137SERBSF10,609

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Site Name (Subject):	OLD ATC REFINERY
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Document Name (DocType):	Correspondence (C)
Report Segment:	2
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Date of Document:	9/16/2002
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BOUND REPORTS ASSOCIATED WITH
OLD ATC REFINERY

Report List:

1. Preliminary Assessment Report: March 1991
2. Screening Site Investigation: October 1991
3. **Final** Expanded Site Inspection: September 1993
4. **Final** Expanded Site Inspection References: September 1993
5. **Draft** Engineering Evaluation/Cost Analysis: September 1994
6. **Draft** Streamlined Risk Evaluation: December 1994
7. Engineering Evaluation/Cost Analysis: April 1995
8. Health and Safety Plan for the Aboveground Storage Tank Sampling: December 1995
9. Site Re-Assessment: June 2001
10. Site Re-Assessment, References: June 2001
11. Supplemental Expanded Site Inspection: June 2002
12. Supplemental Expanded Site Inspection Appendices: June 2002
13. Supplemental Expanded Site Inspection References: June 2002
14. Supplemental Expanded Site Inspection References, Volume 2: June 2002

Subject: **Fwd: TODAY'S DAILY ELR UPDATE**
Date: Mon, 16 Sep 2002 11:41:34 -0400
From: "Robert Gelblum" <rgelblum@mail.jus.state.nc.us>
To: <david.lown@ncmail.net>, <stuart.parker@ncmail.net>

FYI, see the very last item in the attached ELR Update (re Old ATC/Sprague Energy).

Subject: **Fwd: TODAY'S DAILY ELR UPDATE**
Date: Mon, 16 Sep 2002 10:11:22 -0400
From: "Diane Waters" <dwaters@mail.jus.state.nc.us>
To: <Acorum@mail.jus.state.nc.us>, <ajern@mail.jus.state.nc.us>, <ALEVEAUX@mail.jus.state.nc.us>, <APICKLE@mail.jus.state.nc.us>, <bmiller@mail.jus.state.nc.us>, <Bnjoku-obi@mail.jus.state.nc.us>, <BSTEWART@mail.jus.state.nc.us>, <dlaton@mail.jus.state.nc.us>, <egavin@mail.jus.state.nc.us>, <fcrawley@mail.jus.state.nc.us>, <jbullock@mail.jus.state.nc.us>, <JGULICK@mail.jus.state.nc.us>, <jhickey@mail.jus.state.nc.us>, <jhollow@mail.jus.state.nc.us>, <JMAU@mail.jus.state.nc.us>, <josborne@mail.jus.state.nc.us>, <Jweese@mail.jus.state.nc.us>, <kcooper@mail.jus.state.nc.us>, <KDUFFLEY@mail.jus.state.nc.us>, <kwaylett@mail.jus.state.nc.us>, <lclem@mail.jus.state.nc.us>, <MALCOKE@mail.jus.state.nc.us>, <Mbern@mail.jus.state.nc.us>, <MEAGLES@mail.jus.state.nc.us>, <MTHOMP@mail.jus.state.nc.us>, <nscott@mail.jus.state.nc.us>, <RGelblum@mail.jus.state.nc.us>, <rlongest@mail.jus.state.nc.us>, <smeacham@mail.jus.state.nc.us>, <TPitman@mail.jus.state.nc.us>, <wfinlat@mail.jus.state.nc.us>, <George.Hurst@ncmail.net>

Subject: **TODAY'S DAILY ELR UPDATE**
Date: Fri, 13 Sep 2002 10:08:58 -0400
From: elr_update <elr_update@eli.org>
To: elr_update@eli.org

Today's DAILY ELR UPDATE is also available at
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ELR® DAILY UPDATE

Friday, September 13, 2002

*Note: Citations below are to the Federal Register (FR). **Today's entries are in bold.***

AIR:

- EPA amended the NESHAPs for radionuclides other than radon-222 and radon-220 from facilities owned or operated by DOE and from federal facilities other than NRC licensees and not covered by Subpart H. 67 FR 57159 (9/9/02).
- EPA revised the geographical boundaries of three air quality control regions (AQCRs) in Louisiana: the Southern Louisiana-Southeast Texas AQCR; the Shreveport-Texarkana-Tyler AQCR, and the Monroe-El Dorado AQCR. 67 FR 57332 (9/10/02).
- DOE announced the availability of reports summarizing the agency's compliance with the annual alternative fuel vehicle acquisition requirement for its fleet for fiscal years 1999 and 2000. 67 FR 57419 (9/10/02).
- EPA removed the new source performance standards (NSPS) sections from the South Dakota SIP because the Agency previously delegated to the state the authority to implement and enforce the NSPS program. 67 FR 57520 (9/11/02).
- EPA announced that it has designated one new equivalent method for measuring concentrations of sulfur dioxide in ambient air and one new equivalent method for measuring concentrations of ozone in ambient air. 67 FR 57811 (9/12/02).
- **EPA announced the applicability determinations, alternative monitoring decisions, and regulatory interpretations that it has made under the new source performance standards, NESHAPs, and the stratospheric ozone protection program. 67 FR 58028 (9/13/02).**

HAZARDOUS & SOLID WASTES:

- **EPA entered into a proposed administrative order on consent under CERCLA §122(h) in connection with the Jasper County/Tri-State Mining Area Site, Operable Unit No. 1, in Jasper County, Missouri. 67 FR 58051 (9/13/02).**
- EPA entered into a second de minimis settlement under CERCLA §122(g) in connection with the Beede Waste Oil Superfund site in Plaistow, New Hampshire. 67 FR 57426 (9/10/02).
- EPA approved revisions to Oregon's hazardous waste program under RCRA. 67 FR 57335 (9/10/02).
- EPA proposed to approve revisions to Minnesota's hazardous waste program under RCRA. 67 FR 57191 (9/9/02).

PESTICIDES:

- EPA issued a list identifying pests of significant public health importance pursuant to FIFRA §28(d). 67 FR 57597 (9/11/02).

RADIOACTIVE WASTE:

- EPA will be holding public hearings in connection with its proposal to revise the "Criteria for the Certification and Recertification of the Waste Isolation Pilot Plant's Compliance with the Disposal Regulations." 67 FR 57189 (9/9/02).
- EPA announced the availability of DOE documents for public comment: "CCP-PO-001--Revision 4, May 31, 2002--CCP Transuranic Waste Characterization Quality Assurance Project Plan" and "CCP-PO-002--Revision 4, May 31, 2002--CCP Transuranic Waste Certification Plan." 67 FR 57190 (9/9/02).

WATER QUALITY:

- EPA proposed technology-based effluent limitations guidelines and new source performance standards for the concentrated aquatic animal production point source category. 67 FR 57871 (9/12/02).
- EPA announced the availabilty of a draft guidance for the prevention and control of urban runoff. 67 FR 57228 (9/9/02).
- NOAA announced a consistency apppeal under CZMA from New York's objection to the Millenium Pipeline Company's proposed natural gas pipeline that would extend from the Canadian border in Lake Erie and cross the Hudson River. 67 FR 57220 (9/9/02).

WILDLIFE:

- **The National Marine Fisheries Service issued a final rule that allows the transfer of incidental take permits and enhancement of survival permits associated with Safe Harbor Agreements with Assurances or Candidate Conservation Agreements with Assurances. 67 FR 57970 (9/13/02).**
- FWS designated critical habitat for the northern Great Plains breeding population of the piping plover under the ESA. 67 FR 57637 (9/11/02).
- FWS, in cooperation with the Rosebud Sioux Tribe, the U.S. Forest Service, and the U.S. Bureau of Indian Affairs, proposed to reintroduce endangered black-footed ferrets into south-central South Dakota on the Rosebud Sioux Reservation. 67 FR 57558 (9/11/02).

WORKER SAFETY:

- OSHA revised the construction industry safety standards to require that traffic control signs, signals, barricades, or devices protecting workers conform to Part VI of either the 1988 Edition of the Federal Highway Administration (FHwA) Manual on Uniform Traffic Control Devices (MUTCD), with 1993 revisions, or the Millennium Edition of the FHwA MUTCD, instead of the American National Standards Institute D6.1-1971, Manual on Uniform Traffic Control Devices for Streets and Highways. 67 FR 57722

(9/12/02).

DOJ NOTICES OF SETTLEMENTS:

- *United States v. Centel Corp.*, No. 02-4090 (D.S.D. Aug. 30, 2002). A settling CERCLA, CWA, and Oil Pollution Act defendant must pay $1.9 million in past U.S. response costs incurred at the Fawick Park site in Sioux Falls, South Dakota, and must waive any claims it might have against the United States relating to removal activities at the site. 67 FR 57852 (9/12/02).
- *United States v. Sprague Energy Corp.*, No. 7:01-CV-14-F(1) (E.D.N.C. Aug. 29, 2002). Settling CERCLA defendants that failed to comply with the terms of an administrative order on consent must pay $7 million in past U.S. response costs incurred at the Old ATC Refinery site in Wilmington, North Carolina, and in penalties and punitive damages. 67 FR 57852 (9/12/02).

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DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

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NCDENR

May 7, 2002

Post-it® Fax Note 7671	Date 5/7/02	# of pages ▸ 2
To LINDA CARROLL	From Stuart Parker	
Co./Dept. CARROLL CAROLINA	Co. NC Superfund	
Phone # 910 392 2321	Phone # 919 733 2801	
Fax # 910 392 3655	Fax # 919 733 9811	

Carroll Carolina Corporation
3917 Wrightsville Avenue
Wilmington, NC 28403
Attn: Ms. Linda Carroll

Dear Ms Carroll:

This letter is intended to clarify environmental issues raised at the Old ATC Refinery site in Wilmington, NC. It is understood that the City of Wilmington is considering purchasing the property to develop for public use. The NC Superfund Section has voluntarily shared preliminary sampling results from our January 2002 site investigation with various parties, in order to assist the public in making informed decisions regarding future site use. What follows is an explanation of the significance of our findings.

Residual Soil Contamination

A percentage of on-site soils contain residual petroleum compounds following soil cleanup by the USEPA during the late 1990s. This commonly occurs at former industrial sites. In a minority of the soil samples, concentrations of selected compounds exceeded NC Soil Remediation Goals. These remediation goals are very conservative *guidelines* for voluntary site cleanup, and are based on *residential* property use. Less conservative cleanup goals would be applicable for non-residential site development.

Our sample results indicate that soil lead concentrations on site have been substantially reduced, to levels less than the remediation goal for residential use. One exception was a subsurface soil sample collected beneath the property line with Southern Metals Recycling. This sample does not represent a threat of human exposure. The Superfund Section intends to screen Southern Metals for possible future investigation.

Groundwater Contamination

Residual groundwater contamination consists of low concentrations of petroleum compounds beneath the southwest portion of the site. Some compounds exceed federal and state standards established for *public* water supply. However no groundwater use occurs within one mile of the site. The contaminant concentrations do *not* suggest the presence of any free petroleum product, and sample data do *not* indicate that these contaminants have migrated to the Cape Fear River.

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Cape Fear River

Sampling detected low concentrations of various metals in Cape Fear River water and sediment adjacent to the site. These metals are present in storm water retention ponds constructed on site, and so are potentially attributable to the site. However, chromium was the only metal whose river concentration exceeded an applicable water-quality standard, and its concentration in the river is much higher than can be attributable solely to the ponds. Lead was detected in sediment near the site's river inlet, but its present distribution along the riverfront is very limited.

Site Regulatory Status and Development

The site is a *potential* candidate for the EPA's National Priorities List (NPL) of Superfund sites. This candidacy is determined by a numerical scoring process, based on the contaminants present and their potential exposure hazard to human health or the environment. This determination is a work in progress to be completed by the NC Superfund Section later this calendar quarter. Note that this site's NPL candidacy would be based on its potential impact on rare species and fisheries in the Cape Fear River, not on potential human exposure to soil contamination. Note also that not all NPL candidate sites are ever listed, and that NPL listing *does not* preclude site development.

The EPA Region IV is negotiating a settlement with Axel Johnson Corp. for past cleanup costs at this site. Conversations with EPA personnel indicate that the agency does not intend to hold other parties responsible for these or future investigative costs.

Current soil contamination and drainage characteristics on site are not compatible with unrestricted use (e.g., residential development; playgrounds). Future uses proposed for this site have included a sports stadium, a riverfront marina, and a riverfront park. The appropriateness of each option would depend on what measures were taken to prevent human contact with contaminated soils. Such measures typically include emplacement and stabilization of clean surface soil, landscaping, planting, and control of runoff and soil erosion. Pavement of selected surfaces and emplacement of building foundations would further mitigate potential hazards posed by site development.

The potential presence of lead paint and/or asbestos in existing site structures is a health issue outside of the scope of the Superfund program. So is the issue of geotechnical suitability of fill for construction. However, these are common issues in redevelopment of urban sites.

If you have any questions, please call me at (919) 733-2801, ext. 280.

Sincerely,

Stuart. F. Parker, Hydrogeologist
NC Superfund Section

cc: file
James Bateson, Branch Head

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Company to expand with river property

By Bettie Fennell
Staff Writer
April 27, 2002

Email | Print

Colonial Group Inc. plans to expand its business on about 15 acres of Wilmington's riverfront that it acquired this week in a bankruptcy auction.

The Savannah, Ga., company outbid the city for the property, which brings the total the company owns on the riverfront to nearly 38 acres, according to New Hanover County tax records.

A story in Friday's Morning Star incorrectly said the company owned about 30 acres, north and south of the Carroll Carolina Corp. property, the land that Colonial acquired in Thursday's bankruptcy auction. The company doesn't own land north of the Carroll Carolina property, said Bill Baker, company vice president.

JLM Realty owns two tracts totaling 6.28 acres just north of the Carroll property. The Carroll property was the site of the old ATC Refinery.

Mr. Baker said Colonial bought the Carroll property, which was owned by Linda Carroll and her husband, John Voet, to grow its business. The company stores petroleum products and industrial chemicals to sell and for its clients to sell. It paid $2.23 million for the property.

Though plans for the riverfront land are incomplete, the company might build storage tanks there, Mr. Baker said Friday morning.

He didn't know if the company, which has four docks on Savannah's riverfront, would build a dock in Wilmington.

Some City Council members had hoped the city could acquire the property to develop into a public park. After the bidding Thursday, several council members didn't seem too disappointed, primarily because of environmental concerns.

Besides, the property will remain in private hands, which means the city will continue to collect taxes on it, council members said. The city bid $1.92 million on the property.

Mr. Baker said company officials don't think the federal Environmental Protection Agency will try to force Colonial to pay the estimated $11.5 million it cost to remove contaminants from the property. Part of the cost includes legal

cost to remove contaminants from the property. Part of the cost includes legal fees the EPA incurred when it tried to recoup its cost from Axel Johnson, the company the EPA blames for the pollution at the former ATC Refinery. Axel Johnson has contended that other companies that controlled the site after it left in 1984 are responsible for the pollution.

Ms. Carroll's company, which cooperated with the EPA in removing many of the contaminants, also spent some of its own money to help clean up the pollution.

Mr. Baker said company officials believe that new legislation earlier this year would shield the company from paying past cleanup costs.

"These are all things we have our folks working on right now," Mr. Baker said.

While the property isn't on the Superfund list of polluted sites, it is still in an inventory of sites being investigated by the program, Stuart Parker of the N.C. Division of Waste Management said recently.

Bettie Fennell: 343-2377

bettie.fennell@wilmingtonstar.com

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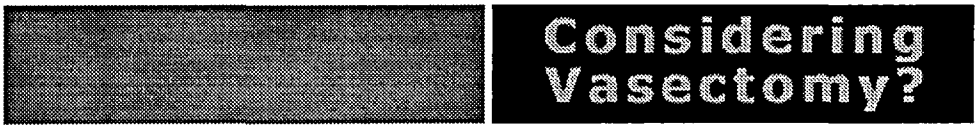

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Riverfront property sold, but not to city

By Bettie Fennell
Staff Writer
April 26, 2002

Email | Print

Colonial Group Inc., a petroleum company based in Savannah, Ga., outbid the city of Wilmington for about 15 acres of riverfront property during a bankruptcy auction Thursday.

Colonial Group paid $2.23 million. The city dropped out after bidding $1.92 million. Carroll Carolina Corp., which owned the property, sought bankruptcy protection last year.

Colonial Group's plan for the property is unknown. Calls to three company officials and their local lawyer, Jim Seay, were not returned after the bidding.

Colonial Group's purchase means the company now owns more than 30 acres on the waterfront, according to county tax records. Tax bills for 7.3 acres north of the Carroll Carolina site, which was owned by JLM Realty Inc., are sent to CTI of North Carolina, which has the same Savannah, Ga., address as Colonial Group. Someone who answered the telephone Thursday at JLM's number said the company was bought by Colonial Oil.

CTI also owns more than nine acres south of the Carroll Carolina property, bringing its total to more than 30 acres zoned for industrial use.

Wilmington Mayor Harper Peterson said the city will work with the new owners.

Mr. Peterson and Councilman Jason Thompson attended the auction with City Attorney Tom Pollard, who was authorized to bid for the city. Before Mr. Pollard bid each time, he glanced at Mr. Peterson, who nodded in approval.

In addition to the city and Colonial Group, the third bidder was Whistler Investment Group.

Some bidders were concerned that they might not be able to back out of the transaction unless they found new pollution on the property. The land was once home to a refinery and bulk storage facility. The Environmental Protection Agency spent more than $8 million in the 1990s cleaning up the site, which was contaminated with lead, crude oil and hazardous chemicals.

Before the bidding began, bankruptcy Trustee Joseph Callaway said the winning bidder had until May 10, the date to close on the property, to conduct an

bidder had until May 10, the date to close on the property, to conduct an environmental assessment. The winner, he said, could possibly get out of the transaction only if new contamination is found.

"This property is going to move today one way or the other," Mr. Callaway said.

Some City Council members didn't seem disappointed that the city wasn't the successful bidder.

"I think that's fine," said Councilwoman Laura Padgett. She said she was concerned after receiving an environmental report earlier this week that said asbestos and lead paint would have to be removed from several buildings on the site.

Despite work by the EPA to remove contaminants, the report also said the site might still be put on the federal National Priorities List, also known as the Superfund list.

Mrs. Padgett hopes the owners can be encouraged to work with Wilmington on its plan to revitalize the area.

"I think it worked out for the best," said Councilman Jim Quinn. "As high as it went, I don't think it was a good deal for us."

He was pleased that it was bought by private industry, which might build on it, provide jobs and pay property taxes. After all, he said, local officials supported a project to deepen the harbor to develop more business from the river.

Colonial Group is a conglomerate of companies focused mostly on shipment of petroleum, chemicals and forest products. It is a major employer in Savannah, where it operates a large petroleum terminal on the Savannah River. Since 1921, the company has been owned by the family of its founder, Raymond M. Demere.

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City quiet on river site acquisition

By Bettie Fennell
Staff Writer
April 23, 2002

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The Wilmington City Council held a closed-door meeting Monday to decide how much it is willing to pay for about 15 acres of riverfront property that is tied up in bankruptcy court.

The council also instructed its attorney, Tom Pollard, to attend a bankruptcy auction that will be held at 10 a.m. Thursday in the federal courthouse in Wilmington.

After the meeting Monday, which took more than two hours, Mayor Harper Peterson declined to say how much more the council would be willing to pay for the property on Surry Street, south of the Cape Fear Memorial Bridge. Carroll Carolina Corp owns the land.

Earlier this month, the council submitted a bid of $1.8 million for the tract. A $90,000 deposit, which was submitted with the bid, would be returned if the city isn't the highest bidder.

Mr. Pollard said he was not aware of anyone submitting a higher bid. But that could change during the auction Thursday.

Mr. Peterson said Judge Rich Leonard would preside over the auction and determine when the last bid is submitted.

Before the council met behind closed doors Monday, Mr. Pollard presented a summary of a draft environmental assessment of the property that was conducted by Catlin Engineers and Scientists.

Interim City Manager Ed Fare said the assessment was expected to cost less than $5,000. Because of a city-imposed deadline to complete the environmental report, the engineering company was unable to take soil and groundwater samples to evaluate the extent of contamination remaining after a U.S. Environmental Protection Agency cleanup in the 1990s.

The property was the site of a petroleum refinery and bulk storage facility. The pollution occurred before the existing owners, Linda Carroll and her husband, John Voet, bought the property.

While the site is still a candidate for the Superfund list, Mr. Pollard said, the

While the site is still a candidate for the Superfund list, Mr. Pollard said, the decision won't be made until after a report the state is expected to complete by June 30. Even if the site isn't placed on the Superfund list, Mr. Pollard said, the EPA may require the council to remove more contaminants from the soil, depending on how the property would be used.

The council hasn't decided how it would use the land. But Mr. Peterson said he would like to see a public park on the riverfront.

"I think there are a lot of unknowns on that site," Mr. Pollard said, after Councilman Jim Quinn raised concerns about restrictions that might be placed on the property during a cleanup process.

Councilwoman Sandra Spaulding Hughes said she is concerned whether the city could build anything on the tract, based on a statement in the report. The report says that "the potential for unstable soil exists should the site be developed with structures requiring any weight bearing capacity." The unstable soil is apparently the result of debris used to fill the site over the years, the report said.

At least three buildings are on the property, Mr. Pollard said. The buildings could contain asbestos and lead paint, contaminates that would have to be removed under safety regulations to avoid exposing people, who might come in contact with it.

Mr. Pollard said the council should be aware that there are also off-site sources of contamination from surrounding properties, such as Southern Metals, which borders the Carroll property. The property lines between the two sites contained elevated lead levels, Mr. Pollard said.

"The biggest risk is the environmental" issue, Mr. Pollard said.

Bettie Fennell: 343-2377

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DRAFT PHASE I ENVIRONMENTAL SITE ASSESSMENT
OLD ATC REFINERY SITE
801 SURRY STREET
WILMINGTON, NORTH CAROLINA

CATLIN PROJECT NO. 202-033-01

Attn: Stuart Porter
Fax#
(919)733-4811
18 pages
From: L A Carroll
CCC

APRIL 18, 2002

PREPARED FOR:

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ATTENTION: MR. TOM POLLARD
P.O. BOX 1810
WILMINGTON, NORTH CAROLINA 28402

PREPARED BY:

CATLIN ENGINEERS AND SCIENTISTS
P.O. BOX 10279
WILMINGTON, NORTH CAROLINA 28404-0279
(910) 452-5861

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DRAFT PHASE I ENVIRONMENTAL SITE ASSESSMENT
OLD ATC REFINERY SITE
801 SURRY STREET
WILMINGTON, NORTH CAROLINA
CATLIN PROJECT NO. 202-033-01

APRIL 18, 2002

1.0 SUMMARY

(Refer to Figures 1 and 2)

CATLIN Engineers and Scientists (CATLIN) was retained to perform a Preliminary Phase I Environmental Site Assessment (ESA) on the subject property by the administrative office of Wilmington, North Carolina. The subject site is located at 801 Surry Street, Wilmington, North Carolina, and is comprised of approximately 13 acres. Figure 1 illustrates the general vicinity of the subject site, and Figure 2 depicts the subject site's property boundaries and layout.

The scope of work in this study includes a Phase I ESA prepared in general accordance with the standard practices of the American Society for Testing and Materials (ASTM) as indicated in method ASTM E 1527-00. However, due to a client-imposed deadline certain aspects of the Phase I ESA process were not met. No intrusive soil or groundwater sampling was performed during this investigation.

Information regarding the subject site and vicinity was obtained by site reconnaissance, personal interviews, aerial photographs and incident management files reviewed at the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Waste Management (DWM), Superfund Section in Raleigh, North Carolina.

As determined through aerial photograph review, personal interviews, Wilmington City Directories (Polks and Hill), and other historical record reviews, the subject site was undeveloped until approximately 1970. At that time, the site was developed for use as a petroleum refinery and bulk storage facility. Residual fuels were produced from crude oil by atmospheric distillation. The site also stored tetraethyl lead, which is used as an anti-knock additive in gasoline. The facility operated under several different names and owners until 1986. Attempts to re-open the facility by two other companies failed, largely due to environmental issues associated with the site.

The site is now inactive and the current owner of the property, Carroll Carolina Corporation, has recently filed for Chapter 11 bankruptcy.

Due to facility operations and improper disposal of materials, the site has experienced a number of chemical releases to the surface and subsurface. A company employee contacted the NCDENR in 1990 regarding potential onsite disposal of waste materials. The predominant sources of contamination were identified as leaking petroleum aboveground storage tanks (ASTs) and associated piping, a tetraethyl lead AST and piping, oil/water separators, petroleum underground storage tanks (USTs), and onsite disposal of tank sludge and scale.

Initial sampling conducted at the site in 1991 by the United States Environmental Protection Agency (US EPA) and NCDENR Superfund Section indicated impacts to site soils and groundwater. This included lead, vanadium, and other metals, as well as total petroleum hydrocarbons (TPH) in excess of State standards. The site was placed on the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) list, but was not placed on the National Priorities List (NPL).

A number of subsurface investigations have been conducted at the site from 1991 to 2001. Remediation of floating petroleum on the adjoining Cape Fear River, removal of free phase product from the groundwater, and abatement of contaminated soil has been conducted at the site. An interceptor trench was constructed between a leaking valve and the Cape Fear River in 1991 and several thousand gallons of petroleum were recovered. Several thousand cubic yards of petroleum and metals contaminated soil were treated onsite during 1999. Much of the soil was disposed of at offsite locations. Some of the soil was spread onsite after contaminant concentrations reached the established North Carolina Soil Remediation Goals.

The NCDENR Superfund Section recently conducted an Expanded Site Inspection (ESI) at the site in January 2002. The ESI included additional soil, surface water, and groundwater sampling. The ESI report has not been released as of the date of this Phase I ESA. However, NCDENR Superfund Section personnel provided copies of the analytical data in the form of draft tables.

During the ESI sampling event, relatively minor concentrations of target extractable organic compounds and metals were detected in site soils. However, none of the analytes were detected at concentrations above existing North Carolina Soil Remediation Goals. Two compounds for which there are no existing standards (barium and benzaldehyde) were detected at concentrations above the method detection limit. When a compound has no existing standard, any detectable concentration is considered an exceedence.

Four semi-volatile organic compounds (SVOCs) and lead were detected in water samples collected from onsite groundwater monitoring wells at concentrations above their North Carolina Groundwater Remediation Goals, and above the current North Carolina NCAC T:15A 02L Groundwater Quality Standards. In addition, two compounds for which there are no standards (carbazole and vanadium) were detected.

