sampled should not exceed 6" but may be less.

Soil samples will be collected, as described in **Section 2.1.7**, using hand augers, spoons, or scoop as appropriate, and the aliquots will be thoroughly mixed in glass pans. Samples for volatile organic compound analyses will be collected prior to mixing with minimum disturbance from the central aliquot in Encore® sample containers using EPA

Method 5035. After mixing, the samples will be placed in the appropriate containers and placed on ice, as specified in Appendix A of the Region 4 EISOPQAM.

3.4 Sample Analysis and Validation

All samples will be analyzed for metals, volatiles, semi-volatiles, pesticides and PCBs, in accordance with the current Contract Laboratory Program Statement of Work, again with the exception of the NCBC Gulfport facility where samples will be analyzed for dioxins only. Samples from the DuPont DeLisle facility will be analyzed for dioxins in addition to these parameters. Samples from the Chevron Refinery – Pascagoula, First Chemical, and MS Phosphates complex will also be analyzed for Radium-226 and radionuclides using gamma spectroscopy in addition to the parameters listed above.

Completeness will be achieved for at least 99 percent of all the samples collected (1 percent may be lost as a result of sample breakage in the laboratory or during transport). It is also anticipated that 99 percent of the samples analyzed will result in valid data. Using sampling and analytical procedures as outlined in the Region 4 EISOPQAM and the Region 4 ASBLOQAM errors introduced in the decision making process will be minimized.

3.5 Chain of Custody

All chain-of-custody and record keeping procedures will be in accordance with the EISOPQAM. Chain-of-custody procedures are comprised of the following elements; 1) maintaining sample custody and 2) documentation of samples for evidence.

As defined in the EISOPQAM, a sample or other physical evidence is in custody if:

- it is in the actual possession of an investigator;
- it is in the view of an investigator, after being in their physical possession;
- it was in the physical possession of an investigator and then it was secured to prevent tampering; and/or
- it is placed in a designated secure area.

3.5.1 Sample Labels

Sample labels will be prepared and affixed to each sample container sent to either the SESD or CLP laboratory. The labels will be prepared using waterproof, non-erasable ink as specified in Section 3 of the EISOPQAM.

3.5.2 Sample Custody Seals

The samples will be sealed as soon as possible following collection as specified in the EISOPQAM. The custody seal will bear the date and the initials of the sample custodian at the time it was sealed.

3.5.3 Chain-of-Custody Record

The field Chain-Of-Custody Record is used to record the custody of all samples sent to the laboratory. All of these samples shall be accompanied by a Chain-Of-Custody Record. The Chain-Of-Custody Record documents transfer of custody of samples from the sampler/sample custodian to another person, the laboratory, or other organizational elements. To simplify the Chain-of-Custody Record and eliminate potential litigation problems, as few people as possible should have custody of the samples or physical evidence during the investigation.

The Chain-Of-Custody Record also serves as a sample logging mechanism for the laboratory sample custodian. A Chain-of-Custody Record will be completed for all samples collected for this investigation. A separate Chain-of-Custody Record should be used for each final destination or laboratory utilized during the investigation.

3.6 Station and Sample Identification

Sample identification numbers will be assigned using the following format:

XXX##YYZ, where:

XXX is a unique identifier for the RMP, Tier 2, TRI, or NCBC facility
indicates surface soil (SF) or sediment SD
YY indicates the sample location number, i.e., 01 for the facility location
Z identifies splits or duplicates: "S" is split; "D" is duplicate

A split sample is a sample comprised of two samples, the primary sample and the designated split sample, that are collected from the same sample material that has been homogenized in a glass pan prior to filling of the sample containers. Assuming a well mixed sample, a split helps evaluate both the field and laboratory procedures. A duplicate sample is a co-located sample, usually collected less than six inches from the primary sample at a location and is collected to show variability of the matrix sampled.

3.7 Site Mapping

The locations of all samples will be logged using a GPS capable of one meter accuracy, as specified in **Section 2.1.7**. If a sample location is in an area where a GPS signal cannot be received, sampling stations will be located using a tape and compass from a known point.

3.8 Investigation Derived Waste (IDW)

The following identifies other types of investigation derived waste (IDW) that could be generated during the investigation and their disposition:

- Gloves, Tyvek® suits, paper towels, and other miscellaneous trash generated during the investigation will be bagged and placed in a dumpster for disposal at a Class D landfill. It is not anticipated that this material will constitute a significant threat to human health and the environment.. .

3.9 Sample Containers

Sample containers for samples shipped to either the SESD laboratory or a CLP laboratory will be obtained from the SESD Field Equipment Center in Athens, Georgia. These containers comply with the requirements specified in Appendix A of the EISOPQAM. Table 2 lists the container types and numbers to be used:

Table 2
Sample Containers and Holding Times

Analytes	Containers	Splits	Dups	MS\MSD
Metals	1 8oz. glass	1 8oz. glass	2 8oz. glass	180 days
VOCs	3 EnCore™	3 EnCore™	6 EnCore™	48 hours
Semi-Volatiles, Pesticides, PCBs	1 8oz. glass	1 8oz. glass	2 8oz. glass	14 days
Dioxins	1 8oz. glass	1 8oz. glass	2 8oz. glass	30 days
Radium 226 and gamma Spectroscopy	1 8oz. glass	1 8oz. glass	2 8oz. glass	180 days

It should be noted that time constraints do not allow for the normal QA/QC checks for the pre-cleaned sample containers as specified in the EISOPQAM.

3.10 Investigation Schedule

The field investigation is scheduled to begin during the week of October 3, 2005. During the investigation SESD will:

- Collect soil and sediment samples from the identified properties within the area affected by the Katrina storm surge.
- Collect location data for sampling points using GPS techniques (**Section 3.7**). This data will be used to produce site maps with sampling locations.
- Collect and properly dispose of any non-hazardous IDW generated.

4.0 SAMPLING DESIGN AND RATIONALE

Surface soil and sediment samples will be collected during this field investigation. The collection of these samples will help determine if an unacceptable risk to human health exist in the affected areas.

4.1 Sampling Design

Seven RMP, Tier II, and TRI facilities were selected for this investigation. In addition, one superfund site that had the potential to re-release contaminants was also selected. Three to ten sampling stations were selected for each site (or complex of sites). These sampling stations were selected to provide preliminary information on potential releases to nearby housing and sediments.

4.2 Data Validation/Usability

The data generated from the split and duplicate samples will be validated in accordance with the ASBLOQAM.

Analyses for metals, VOCs, semivolatiles, pesticides and PCBs will be performed by CLP laboratories. This data will be validated according to the National Functional Guidelines for Organic Data Review, OSWER 9240.1-05-A-P (October 1999), the National Functional Guidelines for Inorganic Data Review, OSWER 9240.1-45 (October 2004) and Region 4's Data Validation Standard Operating Procedures for Contract Laboratory Program Routine Analytical Services, Revision 2.0 (January 1999).

The dioxin/furan analysis will be performed by a laboratory contracted to EPA (Paradigm). Validation of the dioxin data will be performed by ESAT using the National Functional Guidelines for Dioxin Data Review, OSWER540-R-02-003 (August 2002) and Region 4's Data Validation Standard Operating Procedures for Dioxin Data Version 3.0 (May 2002) documents. The dioxin data will consist of a Level 4 - CLP type data package that contains the C-O-Cs, instrument raw data, initial and/or continuing calibration data/curves, bench sheets/sample preparation information, QA/QC data/information, and case narrative detailing any problems associated with this data.

The gamma spectroscopy analyses will be performed by the National Air and Radiation Environmental Laboratory (NAREL), using method NAREL GAM-01.

Review and validation of all data (including screening data) from samples collected during this investigation will be completed in an expeditious manner, utilizing quick turnaround.

4.3 Data Management/Document Control

A final report will be written at the conclusion of the investigation in accordance with the EISOPQAM. All environmental and QA/QC data will be evaluated and data sheets will be attached to the report. Significant QA/QC issues regarding sample collection, handling, and analysis will be identified in the report. Results of any audits will also be included in the report. Project files will be maintained in accordance to the EISOPQAM. The field project leader will review the file at the conclusion of the project to ensure completeness. Laboratory and screening data will be released to the On-Scene Coordinator as it becomes available, if desired.

5.0 QUALITY ASSURANCE

Quality assurance (QA) procedures must begin in the planning stage and continue through sample collection, analyses, reporting and final review. The methods that will be used to ensure data quality are discussed below.

5.1 Organization and Responsibilities

The field project leader has overall responsibility for field QA. Off-site laboratory analyses for samples collected during the investigation will be conducted by the ASB or the CLP. The precision, comparability and accuracy of sample analyses will be addressed in accordance with the ASBLOQAM.

5.2 Field QA/QC Samples

5.2.1 Matrix Spike/Matrix Spike Duplicate

Samples for laboratory quality control analyses (matrix spike/matrix spike duplicate, MS/MSD) will be designated as specified in the EISOPQAM. One MS/MSD sample will be designated for every 20 samples split to the SESD or CLP laboratories.

5.2.2 Population Variability - Duplicate Samples

Co-located duplicate samples will be collected at five percent of the sample locations to provide data for an assessment of the variability of constituents within the designated areas. Following collection of the initial sample that is to be duplicated, the sample will be re-collected with clean equipment. The letter 'D' will be appended to the sample ID used for the primary sample at the duplicated location for the duplicate containers being sent to the laboratory (see Section 3.6). One duplicate sample will be collected per site or complex of sites.

5.2.3 Sample Handling - On-Site Splits

At five percent of the locations, split samples will be collected to assess sample handling variability. Following collection and mixing of the sample that is to be split, the sample will be apportioned into two identical sets of sample containers. The letter 'S' will be appended to the sample ID used for the primary sample to indicate the split sample being sent to the laboratory (see Section 3.6). One split sample will be collected per site, or complex of sites.

5.3 Audits

Routine audits of laboratory activities may be conducted by the Inorganic and Organic Chemistry Section Chiefs. Independent laboratory audits may be conducted by the Region 4, QA Officer or her representative(s). Field audits may be conducted by the Chief of the Superfund and Air Section. Any problems identified during these audits will be addressed in a memo to the Field Project Leader who will take immediate steps to correct the identified discrepancies.

5.4 Reconciliation With User Requirements

In order to determine whether the data generated are usable for their intended purpose and meet the DQOs outlined for this particular project, the data will undergo further assessment. This assessment will determine whether the data were collected in the prescribed locations and depths, whether the prescribed extraction, digestion and analytical methodologies were used and whether the laboratory noted any problems associated with sample analysis or with the requisite QA/QC sample analysis. Essentially this process seeks to reconcile the analytical data to the project-specific DQOS and if any issues are raised during this assessment would require additional evaluation of the data and may require restrictions in its use.

- were the samples collected in the correct location?
- were the samples collected using the appropriate sample containers and preservative?
- were the samples handled properly and did they arrive at the laboratory a 4 °C or less?
- were the samples recorded properly on the chain-of-custody form?
- was the correct digestion/extraction and analysis performed?
- were the QA/QC results within the established limits?
- were any problems noted by the laboratory?

6.0 PROJECT SCHEDULE

Field work for this project is scheduled to begin Monday, October 3, 2005 and will continue until completed (maximum 10 days).

Lab analyses will be completed within 14 days following receipt by the CLP Laboratory. The analytical data will then be subject to validation which will add an additional 14 days before the final data package is available to the Project Leader. Interim data reports and the final comprehensive report will be issued.

6.1 Facility Addresses

PolyChemie, Inc.
Port Bienville Industrial Park Rd. D.
Pearlington, MS 39572

Omega Protein
5735 Elder Ferry Rd.
Moss Point, MS 39563

Ershigs Fiberglass
200 Fifth St. (also 220 Fifth St.)
Biloxi, MS 39530-4527

DuPont DeLisle Plant
7685 Kiln DeLisle Rd.
Pass Christian, MS 39571

Chevron Refinery – Pascagoula
250 Industrial Road
Pascagoula, MS 39581-3201

First Chemical Corp.
1001 Industrial Rd.
Pascagoula, MS 39581-3237

Mississippi Phosphates
601 Industrial Rd
Pascagoula, MS 39568

Commanding Officer
Naval Construction Battalion Center (NCBC Gulfport)
5200 CBC 2nd St.
Gulfport, MS 39501-5001

7.0 REFERENCES

1. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA).

2. U.S. EPA, EPAQA/G-4, Guidance for the Data Quality Objectives Process, EPA/600/R-96/055, August 2000.

3. U.S. EPA, EPAQA/G-5, EPA Guidance for Quality Assurance Project Plans, EPA/600/R-98/018, February 1998.

4. U.S. EPA, Region 4, Analytical Support Branch Operations and Quality Control Manual Revision 1, (ASBLOQAM). July 2001.

5. U.S. EPA, Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM). November 2001. (http://www.epa.gov/region4/sesd/sesdpub_guidance.html).

6. USEPA Contract laboratory Program Statement of Work For Inorganic Analysis, ILM05.3 March 2004. http://www.epa.gov/superfund/programs/clp/inorg.htm

7. USEPA Contract laboratory Program Statement of Work For Inorganic Analysis, OLM04.2, May, 1999. http://www.epa.gov/superfund/programs/clp/organic.htm