Impacts to onsite surface waters and sediments were also detected in the form of SVOCs and metals. Surface water and sediment samples collected from the Cape Fear River, at the subject site and down river, also exhibited elevated metals concentrations. However, upgadient samples collected from the river also contained metals at concentrations above their respective surface water standard.

The site is currently under regulatory review by the EPA and the North Carolina Superfund Section for potential site closure. This determination will be made after reviewing the most recent data generated in the ESI. According to the US Environmental Protection Agency (EPA) Region IV Project Manager Beverly Hudson, additional soil, groundwater, and surface water sampling/assessment could be required at the site in the future. Additional remediation may or may not be required, although the concern exists for residual contamination at the site to potentially impact the Cape Fear River.

In March 1, 2002 correspondence from the NCDENR DWM to Ms. Linda Carroll of Carroll Carolina Corporation, the DWM Incident Manager indicated that the site is still a candidate for the NPL, and that the site's regulatory status would be determined after completion of the ESI. The correspondence also states that "...preliminary soil testing and screening results do not indicate that residual soil contamination at the site exceeds regulatory limits for human exposure." The DWM Incident Manager did indicate that the site is still under consideration for an NPL determination due to potential site-related impacts to the Cape Fear River, but that potential development for commercial or industrial use could raise risk-based site cleanup levels.

Also of concern is the potential presence of asbestos containing materials (ACMs) located in the two structures, and in the insulation jacketing the boilers and pipes in the boiler shed.

The site was also reportedly filled with debris over the course of its use. Although the debris may not indicate environmental concern, the potential for unstable soil exists should the site be developed with structures requiring any weight bearing capacity.

The site is low lying, and the surficial water table is from less than one foot to six feet below land surface. Potential wetland conditions exist at various locations around the site, especially along the Cape Fear River.

In addition to the subject site, several offsite sources of contamination were located within a one-mile radius of the subject site. These include the properties immediately adjacent to the subject site on the north, south, and southeastern property boundaries. The subject site does not have any water supply wells, and if developed would be supplied with potable water by the City of Wilmington municipal water system.

2.0 INTRODUCTION

2.1 *PURPOSE*

The purpose of this Draft Phase I ESA was to determine the potential for past and present areas of environmental concern at the subject site. These concerns were addressed for the subject property and for adjoining and regional facilities that may potentially impact the study site.

2.2 *SPECIAL TERMS AND CONDITIONS*
(Refer to Appendix A)

This study was conducted in general accordance with the ASTM E 1527-00 Standard, and per contractual agreements between CATLIN and the City of Wilmington, as indicated in the City of Wilmington engagement letter dated April 12, 2002 (Appendix A).

2.3 *LIMITATIONS AND EXCEPTIONS OF ASSESSMENT*
(Refer to Appendix B)

This Phase I ESA is based on a review of available data and a visual site and vicinity reconnaissance. It is possible that this investigation may have failed to reveal the presence of petroleum hydrocarbon or hazardous waste contamination on the subject site, where such contamination may exist. Although CATLIN has used accepted methods appropriate for a Phase I ESA, CATLIN cannot guarantee that such contamination does not exist.

In addition, CATLIN and its employees, agents, and subcontractors are not responsible for any false or misleading information obtained from the sources or individuals interviewed in connection with this study, and are not responsible for any concealed conditions on the study site.

A Statement of Qualifications for CATLIN is included in Appendix B.

2.4 *LIMITING CONDITIONS AND METHODOLOGY USED*

As mentioned above, this study was prepared in general accordance with the ASTM E 1527-00 Standard. Although formal wetlands and asbestos surveys were not conducted at the subject site, a cursory visual inspection was conducted for the presence of both. Chain-of-title information for the property was not reviewed, and the current property owner could not be reached for an interview.

A Phase I ESA on a nearby site was conducted by CATLIN in January of 2002. General information regarding the subject area was utilized to augment this report.

2.5 *PREVIOUS REPORTS*
(Refer to Appendix C)

Since the late 1980s, there have been a large number of reports, memorandums, and other documents generated regarding the subject site. The NCDENR Superfund Section Incident Management Files were reviewed by CATLIN personnel on April 15, 2002. The files were too extensive to be completely reviewed in the time allowed. However, pertinent portions of some documents were copied and are included in Appendix C.

Information obtained from these previous reports will be referenced throughout this Phase I ESA.

The following highlights some of the documents and investigations conducted at the site:

- Preliminary Assessment, NC DEHNR, DSWM, March 1991
- Screening Site Investigation, NC DEHNR DSWM, October 1991
- Final Expanded Site Investigation, Black and Veach Waste Science and Technology Group (B&V), 1992 and 1993
- Engineering Evaluation/Cost Estimate, B&V, April 1995
- POLREP #6 and Final, US EPA, October 25, 1999
- The Biopile System: A Successful Alternative to Treating TPH-Contaminated Soils, John A Glaser et al, February 2000
- Site Re-Assessment, NCDENR, DWM, Superfund Section, June 2001
- Expanded Site Assessment, NCDENR Superfund Section (raw data only), January 2002

3.0 SITE DESCRIPTION

3.1 *LOCATION AND LEGAL DESCRIPTION*
(Refer to Figure 1 and Appendix D)

As illustrated in Figure 1, the subject property is located at 801 Surry Street in Wilmington, North Carolina. The property is bounded to the east by Surry Street, and to the west by the Cape Fear River. The site is currently unoccupied. According to the property tax card, the site was developed in 1970. The New Hanover County Tax Office map identification number for the site is R05316-001-001-000. The tax card obtained from the New Hanover County Tax Office (Appendix D) indicates the site to be comprised of approximately 12.58 acres. The subject site is currently zoned HM for heavy manufacturing.

According to the United States Geological Survey (USGS) Wilmington, North Carolina Topographic Quadrangle (photorevised 1979), and as shown in Figure 1, the study site lies at an elevation of approximately 0 to 20 feet above mean sea level, and at an approximate latitude and longitude of 34°13'50" and 77°56'59", respectively.

3.2 *SITE AND VICINITY CHARACTERISTICS*
(Refer to Figure 1 and 2)

Figure 2 illustrates the layout of the subject site. This figure is adapted from a map provided by the NCDENR DWM, and is not to scale.

Topography at the subject site is relatively level, with a gentle slope toward the west and the Cape Fear River. Two drainage ditches leading to retention ponds are present. Both retention ponds discharge into the Cape Fear River. A stormwater drainage pipe discharges into a lagoon located in the west-central portion of the site. The site is currently cleared of the previous ASTs and refinery, and is largely covered with vegetation. Two concrete block structures are present, as well as a metal-sided boiler shed near the southeastern property, and a metal-sided fire water pump along the Cape Fear River.

Surrounding land use is largely commercial and industrial.

Wilmington and nearly all of New Hanover County lie within the Coastal Plain physiographic province of North Carolina. The United States Department of Agriculture (USDA) Soil Conservation Service (SCS) Soil Survey of New Hanover County, North Carolina (April 1977) reveals the soil at the subject site to be comprised primarily of Urban Land. Urban Land consists of areas where the original soil has been cut, filled, graded, or paved so that soil properties have been altered to the extent that a soil series is not recognized. These areas are now used for shopping centers, factories, municipal buildings, apartment complexes, parking lots, or for other purposes where buildings are closely spaced or soil is covered with pavement.

3.3 SITE IMPROVEMENTS

The structures, ASTs, piping, and other site improvements were all demolished and disposed of offsite during the 1990s. Two concrete block buildings in poor shape, and two metal sided structures remain. Although disconnected, overhead power and municipal water and sewer are available. A metal chain link fence now surrounds all of the property boundaries.

3.4 ENVIRONMENTAL LIENS

?

The most recent landowner filed bankruptcy in the mid 1990s, hence the site fell under jurisdiction of the US EPA and the North Carolina Superfund Section. Axel Johnson has been named as the Potentially Responsible Party (PRP), but is currently in the legal process of determining other PRPs. In addition, the current property owner, Carroll Carolina Corporation, has presently filed for bankruptcy.

3.5 CURRENT PROPERTY USE
(Refer to Appendix D)

According to the New Hanover County Tax Office, the subject property is currently owned by the Carroll Carolina Corporation, and is currently unoccupied. The property tax card for the subject site is included in Appendix D. Current property use does not indicate the potential for environmental concern.

3.6 PAST PROPERTY USE

As determined through aerial photograph review, personal interviews, Wilmington City Directories (Polks and Hill), and other historical record reviews, the subject site was undeveloped prior to 1970, and at least back to 1950.

Based on a review of existing documents prepared by the EPA and North Carolina Superfund Section, the following information summarizes the property history:

- 1970: Property purchased by Pace Oil of Winston-Salem, NC.
- 1971: Refinery constructed by Titan Oil to operate under a 10 year lease agreement with Pace Oil.
- Titan Oil underwent a name change to ATC Petroleum during the lease. Titan Oil, ATC Petroleum, and Sprague Oil are all subsidiaries of Axel Johnson and Company of New York, New York.
- 1981: Refinery was shut down.

- 1985: Pace Oil and Primary Oil merged to form Republic Oil, and leased the property in January 1985. The facility operated for 13 months and went bankrupt in February 1986.

- 1986: City Gas and Transmission (CG&T) bought the property in March, but never operated the facility. CG&T subsequently filed bankruptcy.

- 1991: Wyandotte Tribal Petroleum, Inc. (WTPI) considered purchase of the property, but eventually backed out due to existing environmental issues.

- 1990: The US EPA and NC Superfund Section begin to assess the site. The site is placed on CERCLIS List to be assessed and remediated under the Superfund program. The site was NOT placed on the National Priorities List (NPL).

- 1996: US EPA entered into an Administrative Order of Consent (AOC) with Axel Johnson Company as the sole remaining PRP. The US EPA ID Number for the site is NCD986186518.

- 1990s (?): Property was purchased by Ms. Linda Carroll, under the Carroll Carolina Corporation.

- 2002: Carroll Carolina Corporation files bankruptcy, but remains current property owner.

Historic property use as a petroleum storage facility and refinery indicates a strong potential for impacts to site soil and groundwater quality.

3.7 *ADJOINING PROPERTIES USE*

As previously mentioned in Section 3.2, the subject site lies in an area utilized primarily for commercial and industrial purposes.

The subject property is bordered to the north by the former PG AM Molasses Plant and by the former JLM Terminal. The JLM facility also served as a bulk petroleum storage plant and refinery. The facility has been demolished within the last two years. The site has confirmed petroleum releases to subsurface soils and groundwater. Both of these sites are currently listed on environmental databases indicating confirmed releases to soil and groundwater.

Also to the north is Cape Fear Recycling, which operates as a metal, plastic and paper recycling facility.

The site is bordered to the south by Colonial Oil, which was formerly a JLM Terminal. This site is active and also serves as a bulk petroleum storage facility.

The site is bordered to the east by Surry Street and Southern Metals Recycling. This site also has confirmed releases to site soils and groundwater, largely due to a fire that occurred at the site in the 1990s. Recent soil and groundwater sampling conducted by the NCDENR DWM indicates that impacts to the subject site may be present due to operations and activities at the Southern Metals Recycling Facility.

Current and historic activities at all of these sites have the strong potential to have impacted the subject site.

The subject property is bordered to the west by the Cape Fear River, which is utilized as a shipping channel and for recreational boating and fishing purposes.

4.0 REGULATORY REVIEW

4.1 *EDR ENVIRONMENTAL DATABASE*
(Refer to Appendix E)

In order to review the impact of current and past land use on environmental conditions, a series of regulatory databases were provided to CATLIN by EDR of Southport, Connecticut. The database report was generated on April 3, 2002. EDR provides approximate distance and direction of each facility identified based on latitude and longitude coordinates of the subject site as supplied by CATLIN. Distances from the subject site for each database were determined according to ASTM recommended search radii. Description of the individual databases are included in the EDR report (Appendix E). Included in this report were listings from the following sources.

<u>Federal ASTM Standard</u>

- The EPA National Priority List (NPL) and Delisted NPL.
- The EPA Comprehensive Environmental Response, Compensation, and Liability Information System database (CERCLIS) including No Further Remedial Action Planned (NFRAP) sites.
- The Environmental Protection Agency (EPA) Resource Conservation and Recovery Information System (RCRIS) including the Resource Conservation and Recovery Act (RCRA) Registration Site Reports, RCRA Corrective Action Report (CORRACTS) sites, the RCRA, Treatment, Storage, Disposal (TSD) Facilities List, and the RCRIS Large Quantity Generator (LQG) and Small Quantity Generator (SQG) site lists.
- The EPA Emergency Response Notifications Systems (ERNS).

<u>Federal ASTM Supplemental</u>

- The Superfund (CERCLA) Consent Decrees (CONSENT) database.
- The Superfund Records of Decision (ROD) database.
- The EPA Facility Index System (FINDS) database.
- The United States Department of Transportation (USDOT) Hazardous Materials Information Reporting System (HMIRS).
- The Nuclear Regulatory Commission (NRC) Material Licensing Tracking System (MLTS).
- The Mines Master Index File (MINES).
- The NPL Lien databases.
- The EPA PCB Activity Database System (PADS).
- The EPA RCRA Administrative Action Tracking System (RAATS).
- The Toxic Chemical Release Inventory System (TRIS) database.
- The EPA Toxic Substances Control Act Inventory List (TSCA).

State ASTM Standard

- The NCDENR State Hazardous Sites Inventory (SHWS).
- The NCDENR Solid Waste Section's List of Solid Waste Facilities (SWF/LF).
- The NCDENR Leaking Underground Storage Tank (LUST) Incident Management Database.
- The NCDENR Underground Storage Tank Registration Reports (UST).

EDR Proprietary Databases

- Former Manufactured Gas (Coal Gas) Sites

The subject site was identified in the following databases generated by Environmental Data Resources (EDR); RCRIS-SQG, FINDS, IMD, SHWS, and CERCLIS.

There were several potential off-site sources of concern that were identified in the EDR databases. Three Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) sites were identified within 1/4 mile of the subject site. These include the properties to the immediate north, south, and east of the site. Three Resource Conservation and Recovery Information System (RCRIS) Small Quantity Generator (SQG) sites were identified within 1.0 mile of the subject site. Nine Leaking Underground Storage Tank (LUST) sites were identified within 0.5 mile of the subject site. Four additional Underground Storage Tank (UST) sites were identified within 0.25 mile of the subject property. Three North Carolina Hazardous Substance Disposal Sites (NC HSDS) were identified within 1.0 mile of the subject site.

There is a fairly strong potential for impacts to the subject site from operations of these sites, both historically and in the future. However, previous investigations conducted at the site have characterized site soil and groundwater conditions both on the subject property and at adjacent properties.

4.2 *NCDENR ONLINE INCIDENT MANAGEMENT DATABASE*

In addition to the database information by EDR, additional and supporting data was obtained by directly accessing the NCDENR Online Incident Management Database. The database was most recently updated in April 2002.

In summary, the subject site was not identified in the database. However, several facilities located within a ½ mile radius of the subject site with confirmed soil and groundwater contamination were identified.

5.0 PERSONAL INTERVIEWS

5.1 *CURRENT PROPERTY OWNER*
(Refer to Appendix D)

According to the 2002 New Hanover County Tax Office, the property of interest is currently owned by Carroll Carolina Corporation (Appendix D). However, the firm has declared bankruptcy, and at the release of this report, the property owner or a knowledgeable party could not be contacted to obtain information about the subject site.

5.2 *LOCAL FIRE DEPARTMENT*

On April 18, 2002, the New Hanover County Fire Department was telephoned regarding fires or hazardous materials incidents that have occurred at the subject site or any adjoining properties. Chief Hill stated that he knew of several fires and emergency incidents at the subject site, including a couple of large volume releases of petroleum from the ASTs approximately 20 years ago. In addition, Chief Hill mentioned the large fire in 1997 at the adjoining Southern Metals Recycling facility. He indicated that a large volume of water was used to extinguish the combustible metals fire, and that runoff from the fire fighting almost certainly flowed onto the Old ATC Refinery site.

5.3 *LOCAL NCDENR SOLID WASTE SECTION*

Mr. John Crowder of the NCDENR Wilmington Regional Office (WiRO) Solid Waste Section was interviewed by telephone on January 7, 2002 regarding the subject vicinity. Mr. Crowder stated that an Exxon Service Station and Union Oil Company of CA Union Chemicals are permitted solid waste disposal facilities present within a 1.0-mile radius of the subject site. These sites, as well as other sites, are listed and described in detail in the EDR Database (Refer to Appendix C).

5.4 *LOCAL NCDENR HAZARDOUS WASTE BRANCH*

Mr. Flint Worrel of the NCDENR Fayetteville Regional Office (FaRO), Hazardous Waste Branch, was interviewed by telephone on January 11, 2002 regarding the subject site vicinity. Mr. Worrel stated that several sites near the subject property are permitted hazardous waste sites. These sites are listed and described in detail in the EDR Database (Refer to Appendix C).

5.5 *NCDENR SUPERFUND SECTION*

Mr. Stuart Parker of the NCDENR Superfund Section in Raleigh, North Carolina was interviewed by telephone on April 12, 2002 and on April 17, 2002. Mr. Parker provided detailed information regarding the site, which is referenced throughout this report.

5.6 *US EPA REGION IV*

Ms. Beverly Hudson with the US EPA Region IV office in Atlanta, Georgia was interviewed by telephone on April 16, 2002. Ms. Hudson provided general site information, including the fact that the site is not included on the NPL.

6.0 AERIAL PHOTOGRAPH REVIEW

(Refer to Appendix F)

Past land use at and around the subject property was studied with the aid of aerial photographs. Six aerial photographs of the subject site were available and were obtained from the North Carolina Department of Transportation (NCDOT) Photogrammetric Unit in Raleigh, North Carolina. Copies of these aerials are included in Appendix F.

The 1959 photograph, taken from Mission 5 (8/59), indicates the subject site as being largely undeveloped. What appear to be residential properties are visible on the eastern portion of the site. The surrounding property appears to be mostly industrial, with the Molasses Plant, the two JLM terminals, and Southern Metals Recycling visible.

The 1966 photograph, taken from Mission 523 (1/17/66), indicates the subject site still undeveloped.

The 1972 photograph, taken from Mission 1000 (3/1/72), indicates the subject property as being fully developed. Several large ASTs and the refinery are visible. The 1974 photograph, taken from Mission 1110 (2/12/74) is at a scale of 1" = 100' and provides a detailed view of site development during the plant's operational phase.

The 1983 photograph, taken from Mission 1731 (9/27/83) and the 1993 photograph, taken from Mission 3050 (1/28/93) indicate subject site and vicinity development consistent with the 1972 and 1974 aerials.

In summary, the aerial photographs confirm the presence of bulk material storage and industrial activity on the subject site and surrounding properties.

7.0 SITE RECONNAISSANCE

(Refer to Appendices A, G and H)

A visual site and site vicinity reconnaissance was performed on April 17, 2002 by CATLIN Project Manger Shawn Carroll. Access agreement to the site was obtained by the City of Wilmington, through Mr. Joseph N. Callaway, Chapter 11 Trustee for Carroll Carolina Corporation.

An ASTM E 1528-00 questionnaire was completed at that time and is included in Appendix G. Photographs of the area were taken to provide visual documentation (see Appendix H). The following sections describe the site conditions observed during the reconnaissance.

7.1 *EXISTING STRUCTURES*

As previously mentioned, the site currently includes two one-story, concrete block structures. A scale house/bathroom is located along Surry Street, and a building used as a laboratory is located near the former plant entrance. Both structures contain floor and ceiling materials that may potentially contain asbestos.

A metal framed and sided boiler room is located on the southeastern portion of the site, and a fire pump house is located along the Cape Fear River.

7.2 *WASTEWATER DISPOSAL*

Should the site be developed, municipal domestic wastewater will be available by the City of Wilmington. A City of Wilmington sewer lift station is located immediately east of the former laboratory building.

Although the ATC Refinery did not have any process wastewater, previous employees indicated that tank bottom sludges were disposed of onsite, in trenches dug near the ASTs.

7.3 *WATER SUPPLY*

The subject site and vicinity are currently supplied water by the City of Wilmington municipal water system. No water supply wells were observed at the site.

7.4 *ABOVEGROUND STORAGE TANKS (ASTs)*

No ASTs were noted at the subject site during the site reconnaissance. However, as indicated in previous reports and the aerial photographs, the facility at one time had as many as 15 petroleum bulk storage ASTs. Products stored included crude oil and various grades of refined petroleum, as well as tetraethyl lead, which is a toxic substance.

7.5 UNDERGROUND STORAGE TANKS (USTs)
(Refer to Figure 2)

There were no USTs identified at the subject site. However, several petroleum USTs of unknown size and contents were removed from the northeast corner of the property during dismantling of the plant. Details of the tank removal were not available, although there were no SVOCs detected in soils or groundwater in this area during the most recent sampling conducted by the NCDENR DWM. The approximate location of the USTs (T.E.L. Tank Area) is illustrated in Figure 2.

7.6 SOLID WASTE DISPOSAL

At the time of the reconnaissance, the site appeared to be well maintained and free of debris or other solid waste. A minor amount of rubble and pipe was visible across the property.

7.7 SOIL DISCOLORATION/STAINING

There was no evidence of soil staining or discoloration identified at the time of the site reconnaissance.

7.8 VEGETATION DISTRESS

No areas of stressed vegetation were noted on the subject site during the site reconnaissance. The site is largely covered with primary stage vegetation such as grasses, weeds, and small hardwood trees.

7.9 PETROLEUM/HAZARDOUS SUBSTANCE USAGE

There was no visual evidence of bulk chemical storage or disposal at the subject site at the time of the site reconnaissance. As previously mentioned, the site historically stored petroleum and other hazardous substances in bulk.

7.10 SURFACE WATERS, PITS, AND LAGOONS

The site currently includes two stormwater drainage ditches and retention ponds. The water quality in the southern ditch and pond appeared to be poor, and had a metallic appearance. Recent sampling conducted by the NCDENR DWM indicated impacts to sediments and surface water in both ponds in the form of metals and SVOCs.

As previously mentioned, a product interceptor trench was constructed at the site in 1991. The exact location of this trench was not identified during the reconnaissance.

The site is bounded to the west by the Cape Fear River. The NCDENR DWM sampling indicates potential impacts to surface water and sediments in the river.

7.11 WETLANDS

In general, the site is very low-lying, and historic groundwater monitoring indicates that the surficial groundwater table varies from less than one foot to six feet below land surface. Vegetation at various locations across the site indicates the potential for wetlands, especially along the Cape Fear River.

7.12 ASBESTOS AND LEAD PAINT

The age of the structures onsite indicates a potential for the presence of asbestos containing materials. Floor tiles and ceiling tiles were observed throughout the structures and may be of concern for disposal purposes. In addition, thermal systems insulation jacketing the boilers and associated piping may contain asbestos. The boiler jacketing appeared to be friable.

Prior to any renovation or demolition at the site, a complete building inspection for asbestos should be conducted in accordance with North Carolina Department of Labor Standard for the Construction Industry and 29CFR Part 1910. There is also the potential for lead-based paint to be present in the buildings.

7.13 TRANSFORMERS (PCBs)

One slab-mounted transformer and one pole-mounted transformer were identified at the site, immediately north of the laboratory building. It is unknown at the time of this report if the transformers contain poly-chlorinated biphenols (PCBs).

7.14 ODORS

No noxious odors were noted at the subject site during the site reconnaissance.

7.15 RAILROAD SPURS/TRACKS

A railroad spur is located on or to the immediate east of the subject property. This spur was apparently used by both ATC Refinery and JLM Terminal for loading/unloading of petroleum products.

7.16 RADON

No radon testing was performed at the subject site. Radon, which is a gas produced from the decomposition of uranium, is typically a concern in below grade structures or crawl spaces overlying igneous bedrock. Due to regional geologic characteristics and the fact that there are no crawl spaces or subsurface structures at the site, radon is not expected to be of concern at this site.

8.0 FINDINGS AND CONCLUSIONS

(Refer to Appendix I and Figure 3)

CATLIN Engineers and Scientists has performed this Phase I ESA of the property located at 801 Surry Street in Wilmington, North Carolina, in general conformance with the scope and limitations of ASTM Method E1527-00. Any exceptions to, or deletions from, this practice are described in Section 2.3 of this report.

As indicated in the summary (Section 1.0), the subject site has historically been utilized for petroleum refining and storage, and is currently unoccupied. This Phase I ESA revealed the following minor areas of recognized environmental concern inherent to the subject site:

- Historic use of the subject site as a petroleum refinery and bulk storage plant has caused impacts to site soil and groundwater. A significant amount of assessment and remedial actions have occurred at the site.

- Recent soil and groundwater sampling conducted at the site by the NCDENR Superfund Section has indicated groundwater contamination at a portion of the site in excess of North Carolina Groundwater Remediation Goals and NCAC 2L Groundwater Quality Standards. Minor residual soil contamination has been identified, but not at levels deemed by the Superfund Section to be of concern to human health. Impacts to water quality in the Cape Fear River as a result of site conditions may be present.

  Draft tables summarizing the most recent round of sampling conducted by the Superfund Section are included in Appendix I. Approximate sample locations for the sampling are illustrated in Figure 3. This data is preliminary and has not yet been released in final form.

- The site is still a candidate for the NPL list, and the US EPA and Superfund Section may require additional assessment/remedial activities to be conducted at the site.

- One slab-mounted transformer and one pole-mounted transformer were located on the site, immediately north of the former laboratory building.

- Asbestos containing materials may be present in the two structures and in the boiler shack.

- Fill material and high water table may present special design considerations should the property be developed.

- There are several potential off-site sources of concern that were identified during the course of this investigation. This includes adjoining properties to the north, south, and east, as well as several other facilities within a one-mile radius of the site. Historic and future impacts to the subject site from the historic operations of these sites are possible. The subject site does not have any water wells and is supplied with potable water by the City of Wilmington municipal water system.

Subject: OLd ATC
Date: Tue, 07 May 2002 14:25:37 -0400
From: Militscher.Chris@epamail.epa.gov
To: stuart.parker@ncmail.net, Taylor.Michael@epamail.epa.gov
CC: Beswick.Kevin@epamail.epa.gov

Stuart: I am not an OSC (haven't been one since June of last year), I am no longer in Superfund or the Waste Division and have no personal, professional, moral or legal obligation to answer questions concerning past sites. If subpoenaed (or deposed) by the EPA attorney & DOJ, I will only voluntarily answer questions under oath.

My current position which is 100% funded by another agency does not allow me to work anything but their projects. This agency contract with EPA is for 4 years. I will not breach this agreement despite any personal feelings I have.