Appendix A

Figures

Figure 1
DuPont DeLisle Plant

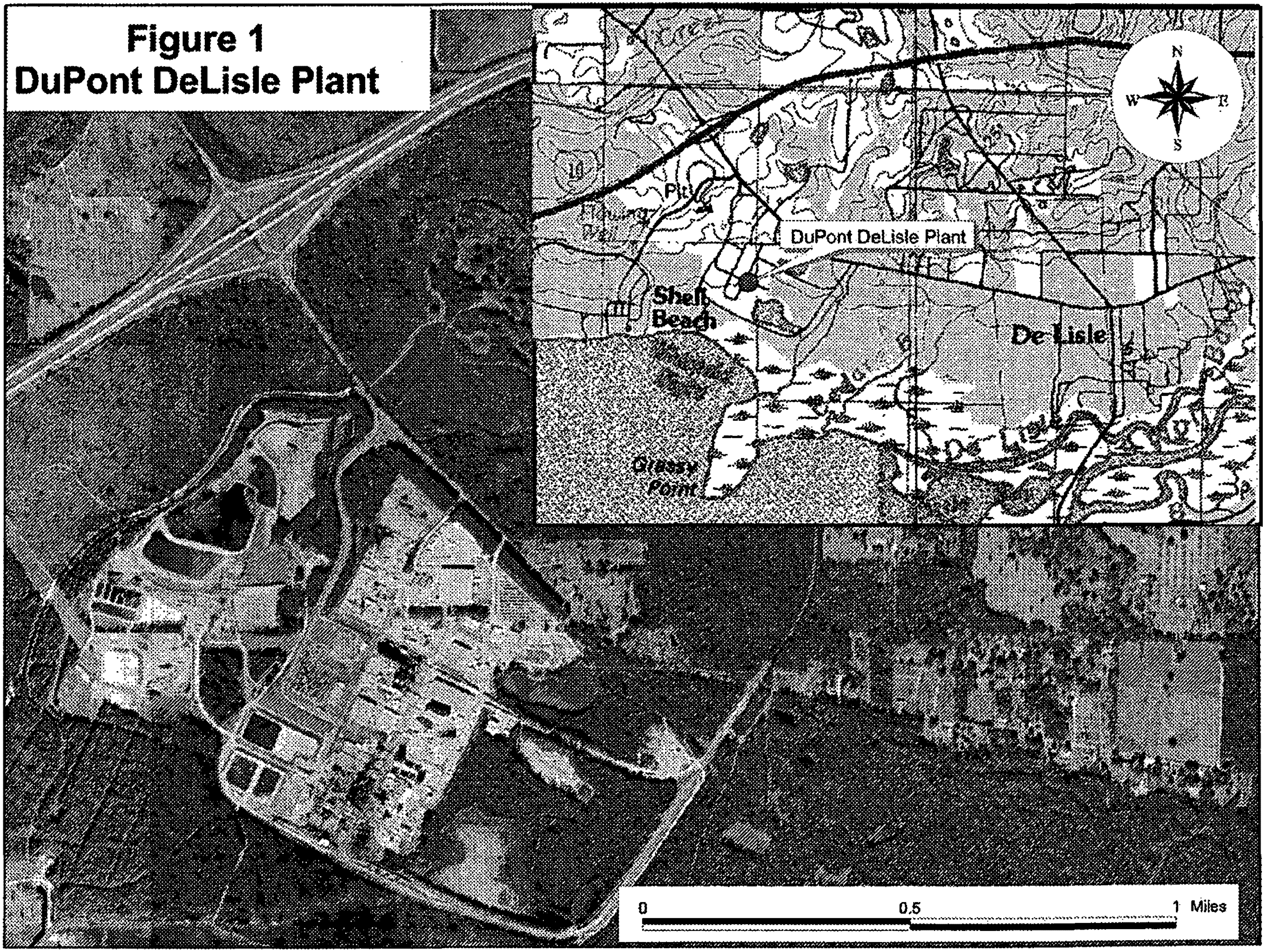


Figure 2
Chevron, First Chemical and MS Phosphates

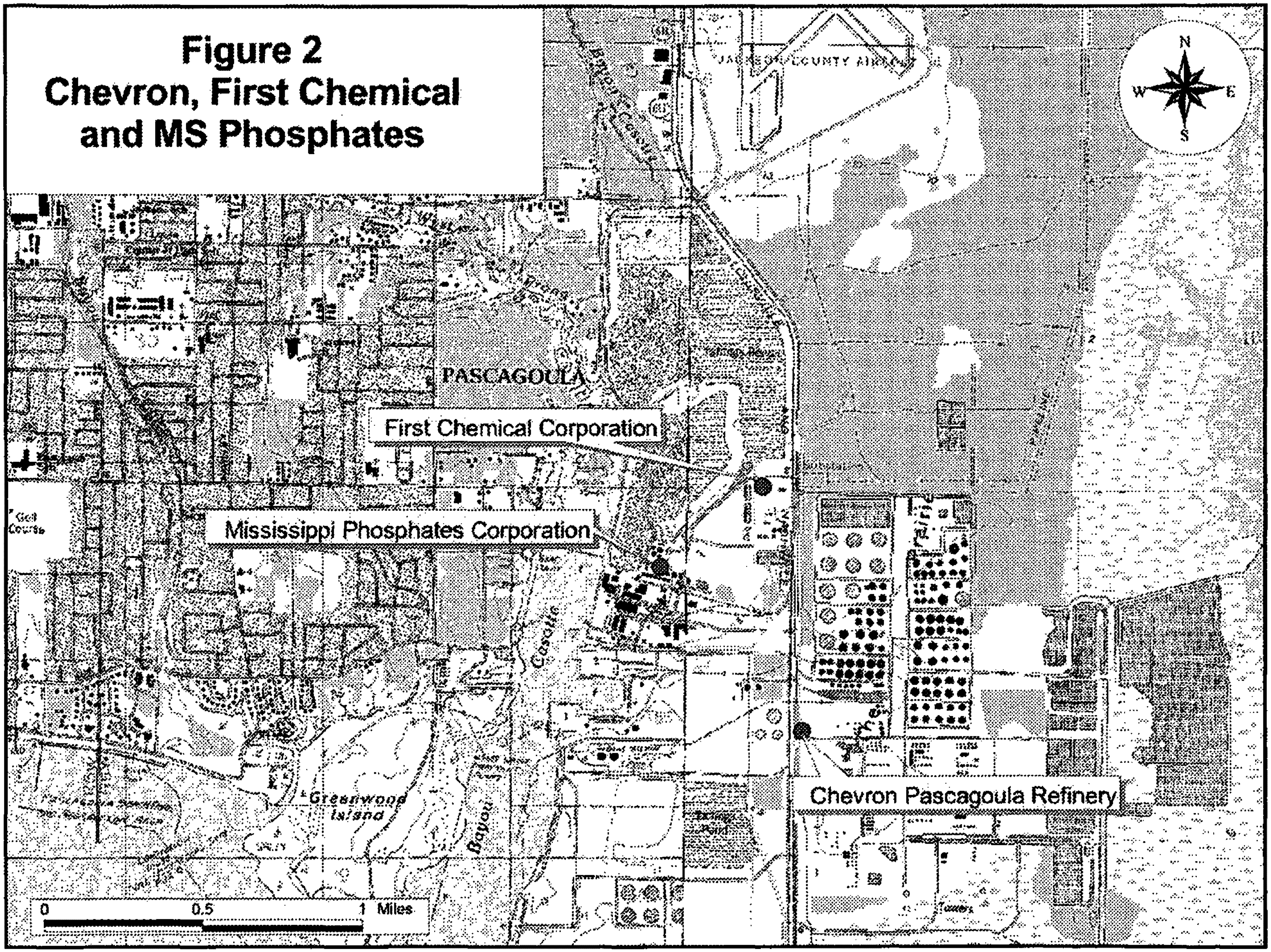


Figure 3
Omega Protein

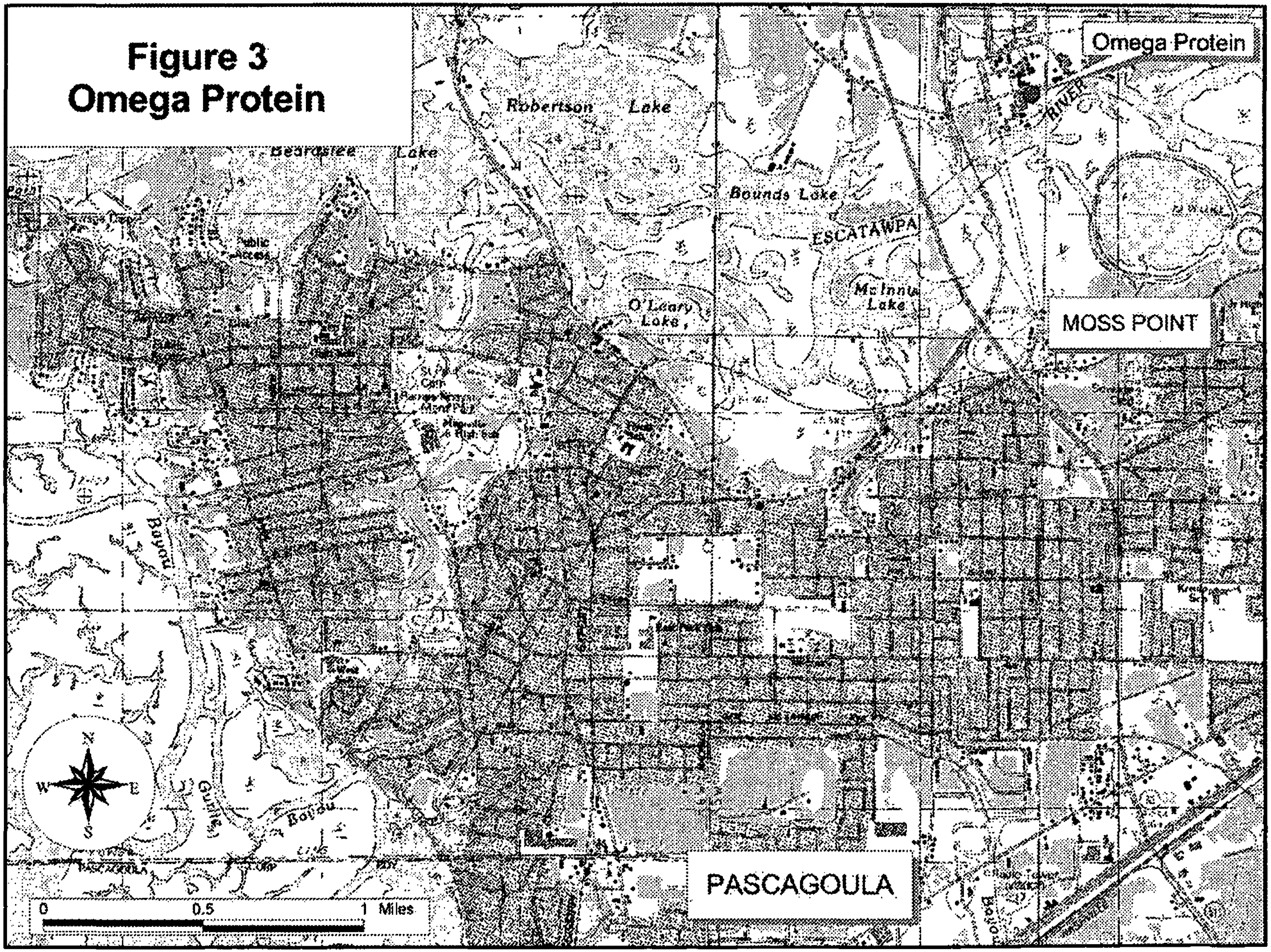


Figure 4
Polychemie, Inc.

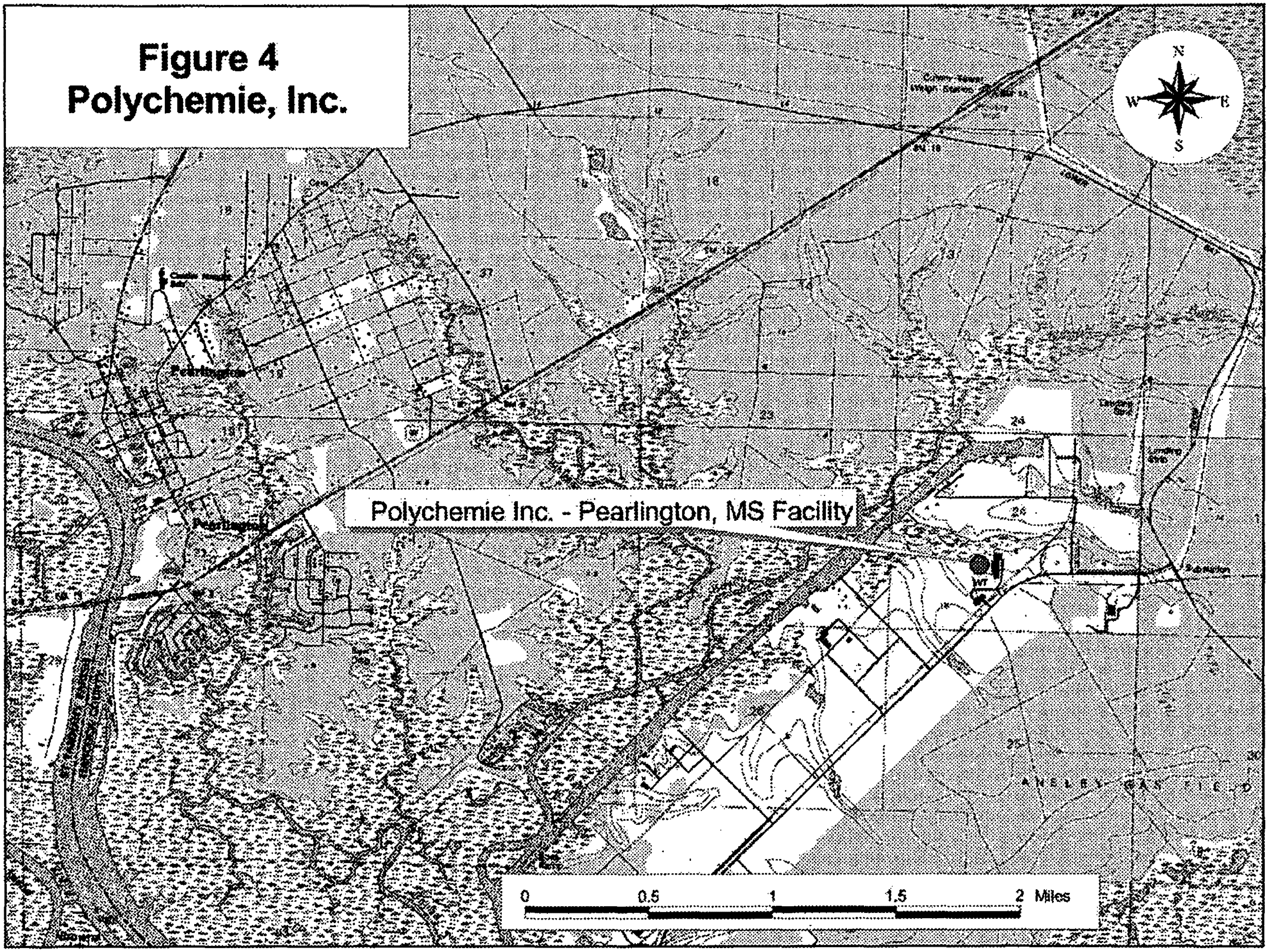


Figure 5
Ershigs Fiberglass, Inc.

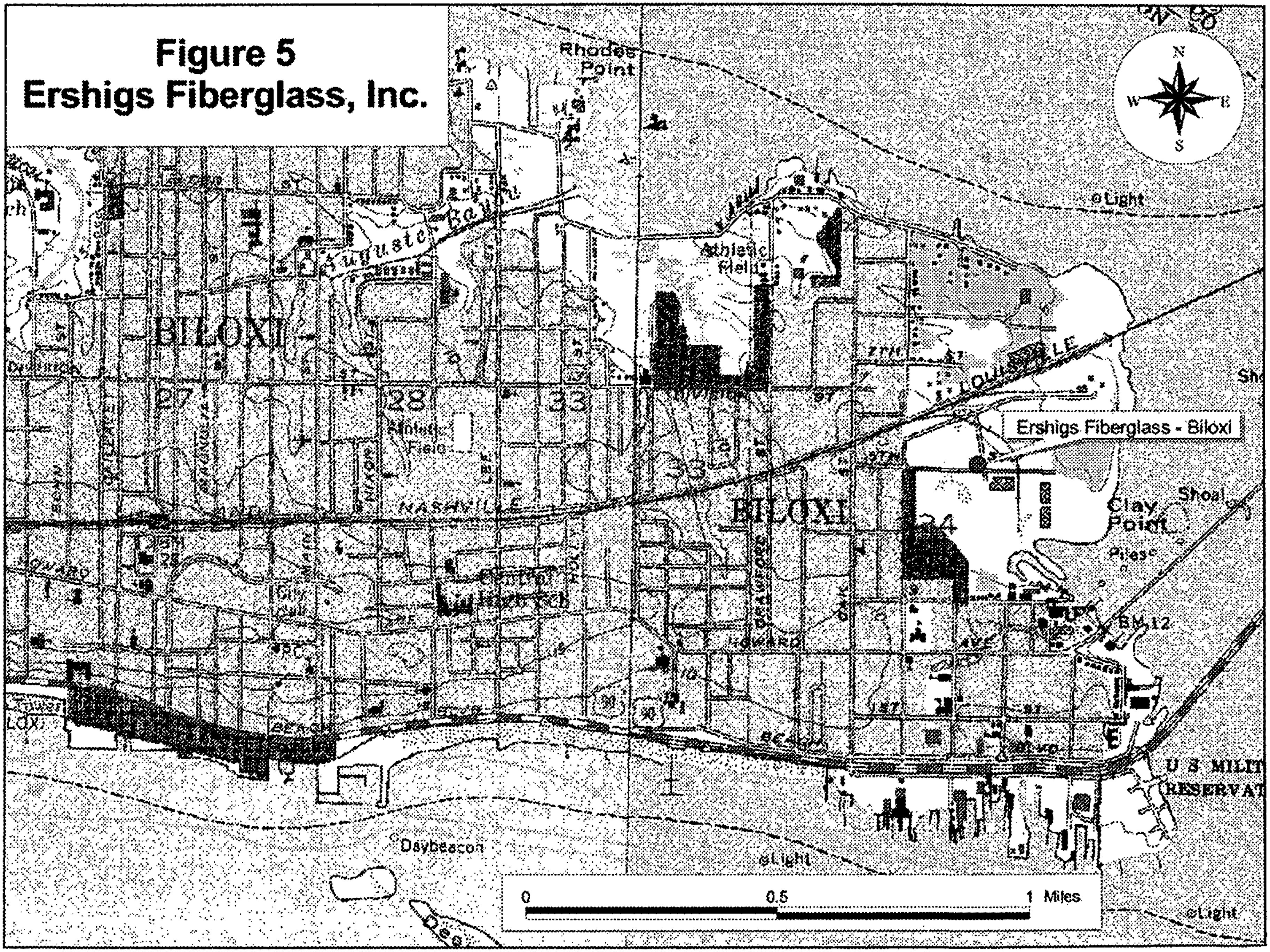
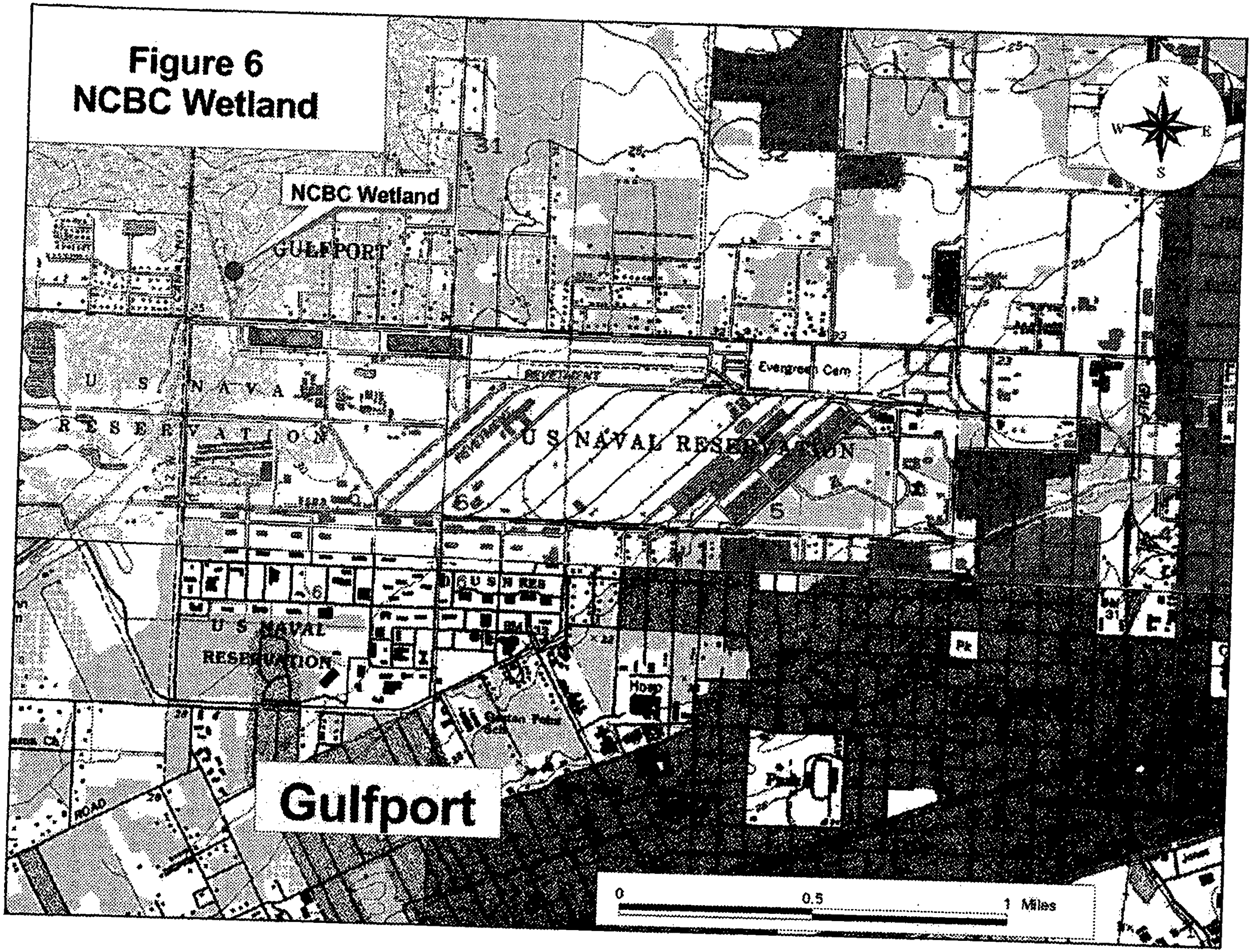