You may wish to try Michael Norman or Ralph D. Rigger who were my direct supervisors while I was involved with Old ATC. Thanks.

CITY of WILMINGTON
North Carolina

P.O. BOX 1810
28402

LEGAL DEPARTMENT
TDD (910) 341-7873
(910) 341-7820
FAX (910) 341-5824

RECEIVED
APR 15 2002

April 12, 2002

Via Fax and First Class Mail

Mr. Kevin T. Beswick
Associate Regional Counsel
United States Environmental Protection Agency
Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8980

Re: Carroll Carolina Corporation property; Old ATC Refinery Site;
Wilmington, North Carolina

Dear Mr. Beswick:

This will follow-up our telephone conversations concerning the regulatory status of the above referenced site. As you know, this property was subject to a State foreclosure procedure. On April 10, 2002, the United States Bankruptcy Court for the Eastern District of North Carolina entered an order staying the foreclosure proceeding and allowing the bankruptcy trustee to accept bids for the purchase of the property until April 25, 2002. The Wilmington City Council authorized the City to enter a bid with the bankruptcy trustee for the purchase of the property. This bid is subject to the City being satisfied with the environmental condition of the property and any terms that may be imposed on the City by environmental law relating to the purchase and use of the property.

This property is located at a major entrance to the City of Wilmington and the City Council has expressed an interest in acquiring the property for possible public use. Although the bankruptcy bid procedure allows only a short time to review the condition of the property, the City is in the process of engaging a qualified environmental professional to provide a review and summary of the current condition of the property including historic uses, clean-up activities, status of regulatory activities and the results of the State's expanded site investigation to the extent available. The City has also requested recommendations concerning any appropriate actions that might be taken by the City with respect to any remaining hazardous substances found on the property to: (1) stop any continuing release; (2) prevent any threatened future

release; and (3) prevent or limit human, environmental or natural resources exposure to any previously released hazardous substance. The City is prepared to take all reasonable actions necessary to meet the requirements as a bona fide prospective purchaser under Section 222 of the Brownfields Revitalization Act (PL 107-118). If appropriate, the City is prepared to consider a prospective purchaser agreement, consent decree or other agreement to ensure the City's status as a bona fide prospective purchaser and provide protection to the City from potential Superfund liability. The City is particularly interested in trying to address the issue of any potential Windfall Lien under Section 222.

The City believes that the proper redevelopment of this property may be an important part of the City's riverfront redevelopment efforts. The City's proposed purchase provides an opportunity to put a vacant, underutilized site to a use that is beneficial to the public. The redevelopment of this property can be a success story and a milestone in brownfields redevelopment for the EPA and will help implement the requirements of the new Act. The City looks forward to working with the EPA to accomplish these goals.

Given the deadlines imposed by the Court, I would request your thoughts about how to proceed as soon as possible. I am prepared to meet with you at your convenience to try to address the City's concerns. Thank you for your assistance. If you have any questions, please let me know.

Sincerely yours,

Thomas C. Pollard
City Attorney

TCP/cl
cc: Mayor and City Council
Ed Fare, Interim City Manager
Stuart Parker, Superfund Section, NCDENR

Subject: **Re: Old ATC Data**
Date: Tue, 09 Apr 2002 13:20:05 -0400
From: Mallary.Ken@epamail.epa.gov
To: Stuart Parker <Stuart.Parker@ncmail.net>

The tables did come through - thanks. Lynn Wellman is running an eco. screen using the surface water and sediment data, and Kevin Koporec has looked at the data from a human health perspective. I presume EPA will discuss our observations/conclusions of the data in the near future. I'll keep you posted.

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Clear, 72°
humidity: 73%
wind: E at 12 mph
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City's ideas for riverside site blend public, private ventures

By Bettie Fennell
Staff Writer
April 12, 2002

Mayor Harper Peterson said he has always been interested in the riverfront property the city bid on Wednesday because it is the gateway to Wilmington, though some council members say they were in the dark.

In addition, Mr. Peterson and others said Thursday that they would be open to development on part of the land.

The City Council voted Wednesday to bid $1.8 million for about 18 acres on the south side of the Cape Fear Memorial Bridge. The property, which is in foreclosure and bankruptcy proceedings, was the former site of ATC Refinery. April 25 is the deadline to bid on the property.

Councilman Jim Quinn said he would like to see part of the property returned to a private developer so the city could recoup part of its cost should it become the new owner. It would also allow the city and county to collect taxes on the privately owned portion, he said.

Mr. Peterson said the city should consider any offer by Linda Carroll, owner of the property, or anyone else interested in developing part of it.

A major question, however, is whether the Environmental Protection Agency would try to recoup part or all of the $11.5 million it said it paid to remove lead and petroleum contaminants from the site.

The EPA has said that the city and Carroll Carolina Corp., which wasn't blamed for the pollution, aren't responsible for the cleanup costs. But if the property should be sold to a private developer, Kevin Beswick, a lawyer with the EPA, said the agency could possibly try to recoup part of the cleanup cost, depending on the situation.

Legislation that allows the agency to place a lien on property to recoup cleanup costs is so new it hasn't been tested, Mr.Beswick said. The legislation allows the EPA to recoup costs up to the fair market value of the property. An appraisal would have to be done, he said, but guidelines haven't been developed yet to determine how to carry out the legislation.

Mr. Peterson and Councilman Jason Thompson would like to see the property turned into a riverfront park, much like a park built years ago on Charleston's riverfront. The park was the catalyst for development to spring up around it, Mr. Peterson said.

"A people's park on the river – visually it's exciting," Mr. Peterson said Thursday. He would like to see the property become a public space with access to the river and where families could gather.

Creating a mooring facility for cruise ships is also an issue that should be explored, he said.

Mr. Peterson said he and the council have been criticized for wasting taxpayers' money by buying the property.

"The bottom line is it is a good investment to stabilize our tax rate," he said.

Though he wrote a letter to a bankruptcy judge in late February to express concern about the property changing hands, Mr. Peterson said he became interested in the city buying it about late March.

Several council members said they were unaware of the mayor's interest until the week the council, city employees and others went to Charleston March 20-21.

Councilwoman Laura Padgett said Wednesday, after a special council meeting, that she is concerned that the mayor isn't keeping the council informed from the beginning about such initiatives.

Mr. Quinn said he was made aware in late March that the property was about to be foreclosed on, and he got information about it from the city. The mayor also discussed it with him, he said.

Mr. Thompson said Ms. Carroll, approached him on Dec. 31 about the property, but he didn't know her or anything about the issues involving the property.

Councilwomen Katherine Bell Moore and Sandra Spaulding Hughes did not return telephone calls Thursday. Councilman Frank Conlon was out of town.

Bettie Fennell: 343-2377

bettie.fennell@wilmingtonstar.com

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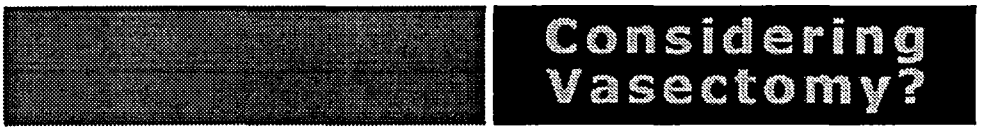

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Clear, 61°
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City wants river site

OLD ATC REFINERY

By Bettie Fennell
Staff Writer
April 11, 2002

Email | Print

The Wilmington City Council voted 5-1 Wednesday to bid $1.8 million for more than 18 acres of vacant riverfront property.

"The gate is open; the race is on," Mayor Harper Peterson said after the special meeting Wednesday morning.

Linda Carroll and her husband, John Voet, own the property, but the city made the bid to a bankruptcy court. Ms. Carroll's company, Carroll Carolina Corp., sought Chapter 11 bankruptcy protection last year. A minimum of $1.8 million is required to top a $1.75 million bid submitted by Whistler Investment Group, according to a resolution written by City Attorney Tom Pollard. Councilman Jason Thompson, who said he was uncomfortable with a price nearing $2 million, dissented.

Before a bankruptcy court could accept the city's offer, a hearing was held Wednesday with Judge Rich Leonard, who considered a proposal from the bankruptcy trustee to allow bidding through April 25.

The trustee advised Mr. Pollard on Wednesday that Judge Leonard froze foreclosure proceedings to allow bidding.

Environmental Concerns

Mr. Pollard said the two weeks would give council time to evaluate the land, site of the former ATC refinery. and withdraw its offer if it isn't satisfied. He said a contract developed by the trustee would allow the city to get out of its bid over any environmental condition.

If the city is the high bidder, it would have until May 9 or 10 to close the sale, Mr. Pollard said.

While the property isn't on the superfund list of polluted sites, it is still in an inventory of sites being investigated by the program, said Stuart Parker, of the N.C. Division of Waste Management.

Though some contaminants may remain, Mr. Parker said that doesn't prevent the city from developing the land.

Soil samples taken in January, Mr. Parker said, show that since a cleanup several years ago, the level of lead over a majority of the property is below state and federal limits.

There is, however, petroleum residue at rates slightly higher than goals for residential use, Mr. Parker said.

The state and the U.S. Environmental Protection Agency, he said, are reviewing the information to determine what the contaminants are, how they would affect future development and any impact on the adjacent Cape Fear River. He expects to submit a final report to the EPA in late June.

"Our determination of the significance of the residual contamination will depend in part on what type of use is projected for the site," Mr. Parker said.

If the property is developed, the owner will want to take steps to reduce threats from exposure to the soil, he said.

Most of industrial site cleanups involve bringing in fill and controlling drainage and runoff, he said. Because the site is vulnerable to flooding, any development would probably require that fill material be used anyway, he said.

The EPA, which is still trying to recover cleanup costs from Axel Johnson, the company blamed for the pollution, has said it wouldn't try to recover those costs from the city if it should buy, Mr. Parker said. misquote

Civic input sought

Councilwoman Laura Padgett, who made the motion to submit a bid, said that the city should open discussions with downtown interest groups such as Downtown Area Revitalization Effort, Wilmington Harbor Enhancement Trust and other stakeholders.

Councilman Jim Quinn said he is concerned that the council lacks a clear vision of how to use the property. He is also concerned that the city may never be able to sell part of the property because of federal environmental liens that might be placed on private investors. If that occurs, Mr. Quinn said the council should understand that the land could become permanent public property.

Mr. Pollard said the city would be buying more than 14 acres of upland property plus 4 acres of water rights.

On Monday, Ms. Carroll offered to sell about 14 acres to the city for $2.6 million. She wanted to keep about 4 acres for herself to develop.

But Mayor Peterson said the council determined that it would deal with the bankruptcy court and not Ms. Carroll. Before the city begins developing the Carroll property, which is zoned for industrial use, Mr. Peterson said it would have to be zoned for mixed use.

City savings used

The city plans to pay for the property from fund balance, which are uncommitted dollars in city coffers. City Finance Director Brent McAbee said that at the end of the budget year, the city should have about $11 million in fund balance, or 16 percent of the next budget. The percentage is far above the state requirement of 8 percent and above the minimum 10 percent established by the city, he said.

County records indicate that $132,607 is owed in delinquent taxes on the

property.

E.F. Hucks & Associates Inc. appraised the property at $7 million. But the county tax office said the assessed tax value in 1999 was $903,400.

Tax Administrator Bob Glasgow said part of the difference is that the property was being cleaning which the county assessed it. He said its assessment would probably be higher now.

Mr. Voet said after the council's decision that he was surprised at the position the board took. The couple, he said, offered the property to the city on a lease-purchase arrangement that included a guarantee that the federal government wouldn't go after the city to recover cleanup costs.

He said he and his wife wanted to develop the property. If he and Ms. Carroll were only interested in selling the property, Mr. Voet said, they could have sold it to someone seeking to build a grain storage facility.

Asked if the council might consider buying surrounding property, Mr. Peterson said it would be interested in how the adjacent tracts are developed.

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Considering Vasectomy?

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Lesser land, more questions

April 10, 2002

Email | Print

It turns out that the city of Wilmington isn't being offered prime riverfront land after all. The owners want to keep that for themselves. They want the city to buy the inland portion.

That still might make sense, but it's hardly the same thing as buying the riverfront.

It also raises questions about whether the uses to which the private owners and the city would put their parcels would be compatible. Since the sellers apparently don't know for sure what they'd do and the city doesn't seem to have more than vague notions about what it might do, that's a significant question.

The City Council is supposed to talk again today about buying the land, and possibly also nearby property. These are major decisions that the city and its taxpayers would have to live with for a long time.

But the taxpayers won't hear all the facts and arguments. The council plans again to meet in secret.

All the more reason for members to be exceedingly careful and thoughtful. Sometimes it makes sense to act quickly. But it always makes sense to make sure what you're doing.

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More time sought for bids on river site

By Bettie Fennell
Staff Writer
April 10, 2002

Email | Print

The bankruptcy trustee of riverfront property that belongs to Carroll Carolina Corp. has called for a special meeting with a judge today to ask that the bidding process be extended 30 days, said Wilmington Mayor Harper Peterson.

Also today, the City Council will hold a special meeting at 8 a.m. in City Hall to decide whether the city should bid for the property and how to finance such a purchase.

The trustee has a bid from the Whistler Development Corp., Mr. Peterson said. But the city has expressed interest in buying the land owned by Linda Carroll and her husband, John Voet.

The entire tract is more than 18 acres, but Ms. Carroll talked to the council Monday about buying nearly 14 acres of it. She wants to retain about 4 acres along the Cape Fear River to develop herself.

But she said Tuesday that the 4 acres she would like to keep is tied up in foreclosure and bankruptcy proceedings with the rest of the property.

Mr. Peterson said Tuesday that if the city decides to buy the property, it would have to negotiate with the bankruptcy trustee and not Ms. Carroll.

"It is a confusing legal process," he said.

He believes the trustee is trying to unify both the foreclosure and bankruptcy proceedings, separate activities going on simultaneously.

Ms. Carroll said Tuesday afternoon that the issues are complicated and she didn't feel comfortable discussing them further.

Another issue that isn't clear, Mr. Peterson said, is whether the U.S. Environmental Protection Agency would try to recover the $11.5 million it said it paid to clean the former oil refinery site if the city were to subsequently sell some part of the land to a private developer.

Mr. Peterson said he talked with EPA officials Tuesday who said they wouldn't hold the city liable for cleanup costs if it developed the land through a public-private venture or for a public purpose.

public-private venture or for a public purpose.

A preliminary report on soil samples taken in February should be back soon, Mr. Peterson said. The EPA indicated that "there is no additional investigation needed" on the former Superfund site, he said.

"We're doing everything we can to keep the city in the hunt," he said, acknowledging that the council is up against tight deadlines.

A stay on foreclosure proceedings has been in effect about a year, the mayor said.

He wrote Judge Richard Leonard, the bankruptcy judge, on Feb. 27 to say that the city was concerned that the property might change hands and that it could hurt city efforts to redevelop the corridor.

Herbert Harris Jr., Mr. Peterson's campaign manager and co-founder of the Community Action Group, also wrote the judge a letter in February expressing concern about the impact on an adjacent historically black community should the property become blighted and left undeveloped.

At the same time, Ford Pearson, lawyer for JLM Industries, which owns adjacent property, wrote the judge a letter, expressing concern that his client's property values could decline and the company could have difficulty marketing it should Ms. Carroll's property go into foreclosure.

Mr. Peterson said he also wrote Judge Leonard a letter asking him to delay the legal proceedings until the city could consider buying the property, but the judge denied his request.

Councilman Jim Quinn said he is concerned that if the city buys the property, it would have to be a permanent investment because of potential cleanup costs. Another major question, he said, is how the city plans to use the land.

The council asked City Attorney Tom Pollard to do a title search and gather more information about the land, Mr. Quinn said. Even then, he said, the council won't have all the information it needs to make an informed decision.

"That's one of my problems with the program," he said.

He is also concerned, he said, that the council is under pressure to make a decision in a short time.

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City Council delays decision on buying land

By Trista Talton
Staff Writer
April 9, 2002

Email | Print

The Wilmington City Council spent Monday afternoon discussing buying nearly 14 acres along the Cape Fear River, with the potential to purchase more land later.

After a lengthy closed session, the City Council decided to push back a decision to Wednesday on whether to purchase the land, owned by Linda Carroll and her husband, John Voet.

The proposed sale does not include a little more than four acres along the riverfront, which the owners want to keep while talking with the State Port about possibly building a dock suitable for cruise ships, Ms. Carroll said. The river in front of the property is about 40 feet deep, perfect for cruise ships, she said.

A handful of parcels around Carroll Carolina Corp.'s property, including land owned by JLM Terminals, may be up for grabs, Ms. Carroll said.

JLM Terminals owns just under eight acres lining the northern side of Carroll Carolina Corp.'s property. It is the only land in that area with a dock along the river.

"JLM's position is yes, the property is for sale," said owner Scott MacDonald from his Chicago office. "I think we would certainly negotiate with (the city.)"

But JLM may not be as quick to sell at a low price asCarroll Carolina Corp., Mr. MacDonald said. His company is not facing financial woes, he said.

Carroll Carolina Corp.'s land is under foreclosure and a bankruptcy trustee is accepting bids, the highest of which stands at $1.75 million. That bid includes the corporation's stock and land.

City Attorney Tom Pollard advised against vying for an upset bid because the city would be buying the corporation's liabilities, he said.

"I have to believe that there would be a number of potential liabilities," said Councilman Jim Quinn.

Councilwoman Katherine Moore said she did not want the city to own the corporation

corporation.

The City Council raised several concerns regarding unrecovered costs to the Environmental Protection Agency, which spent more than $8 million to clean up the former Superfund site contaminated with lead, crude oil and hazardous chemicals. The EPA's price tag has increased to $11.5 million since the cleanup. Most of the increase is from legal fees as the EPA has sought reimbursement from Axel Johnson, the company the EPA blames for the pollution at the former refinery. Axel has contended that other companies that controlled the site after it left in 1984 are responsible for the pollution.

The lawsuit could place a potential lien on the property.

"To have a lien of more than the property's worth would be a disincentive to buy," Mr. Quinn said.

Councilman Jason Thompson said a lien would not matter to the city if the land is made for public use.

"I envisioned buying this property for public use," Mr. Thompson said. "If we buy it and use it for the public good and the EPA slaps a lien on it, so what."

Ms. Carroll said the EPA looks very favorably to transferring the land for public use.

"The city would have absolutely no environmental responsibility," she said. The land, she said, is "... probably cleaner than your back yard."

Mayor Harper Peterson met a few weeks ago with owners of the former Wilmington Waves baseball team, which recently moved to Albany, Ga. To return to Wilmington, the team would need a stadium, and the Carroll property was mentioned as a suitable site, Mr. Peterson said last week. City officials, however, say they haven't made any decisions, other than that the land should be for public use.

The City Council wanted answers to more questions before making a decision, Mayor Harper Peterson said after a more than one-hour closed session.

A decision will be made at the 8 a.m. Wednesday meeting in council chambers.

Trista Talton: 343-2070
trista.talton@wilmingtonstar.com

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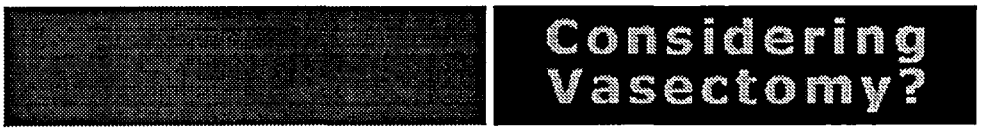

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Light Rain, 76°
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Riverfront land looks intriguing

April 8, 2002

Email | Print

Mayor Harper Peterson and the Wilmington City Council are smart to think about buying a piece of riverfront land south of the Cape Fear Memorial Bridge.

It could be used for any number of desirable purposes – or any number of undesirable ones. If the city owned it, the city could control its fate.

Some might conclude that the roughly 14 acres would be ideal for a baseball stadium. Could be. Of course, it's one thing to dream about a stadium and another to figure out how to pay for building it and running it for decades.

So the issue here isn't any specific potential use. The issue is having the luxury of deciding what would happen on the site.

The biggest thing to nail down – tight – is that the land has been cleaned of all the nasty stuff that polluted it in the past. Otherwise, the city could be left with an expensive headache.

Another issue, of course, is how much the city might be willing to pay, and how to scrounge up the money.

No doubt there are other considerations, too. Having a commercial real estate guy on the City Council should come in handy; Jim Quinn's colleagues would be wise to avail themselves of his knowledge. For instance, he says he thinks the asking price is far too high.

The council has scheduled a meeting today to chew all this over. It should chew carefully. Done right, a purchase could be a boon to the city.

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TRANSACTION REPORT

Transmission
Transaction(s) completed

NO.	TX DATE/TIME	DESTINATION	DURATION	PGS.	RESULT	MODE
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NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

MICHAEL F. EASLEY, GOVERNOR
WILLIAM G. ROSS, JR., SECRETARY
DEXTER R. MATTHEWS, DIRECTOR

NCDENR

FAX TRANSMITTAL RECORD

DATE: 4/5/02

TO: TOM POLLARD, CITY ATTORNEY, WILMINGTON NC

FAX #: 910 341 5824

FROM: Stuart Parker, Superfund Section

RE: OLD ATC REFINERY - LATEST SAMPLE RESULTS

Number of pages (including cover) 5

Comments: (1) FAXED ALSO TO LINDA CAMMIL
(2) SOIL CLEANUP NUMBERS ARE FOR RESIDENTIAL USE AND WOULD BE ADJUSTED UPWARD TO REFLECT FUTURE RESTRICTIONS IN LAND USE.

TRANSACTION REPORT

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NO.	TX DATE/TIME	DESTINATION	DURATION	PGS.	RESULT	MODE
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NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

MICHAEL F. EASLEY, GOVERNOR
WILLIAM G. ROSS, JR., SECRETARY
DEXTER R. MATTHEWS, DIRECTOR

NCDENR

FAX TRANSMITTAL RECORD

DATE: 4/5/02

TO: LINDA CARROLL, CARROLL CAROLINA CORP.

FAX #: 910 392 3655

FROM: Stuart Parker, Superfund Section

RE: OLD ATC REFINERY – LATEST SAMPLE RESULTS

Number of pages (including cover) _____

Comments: (1) FAXED ALSO TO TOM POLLARD, CITY OF WILMINGTON.
(2) SOIL CLEANUP NUMBERS ARE FOR RESIDENTIAL USE, AND WOULD BE ADJUSTED UPWARD TO REFLECT RESTRICTIONS IN LAND USE.

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Transmission
Transaction(s) completed

NO.	TX DATE/TIME	DESTINATION	DURATION	PGS.	RESULT	MODE
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DRAFT

NCDENR, Division of Waste Management, Superfund Section

Old ATC Refinery
NCD 986 186 518
Expanded Site Inspection
Surface Water Pathway Sample Results

-021-SD e Fear R. ckground)	AE-022-SD Cape Fear R. (background)	AE-023-SD Cape Fear R. (waterfront)	AE-024-SD Cape Fear R. (waterfront)	AE-025-SD Cape Fear R. waterfront PPE	AE-026-SD Cape Fear R. (waterfront)	AE-027-SD Cape Fear R. (downriver)
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-020-SW orth Pond	AE-021-SW Cape Fear R. (background)	AE-022-SW Cape Fear R. (background)	AE-023-SW Cape Fear R. (waterfront)	AE-024-SW Cape Fear R. (waterfront)	AE-025-SW Cape Fear R. (waterfront PPE)	AE-026-SW Cape Fear R. (waterfront)	AE-027-SW Cape Fear R. (downriver)
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1 R	11	8.9	12	11	3.5	63	39
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2.2 R	--	--	--	--	--	--	--
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31, 2002.

TRANSACTION REPORT

Transmission
Transaction(s) completed

NO.	TX DATE/TIME	DESTINATION	DURATION	PGS.	RESULT	MODE
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DRAFT

NCDENR, Division of Waste Management, Superfund Section

Old ATC Refinery
NCD 986 186 518
Expanded Site Inspection
Groundwater Sample Results

02-MW ground	AE-003-MW TEL Area	AE-004-MW Refractory	AE-005-MW Southeast Site	AE-006-MW Southeast Site	AE-007-MW NW Riverfront	AE-008-MW NW Riverfront	AE-021-GW Upriver	AE-023-GW Riverfront	AE-027-GW Downriver	NC Groundwater Remediation Goal
--	--	--	--	1400	--	--	--	--	--	21
--	--	--	--	70	--	--	--	--	--	28
--	--	--	220	--	--	--	--	--	25	80
--	--	--	170	16	--	--	--	--	--	28
--	--	--	120	37	--	--	--	--	--	280
--	--	--	95	28	--	--	--	--	--	210
--	--	--	26	--	--	--	--	--	--	2100
--	--	--	--	17	--	--	--	--	--	--
--	--	--	14	--	--	--	--	--	--	280
--	--	--	11 J	--	--	--	--	--	--	210
29	9.3	--	--	5.0 R	--	--	--	--	--	50
--	--	--	270 J	--	300 J	320 J	290 J	390 J	530 J	2000
--	--	--	--	--	--	--	--	--	--	5
--	3.8	--	1.6	--	--	--	--	--	--	50
--	--	3.5	3.0 J	--	--	--	--	--	26	15
--	--	--	--	--	--	--	--	--	--	1.1
--	--	--	--	--	--	--	--	--	--	50
--	--	--	--	--	--	--	--	--	--	50
4.2	--	--	3.1	--	--	--	1.5 R	--	1.9 R	--
4.7	15	17	21	53	19	150	4.5	--	19	2100

: Tetraethyl lead tank
2002

TRANSACTION REPORT

Transmission
Transaction(s) completed

NO.	TX DATE/TIME	DESTINATION	DURATION	PGS.	RESULT	MODE
556	APR. 5 17:32	19103923655	0° 02' 39"	001	OK	N ECM

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DCENR, Division of Waste Management, Superfund Section

Old ATC Refinery
NCD 000 195 518
Expanded Site Inspection
Soil Sample Results

SS	AE-008-SS	AE-010-SS	AE-011-SS	AE-012-SS	AE-013-SS	AE-014-SS	AE-015-SS	AE-016-SS	AE-017-SS	AE-018-SS	NC Soil
	Southern Middle	Southwest Central	S-Southwest Central	Southwest	Northwest Central	North	Northwest Central	South Drainage	South Drainage	North Drainage	Remediation Goals*
	0.5	610	--	--	1.8	--	0.62	0.76	--	--	--
	--	--	--	--	--	--	--	--	--	--	4400
	0.71	1.1	0.42	0.85	1.8	0.51	0.85	1.2	--	--	400
	0.61	1	--	0.79	1.3	0.49	1.1	1.4	--	--	400
	--	0.83	--	0.42	0.86	--	--	0.81	--	--	0.62
	0.37	1.1	--	0.57	0.84	--	0.38	0.8	--	--	62
	--	1	--	0.54	0.88	--	0.38	--	--	--	0.62
	--	1.2	--	0.8	0.45	--	--	0.82	--	--	0.2
	--	1	--	0.61	0.55	--	0.42	0.53	--	--	0.062
	--	0.57	--	--	--	--	--	--	--	--	0.62
	--	--	--	--	--	--	--	--	--	--	0.062
	--	--	--	--	--	--	--	--	--	--	--
	3.8	5.8	6.7	0.5	4.2	2.2 R	3.6	1.2	3.7	3.2	4.4
J	61 J	200 J	110 J	67 J	86 J	67 J	72 J	75 J	63 J	43 J	--
J	1.4	0.51	0.45	0.28 R	0.24 R	--	0.29 R	0.28	0.27 R	--	7.4
	16	10	13	0.8	12	5.8	8.2	4.4	9	8	24000
	290	340	220	150	90	50	150	170	100	29	400
J	0.34	0.35	0.28	--	--	--	0.18	--	--	--	4.6
	--	--	--	--	--	--	--	--	--	--	78
	--	--	--	--	--	--	0.54	--	--	--	78
	36	--	--	--	--	--	6.8	5.8	36	8.4	110
	330	350	220	100	140	48	120	120	140	28	4600

SS	AE-009-SS	AE-010-SS	AE-011-SS	AE-012-SS	AE-013-SS	AE-014-SS	AE-015-SS	AE-016-SS	AE-017-SS	AE-018-SS	NC Soil
	Southeast Middle	Southwest Central	S-Southwest Central	Southwest	Northwest Central	North	Northwest Central	South Drainage	South Drainage	North Drainage	Remediation Goals*
	--	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--	740
	--	--	--	--	--	--	0.88	--	--	--	--
	--	--	--	--	--	--	0.44	--	--	--	620
	1.4	--	--	1.1	1	--	0.83	--	--	--	--
	--	--	--	--	--	--	1.2	--	--	--	4400
	2.5	0.81	--	1.4	1.4	--	0.41	--	--	--	400
	3	0.78	--	1.5	1.1	--	0.98	--	--	--	400
	0.98	0.48	--	0.56	0.8	--	1.3	--	--	--	0.62
	1.4	0.74	--	0.74	0.7	--	0.48	--	--	--	62
	1.1	0.45	--	0.73	0.56	--	0.43	--	--	--	0.62
J	0.710 J	--	--	0.58	0.83	--	0.4	--	--	--	0.2
	0.64	0.5	--	0.86	0.62	--	--	--	--	--	0.062
	0.58	--	--	--	--	--	0.41	--	--	--	0.62
	--	--	--	--	--	--	--	--	--	--	0.062
J	0.630 J	--	--	--	--	--	--	--	--	--	--
	13	4.1 J	4	7.8	2.8 J	--	3	4.4			
J	310 J	190 J	130 J	60 J	86 J	21 J	86 J	--			
J	14	0.58 R	0.37 R	0.34	0.17 R	1.5	0.22	1.4			
	98	8.5	8.7	16	7.2	4.5	6.9	24000			
	42,000	370	290	140	150	--	130	400			
	2.6	0.52	0.34	0.14	0.16	--	0.14	4.6			
	1.7	--	0.63	--	--	--	--	78			
	6.8	--	--	--	--	--	--	78			
	89	--	--	18	--	1.1	10	110			
	2600	400	220	110	130	4.6	98	4600			

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kerrant.

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NCDENR, Division of Waste Management, Superfund Section

Old ATC Refinery
NCD 986 186 518
Expanded Site Inspection
Soil Sample Results

Sample No:	AE-001-SS	AE-101-SS	AE-002-SS	AE-003-SS	AE-004-SS	AE-009-SS	AE-010-SS	AE-011-SS	AE-012-SS	AE-013-SS	AE-014-SS	AE-015-SS	AE-016-SS	AE-017-SS	AE-019-SS	NC Soil
Location:	Background	Background	Background	Northeast	Southeast Central	Southern Metals	Southwest Central	S-Southeast Central	Southwest	Northwest Central	North	Northeast Central	South Drainage	South Drainage	North Drainage	Remediation Goals *
Extractable Organics (mg/kg):																
Phenanthrene	--	--	--	--	--	0.5	610	--	--	1.8	--	0.62	0.76	--	--	--
Anthracene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4400
Fluoranthene	--	--	--	--	--	0.71	1.1	0.42	0.65	1.8	0.51	0.83	1.2	--	--	460
Pyrene	--	--	--	--	--	0.61	1	--	0.79	1.3	0.49	1.1	1.4	--	--	460
Benzo(a)anthracene	--	--	--	--	--	--	0.83	--	0.42	0.68	--	--	0.61	--	--	0.62
Chrysene	--	--	--	--	--	0.37	1.1	--	0.57	0.84	--	0.38	0.6	--	--	62
Benzo(b)fluoranthene	--	--	--	--	--	--	1	--	0.54	0.66	--	0.39	--	--	--	0.62
Benzo(k)fluoranthene	--	--	--	--	--	--	1.2	--	0.6	0.45	--	--	0.62	--	--	6.2
Benzo(a)pyrene	--	--	--	--	--	--	1	--	0.61	0.55	--	0.42	0.52	--	--	0.062
Indeno(123-cd)pyrene	--	--	--	--	--	--	0.57	--	--	--	--	--	--	--	--	0.62
Dibenzo(a,h)anthracene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.062
Benzo(ghi)perylene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals (mg/kg):																
Arsenic	--	0.95	5.7	3.7	4.1	3.8	5.8	6.7	6.5	4.2	2.2 R	3.6	1.2	3.7	3.2	4.4
Barium	--	26 J	--	64 J	71 J	61J	200 J	110 J	81 J	68 J	67 J	72 J	75 J	83 J	43 J	--
Cadmium	--	--	0.53	--	0.19	1.4	0.51	0.45	0.26 R	0.24 R	--	0.29 R	0.29	0.27 R	--	7.4
Chromium	5.7	3.5	4.1	10	8.8	18	10	13	8.6	12	5.8	8.2	4.4	5	9	24000
Lead	56	64	140	32	100	290	340	220	150	90	50	150	170	190	29	400
Mercury	--	--	0.17	--	0.16	0.34	0.55	0.28	--	--	--	0.16	--	--	--	4.6
Selenium	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	78
Silver	--	--	--	--	--	--	--	--	--	--	--	0.34	--	--	--	78
Vanadium	--	4.2	--	--	--	36	--	--	--	--	--	9.8	5.8	36	8.4	110
Zinc	29	24	220	48	100	330	350	220	100	140	48	120	120	140	28	4600

Sample No:	AE-001-SB	AE-101-SB	AE-002-SB	AE-003-SB	AE-004-SB	AE-009-SB	AE-010-SB	AE-011-SB	AE-012-SB	AE-013-SB	AE-014-SB	AE-015-SB	NC Soil
Location:	Background	Background	Background	Northeast	Southeast Central	Southern Metals	Southwest Central	S-Southeast Central	Southwest	Northwest Central	North	Northeast Central	Remediation Goals *
Extractable Organics (mg/kg):													
Benzaldehyde	--	--	--	0.5	--	--	--	--	--	--	--	--	--
Acenaphthene	--	--	--	--	--	--	--	--	--	--	--	0.69	740
Dibenzofuran	--	--	--	--	--	--	--	--	--	--	--	0.44	--
Fluorene	--	--	--	--	--	--	--	--	--	--	--	0.63	520
Phenanthrene	--	--	--	--	0.49	1.4	--	--	1.1	1	--	1.2	--
Anthracene	--	--	--	--	--	--	--	--	--	--	--	0.41	4400
Fluoranthene	--	--	--	--	0.71	2.5	0.81	--	1.4	1.4	--	0.99	460
Pyrene	--	--	--	--	0.79	3	0.78	--	1.3	1.1	--	1.3	460
Benzo(a)anthracene	--	--	--	--	0.42	0.99	0.48	--	0.56	0.6	--	0.49	0.62
Chrysene	--	--	--	--	0.46	1.4	0.74	--	0.74	0.7	--	0.43	62
Benzo(b)fluoranthene	--	--	--	--	0.45	1.1	0.45	--	0.73	0.56	--	0.4	0.62
Benzo(k)fluoranthene	--	--	--	--	0.460 J	0.710 J	--	--	0.56	0.63	--	--	6.2
Benzo(a)pyrene	--	--	--	--	0.54	0.64	0.5	--	0.69	0.62	--	0.41	0.062
Indeno(123-cd)pyrene	--	--	--	--	0.4	0.59	--	--	--	--	--	--	0.62
Dibenzo(a,h)anthracene	--	--	--	--	--	--	--	--	--	--	--	--	0.062
Benzo(ghi)perylene	--	--	--	--	0.440 J	0.630 J	--	--	--	--	--	--	--
Metals (mg/kg):													
Arsenic	--	--	--	2.3	3.5	13	4.1 J	4	7.8	2.6 J	--	3	4.4
Barium	55 J	27 J	29 J	76 J	79 J	310 J	190 J	130 J	80 J	98 J	21 J	98 J	--
Cadmium	--	--	--	--	0.35	14	0.58 R	0.37 R	0.24	0.17 R	1.3	0.22	7.4
Chromium	--	2.3 R	--	4	7.9	98	9.5	8.7	16	7.2	4.5	6.9	24000
Lead	23	19	9.6	72	150	42,000	370	260	140	150	--	130	400
Mercury	--	0.18	--	--	0.15	2.9	0.52	0.34	0.14	0.16	--	0.14	4.6
Selenium	--	--	--	--	--	1.7	--	0.63	--	--	--	--	78
Silver	--	0.54 R	--	--	--	8.8	--	--	--	--	--	--	78
Vanadium	--	3.3 R	--	--	--	69	--	--	16		1.1	10	110
Zinc	29	30	33	53	140	2900	400	220	110	130	4.6	96	4600

SS = Surface Soil; SB = Subsurface Soil (<2.0 ft).
J = Estimated value.
Samples collected by NC Superfund Section on January 29-30, 2002.
Project Manager: S. F. Parker.

* NOTE: NC Soil Remediation Goals are calculated for residential land use and are preliminary in nature.
Site-specific cleanup goals may be adjusted upward to reflect actual land use and/or restrictions thereon.

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NCDENR, Division of Waste Management, Superfund Section

Old ATC Refinery
NCD 986 186 518
Expanded Site Inspection
Surface Water Pathway Sample Results

Sample Number: Location:	AE-018-SD South Pond	AE-020-SD North Pond	AE-021-SD Cape Fear R. (background)	AE-022-SD Cape Fear R. (background)	AE-023-SD Cape Fear R. (waterfront)	AE-024-SD Cape Fear R. (waterfront)	AE-025-SD Cape Fear R. waterfront PPE	AE-026-SD Cape Fear R. (waterfront)	AE-027-SD Cape Fear R. (downriver)
Extractable Semi-volatile Organic Compounds (mg/kg):									
Acetophenone	0.16 J	- -	- -	- -	- -	- -	- -	- -	- -
Fluoranthene	- -	1.2	0.65	- -	- -	0.62	0.68	0.62	0.77
Pyrene	0.97	0.75	0.44	- -	- -	0.46	0.5	0.54	0.55
Benzo(a)anthracene	- -	0.46	- -	- -	- -	- -	- -	- -	- -
Chrysene	- -	0.55	- -	- -	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	- -	0.6	- -	- -	- -	- -	- -	- -	- -
Benzo(ghi)perylene	- -	0.17 J	- -	- -	- -	- -	- -	- -	- -
Metals (mg/kg):									
Arsenic	48	2.5	- -	- -	- -	- -	- -	1.6	1.1
Barium	440 J	57 J	24 J	22 J	17 J	38 J	30 J	37 J	36 J
Cadmium	- -	0.12 R	- -	- -	- -	- -	- -	- -	- -
Chromium	8	7.7	4	2.3 R	1.3	3.3	3.7	8.9	4.5
Lead	210	90	19	3.8	4.5	120	93	49	18
Mercury	0.3	0.11	- -	- -	- -	- -	- -	- -	- -
Silver	0.6 R	- -	- -	1.4 R	- -	- -	- -	- -	- -
Vanadium	22	12	2.3	2.4 R	2.2	- -	3	10	6.3
Zinc	230	84	16	9.3	6.3	39	36	59	20

Sample Number: Location:	AE-018-SW South Pond	AT-118-SW South Pond Duplicate	AE-020-SW North Pond	AE-021-SW Cape Fear R. (background)	AE-022-SW Cape Fear R. (background)	AE-023-SW Cape Fear R. (waterfront)	AE-024-SW Cape Fear R. (waterfront)	AE-025-SW Cape Fear R. (waterfront PPE)	AE-026-SW Cape Fear R. (waterfront)	AE-027-SW Cape Fear R. (downriver)
Extractable Semi-volatile Organic Compounds (ug/l):										
Acetophenone	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Fluoranthene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Pyrene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(a)anthracene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Chrysene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(b)fluoranthene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Benzo(ghi)perylene	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
Metals (ug/l):										
Arsenic	110	140	4.8 R	4.7	3.8	3.5	3.5	- -	19	13
Barium	540 J	690 J	270 J	- -	- -	130 J	- -	220 J	220 J	180 J
Chromium	2.6 R	3.6	1 R	11	8.9	12	11	3.5	63	39
Lead	66	100		34	6.5	15	8.3	10	45	26
Selenium	- -	- -	- -	- -	- -	- -	- -	- -	3.8 R	2.5 R
Silver	- -	1.2	2.2 R	- -	- -	- -	- -	- -	- -	- -
Vanadium	10 R	14	2.4 R	22	18	23	20	7	100	66
Zinc	75	110	30	67	36	53	43	33	190	130

SW = Surface Water; SD = Sediment
J = Estimated value.
Samples collected by NC Superfund Section on January 29-31, 2002.
Project Manager: S. F. Parker

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NCDENR, Division of Waste Management, Superfund Section

Old ATC Refinery
NCD 986 186 518
Expanded Site Inspection
Groundwater Sample Results

Sample Number:	AE-001-MW	AE-101-MW	AE-002-MW	AE-003-MW	AE-004-MW	AE-005-MW	AE-006-MW	AE-007-MW	AE-008-MW	AE-021-GW	AE-023-GW	AE-027-GW	NC Groundwater Remediation Goal
Location:	Background	Background	Background	TEL Area	Refractory	Southeast Site		NW Riverfront		Upriver	Riverfront	Downriver	
Semi-volatile Organic Compounds (ug/l):													
Naphthalene	--	--	--	--	--	--	1400	--	--	--	--	--	21
2-methyl Naphthalene	--	--	--	--	--	--	70	--	--	--	--	--	28
Acenaphthene	--	--	--	--	--	220	--	--	--	--	--	25	80
Dibenzofuran	--	--	--	--	--	170	16	--	--	--	--	--	28
Fluorene	--	--	--	--	--	120	37	--	--	--	--	--	280
Phenanthrene	--	--	--	--	--	95	28	--	--	--	--	--	210
Anthracene	--	--	--	--	--	26	--	--	--	--	--	--	2100
Carbazole	--	--	--	--	--	--	17	--	--	--	--	--	--
Fluoranthene	--	--	--	--	--	14	--	--	--	--	--	--	280
Pyrene	--	--	--	--	--	11 J	--	--	--	--	--	--	210
Metals (ug/l):													
Arsenic	12	13	29	9.3	--	--	5.0 R	--	--	--	--	--	50
Barium	--	--	--	--	--	270 J	--	300 J	320 J	290 J	390 J	530 J	2000
Cadmium	--	--	--	--	--	--	--	--	--	--	--	--	5
Chromium	--	--	--	3.8	--	1.6	--	--	--	--	--	--	50
Lead	--	--	--	--	3.5	3.0 J	--	--	--	--	--	26	15
Mercury	--	--	--	--	--	--	--	--	--	--	--	--	1.1
Selenium	--	--	--	--	--	--	--	--	--	--	--	--	50
Silver	--	--	--	--	--	--	--	--	--	--	--	--	50
Vanadium	--	--	4.2	--	--	3.1	--	--	--	1.5 R	--	1.9 R	--
Zinc	14	14	4.7	15	17	21	53	19	150	4.5	--	19	2100

MW = Monitoring Well; GW = Riverbed Pore Water. TEL = Tetraethyl lead tank
Samples collected by NC Superfund Section on January 29-31, 2002.
Project Manager: S. F. Parker

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Wilmington may bid on riverfront property

By Bettie Fennell
Staff Writer
April 4, 2002

The Wilmington City Council is considering buying a former [illegible] site just south of the Cape Fear Memorial Bridge and using the land for an undetermined public purpose.

Wilmington may buy the property on the south side of the Cape Fear Memorial Bridge. *By Curtis K. Biasi*

The land, owned by Linda Carroll and her husband, John Voet, used to be the site of the ATC Refinery.

Mayor Harper Peterson said the property on the Cape Fear River is in foreclosure and the bankr

"It could be for public use, active, passive, and again it could be used for economic-stimulus purp

"It could be for public use, active, passive, and again it could be used for economic-stimulus purp along too often" to control a large tract on the riverfront and decide how it would be used, he said

Mr. Peterson said it would be premature to say the property would be used for a baseball stadium

He met about two weeks ago with the owners of the former Wilmington Waves baseball team ab

The team's owner did his homework and selected three sites in Wilmington that would be suitabl the Cape Fear Memorial Bridge, the Dean Hardwoods property and Dean Scarafoni's property, b

Mr. Peterson said the council hasn't made a decision about whether to buy the Carroll Carolina C

The council plans to have a special meeting Monday to discuss whether to bid on the property, h

The tract contains more than 21 acres, but the owners offered about 14 acres to the city. An app

But City Councilman Jim Quinn, who is in the commercial real estate business, believes it is wort said. He believes it is worth $100,000 to $150,000 per acre, assuming it isn't contaminated.

County tax records, however, indicate that Carroll Carolina Corp. owns three tracts totaling more delinquent, according to the records.

The Environmental Protection Agency spent more than $8 million to clean up the former Superfu Stamford, Conn.-based Axel Johnson for the pollution at the former refinery and has sought to ge

At least five times between 1987 and 1992, regulators found fuel leaking on the site or into the C the company violated workplace safety requirements.

Axel has contended that other companies that controlled the site after it left in 1984 are responsi

Mr. Peterson said he doesn't have documents to confirm that the property is free of contaminatio he said.

Mr. Quinn doubts that the EPA would allow the property owners to make a big profit without the a

"I don't have a problem with buying land," Mr. Quinn said. But he said he is concerned about the

He is also concerned that in a bidding process, the city would have to take the property as is. It c

"I don't like that," Mr. Quinn said. "But I think there is a reasonable chance if we can get it for a re

Councilman Jason Thompson also would like the city to get the property at a reasonable price. "I regular price, he said.

Mr. Thompson said the property has potential, such as a public park like Charleston, S.C., develo numerous development issues.

Other potential uses, Mr. Thompson said, include a convention center and baseball stadium.

Mr. Voet said he and his wife have talked with city officials about their long-range plans for the pr during intense discussion with city officials for about the past two months.

He plans to make a presentation to the council during its special meeting Monday. No time had b

Bettie Fennell: 343-2377

bettie.fennell@wilmingtonstar.com

Back to top

Subject: ATC data
Date: Thu, 04 Apr 2002 18:25:00 -0500
From: Stuart Parker <Stuart.Parker@ncmail.net>
To: mallary.mckenzie@epa.gov, wendel.jennifer@epa.gov

I just sent Ken two faxes - the latter at high resolution - of my three draft data tables (groundwater; surface water/sediment; soil) plus a corrected sample location plan.
The results I see are:

Surface Water/Sediment:

1. North and South pond sediments contained PAH and lead at concentrations characteristic of on-site soils. South Pond surface water contained lead, but North pond surface water did not.

2. In the Cape Fear River, the highest sediment lead concentration was detected in AE-024-SD (opposite the North Pond). AE-025-SD, at the river inlet PPE, also contained elevated lead. Corresponding water sample AE-025-SW was ND for lead.

3. Elevated arsenic, chromium, vanadium and zinc were detected in river water samples AE-026-SW and AE-027-SW. Arsenic and zinc were detected in river sediment AE-026-SD, and arsenic was detected in AE-027-SD. These samples were located opposite and downriver from the South Pond. Arsenic, vanadium and zinc were detected in South Pond sediment and arsenic and zinc were detected in South Pond surface water.

4. Fluoranthene and Pyrene were the only PAHs detected in river sediment, and (where present) they remained at remarkably consistent concentrations, even in one of the two background river samples.

Groundwater:

1) AE-005-MW and AE-006-MW were the only PAH-contaminated monitoring wells. Note that they contained little or no fluoranthene, pyrene or lead. Even the refractory and TEL area wells (AE-003-MW; AE-004-MW) contained little or no metals contamination.

2) Pore water sample AE-027-GW contain low levels of acenaphthene, lead, vanadium and zinc. This sample was located offshore from the JLM terminal.

Soil:

1) Low PAH concentrations remained in surface and subsurface soils. I will check carcinogen results against soil exposure limits next.

2) Subsurface soil at the Southern Metals Recycling property line was highly contaminated, with PAH and several metals, esp lead. Surface soil there contained fewer PAH species. Surface PAH and metals concentrations are more characteristic of the ATC site.

Comments:

1) Attribution of PAH in river sediment to site is uncertain. No results exceed 3 times maximum background concentration (AE-021-SD). Additional potential or known PAH sources (North and south

JLM properties, Wilmington MGP site) are located nearby.

2) Maximum river sediment lead concentration occurs upriver from the ATC site's river inlet, at a location corresponding to the site's former NPDES discharge. No lead was detected in north waterfront groundwater samples (AE-007-MW; AE-008-MW; AE023-GW), calling groundwater-surface water transport into question.

3) The progressive decrease of lead levels in AE-025-SD and AE-026-SD may represent a "footprint" downriver from the former NPDES discharge. Note, however, that an underground pipe discharges municipal stormwater runoff into the (eastern) head of the inlet This location was not sampled in order to protect the inlet's engineered liner, and for safety reasons.

4) The NC Inactive Hazardous Sites Branch recently referred the Southern Metals Recycling Co.site for pre-CERCLIS screening.

I will be in the office tomorrow and next week if you wish to discuss these results.

Sincerely,
Stuart

North Carolina
Department of Environment and Natural Resources

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director

NCDENR

March 1, 2002

Carroll Carolina Corporation
3917 Wrightsville Avenue
Wilmington, NC 28403
Attn: Ms. Linda Carroll

Dear Ms.Carroll:

As requested, the following is a status summary for environmental investigation of the Old ATC Refinery site in Wilmington, NC. The Superfund Section of the NCDENR is in the process of completing a federally-funded site assessment, known as a Expanded Site Inspection (ESI), at this site. The purpose of the ESI is to evaluate any chemical exposure hazards the site may pose to human health or the Cape Fear River environment, to characterize current site conditions and to re-evaluate the site's potential eligibility for the EPA's National Priorities List (NPL).

This investigation was undertaken subsequent to a Removal Action completed on site by the USEPA Region IV during Fall of 1999. Details and cleanup levels for this removal are summarized by EPA in "Pollution Report (POLREP) #86 and Final" dated October 25, 1999. The ESI will determine what residual levels of petroleum compounds and metals remain on site, and characterize effects of soil removal and treatment, and physical landscaping, completed during the Removal.

ESI Scope and Completion:

On January 29-31, 2002, NC Superfund Section and EPA Region IV personnel visited the site to conduct ESI sampling. Sampling was performed at the former refinery portion of the site and along the adjacent Cape Fear River. Media sampled on site included groundwater, runoff, and surface and subsurface soils. River sampling included surface water, sediment, and emergent groundwater beneath the riverbed.

To supplement sample collection, EPA personnel used a portable X-Ray Refractometer (XRF) to field-screen surface soils for lead. Screening was conducted at 30 locations distributed along five on-site transects, in order to obtain representative lead readings across the site.

The majority of the ESI samples were submitted to EPA Contract Laboratories for organic and inorganic chemical analyses. Laboratory reporting and EPA review of sample analytical results are generally completed within three to four months after sampling, depending on current workload. However, six additional soil samples were submitted for analysis by the State Laboratory of Public Health in Raleigh, NC. For certain media, State Lab turnaround is faster than Federal turnaround. In addition to testing metals and organics concentrations, the State Laboratory is capable of testing the potential leachability of soil contaminants to groundwater, indicating whether additional soil removal or treatment is needed on site.

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-733-4996 \ FAX: 919-715-3605 \ Internet: www.enr.state.nc.us

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Sample Status:

XRF data: The EPA has submitted its X-Ray soil screening results to the NC Superfund Section. Reported lead readings ranged from a minimum of 15 ppm (parts per million) at the site's northeast property line, to a maximum of 300 ppm in the south-central portion of the site. These results are equivalent to less than 400 ppm total lead, which is the NC Soil Remediation Goal (RG) and the EPA Preliminary Remediation Goal (PRG) for residential soil.

State Laboratory Results: Results from the State Inorganics Lab for total and leachable metals are still pending. The State Organics Laboratory reported that five of the six soil samples were non-detect for the organic compounds tested, and the sixth sample contained a very low concentration of a single compound. These results indicated that leachability testing was not necessary.

Federal Contract Lab Results: Federal Laboratory sample results are still pending.

In summary, the Old ATC Refinery site is still a potential candidate for the EPA's National Priorities List of Superfund Sites. The site's federal regulatory status will be determined by the totality of the ESI sampling results, the majority of which are not yet available for review. However, preliminary soil testing and screening results do **not** indicate that residual soil contamination at the site exceeds regulatory limits for human exposure.

If you have any questions, please call me at (919) 733-2801, ext. 280.