Figure 6
NCBC Wetland



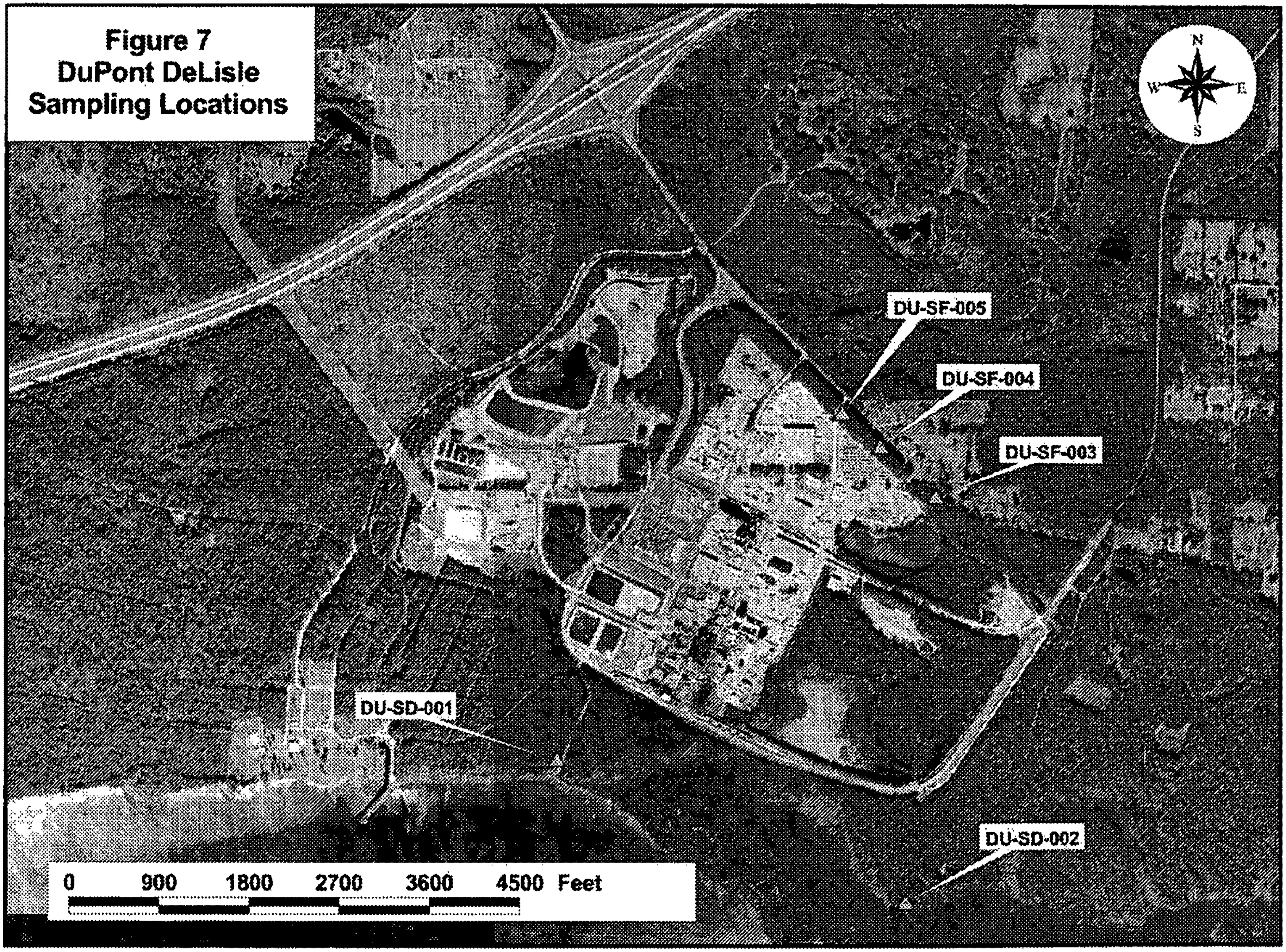


Figure 7
DuPont DeLisle
Sampling Locations
N
W
E
S
DU-SF-005
DU-SF-004
DU-SF-003
DU-SD-001
DU-SD-002
0
900
1800
2700
3600
4500
Feet

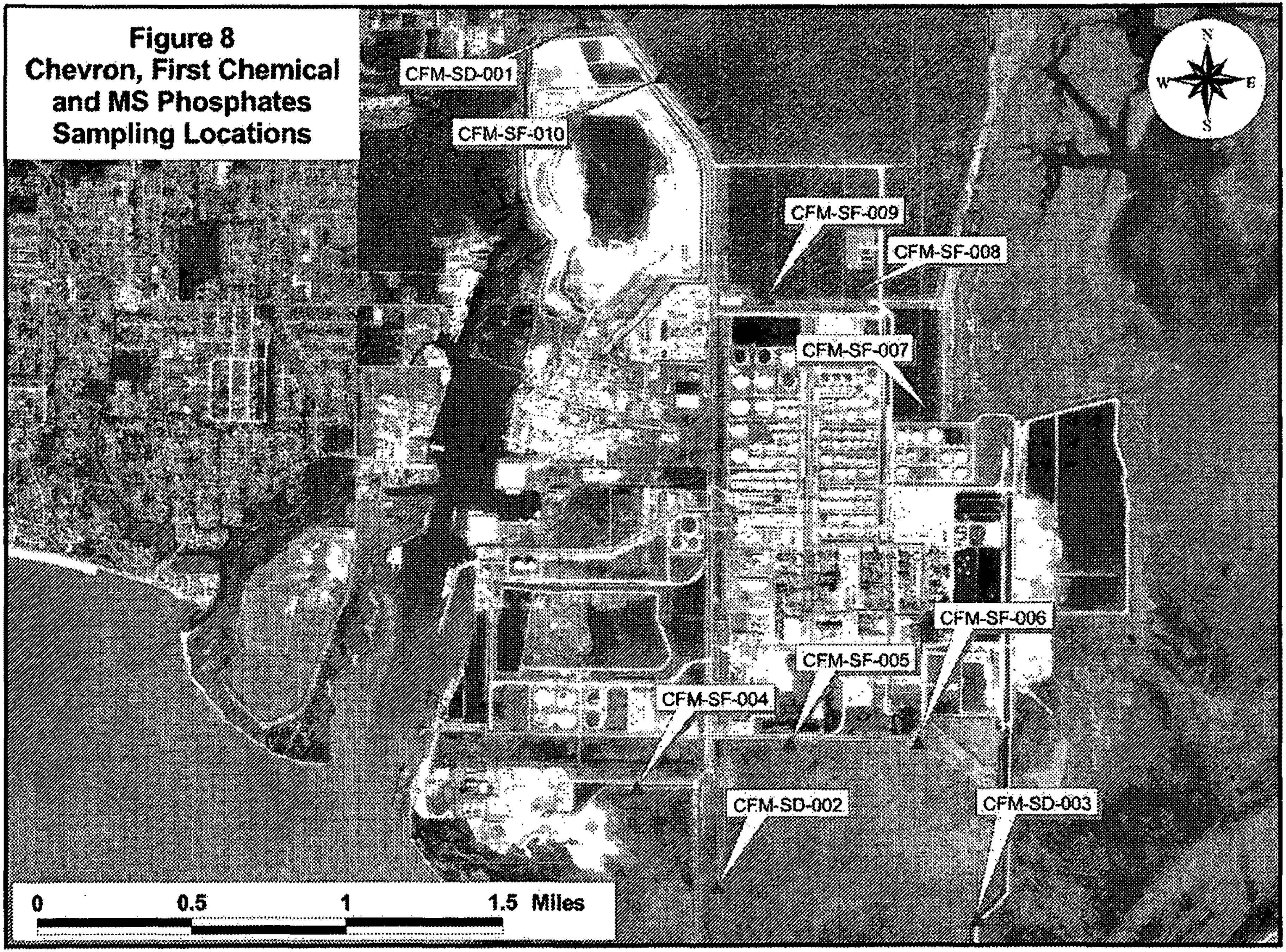


Figure 8
Chevron, First Chemical
and MS Phosphates
Sampling Locations
CFM-SD-001
CFM-SF-010
CFM-SF-009
CFM-SF-008
CFM-SF-007
CFM-SF-006
CFM-SF-005
CFM-SF-004
CFM-SD-002
CFM-SD-003
N
W
E
S
0
0.5
1
1.5 Miles

Figure 9
Omega Protein
Sampling Locations

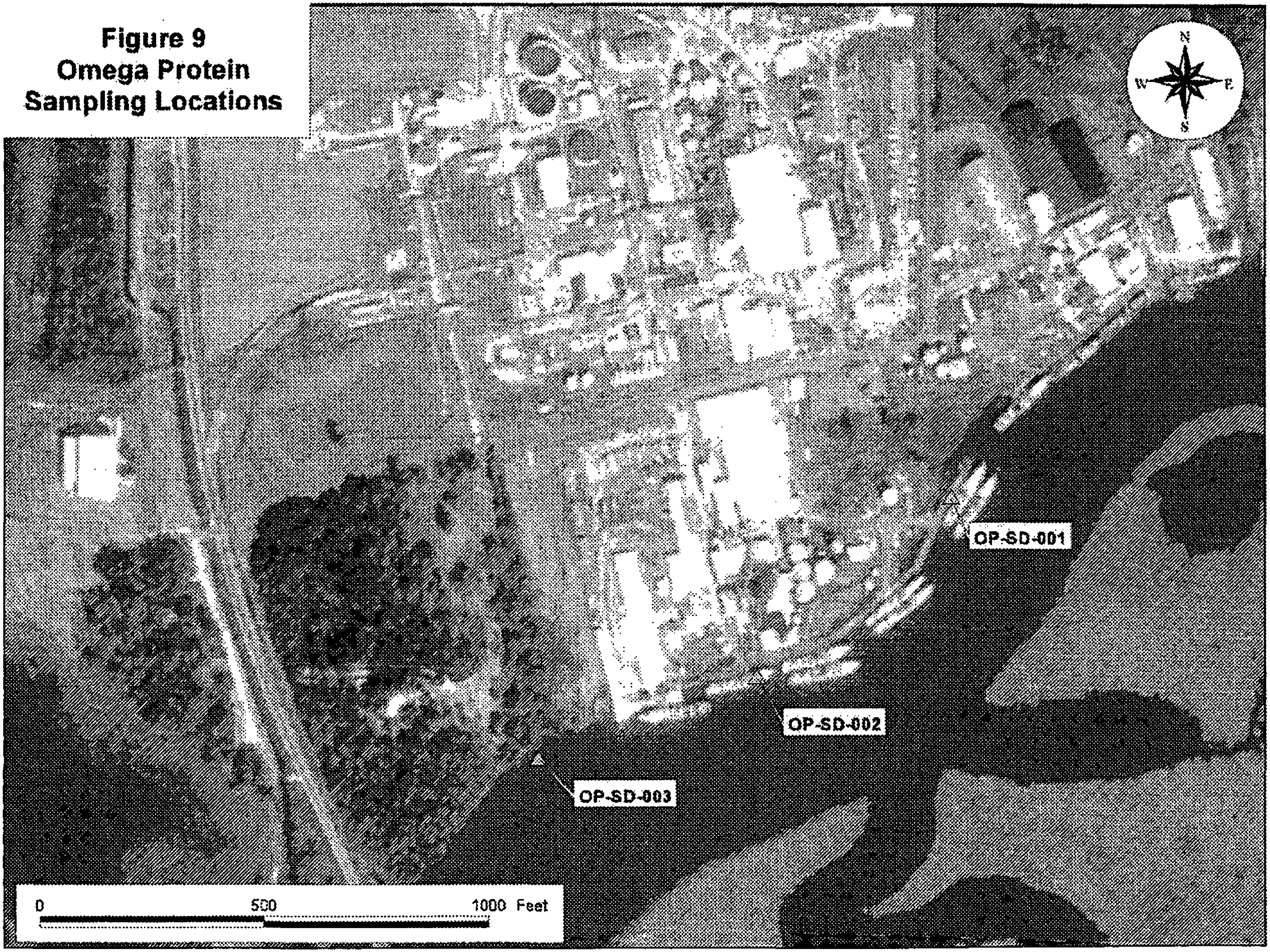
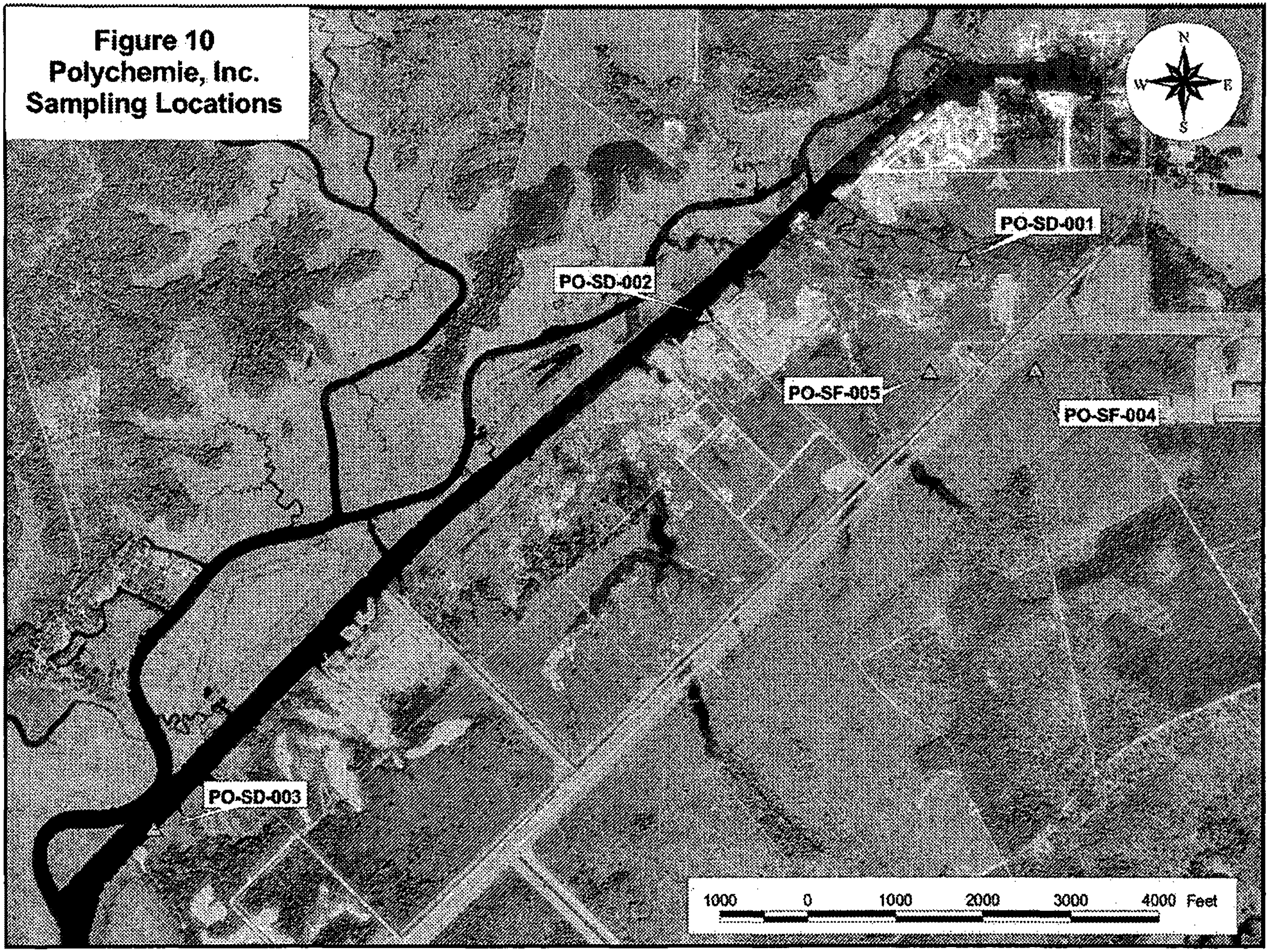