Sincerely,

Stuart. F. Parker, Hydrogeologist
NC Superfund Section

cc: file

TRIP NOTIFICATION AND AUTHORIZATION FORM

Program:

- [X] CERCLA Site Assessment
- [ ] State
- [ ] NPL/DOD
- [ ] Brownfields
- [ ] MGP
- [ ] Dry Cleaners

Site Name:	Old ATC Refinery
ID Number:	NCD 986 186 518
Street Address:	Surry Street
City:	Wilmington
County:	New Hanover

Date(s) of Trip	Trip Canceled:	Trip Rescheduled (Date):
January 28-February 1,2002		

Reason For Trip: Expanded Site Inspection - Sampling

(if sampling, check appropriate boxes below)

- [X] Surface Soil
- [X] Subsurface Soil
- [X] Using Augers/Shovels to collect soil
- [X] Using Little Beaver to collect soil
- [ ] Groundwater (from tap)
- [ ] Groundwater (bailers)
- [X] Groundwater (pumps)
- [X] Surface Water
- [X] Sediment

Project Team Leader	Assistant	Assistant	Assistant
Stuart Parker	Harry Zinn	Jim Bateson	
	Kyle Hagen	Mike Deaton	

Authorized By: _____

Industrial Hygienist Signature

Office Use Only

County Health Department Official Contact: Dianne Harvell

Title: Env. Health Director

Phone Number: (910) 343 - 6667

Health Department Official Contacted: Dianne Harvell

Back Up Letter Required?: Yes _ No _

Notes: Notified Ms. Harvell via voice mail 1-16-02 (DBL)

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4, SCIENCE and ECOSYSTEM SUPPORT DIVISION
ATHENS, GA 30605-2720

4SESD-EIB

FEB 1 4 2002

RECEIVED
FEB 18 2002

MEMORANDUM

SUBJECT: Sampling Assistance at ATC Refinery Site
Wilmington, North Carolina
SESD project no. 02-0234

FROM: Brian Striggow, Environmental Protection Specialist
Superfund and Air Section

THRU: Archie Lee, Chief
Superfund and Air Section

TO: Ken Mallory
North Site Management Branch
Waste Management Division

On January 29 and 30, 2002, personnel from the EPA Region 4 Science and Ecosystem Support Division (SESD) and associated contractor personnel assisted in sampling operations at the ATC Refinery site in Wilmington, NC. The scope of this assistance was in the setting of temporary wells, the collection of pore water from the Cape Fear River, and the collection of surface soils and analysis for lead by field portable X-ray fluorescence (XRF) screening methods. The operations were conducted under the direction of Stuart Parker with the North Carolina Department of Environment and Natural Resources (NC-DENR). Additional NC-DENR personnel conducted most sampling. Two consultants from Roux Associates representing the site potentially responsible parties (PRPs) observed operations and collected split samples. The accompanying Figure 1, Sample Locations and Table 1, EPA Sample Collection Points define the sampling points covered in the assistance efforts.

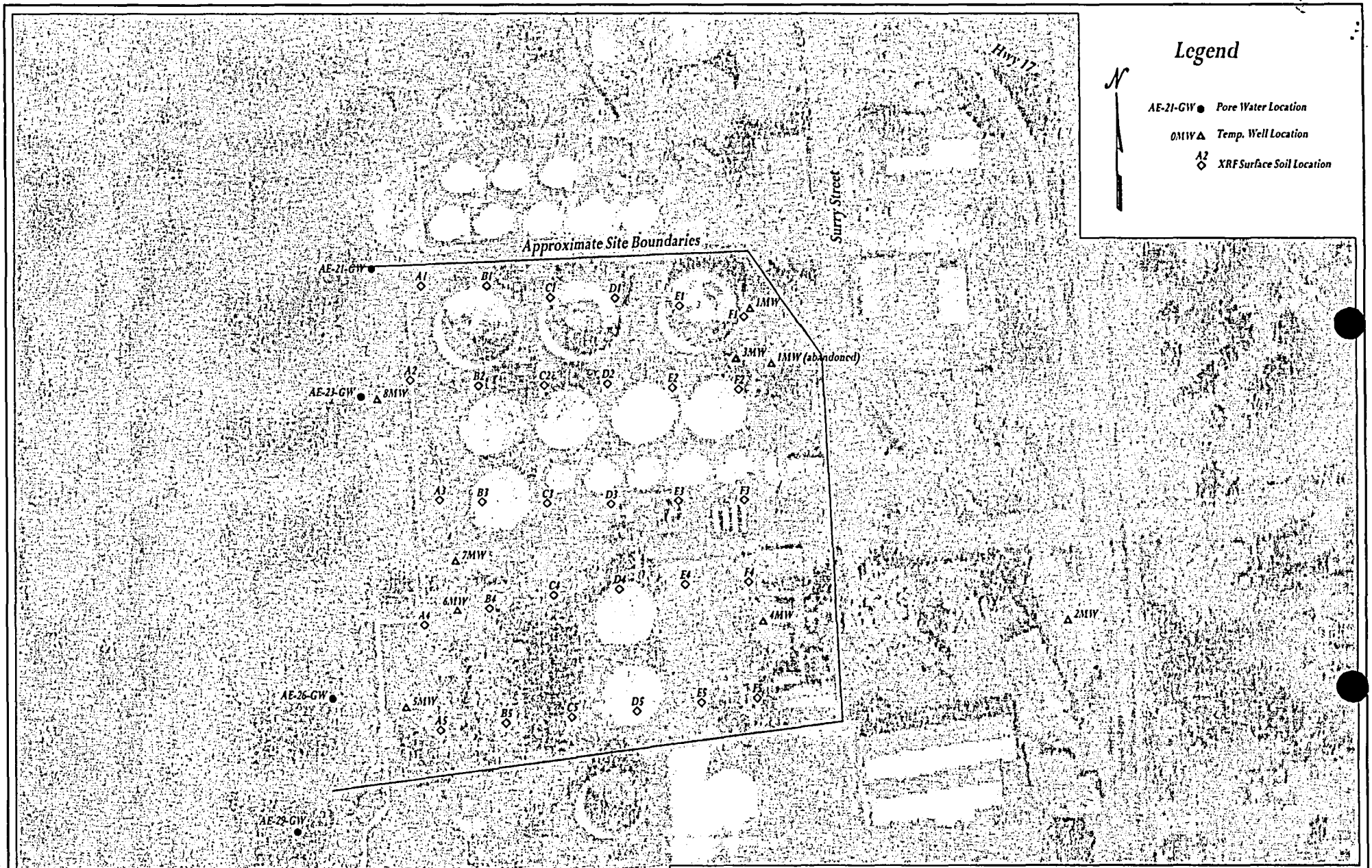
Temporary wells were set using direct push methods. A truck mounted Geoprobe was used to place temporary stainless steel screens. Except for 2MW, all screens were set at a 12'-16' Below Land Surface (BLS) level. The screen for 2MW was intended to be placed at 16'-20' BLS but was set at approximately 16'-17' BLS due to improper sleeve retraction. The 1MW well was relocated after unsuccessful attempts to purge the well at its original location. After sampling by NC-DENR personnel, the well materials were withdrawn and holes were backfilled with bentonite pellets.

The pore water samples were collected with Henry Samplers placed in sediments near the low tide waterline on January 29. To reduce contamination from surface water, the samplers were inserted through a small hole in a 2' square sheet of polycarbonate, which was set and weighted on the river bottom. The approximately 2" long sampler screen intervals were located approximately 24" below the river bottom. Near low tide on January 30, the samplers were located and connected to peristaltic pumps running at minimum flow. After 4 liters of water was collected, the samples were decanted to NC-DENR and Roux Associates bottles. Information on the pore water collection points is presented in Table 2, Pore Water Sample Collection Parameters. Additional information concerning the Henry Sampler device is available at mheproducts.com

Field XRF samples were collected from approximately 0-6" depth on an approximate 100' grid. After homogenizing, samples were analyzed for lead by a Niton field portable XRF unit. The resulting screening data is presented in Table 3, Field XRF Lead Levels. The data set was also contoured and is presented in Figure 2, Surface Soil Pb Levels.

If you have any questions about this document, please contact me at (706) 355-8619 or at email *striggow.brian@epamail.epa.gov*

cc: Stuart Parker/NCDENR



200 0 200 400 600

1" = 200'

ATC REFINERY Wilmington, North Carolina	REV.	DATE	REV.	DATE	DESIGNED: na	SCALE: 1" = 200'
	1	2-13			DRAWN: BCS	Reference: na
					CHECKED:	PROJECT No. 02-0234
					APPROVED:	DATE: 01-10-02
Figure 1. Sample Locations	EPA Science and Ecosystem Support Division				DWG. NO. ATC_REF	REV. 1

Table 1. EPA Sample Collection Points

Sample Type	Location Designator	Latitude*	Longitude*	Locating Method
Temporary Well	1MW	34°13'29.57"	77°56'57.09"	Differential GPS
Temporary Well	1MW(abandoned)	34°13'28.76"	77°56'56.68"	Differential GPS
Temporary Well	2MW	34°13'24.99"	77°56'51.14"	Differential GPS
Temporary Well	3MW	34°13'28.81"	77°56'57.33"	Differential GPS
Temporary Well	4MW	34°13'24.85"	77°56'56.72"	Differential GPS
Temporary Well	5MW	34°13'23.41"	77°57'3.22"	Differential GPS
Temporary Well	6MW	34°13'24.89"	77°57'2.31"	Differential GPS
Temporary Well	7MW	34°13'25.63"	77°57'2.38"	Differential GPS
Temporary Well	8MW	34°13'28.04"	77°57'3.87"	Differential GPS
Surface Soil XRF	A1	34°13'29.77"	77°57'3.11"	Differential GPS
Surface Soil XRF	A2	34°13'28.36"	77°57'3.27"	Differential GPS
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Surface Soil XRF	A5	34°13'23.09"	77°57'2.58"	Differential GPS
Surface Soil XRF	B1	34°13'29.80"	77°57'1.92"	Differential GPS
Surface Soil XRF	B2	34°13'28.31"	77°57'2.03"	Differential GPS
Surface Soil XRF	B3	34°13'26.55"	77°57'1.92"	Differential GPS
Surface Soil XRF	B4	34°13'24.95"	77°57'1.73"	Differential GPS
Surface Soil XRF	B5	34°13'23.23"	77°57'1.39"	Differential GPS
Surface Soil XRF	C1	34°13'29.66"	77°57'0.75"	Differential GPS
Surface Soil XRF	C2	34°13'28.34"	77°57'0.83"	Differential GPS
Surface Soil XRF	C3	34°13'26.56"	77°57'0.73"	Differential GPS
Surface Soil XRF	C4	34°13'25.17"	77°57'0.57"	Differential GPS
Surface Soil XRF	C5	34°13'23.35"	77°57'0.19"	Differential GPS
Surface Soil XRF	D1	34°13'29.67"	77°56'59.56"	Differential GPS
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Surface Soil XRF	D4	34°13'25.29"	77°56'59.37"	Differential GPS
Surface Soil XRF	D5	34°13'23.46"	77°56'59.00"	Differential GPS
Surface Soil XRF	E1	34°13'29.59"	77°56'58.38"	Differential GPS
Surface Soil XRF	E2	34°13'28.36"	77°56'58.48"	Differential GPS
Surface Soil XRF	E3	34°13'26.65"	77°56'58.32"	Differential GPS
Surface Soil XRF	E4	34°13'25.39"	77°56'58.17"	Differential GPS
Surface Soil XRF	E5	34°13'23.62"	77°56'57.82"	Differential GPS
Surface Soil XRF	F1	34°13'29.45"	77°56'57.20"	Differential GPS
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Surface Soil XRF	F3	34°13'26.69"	77°56'57.12"	Differential GPS
Surface Soil XRF	F4	34°13'25.45"	77°56'57.01"	Differential GPS
Surface Soil XRF	F5	34°13'23.71"	77°56'56.80"	Differential GPS
Pore Water	AE-21-GW	34°13'30.01"	77°57'04.07"	Aerial Photography and Field Notes
Pore Water	AE-23-GW	34°13'28.10"	77°57'04.24"	Aerial Photography and Field Notes
Pore Water	AE-26-GW	34°13'23.54"	77°57'04.55"	Aerial Photography and Field Notes
Pore Water	AE-27-GW	34°13'21.47"	77°57'05.18"	Aerial Photography and Field Notes

*WGS84 Datum

Table 2. Pore Water Sample Collection Parameters

Sample Designation	Description	Pump Started***	Pump Stopped	Sample Decanted	Sample Turbidity (NTU)	Latitude**	Longitude**
AE-21-GW	@North property line	17:35	18:10	18:25	53.2	34°13'30.01"	77°57'04.07"
AE-23-GW	~75' N of Fire house	16:30	17:15	18:25	5.35	34°13'28.10"	77°57'04.24"
AE-26-GW*	~150' S of inlet	16:35	17:10*	na	na	34°13'23.54"	77°57'04.55"
AE-27-GW	~60 S of Property	17:05	17:50	18:25	19	34°13'21.47"	77°57'05.18"

* Sample AE-26-GW could not be collected due to sampler plugging from fines in this area. The pump was stopped and sampler abandoned at 17:10

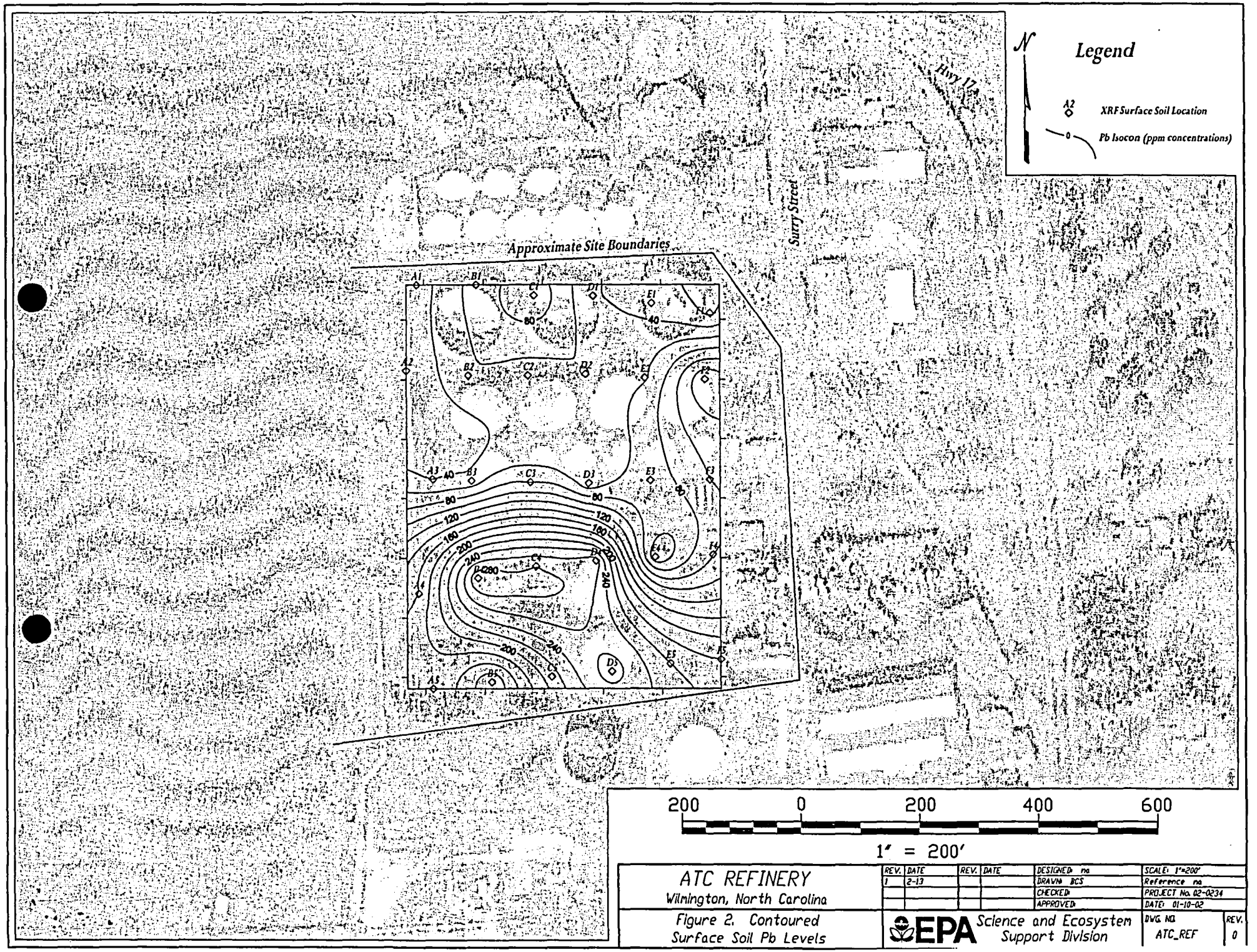
** WGS 84 datum

***All pore water samples were collected on January 30, 2002

Table 3. Field XRF Lead Levels

Sample Location	Pb (PPM)*
Sample A-1	30
Sample A-2	22
Sample A-2D(dup)**	21
Sample A-3	39
Sample A-4	160
Sample A-5	180
Sample B-1	69
Sample B-2	59
Sample B-3	47
Sample B-4	300
Sample B-5	120
Sample C-1	97
Sample C-2	50
Sample C-3	79
Sample C-4	280
Sample C-5	210
Sample D-1	42
Sample D-2	61
Sample D-3	46
Sample D-4	270
Sample D-5	270
Sample E-1	33
Sample E-2	57
Sample E-3	72
Sample E-4	43
Sample E-5	220
Sample F-1	15
Sample F-2	140
Sample F-3	100
Sample F-4	100
Sample F-5	200
Sample F-5D(dup)**	220

*Results reported to two significant figures.
**Duplicate samples are analyzed from same mixed pan material as primary sample



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	1	2-13			DRAWN: BCS	Reference: na
					CHECKED:	PROJECT No. 02-0234
					APPROVED:	DATE: 01-10-02
Figure 2. Contoured Surface Soil Pb Levels	EPA Science and Ecosystem Support Division				DWG. NO. ATC_REF	REV. 0

Old ATC Refinery GPS Readings 1/29/02 to 1/31/02

Location	Longitude Decimal	Latitude Decimal		Longitude Deg.	Min.	Sec.		Latitude Deg.	Min.	Sec.
A012920b	-77.950711	34.223803		77	57	2.56		34	13	25.69
A012920c	-77.950688	34.223786		77	57	2.48		34	13	25.63
A013014a	-77.951112	34.224469		77	57	4.00		34	13	28.09
A013014b	-77.949112	34.223578		77	56	56.80		34	13	24.88
A013014c	-77.948737	34.223540		77	56	55.45		34	13	24.75
A013014d	-77.948909	34.223707		77	56	56.07		34	13	25.35
A013014e	-77.949259	34.223194		77	56	57.33		34	13	23.50
A013014f	-77.950920	34.223200		77	57	3.31		34	13	23.52
A013015a	-77.950681	34.223601		77	57	2.45		34	13	24.96
A013015b	-77.950686	34.223797		77	57	2.47		34	13	25.67
A013015c	-77.951090	34.224468		77	57	3.93		34	13	28.08
A013015d	-77.947586	34.223626		77	56	51.31		34	13	25.06
A013015e	-77.949289	34.224674		77	56	57.44		34	13	28.83
A013022a	-77.949221	34.224886		77	56	57.20		34	13	29.59
A013116a	-77.951403	34.223797		77	57	5.05		34	13	25.67
A013117a	-77.949583	34.224091		77	56	58.50		34	13	26.73
A013117b	-77.950506	34.224389		77	57	1.82		34	13	27.80
A013117c	-77.950243	34.224906		77	57	0.88		34	13	29.66
A013118a	-77.949115	34.223559		77	56	56.81		34	13	24.81
A013118b	-77.949480	34.223505		77	56	58.13		34	13	24.62
A013118c	-77.950410	34.223133		77	57	1.47		34	13	23.28
B012920a	-77.950189	34.223687		77	57	0.68		34	13	25.27

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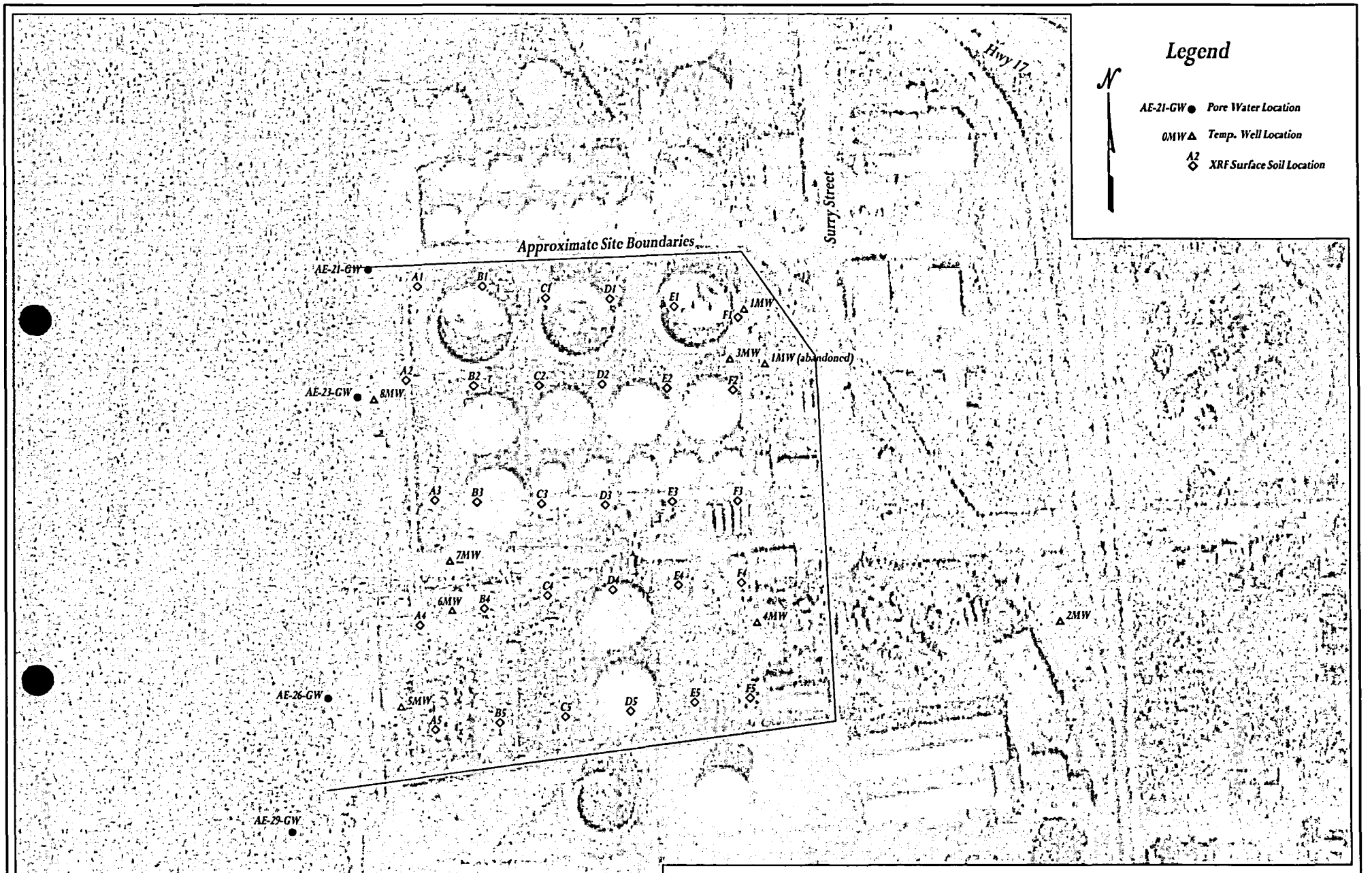
Pore Water	AE-26-GW	34°13'23.54"	77°57'04.55"	Aerial Photography and Field Notes
Pore Water	AE-27-GW	34°13'21.47"	77°57'05.18"	Aerial Photography and Field Notes

*WGS84 Datum



200 0 200 400 600

1" = 200'

ATC REFINERY Wilmington, North Carolina	REV.	DATE	REV.	DATE	DESIGNED: na	SCALE: 1" = 200'
	1	2-13			DRAWN: BCS	Reference na
					CHECKED:	PROJECT No. 02-0234
					APPROVED:	DATE: 01-10-02
Figure 1. Sample Locations	EPA Science and Ecosystem Support Division				DWG. NO. ATC_REF	REV. 1

Table 2. Pore Water Sample Collection Parameters

Sample Designation	Description	Pump Started***	Pump Stopped	Sample Decanted	Sample Turbidity (NTU)	Latitude**	Longitude**
AE-21-GW	@North property line	17:35	18:10	18:25	53.2	34°13'30.01"	77°57'04.07"
AE-23-GW	~75' N of Fire house	16:30	17:15	18:25	5.35	34°13'28.10"	77°57'04.24"
AE-26-GW*	~150' S of inlet	16:35	17:10*	na	na	34°13'23.54"	77°57'04.55"
AE-27-GW	~60 S of Property	17:05	17:50	18:25	19	34°13'21.47"	77°57'05.18"

* Sample AE-26-GW could not be collected due to sampler plugging from fines in this area. The pump was stopped and sampler abandoned at 17:10

** WGS 84 datum

***All pore water samples were collected on January 30, 2002

Table 3. Field XRF Lead Levels

Sample Location	Pb (PPM)*
Sample A-1	30
Sample A-2	22
Sample A-2D(dup)**	21
Sample A-3	39
Sample A-4	160
Sample A-5	180
Sample B-1	69
Sample B-2	59
Sample B-3	47
Sample B-4	300
Sample B-5	120
Sample C-1	97
Sample C-2	50
Sample C-3	79
Sample C-4	280
Sample C-5	210
Sample D-1	42
Sample D-2	61
Sample D-3	46
Sample D-4	270
Sample D-5	270
Sample E-1	33
Sample E-2	57
Sample E-3	72
Sample E-4	43
Sample E-5	220
Sample F-1	15
Sample F-2	140
Sample F-3	100
Sample F-4	100
Sample F-5	200
Sample F-5D(dup)**	220

*Results reported to two significant figures.
**Duplicate samples are analyzed from same mixed pan material as primary sample

ATC REFINERY Wilmington, North Carolina	REV.	DATE	REV.	DATE	DESIGNED na	SCALE: 1"=200'
	1	2-13			DRAWN BCS	Reference na
					CHECKED	PROJECT No. 02-0234
					APPROVED	DATE: 01-10-02
Figure 2. Contoured Surface Soil Pb Levels	EPA Science and Ecosystem Support Division				DWG. NO. ATC_REF	REV. 0

Parker

RECEIVED
DEC 13 2001
SUPERFUND SECTION

Established Action Levels/Cleanup Goals for Soil

(not dated)

Site File

OLD ATC
2.2

OLD ATC REFINERY SITE
WILMINGTON, NEW HANOVER, NORTH CAROLINA

ESTABLISHED ACTION LEVELS/CLEANUP GOALS FOR SOIL

A.	Lead	1,300 mg/kg
B.	Chromium	1,000 mg/kg
C.	Vanadium	500 mg/kg
D.	Total PAHs	100 mg/kg
E.	Carcinogenic PAHs	50 mg/kg
F.	Total petroleum hydrocarbons	TBD

100 mg/kg

Post-it® Fax Note 7671	Date 1/16/02	# of pages ▶
To LINDA CARROLL	From STUART PARKER	
Co./Dept. CARROLL CAROLINA	Co. NCDENR/Superfund	
Phone # 910 392 3909	Phone # 919 733 2801	
Fax # 910 392 3655	Fax # 919 733 4811	

MEMORANDUM

To: File
From: Stuart F. Parker, Hydrogeologist
NC Superfund Section
Date: January 15, 2002
Subject: Old ATC Refinery,
Wilmington, New Hanover County NC
NCD 986 186 518
Potential Site Foreclosure

SFP spoke AM with Linda Carroll, current site owner, to coordinate site access for ESI sampling fieldwork. Ms. Carroll verbally confirmed permission to visit the site during the week of 1/28/02-2/1/02, and would fax written approval similar to that given for the 12/18/01 reconnaissance. She also confirmed that the southwest corner property at Dawson and Front Streets was part of the ATC Refinery property (this parcel, used to stage decontaminated scrap metal during the EPA Removal action, is upgradient from Southern Metals Recycling and is a proposed background sample location for that potential source).