Figure 10
Polychemie, Inc.
Sampling Locations



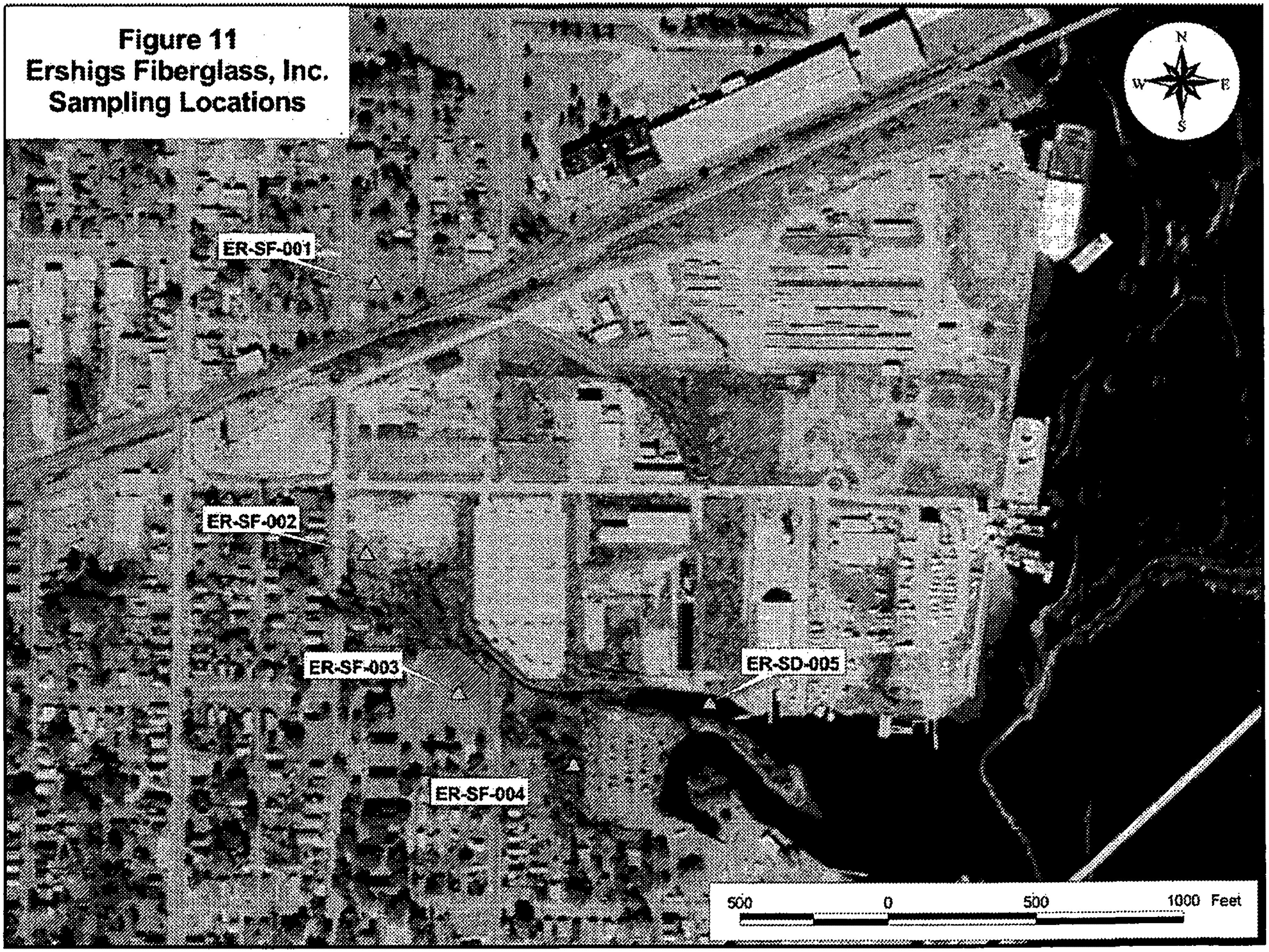


Figure 11
Ershigs Fiberglass, Inc.
Sampling Locations
N
W
E
S
ER-SF-001
ER-SF-002
ER-SF-003
ER-SF-004
ER-SD-005
500
0
500
1000 Feet

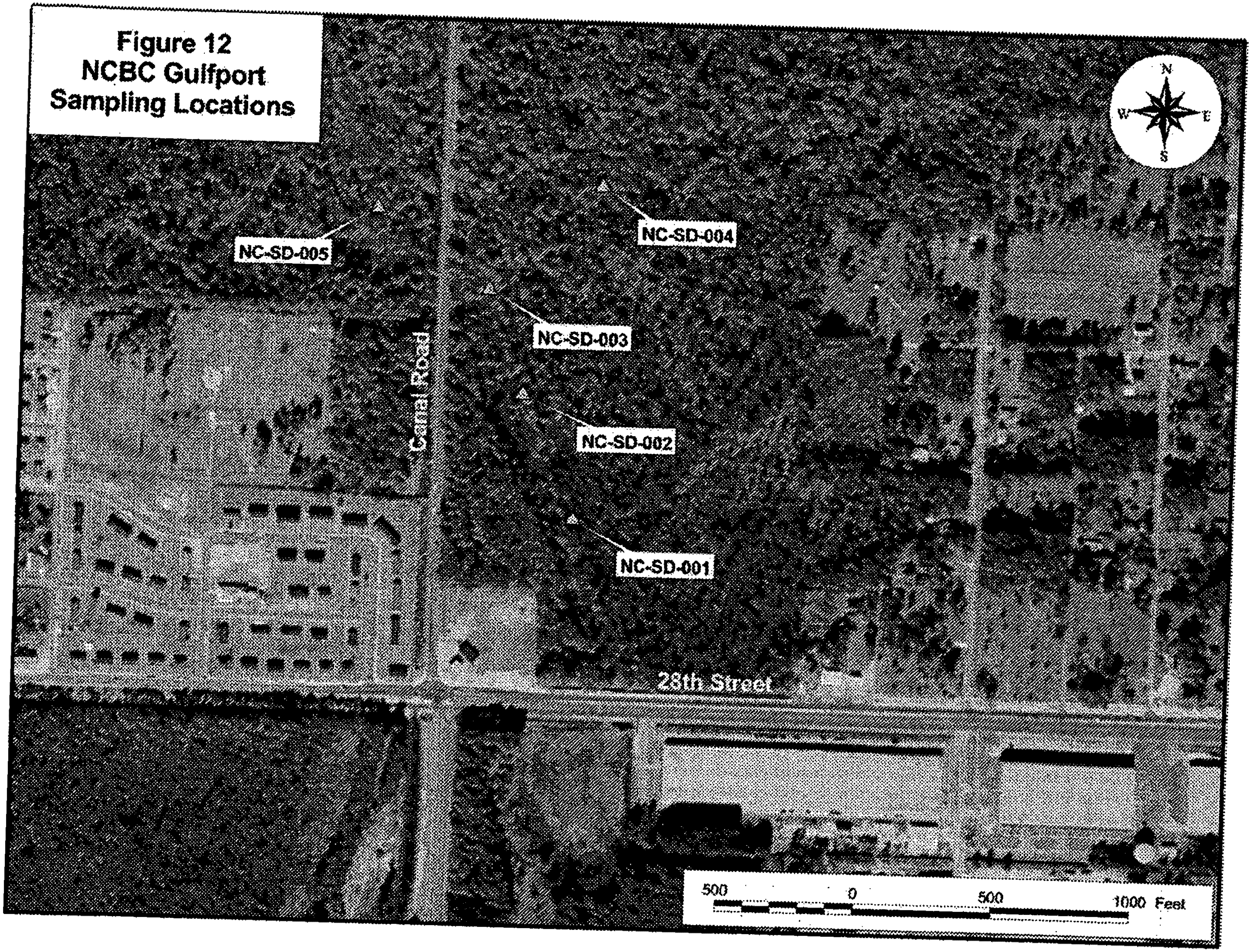


Figure 12
NCBC Gulfport
Sampling Locations
N
W
E
S
NC-SD-005
NC-SD-004
NC-SD-003
NC-SD-002
NC-SD-001
Canal Road
28th Street
500
0
500
1000 Feet

Appendix B
Laboratory Quantitation Limits

1.0 VOLATILES TARGET COMPOUND LIST AND CONTRACT REQUIRED QUANTITATION LIMITS

	Volatiles	CAS Number	Quantitation Limits: Trace Water by SIM µg/L	Trace Water µg/L	Low Water µg/L	Low Soil µg/kg	Med. Soil µg/kg
1.	Dichlorodifluoromethane	75-71-8		0.50	5.0	5.0	250
2.	Chloromethane	74-87-3		0.50	5.0	5.0	250
3.	Vinyl chloride	75-01-4		0.50	5.0	5.0	250
4.	Bromomethane	74-83-9		0.50	5.0	5.0	250
5.	Chloroethane	75-00-3		0.50	5.0	5.0	250
6.	Trichlorofluoromethane	75-69-4		0.50	5.0	5.0	250
7.	1,1-Dichloroethene	75-35-4		0.50	5.0	5.0	250
8.	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		0.50	5.0	5.0	250
9.	Acetone	67-64-1		5.0	10	10	500
10.	Carbon disulfide	75-15-0		0.50	5.0	5.0	250
11.	Methyl acetate	79-20-9		0.50	5.0	5.0	250
12.	Methylene chloride	75-09-2		0.50	5.0	5.0	250
13.	trans-1,2-Dichloroethene	156-60-5		0.50	5.0	5.0	250
14.	Methyl tert-butyl ether	1634-04-4		0.50	5.0	5.0	250
15.	1,1-Dichloroethane	75-34-3		0.50	5.0	5.0	250
16.	cis-1,2-Dichloroethene	156-59-2		0.50	5.0	5.0	250
17.	2-Butanone	78-93-3		5.0	10	10	500
18.	Bromochloromethane	74-97-5		0.50	5.0	5.0	250
19.	Chloroform	67-66-3		0.50	5.0	5.0	250
20.	1,1,1-Trichloroethane	71-55-6		0.50	5.0	5.0	250
21.	Cyclohexane	110-82-7		0.50	5.0	5.0	250
22.	Carbon tetrachloride	56-23-5		0.50	5.0	5.0	250
23.	Benzene	71-43-2		0.50	5.0	5.0	250
24.	1,2-Dichloroethane	107-06-2		0.50	5.0	5.0	250
25.	1,4-Dioxane	123-91-1	2.0	20	100	100	[illegible]
26.	Trichloroethene	79-01-6		0.50	5.0	5.0	250
27.	Methylcyclohexane	108-87-2		0.50	5.0	5.0	250
28.	1,2-Dichloropropane	78-87-5		0.50	5.0	5.0	250
29.	Bromodichloromethane	75-27-4		0.50	5.0	5.0	250
30.	cis-1,3-Dichloropropene	10061-01-5		0.50	5.0	5.0	250
31.	4-Methyl-2-pentanone	108-10-1		5.0	10	10	500
32.	Toluene	108-88-3		0.50	5.0	5.0	250
33.	trans-1,3-Dichloropropene	10061-02-6		0.50	5.0	5.0	250
34.	1,1,2-Trichloroethane	79-00-5		0.50	5.0	5.0	250
35.	Tetrachloroethene	127-18-4		0.50	5.0	5.0	250

CHLORINATED DIBENZO-P-DIOXIN/CHLORINATED DIBENZOFURAN (CDD/CDF) TARGET COMPOUND LIST (TCL) AND MINIMUM QUANTITATION LIMITS			
CDD/CDF	CAS No.	WATER (pg/L)	SOLIDS (ng/Kg)
2378-TCDD	1746-01-6	10	1.0
12378-PeCDD	40321-76-4	50	5.0
123678-HxCDD	57653-85-7	50	5.0
123478-HxCDD	39227-28-6	50	5.0
123789-HxCDD	19408-74-3	50	5.0
1234678-HpCDD	35822-46-9	50	5.0
OCDD	3268-87-9	100	10
2378-TCDF	51207-31-9	10	1.0
12378-PeCDF	57117-41-6	50	5.0
23478-PeCDF	57117-31-4	50	5.0
123678-HxCDF	57117-44-9	50	5.0
123789-HxCDF	72918-21-9	50	5.0
123478-HxCDF	70648-26-9	50	5.0
234678-HxCDF	60851-34-5	50	5.0
1234678-HpCDF	67562-39-4	50	5.0
1234789-HpCDF	55673-89-7	50	5.0
OCDF	39001-02-0	100	10

RADIOCHEMICAL MDCs								
Analysis Type	Drinking Water Aliquot Size	Drinking Water MDC	Water (other) Aliquot Size	Water (other) MDC	Solids Aliquot Size	Solids MDC	Air Aliquot Size	Air MDC
Gross Alpha	500 mL	1.8 pCi/L	200 mL	4.4 pCi/L	0.1 g	8.7 pCi/g		
Gross Beta	500 mL	1.4 pCi/L	200 mL	3.5 pCi/L	0.1 g	7 pCi/g	2500 m^3	0.0015 pCi/m^3
Radium-226			1 L	0.02 pCi/L	0.5 g	0.04 pCi/g		
Radium-228			1 L	1 pCi/L	0.5 g	2 pCi/g		
Iodine-131			2 L	0.7 pCi/L				
Strontium-89			2 L	1 pCi/L	0.5 g	4 pCi/g		
Strontium-90			2 L	1 pCi/L	0.5 g	4 pCi/g		
Uranium-234, 235, 238 Thorium-230, 232 Plutonium-238, 239 Americium-241			1 L	0.1 pCi/L	0.5 g	0.2 pCi/g	60000 m^3	2 pCi/m^3
Thorium-227			1 L	0.2 pCi/L	0.5 g	0.35 pCi/g		
Thorium-228			1 L	0.15 pCi/L	0.5 g	0.3 pCi/g		
Tritium			10 mL	0.1 nCi/L				

Appendix C
Project/Task Organization

Requesting Program:	EPA Region 4 Waste Management Division Mississippi Department of Environmental Quality
Responsibilities:	EPA WMD and MDEQ will be the end users of the data. Data collected beyond the perimeter of facilities will be used to evaluate potential releases. Data collected from areas where potentially hazardous debris was deposited will be used to determine if hazardous constituents are present in remaining soils\sediments.
Media Contact	Antonio Quinones, Chief, Ecological Assessment Branch
Project Lead:	Fred Sloan
Responsibilities:	Project lead for developing the study plan, collation of all study data, and report preparation.
Field Lead:	Mike Neill
Responsibilities:	Project lead for field activities/data collection

Task Leads:

Health and Safety Officer\	
Sample Team Leader:	Jon Vail
Sample Team Leader:	Brian Striggow
Sample Team Leader	Dan Thoman
Sample Team Leader	Stacy Box
Sample Team Leader	Sharon Matthews
Sample Processing\	
Sample Shipment	ESAT Contract personnel

Responsibilities: Task leads are responsible for leading field data collection activities for specific tasks.