Ms. Carroll reported that foreclosure on the property was possible later that day, and expressed frustration with the lack of regulatory closure at the site. SFP and Ms Carroll discussed proposed site development, other development and environmental history in the area, and proposed dredging of the Cape Fear River, by and for Almont Shipping Co., and potential impacts.

PM on 1/15, SFP returned a call to the Superfund Section from Thomas Lynde of Metropolitan Mortgage and Securities Co., Spokane, Washington. Mr. Lynde was inquiring into the site's regulatory status and future regulatory activities at the site, while reportedly performing an appraisal for a loan using the ATC property as collateral.

1). SFP explained that the "cleanup" was a Removal Action, completed by the EPA's Removal program. This program was separate from the Remedial Program. Cleanup levels were prescribed and limited in part by the removal budget and in part by technical practicability.

2) Our follow-up investigation is being undertaken to determine whether the site is still potentially a candidate for the EPA National Priorities List, following changes in site chemical and physical characteristics (surface drainage, for example) during the Removal Action. Not all of the removal data were available to the NC Superfund Section, and so this investigation would address these and other data gaps remaining at the site.

3) The sampling being undertaken would determine whether residual soil contaminant levels exceeded regulatory limits for proposed future land use at the site, and would be used to complete a Risk Analysis to help determine whether any further federal action was indicated.

4) Mr. Lynde cited an historical report to the effect that there was no groundwater contamination at the site. SFP corrected that limited groundwater sampling had occurred, but that past investigations had revealed no groundwater targets (wells) near the site that would potentially be affected by contamination.

5) Mr. Lynde inquired as to the impact of neighboring property use: Could the site's reduced contaminant levels (to paraphrase) "draw" additional contamination from the adjacent petroleum terminal (Colonial, a.k.a., JLM) ? SFP explained that contaminant migration was controlled by surface drainage and primarily by groundwater flow direction, which in this case was generally toward the Cape Fear River.

6) SFP explained that the NC Superfund Section had recommended the current investigation to EPA back in June 2001. The project was fast-tracked by the EPA in response to recent inquiries by Ms. Carroll to the NC Superfund Section. Sampling was to be completed later this month and results would require up to three months.

North Carolina
Department of Environment and Natural Resources

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director

NCDENR

January 11, 2002

Ms. Jennifer Wendel
NC Site Management Section
US EPA Region IV Waste Division
61 Forsythe Street, 11th Floor
Atlanta, Georgia 30303

Subject: Supplemental Expanded Site Inspection (ESI)
Sampling & Analysis Plan/Quality Assurance Project Plan (SAP/QAPP)
Old ATC Refinery Site
Wilmington, New Hanover County, NC
NCD 986 186 518
Sampling Date: January 28-30, 2002.

Dear Ms. Wendel:

The enclosed document summarizes proposed ESI sampling at the Old ATC Refinery site, a former petroleum refinery located on Surry Street, south of downtown Wilmington, NC (Fig. 1). This sampling plan is based upon findings and recommendations detailed in a Site Re-Assessment report completed by the NC Superfund Section on June 29, 2001, and on a site reconnaissance completed on December 18, 2001.

The site's history of environmental violations dates back to the 1970s, including petroleum spills and on-site disposal of refinery sludges. During the late 1990s, the EPA Region IV and the US Coast Guard (USCG) completed a Time Critical Removal on site. This Supplemental ESI is being undertaken to characterize post-removal physical and chemical site conditions. The data generated will be used to evaluate the site's eligibility for further remedial action under CERCLA, and to assess the potential risks to human health and the environment posed by present site conditions and by future site development.

Site History

The ATC Refinery operated on site from the early 1970s until 1986, refining crude oil to produce fuel oil, naphtha, kerosene and leaded gasoline products. During this time, and in subsequent years, the Coast Guard, NCDENR and former refinery employees documented several environmental law violations, including on-site disposal of petroleum sludges, and several surface spills/leaks of petroleum product and tetraethyl lead additive. The site changed ownership but remained inactive throughout the 1990s.

1646 Mail Service Center, Raleigh, North Carolina 27699-1646
Phone: 919-733-4996 \ FAX: 919-715-3605 \ Internet: www.enr.state.nc.us

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Site assessment during the early 1990s identified several contaminant source areas on site (Fig. 2) including: petroleum and/or tetraethyl lead spills at tanks and transfer lines; a petroleum spill recovery trench; areas of aboveground and underground disposal of tank-bottom sludge; burial of furnace refractory waste containing heavy metals; malfunctioning outdoor oil-water separators; and indoor accumulation of laboratory and other chemical containers. In addition, oily discharges were observed at locations along the site's waterfront. Elevated levels of lead and PAH were detected in Cape Fear River sediment samples collected adjacent to the site.

EPA/USCG Removal Action

During the period June 1997 through October 1999, the USEPA and USCG completed a Time-critical Removal on site. All storage tanks and contained sludges, product transfer lines, oil-water separators and refining equipment were removed. During Fall 1997, recovery trenches were excavated adjacent to former storage tank locations in the northern portion of the site, in order to remove petroleum product observed floating on the shallow water table.

In June 1998, the EPA conducted extensive surface and subsurface soil sampling in gridded-off areas in the southwest, southeast and central portions of the site, and at the former tetraethyl lead storage tank to the northeast. Composites were collected to delineate the areal and vertical extent of organic and metals contamination in these areas. However not all locations were sampled for both organic and inorganic parameters.

Site-specific cleanup goals established early in the removal were: lead, 1300 mg/kg; chromium, 1000 mg/kg; vanadium, 500 mg/kg; TPH, 200 mg/kg; Total Polycyclic Aromatic Hydrocarbons (PAH), 100 mg/kg; and Total Carcinogenic PAH, 50 mg/kg. The lead cleanup goal was subsequently reduced to 800 mg/kg.

Soils exceeding 800 mg/kg lead or 1100 mg/kg total petroleum hydrocarbons (TPH) were removed and disposed at off-site RCRA facilities. Soils averaging 500-600 mg/kg TPH were actively treated on site using Biopile aeration treatment systems, augmented where necessary by oxidation treatment with hydrogen peroxide. This achieved a reported final cleanup level of 200 mg/kg TPH. Following treatment, the biopiled soils were regraded and seeded across the site.

The lead cleanup level of 800 mg/kg exceeded EPA Region IX Preliminary Remediation Goals for both residential and industrial soil exposure (400 mg/kg; 750 mg/kg), as well as the State Soil Remediation Goal (400 mg/kg). EPA Region IV personnel attempted to provide comprehensive removal and post-removal sampling data to the NC Superfund Section. However available data were inadequate for full site characterization under CERCLA.

Current Site Description

The 13-acre site has undergone extensive demolition and removal of tanks and other structures. All petroleum storage and refining equipment has been removed from the site. Structures remaining at the former refinery include an empty one-story laboratory at the main entrance gate, and an abandoned boiler shack to the south, at the property's southeast corner. A fenced retaining wall extends parallel to the entrance gate (Fig. 3).

Features remaining on site include an inlet to the Cape Fear River, located several hundred feet west of the main site entrance. During the Removal, berms which lined northern and southern sections of the waterfront were extended and connected to form a single berm surrounding the inlet (Fig. 3). The canal and berms are covered with synthetic geotechnical fabric to prevent soil erosion. Older sections of the berms are heavily vegetated.

Two additional surface drainages were created during the removal. A steep-sided ditch cuts west through the central portion of the site, parallel to, and directly north of, the former entrance road. This ditch discharges storm water runoff to a shallow retention pond located north of the river inlet. Another ditch was excavated along the southeast and south property lines with Southern Metals Recycling and the JLM petroleum terminal. This ditch discharges to a second retention pond south of the inlet. No apparent overflow occurs at the northern pond, however, overflow from the southern pond discharges to the Cape Fear River at the mouth of the inlet (Fig. 3).

The remainder of the site is relatively flat and accessible on foot or by 4WD vehicle. The site is heavily vegetated by brush and sedge. Formerly bio-treated soils containing wood chips are visible on the land surface across much of the site.

Groundwater Pathway:

The site's sandy surficial aquifer overlies a confined upper sandy aquifer of the Cretaceous Pee Dee Formation. Regionally, deeper sand layers within the Pee Dee formation contain brackish or saline groundwater and therefore are not used to supply drinking water. The water table is close to the land surface beneath much of the site, and surface springs have been observed there. Shallow groundwater flows generally westward, toward the drainage canal and Cape Fear River front. The tidal Cape Fear estuary is a discharge boundary for the shallow aquifer, and a potential receptor of contaminated groundwater discharging from beneath the site. Groundwater beneath the site is also anticipated to discharge to the canal/inlet at low tide.

Groundwater targets at this site are very limited. No municipal groundwater wells exist within the study area, and the nearest community and/or domestic drinking-water wells are located more than one mile from the site.

Limited groundwater sampling has been conducted on site to date. During the early 1990s sampling of the shallow aquifer detected arsenic and lead levels exceeding federal and state groundwater limits. No organic parameters were tested in these samples. No additional groundwater sampling was reported during the EE/CA or the Removal Action. Prior to soil excavation and bio-treatment, the EPA recovered an unspecified quantity of floating petroleum product from the water table beneath the northern portion of the site.

Surface Water Pathway

Runoff from the site flows to the northern and southern retention ponds. The northern pond does not discharge overland to the river, but may communicate via groundwater seepage. The southern pond discharges to the river via an overflow system, and possibly via groundwater. Some runoff to the southern pond originates at the site's boundary with the Southern Metals Recycling facility, east of the site. The EPA reportedly excavated the southern ditch to intercept suspected lead-contaminated run-off from the other property (Fig. 3).

The Cape Fear River is a brackish tidal estuary. The river contains no active municipal or community drinking water intakes within 15 miles of the site. However, the estuary is a commercial and recreational fishery. The estuary also contains extensive wetland frontage, and several species that are listed as threatened or endangered in NC and/or the US.

No surface water samples have been collected at the site. However, during the 1993 ESI, ten sediment samples were collected in the drainage canal and along the adjacent Cape Fear river. Analysis detected elevated lead and vanadium concentrations in both drainage canal and downstream riverbed sediment. Semi-volatile organic compounds (SVOCs) were reported at estimated concentrations in several sediment samples. Upriver (low tide) background sediment contained elevated SVOC concentrations, possibly from another source. Therefore, organic sampling results were not conclusive.

Soil and Air Pathways

At the conclusion of the Removal, the site's ground surface was re-graded and is now extensively vegetated. No fill cap was constructed on site. The property is vacant, fenced, and reportedly monitored for trespassing. The neighborhood is predominantly industrial, and no residences, schools or day care facilities have been identified within a 0.25 mile radius.

Soils grossly contaminated with lead and SVOCs were removed from the site, and moderately petroleum-contaminated soils were treated on site. Surficial soils are anticipated to contain up to 800 mg/kg lead, 1300 mg/kg total chromium, 500 mg/kg vanadium, and 200 mg/kg of mixed SVOC concentrations.

Sample Locations

Proposed Supplemental ESI sampling includes surface and subsurface soil, retention pond water and sediment, Cape Fear River water and sediment, and groundwater beneath both the site and the Cape Fear River bed. Soil and groundwater sampling will also be conducted up- and downgradient from the Southern Metals Recycling facility, to determine whether this upgradient property is contributing additional contamination to the site. Samples will be analyzed for Target Compound List (TCL) extractable (semi-volatile) organic compounds and for Target Analyte List (TAL) inorganics. Six samples will be analyzed for chlorinated dibenzodioxins and dibenzofurans, if facilities are available. Six soils will be analyzed for total and TCLP metals at the NC State Laboratory of Public Health. Sample locations are described in Table 1 and illustrated in Figure 3.

Quality Assurance/Quality Control

Approximately nine groundwater, fourteen surface water and 35 soil/sediment samples will be collected during the Supplemental ESI. These totals include two duplicate soil sample sets and two duplicate water sample sets. One water sample will also be duplicated for matrix spike and matrix spike duplicate analyses for extractable organics. A post-sample preservative blank will be prepared in the field and analyzed for TAL inorganics.

Investigation Derived Waste (IDW) Disposal

In order to minimize the generation of potentially hazardous soil cuttings, temporary monitoring wells will be installed, and subsurface soil samples collected, using an EPA - operated Geoprobe rig. Well sampling will be conducted by low-flow purge to turbidity less than 10 NTUs. Waste soil cuttings and purge water will be separately containerized on site in sealed, labelled 55-gallon drums, to be disposed by a licensed Treatment /Storage/Disposal contractor within 90 days of generation.

This SAP/QAPP has been developed, and sampling will be performed, in accordance with the NC Superfund Section Quality Assurance Program Plan (Program Plan) and the Quality Assurance Standard Operating Procedures (QASOP). The QASOP adopts by reference the Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996, USEPA Region IV. The Program Plan is derived directly from the EPA-approved NC Department of Environment and Natural Resources QA Plan for Data, 1999.

If you have any questions regarding this SAP/QAPP, please contact me at (919) 733-2801, Ext. 280.

Sincerely,

Stuart F. Parker,
Hydrogeologist
NC Superfund Section

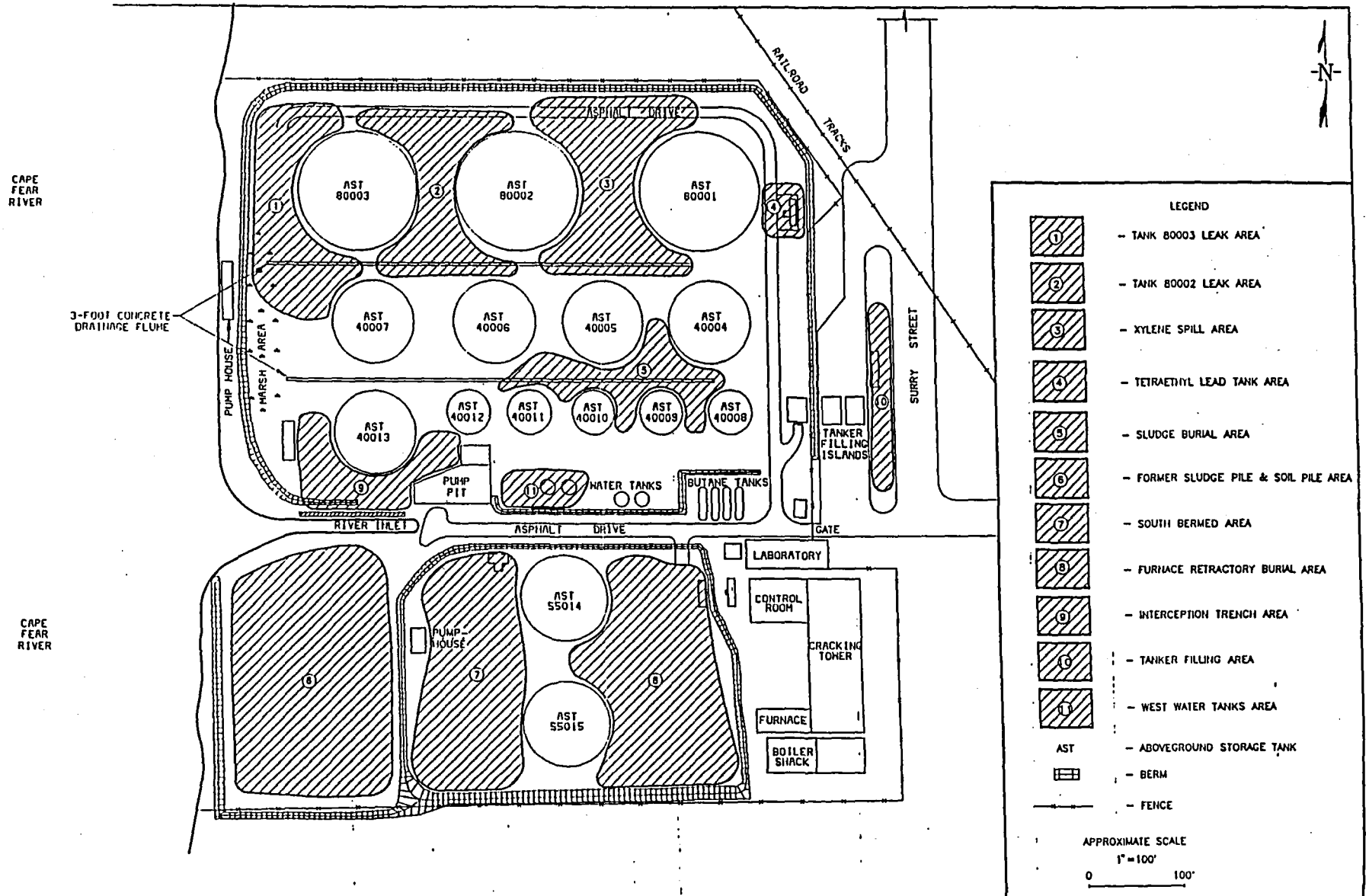
Jim Bateson, Head
Site Evaluation and Removal Branch
NC Superfund Section

Approved: _____, Date: Jan. 10, 2002
Irene Williams
Quality Assurance Officer
NC Superfund Section

Approved: _____, Date: _____
Jennifer Wendel
NC Site Management Section
Region IV EPA

Attachments

cc: File



1995 EE/CA PHASE II INVESTIGATED SOURCE AREAS
OLD ATC REFINERY
WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

Figure 2

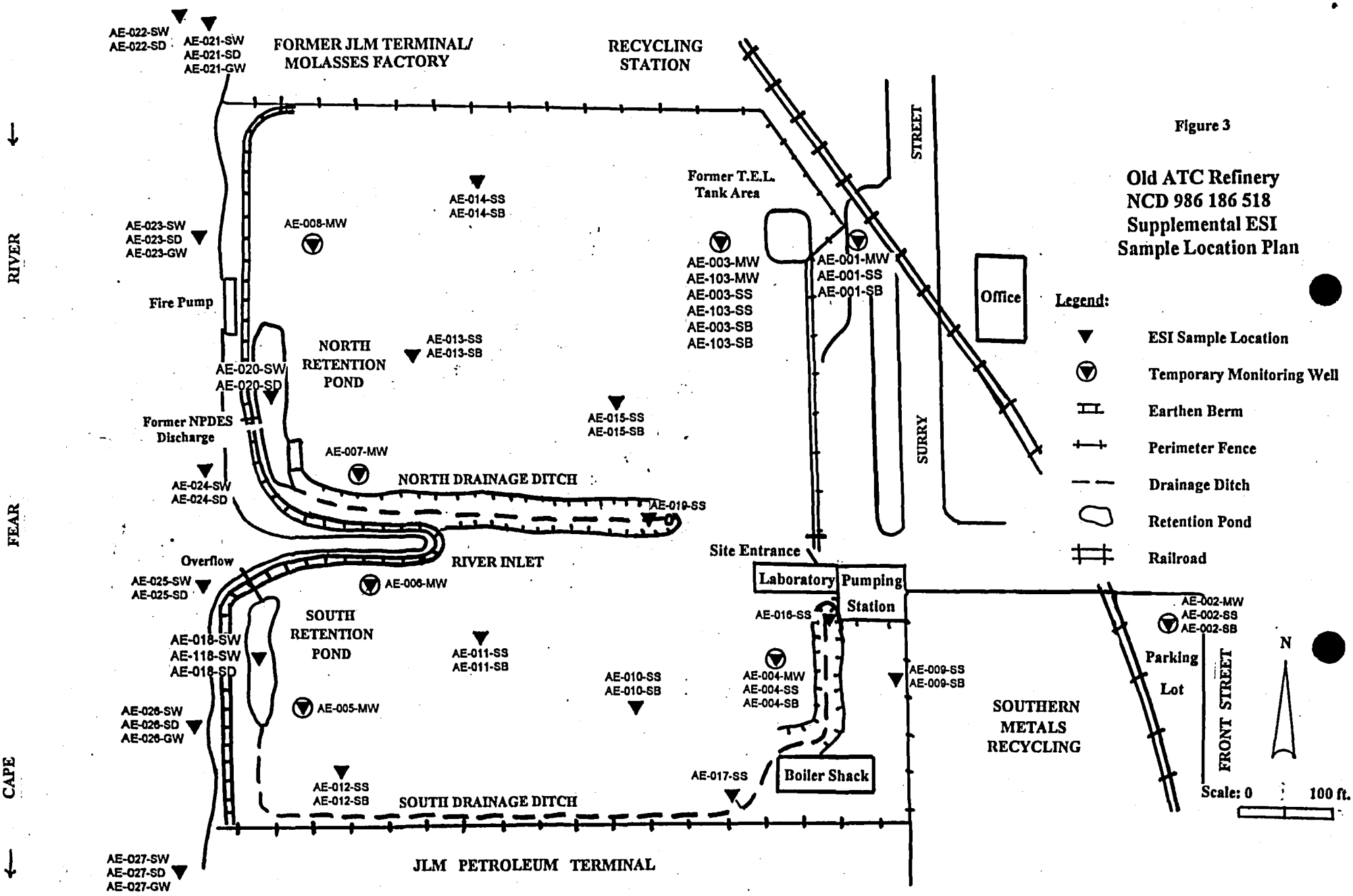


Figure 3
Old ATC Refinery
NCD 986 186 518
Supplemental ESI
Sample Location Plan
Legend:
ESI Sample Location
Temporary Monitoring Well
Earthen Berm
Perimeter Fence
Drainage Ditch
Retention Pond
Railroad
FORMER JLM TERMINAL/
MOLASSES FACTORY
RECYCLING
STATION
Former T.E.L.
Tank Area
Office
SURRY
STREET
FRONT STREET
NORTH
RETENTION
POND
SOUTH
RETENTION
POND
NORTH DRAINAGE DITCH
SOUTH DRAINAGE DITCH
RIVER INLET
Fire Pump
Former NPDES
Discharge
Overflow
Site Entrance
Laboratory
Pumping
Station
Boiler Shack
Parking
Lot
SOUTHERN
METALS
RECYCLING
JLM PETROLEUM TERMINAL
CAPE FEAR RIVER
AE-022-SW
AE-022-SD
AE-021-SW
AE-021-SD
AE-021-GW
AE-023-SW
AE-023-SD
AE-023-GW
AE-008-MW
AE-014-SS
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AE-012-SB
AE-027-SW
AE-027-SD
AE-027-GW
N
Scale: 0
100 ft.

If you have any questions regarding this SAP/QAPP, please contact me at (919) 733-2801, Ext. 280.

Sincerely,

Stuart F. Parker,
Hydrogeologist
NC Superfund Section

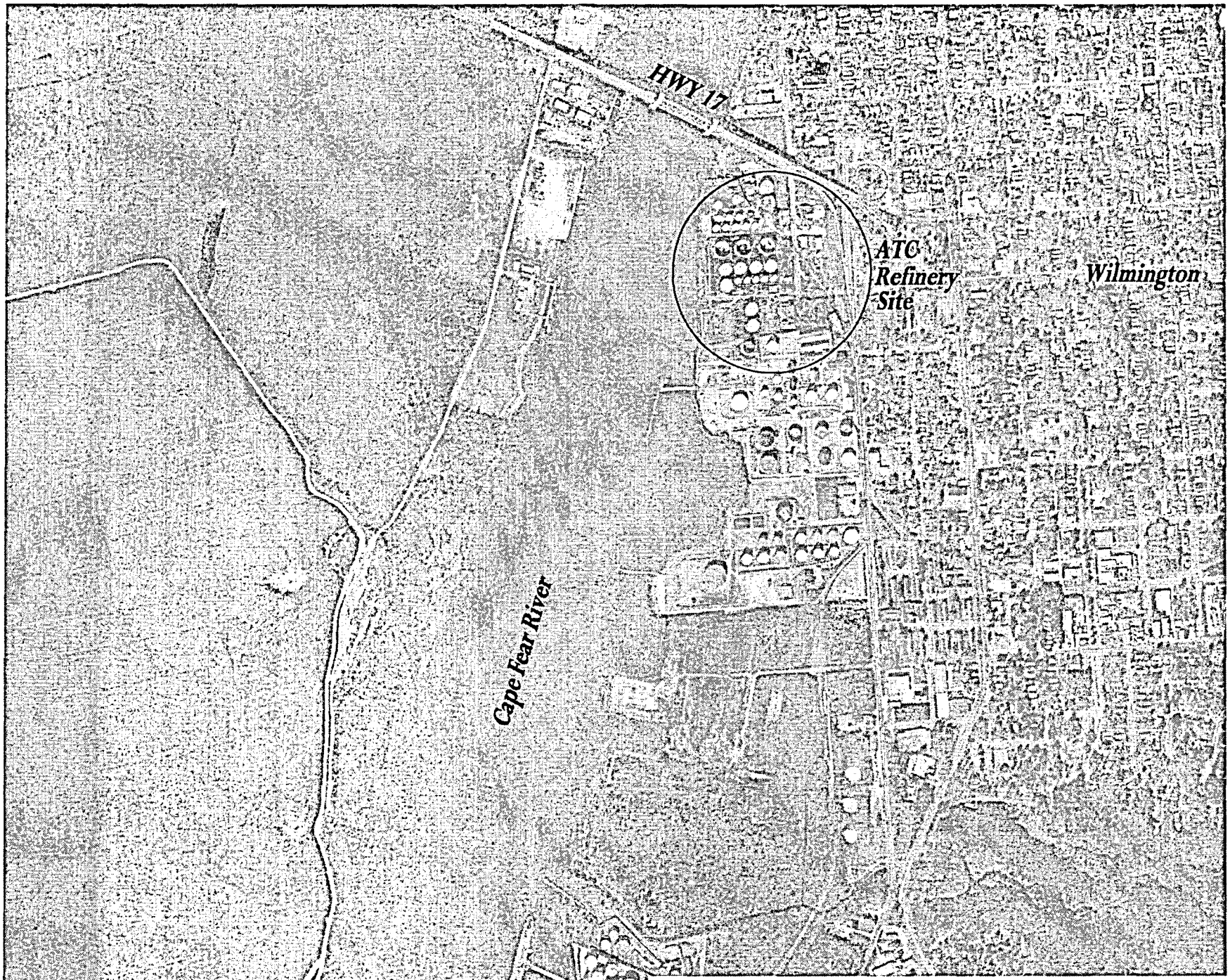
Jim Bateson, Head
Site Evaluation and Removal Branch
NC Superfund Section

Approved: _____, Date: Jan. 10, 2002
Irene Williams
Quality Assurance Officer
NC Superfund Section

Approved: _____, Date: JAN 16 2002
Jennifer Wendel
NC Site Management Section
Region IV EPA

Attachments

cc: File



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					DRAWN: BCS	Reference: na
					CHECKED:	PROJECT No. 02-0234
					APPROVED:	DATE: 01-10-02
Figure 1. Site Location	EPA Science and Ecosystem Support Division					DWG. NO. ATC_REF — REV. 0

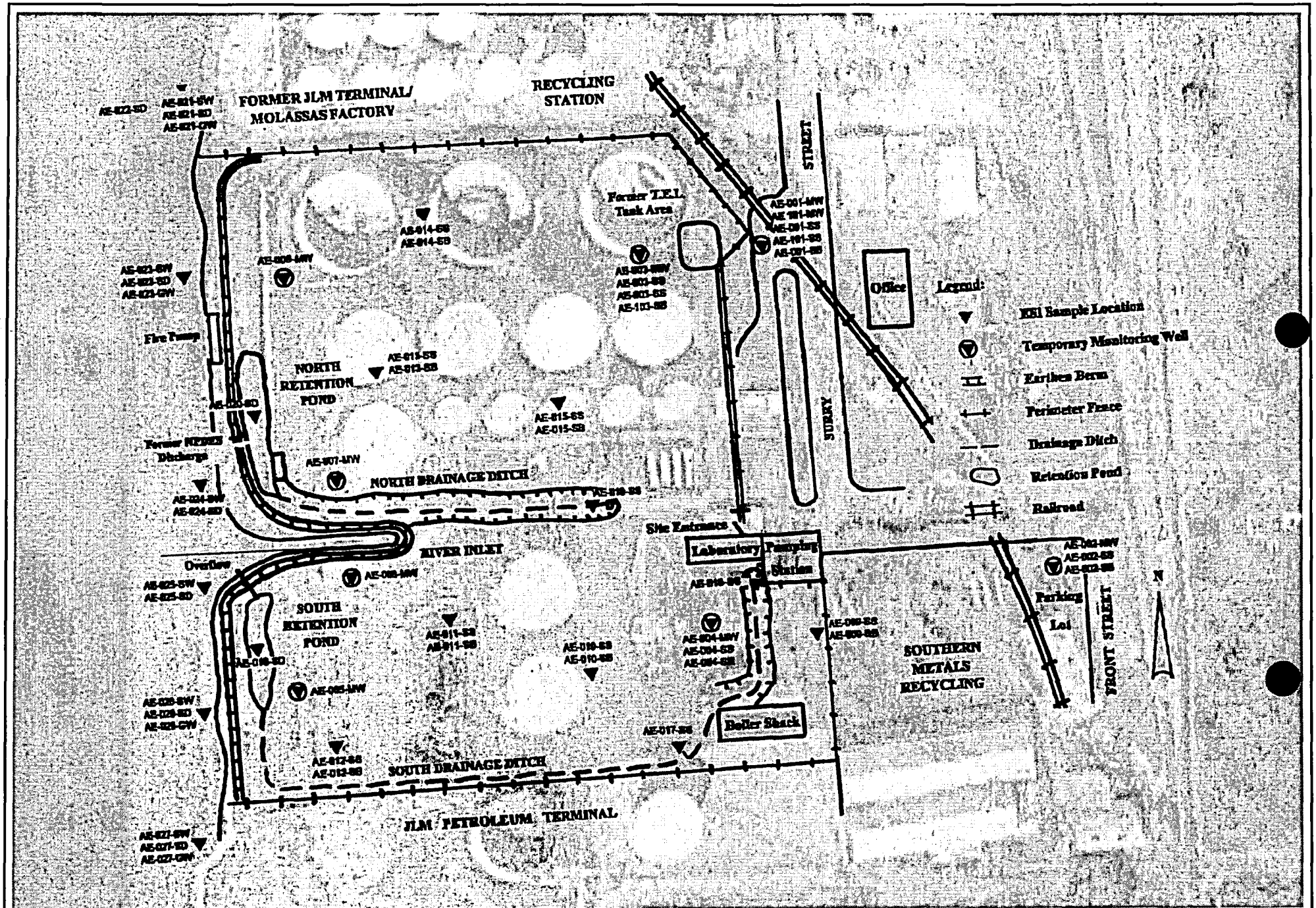

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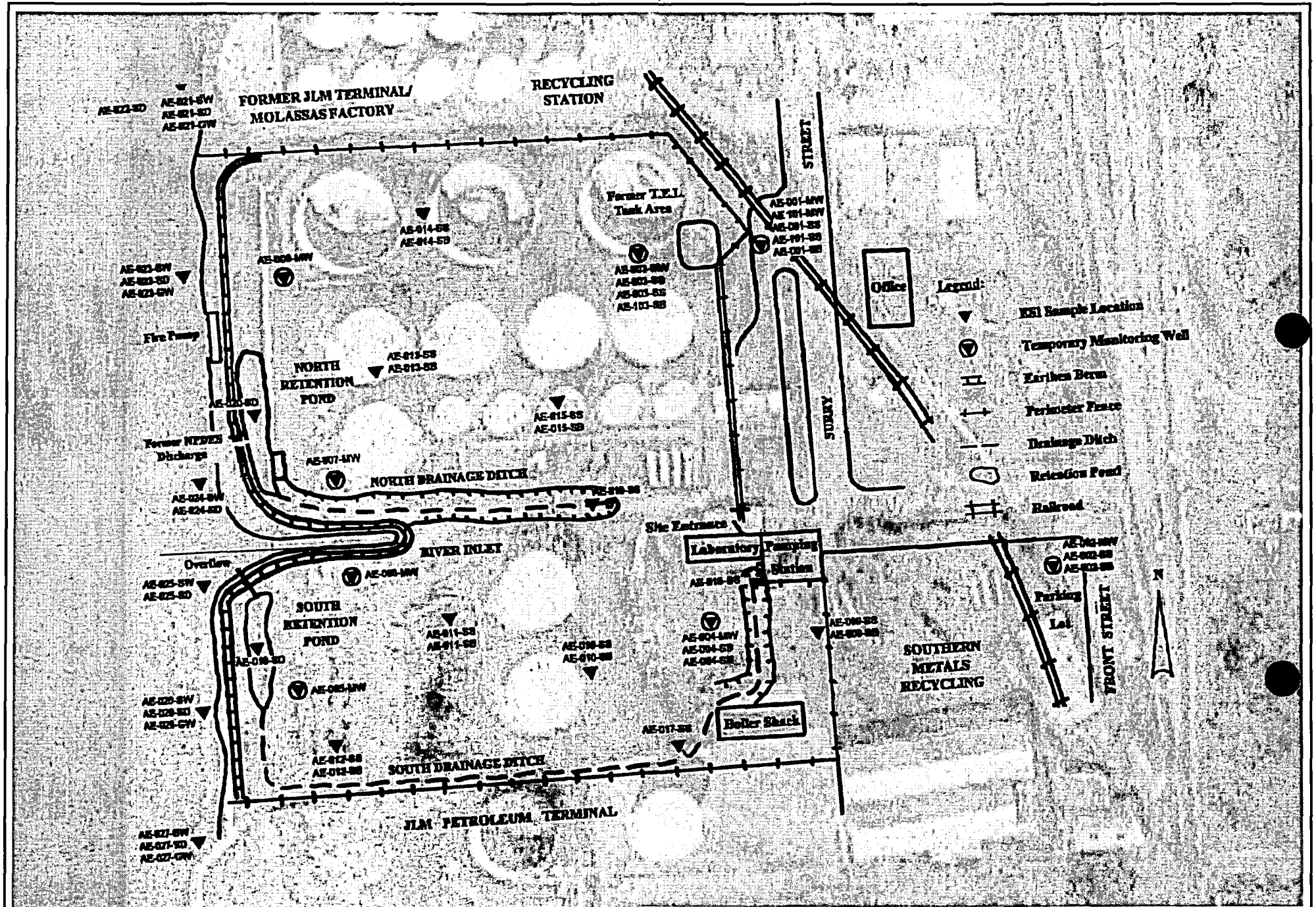
Figure 3. Sample Map	EPA Science and Ecosystem Support Division					DWG. NO. ATC_REF REV. 0



ATC REFINERY Wilmington, North Carolina	REV.	DATE	REV.	DATE	DESIGNED: na	SCALE: 1" = 150'
					DRAWN: BCS	Reference: na
					CHECKED:	PROJECT No. 02-0234
					APPROVED:	DATE: 01-10-02
Figure 3. Sample Map	EPA Science and Ecosystem Support Division				DWG. NO. ATC_REF	REV. 0

TRIP NOTIFICATION AND AUTHORIZATION FORM

Program:

- [X] CERCLA Site Assessment
- [ ] State
- [ ] NPL/DOD
- [ ] Brownfields
- [ ] MGP
- [ ] Dry Cleaners

Site Name:	Old ATC Refinery
ID Number:	NCD 986 186 518
Street Address:	Surry Street
City:	Wilmington
County:	New Hanover

Date(s) of Trip	Trip Canceled:	Trip Rescheduled (Date):
12/13/01		

Reason For Trip: Expanded Site Inspection - On-site Reconnaissance

(if sampling, check appropriate boxes below)

- [ ] Surface Soil
- [ ] Subsurface Soil
- [ ] Using Augers/Shovels to collect soil
- [ ] Using Little Beaver to collect soil
- [ ] Groundwater (from tap)
- [ ] Groundwater (bailers)
- [ ] Groundwater (pumps)
- [ ] Surface Water
- [ ] Sediment

Project Team Leader	Assistant	Assistant	Assistant
Stuart Parker	Ken Mallory EPA Region IV		

Authorized By: _____

Industrial Hygienist Signature

Office Use Only

County Health Department Official Contact: Dianne Harvell

Title: Env. Health Director

Phone Number: (910) 343 - ~~7840~~ 6667

Health Department Official Contacted: Dianne Harvells voice mail

Back Up Letter Required?: Yes _ No ✓

Notes: Notified Ms. Harvell via voice mail 12-6-01 (OBL)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

OFFICE OF REGIONAL COUNSEL
TELECOPY TRANSMITTAL SHEET

DATE: 12/17/01

TO: Stuart Parker PHONE: _____

OFFICE: NCDNER FAX#: 919-733-4811

FROM: Kevin Beswick PHONE: _____

NUMBER OF PAGES (INCLUDING TRANSMITTAL SHEET): 2

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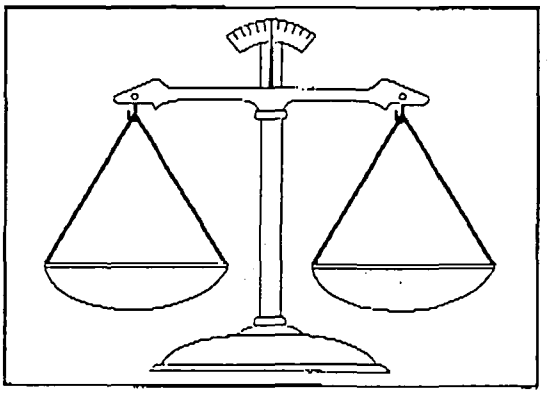
Sender's fax number: (404) 562-9487

Enclosed is Linda Carroll's access agreement. Please be sure to call her at least a day before, so that she can arrange to let you into the Site. Her number is 910-392-2321. Give me a call at 404-562-9580 if you have any questions.



16 Dec. 2001

ATTN: Kevin Boswick, Reg. IV Counsel
USEPA, EAD
Atlanta, GA

FVM: L.A. Carroll, Pres/Chrmn.
Carroll Carolina Corp.
Wilmington, NC

RE: Site Access Agreement, Old ATC Refin./Term. (Site),
801 Surry Street, Wilmington, NC

I, Linda Carroll-Voelr, am authorized & do authorize the USEPA (it's employees, contractors, representatives &/or agents) access to the site owned by Carroll Carolina Corp, for the purpose of conducting additional sampling of the soil &/or water on such site.

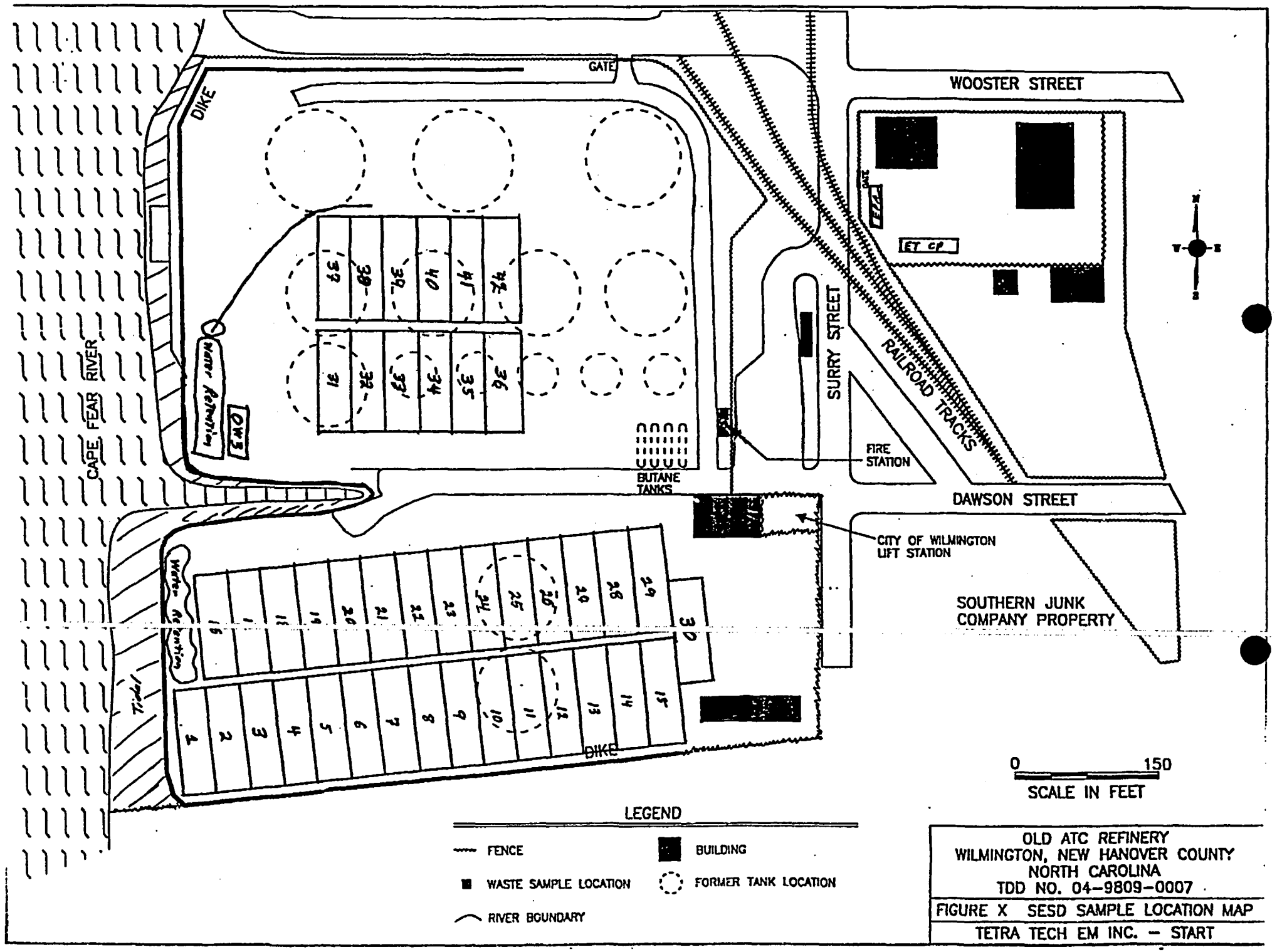
The site is secured by fencing & the gates are locked. Surrounding properties report anyone on site (that is not pre-approved) to the local police & to the Corp. Please advise CC Corp. of the times, dates & personnel to be on site & the work to be performed. The site will be unlocked & accessible as requested, beginning Tues, 17 Dec '01, through Fri., 21 Dec. 01.

CC Corp. consents to the transport of such equipment onto the site as needed to conduct the testing/sampling.

The USEPA will assume responsibility for all activities on site & releases CC Corp. from any liabilities resulting from their presence &/or work.

L.A. Carroll
Pres., CC Corp.

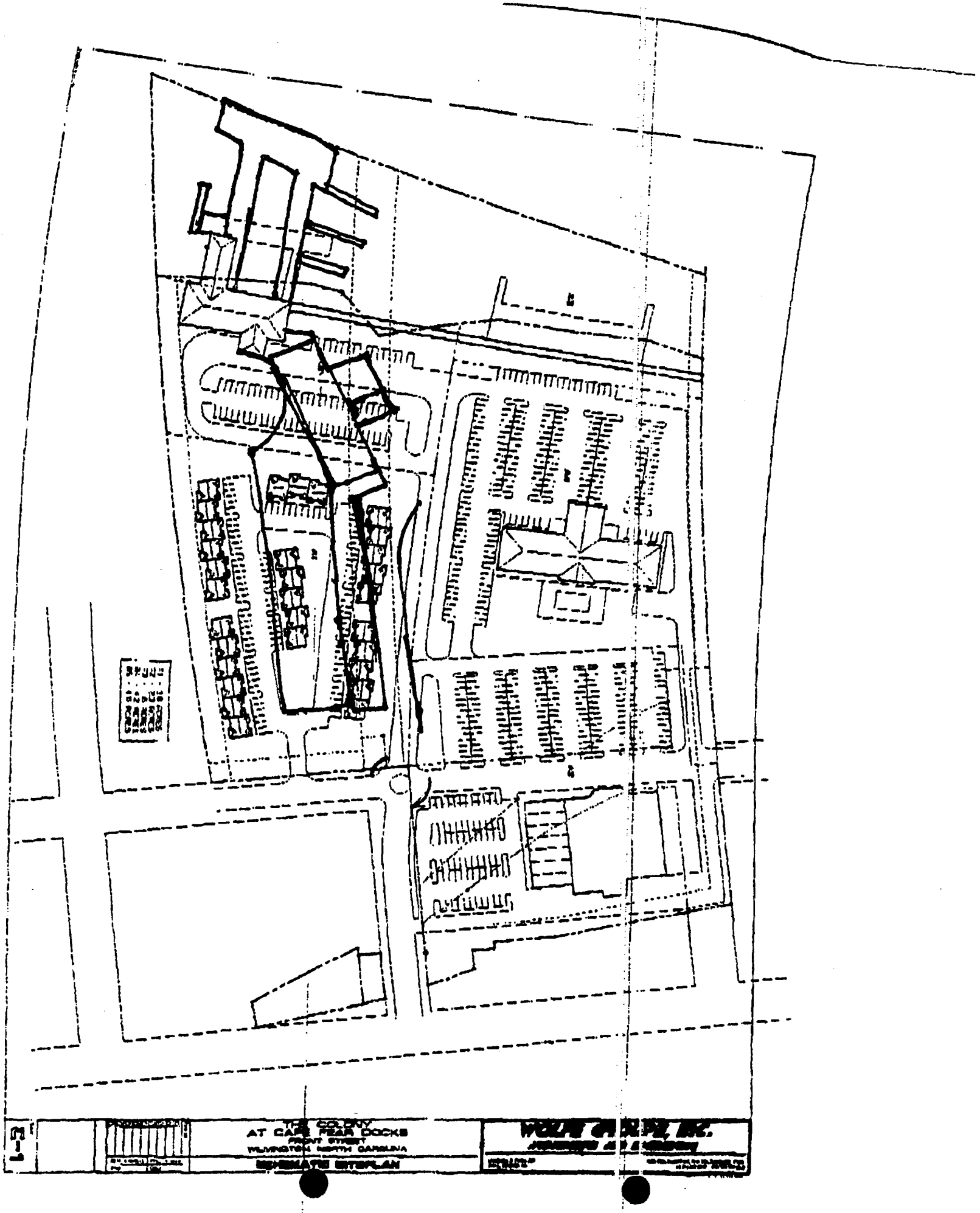
Carroll Carolina Corporation
North Carolina 28403 • TEL: (910) 392-3909 • FAX: (910) 392-3655

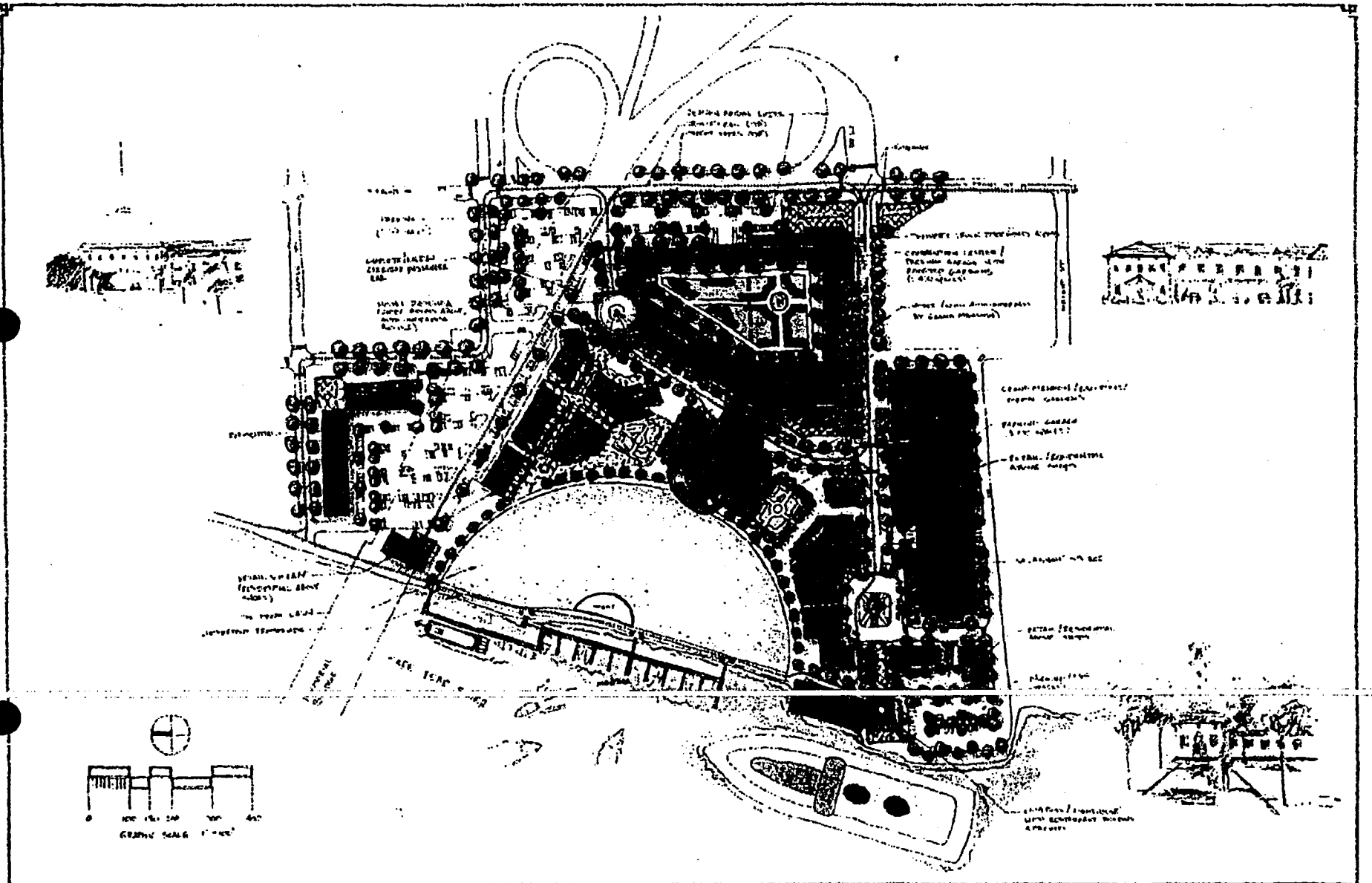


OLD ATC REFINERY
WILMINGTON, NEW HANOVER COUNTY
NORTH CAROLINA
TDD NO. 04-9809-0007

FIGURE X SESD SAMPLE LOCATION MAP

TETRA TECH EM INC. – START


THE COLONY
AT CAPE FEAR DOCKS
FRONT STREET
WILMINGTON, NORTH CAROLINA
PRELIMINARY SITEPLAN

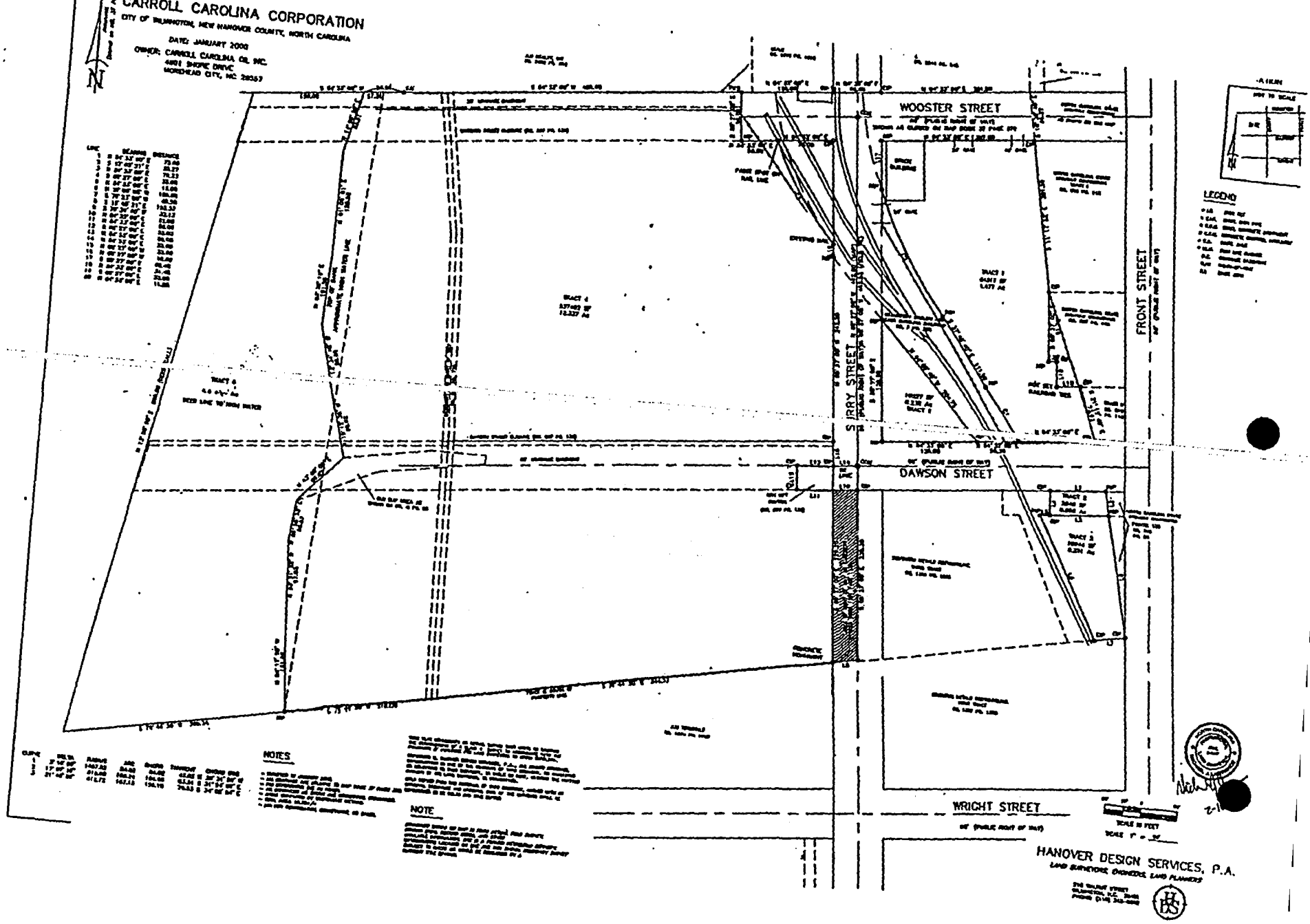


JON GUERRY TAYLOR P.E., INC.

ENGINEERS, PLANNERS AND ENVIRONMENTAL CONSULTANTS

MASTER PLAN FOR
THE CARROLL TRACT

CARROLL CAROLINA DL 150
WILMINGTON, NC


CARROLL CAROLINA CORPORATION
CITY OF WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA
DATE: JANUARY 2000
OWNER: CARROLL CAROLINA OIL INC.
4401 SHORE DRIVE
MOREHEAD CITY, NC 28557
WOOSTER STREET
FRONT STREET
S. JERRY STREET
DAWSON STREET
WRIGHT STREET
LEGEND
NOTES
NOTE
HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS, LAND PLANNERS

CARROLL CAROLINA CORPORATION

CITY OF WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

DATE: JANUARY 2000

OWNER: CARROLL CAROLINA OIL INC.
4801 SHORE DRIVE
MOREHEAD CITY, NC 28557

WOOSTER STREET

FRONT STREET

SIRRY STREET

DAWSON STREET

WRIGHT STREET

TRACT 1
64317 SF
1.477 AC

TRACT 4
537403 SF
12.337 AC

TRACT 6
4.6 +/- AC
DEED LINE TO HIGH WATER

TRACT 2
2846 SF
0.065 AC

TRACT 3
10044 SF
0.231 AC

LEGEND

NOTES

NOTE

SCALE IN FEET

SCALE 1" = 50'

2-16-00

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humidity: 50%
wind: N at 14 mph
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Feds take company to court on cleanup toll

By Brian FEagans
Staff Writer
October 21, 2001

Email | Print

A decade after the Coast Guard discovered leaking tanks and toxic sludge buried on the banks of the Cape Fear River, the U.S. government is going after the $3 billion company it blames for creating the mess and botching an attempted clean-up.

The Environmental Protection Agency wants Axel Johnson Inc. to reimburse the government for more than $8 million in cleanup bills racked up at the company's now-defunct ATC Petroleum refinery just south of downtown Wilmington. It also is seeking heavy environmental fines and punitive damages against the Stamford, Conn., company in the lawsuit filed by the Justice Department in U.S. District Court in Wilmington.

But Axel's pollution didn't stop in the shadow of the Cape Fear Memorial Bridge, according to a second Justice Department lawsuit filed against the company and its wholly owned subsidiary, Sprague Energy Corp.

Federal attorneys say they have evidence that Axel paid contractors to dump sludge from the tank bottoms onto the Potter's Pits Superfund site in the Brunswick County town of Sandy Creek. And they want the company to pay that cleanup tab – $18 million and counting.

Attorneys for Axel say the company is not responsible for the lead-stained soil, leaking tanks and abandoned drums of hazardous chemicals. One of the companies that tried to use the refinery after Axel left in 1984 is to blame, they say.

As for the company's alleged link to the Potter's Pits site, attorneys say the EPA's case is based on the hearsay testimony of one former employee. The company filed a motion last month for summary judgment, saying the government had no firsthand witnesses, no documents linking the two sites and no circumstantial evidence.

So has the EPA, as part of its struggle to replenish the federal fund that pays for cleanups, overreached into the deep pockets of a corporate giant? Or has the time come for a rogue operator to pay the piper for creating two of the Wilmington area's most notorious pollution threats? Federal judges will decide.

A mess

Axel let its lease expire in 1984, ending a 12-year stay in Wilmington. Attempts

Axel let its lease expire in 1984, ending a 12-year stay in Wilmington. Attempts to restart the refinery sputtered, then failed as it changed hands several times.

The site had been essentially abandoned by the time the Coast Guard responded to a series of leaks there in 1991. Tanks, pipelines and a sludge pile on the property were oozing an oily sheen onto the Cape Fear River.

Subsequent EPA investigations turned up tanks lined with sludge, areas where sludge was buried and five dozen 55-gallon drums filled with cyanides, peroxides, acids and flammable liquids.

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The copper bars that prevent corrosion at many other refineries weren't present, said Kevin Beswick, who has focused on the ATC case as associate regional council in the EPA's Atlanta office.

"The refinery itself was built basically, in my opinion, to be a throw-away refinery," Mr. Beswick said. "The tanks, when you looked at them, had not been solidly built. It was a mess."

In the summer of 1995, the agency conducted an emergency removal of the lead tank, the drums and more than 300 five-gallon containers of hazardous material. The area was a fire hazard and, if ignited, could cause a serious toxic explosion, the agency said.

Einar Rod, vice president and general council for Axel Johnson, said that's because the refinery was poorly operated after the company.

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Who got the lead in?

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Republic Refining processed "interface," a mixture of leaded and unleaded petroleum, Mr. Frost said.

EPA sampling also turned up lead in the pipeline that barges used to pump feedstock into the tank farm, he said. It was unlikely residual lead from ATC's years would have remained there, he said.

"The last party to use that pipeline was Republic," Mr. Frost said.

He said the company didn't know about the pipe sample when suing to force current owner Linda Carroll to share in the cleanup costs. Axel lost the case before a three-judge panel of the U.S. 4th Circuit Court of Appeals in September 1999.

"The record evidence indisputably indicates that Axel bears responsibility for at least some of the hazardous materials spilled at the property," the panel said in the opinion. "Indeed, as the district court held, the uncontroverted record evidence shows that the major contamination at the property is lead and that the only owner or operator of the property to use lead in this case was Axel."

Even if Axel is ultimately held responsible for the lead contamination, Mr. Frost

said the EPA will have to explain why it cost more than $8 million to clean up. He pointed out that the agency's initial evaluation concluded lead levels weren't problematic enough to warrant a cleanup. And the company's own consultants estimated cleanup costs at less than $1 million.

Mr. Beswick said the EPA's initial evaluation was too narrow and didn't recognize that the most serious threat came from the oils and sludges in the tanks, he said.

"It's different when you have thousands and thousands of gallons of lead-contaminated oil sitting 35 feet from the Cape Fear River," Mr. Beswick said.

Seeking penalty

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'Tank bottoms'

Don Arthur was head of ATC's maintenance department for 11 of the 12 years the company spent in Wilmington.

Now 71, he is one of several ATC workers who remembers dumping unusable sludge from the bottom of the tanks into open pits on the site.

The leaded "tank bottoms" went into the ground along with lead-contaminated piping and drums of waste, the government said in its complaint against Axel.

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They didn't think anything of it at the time, he said.

"I was instructed to bury it in the ground," he said, staring out over the waist-high weeds that have overgrown the cleanup property at 801 Surry St. "It was broad daylight."

Mr. Frost said an equal number of employees have said in depositions that they don't remember the sludge being dumped on site.

"The record on that point is not clear," the Axel attorney said.

One lead reading in the soil near the river was about 100 times higher than the level considered safe for industrial use. But Mr. Frost said that was an anomaly, with soil samples generally indicating little if any dumping on site.

The tank cleanings also weren't as common as Mr. Arthur makes them sound, he said.

"You can almost count the number of tank cleanings he was involved in with one hand," he said.

Potter's Pits

Mr. Arthur also is at the center of EPA's claim that Axel paid Potter's Septic Tank Service Co. to haul sludge 17 miles away to Brunswick County.

Petroleum products were dumped in pits off U.S. 74 for years before a developer bought the property and built the town of Sandy Creek. A resident noticed sludge oozing into his yard, and state officials immediately identified the pollution as a threat to the community's well water. It became a Superfund site known as Potter's Pits.

Mr. Arthur has said in depositions that he remembers hearing Wade Skipper, whose family ran Potter's Septic, say he was taking a load from ATC "to Maco," a nearby community. Mr. Skipper has since died.

Axel attorneys say that's flimsy evidence based on hearsay. The Potter's Pits site is not actually in Maco, they point out. And Mr. Skipper's alleged statement came after he told a newspaper reporter he'd been ordered to stop dumping sludge into the pits, they say.

Last month, Axel filed a motion for summary judgment, saying the EPA's entire case should be dismissed because it's based on hearsay.

The company says the agency's only other support comes from Albert Skipper, who said he took a load out to the pits from a spot near a molasses plant in downtown Wilmington. Another tank farm sits between the old ATC site and the molasses plant, Axel pointed out in its motion.

Susan Hanson, the EPA attorney assigned to the Potter's Pits site, declined to comment on the case. She said the Justice Department would file an official response with the court by the end of the month.

Another ATC connection

Former ATC employees also have said they remember sludge being shipped from the refinery to the old burn pit near the Wilmington airport where firefighters practiced.

Based on those statements, the EPA has entered negotiations with Axel on how much the company should pay for the airport burn pit Superfund site, said Bryan Myers, associate regional council in the EPA's regional office in Atlanta.

Mr. Myers said he didn't want to comment further on the talks.

"We're at a good point where we might have something soon, and I don't want to jinx it," he said.

The EPA already has negotiated payment plans with the other three responsible parties – Cape Fear Community College, the city of Wilmington and New Hanover County.

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Feds take company to court on cleanup toll

Second Justice Department lawsuit claims sludge dumped in Brunswick

By Brian Feagans
Staff Writer

A decade after the Coast Guard discovered leaking tanks and toxic sludge buried on the banks of the Cape Fear River, the U.S. government is going after the $3 billion company it blames for creating the mess and botching an attempted cleanup.

IMPACT ON LIVES
Former workers weigh legal action over health. **6A**

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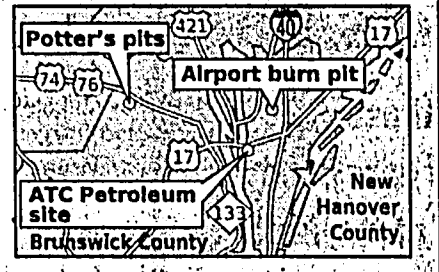

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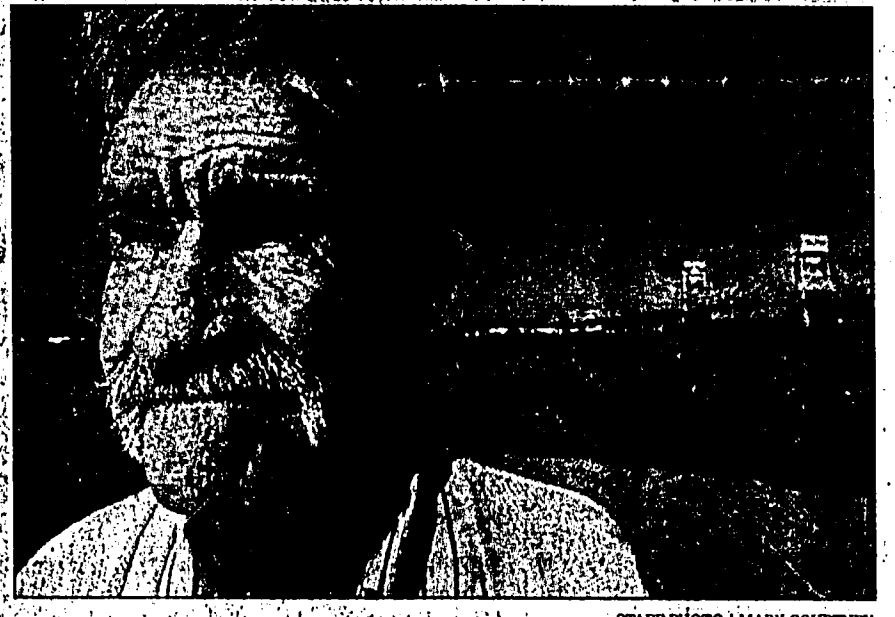
SEE CLEANUP | 6A



STAFF PHOTO | MARK COURTNEY

Don Arthur looks out over the ATC Refinery site off Surry Street. Mr. Arthur was an employee at the riverfront site and said that his numerous health problems are related to the lead, arsenic and other carcinogens that he and many other employees were exposed to.

WILMINGTON STAR NEWS 10/21/2001

Former supervisor says workplace took toll on men

By Brian Feagans
Staff Writer

EVERGREEN | Shelton Williamson never complained, even though he did the dirtiest work.

He squeegeed out the molasses-like sludge that settled to the bottom of the tanks at Axel Johnson Inc.'s now-defunct oil refinery in Wilmington. He hammered away the crust that accumulated on pipes in the furnace, then swept up the yellow-white powder that would completely cover his clothes.

"Oh shoot, you'd blow it out your nose, blow it everywhere, cough and spit it up," Mr. Williamson recalled during a 1994 hearing before the N.C. Industrial Commission.

But in 1975, two years into his job on the banks of the Cape Fear, the father of three started vomiting on the way home from work, family members say. He'd get bad headaches after working inside the tanks or furnace.

On one occasion, the fumes were so overpowering that Mr. Williamson passed out. Coworkers dragged him out of the tank.

Eventually, Mr. Williamson was too sick to make the 150-mile roundtrip each day to Wilmington from his family farm in the Columbus County town of Evergreen. He quit in 1976, not nearly the same man who just three years earlier could leap over the 5-foot-high side of a hog trailer with no problem, said his widow, Mary Jane Williamson. He used to look like a kid hopping a picket fence, she said.

Twenty-five years later, Mr. Williamson is dead. So are more than 20 other former employees of Axel subsidiary ATC Petroleum, according to Don Arthur, who was head of the refinery's maintenance department for 11 years.

Mr. Arthur is convinced that exposure to toxic chemicals at the old refinery is to blame for the cancer and heart-attack deaths as well as his own health problems.

Mr. Arthur has guided EPA officials to hot spots of lead and vanadium where he and other workers say they dumped tank sludge and furnace sweepings. Yet little is known about how the fuel additives, which are highly toxic, could have affected the lungs, kidneys and brains of the men who worked around them.

STAFF PHOTO | MARK COURTNEY

Becky Lee holds a photo of her father, Claude Shelton Williams, who died of cancer. He was a former employee at the old ATC Petroleum refinery in Wilmington.

"The EPA cleaned up the property," Mr. Arthur said. "Why don't they clean up the men?"

Mr. Arthur, 71, suffers from serious lung and heart conditions. He tires easily and has trouble keeping on weight. Gaunt cheeks cast their own shadows above his handlebar mustache.

He concedes many of the workers, like himself, smoked. Some had other industrial jobs.

But Mr. Arthur said those that are still living, many of whom he has lost contact with, should at least get tested to see if their health problems could be related to their work at the refinery.

"I'm not fighting this battle for me," he said. "It's for the people who worked under me. I know what they were exposed to now."

Einar Rod, general counsel and vice president of Axel Johnson, said he hadn't heard of the toxic exposure claims. Much of the pollution later found by the EPA resulted from the actions of companies that operated the facility after Axel left the property in 1984, he said.

Mr. Arthur has been writing letters to various elected officials and agencies trying to get an investigation for more than a decade. The closest he came to succeeding was a 1995 visit and review by officials at the Agency for Toxic Substances and Disease Registry.

After touring the ATC site and interviewing former employees, the agency concluded it had no jurisdiction because all claims were of on-the-job injuries. The agency referred Mr. Arthur to the Occupational Safety and Health Administration, which had already said too much time had elapsed for its rules to apply.

Attorneys for Axel Johnson say the legal record speaks for itself. Mr. Arthur has been unsuccessful in several bids before the Industrial Commission, the panel charged with hearing worker's compensation cases in North Carolina. The commission originally ruled his smoking habit is to blame for his lung disease, then rejected subsequent filings because the statute of limitations had run out.

Mr. Arthur said he lost because he went before the panel without a lawyer and prior to the Environmental Protection Agency documenting toxic heavy metal contamination at the site.

Two former refinery workers who made their cases a decade later with attorneys fared better. The family of fellow maintenance worker Rodney Haraldson settled out of court after filing a complaint with the Industrial Commission in 1996. The Leland family and their attorney said the deal binds them to secrecy and declined to comment.

And four years ago, the Industrial Commission concluded Mr. Williamson's cancer was due to benzene exposure on the job. He was awarded $128 per week in worker's compensation dating back to 1982. He decided to take a one-time payment of about $95,000, of which roughly $20,000 paid for attorney fees, the family said.

More cases ahead?

More cases could be on the way.

Wilmington attorney Sherman Lee Criner, a board-certified specialist in workers' compensation, is gathering the medical records of at least seven former workers at the Axel Johnson refinery. He plans to send them to a toxicologist for analysis. Mr. Criner said he'll only pursue cases if the doctor says their health problems were likely caused by their employment at the ATC refinery.

To win, an employee has to show he was exposed to materials on the job that "more likely than not" caused his health problems.

Mr. Arthur has bad memories of the hand-pumped air mask and hose that still sit in a safety-orange box on the site today.

"For use only by qualified trained personnel," read instructions on the lid.

Mr. Arthur said he was never trained to use the device. He and other employees always suspected it didn't work well. Sometimes the facemask wouldn't form a tight seal on their faces, he said. Other times the air entering the mask was full of petroleum odors.

"I know why they gave me the job," Mr. Arthur said. "I could get the job done but I didn't know the danger of it."

Once or twice a year, when working in the furnace, the workers used common dust masks, he said.

Other workers, however, have testified that Mr. Arthur exaggerated the exposure claims.

Former ATC employee Ronald Hart has said that tank cleaning was often done by outside contractors and was not a common duty for the internal maintenance staff. He testified that he doesn't remember any tank cleanings done internally after the mid-1970s. Even when doing the work, staff had access to a fresh air generator and exhaust fans, he has said.

Mr. Hart, who now works at Colonial Oil in Wilmington, declined to comment for this article.

Mr. Arthur is pushing forward with an appeal of a decision handed down by the N.C. Court of Appeals earlier this month. Though the judge granted Mr. Arthur another hearing – it will be his first based on the asbestosis he was diagnosed with in 1992 – the court ruled that the statute of limitations had passed on any toxic exposure because Mr. Arthur first made the claim more than 15 years ago.

His doctor, Daniel Gottovi, said Mr. Arthur's heart and lung problems – as well as organic brain syndrome, loss of smell and other maladies – could have been caused by toxic chemicals. But he said he can't be sure, particularly because smoking is a common cause of Mr. Arthur's lung condition, which is his most serious health problem.

Mr. Arthur believes many more workers would have filed suit had they known that their health problems could be related to toxic exposure.

The easy chair

Even the Williamson family didn't press the issue until seeing Dr. Gottovi.

"He took one look at him and said, 'What's this man been exposed to?' " Mrs. Williamson said.

Becky Lee, Mr. Williamson's daughter, said her father took the job in the first place so she could get her teaching certificate. Ms. Lee, now a kindergarten teacher, has taught elementary school for 25 years.

"He said, 'You go, I'll pay for it,' " she said as tears streaked down her face.

Doctors didn't mention hazardous chemicals as a possible cause in 1982 when Mr. Williamson was diagnosed with plasmacytoma, a rare form of cancer.

Surgeons had to scoop out three-quarters of his stomach and the lower part of his esophagus to assure the cancer wouldn't spread. He was never the same, Ms. Lee said.

She held a snapshot of her father and said it told the story of the rest of his life. Emaciated, he sat in an easy chair next to a table lined with medicine bottles.

"I would tote his food to him," Mrs. Williamson said. "He would just sit there. He could just make it to the bathroom and that was it."

Once a month, Ms. Lee would take him to the doctor so giant tubes could be shoved down his throat. They stretched his esophagus, which would slowly shrivel under the assault of stomach acids that had nowhere else to go. Afterward, he could eat again.

A year after receiving his workers' compensation payment, Mr. Williamson died. He was 62.

He was sitting in his daughter's kitchen at the time. Ms. Lee recalls her father saying he needed to get outside for some fresh air. She could tell his eyes were stinging and offered her father eye drops. But as usual, he shook his head and refused. He'd tough this one out, too.

As he rose to go out, Mr. Williamson slumped over. The family would later find out he had suffered a brain aneurysm.

He died the same way he lived. He just wouldn't complain.

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citydesk@wilmingtonstar.com

CLEANUP

CONTINUED FROM 1A

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They didn't think anything of it at the time, he said.

"I was instructed to bury it in the ground," he said, staring out over the waist-high weeds that have overgrown the cleanup property at 801 Surry St. "It was broad daylight."

Mr. Frost said an equal number of employees have said in depositions that they don't remember the sludge being dumped on site.

"The record on that point is not clear," the Axel attorney said.

One lead reading in the soil near the river was about 100 times higher than the level considered safe for industrial use. But Mr. Frost said that was an anomaly, with soil samples generally indicating little if any dumping on site.

The tank cleanings also weren't as common as Mr. Arthur makes them sound, he said.

"You can almost count the number of tank cleanings he was involved in with one hand," he said.

Potter's Pits

Mr. Arthur also is at the center of EPA's claim that Axel paid Potter's Septic Tank Service Co. to haul sludge 17 miles away to Brunswick County.

Petroleum products were dumped in pits off U.S. 74 for years before a developer bought the property and built the town of Sandy Creek. A resident noticed sludge oozing into his yard, and state officials immediately identified the pollution as a threat to the community's well water. It became a Superfund site known as Potter's Pits.

Mr. Arthur has said in depositions that he remembers hearing Wade Skipper, whose family ran Potter's Septic, say he was taking a load from ATC "to Maco," a nearby community. Mr. Skipper has since died.

Axel attorneys say that's flimsy evidence based on hearsay. The Potter's Pits site is not actually in Maco, they point out. And Mr. Skipper's alleged statement came after he told a newspaper reporter he'd been ordered to stop dumping sludge into the pits, they say.

Last month, Axel filed a motion for summary judgment, saying the EPA's entire case should be dismissed because it's based on hearsay.

The company says the agency's only other support comes from Albert Skipper, who said he took a load out to the pits from a spot near a molasses plant in downtown Wilmington. Another tank farm sits between the old ATC site and the molasses plant, Axel pointed out in its motion.

Susan Hanson, the EPA attorney assigned to the Potter's Pits site, declined to comment on the case. She said the Justice Department would file an official response with the court by the end of the month.

Another ATC connection

Former ATC employees also have said they remember sludge being shipped from the refinery to the old burn pit near the Wilmington airport where firefighters practiced.

Based on those statements, the EPA has entered negotiations with Axel on how much the company should pay for the airport burn pit Superfund site, said Bryan Myers, associate regional council in the EPA's regional office in Atlanta.

Mr. Myers said he didn't want to comment further on the talks.

"We're at a good point where we might have something soon, and I don't want to jinx it," he said.

The EPA already has negotiated payment plans with the other three responsible parties – Cape Fear Community College, the city of Wilmington and New Hanover County.

City Desk: 343-2312

TROUBLED SITE

1972 – Axel Johnson subsidiary Titan Petroleum opens an oil refinery at 801 Surry St.

1976 – The refinery stops producing leaded gasoline, begins turning crude oil into fuel oils.

1981 – Axel shuts down refinery, now called ATC Petroleum, and uses tank farm for storage only.

1984 – ATC's lease runs out with property owner Roger Page. Republic Refining Co. is formed to restart the refinery.

1985 – When processing a load of crude oil laced with smelly sulfurous compounds, the refinery spews out pungent odors that made some downtown residents sick. Republic shuts down after 13 months of operation.

1990 – The latest owner, City Gas and Transmission Corp., files for bankruptcy. The old refinery and 17 storage tanks are left idle as CG&T battles city officials and residents opposed to reopening the facility.

1991 – Coast Guard responds to at least three separate oil leaks from tanks, pipelines and sludge pile.

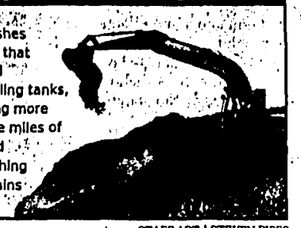
1993 – EPA finds buried oil sludge, drums of hazardous material and leaking tanks and pipelines.

1995 – EPA removes drums of hazardous chemicals and a tank that once held the lead blended into gasoline.

1996 – In April, businesswoman Linda Carroll purchases the property at a foreclosure sale. In August, Axel agrees to clean up the site and pay the EPA $365,000. The company commences cleanup in November.

1997 – EPA takes over after documenting 115 violations of the cleanup agreement, including worker-safety violations and crews draining fluids onto the ground.

1999 – EPA finishes cleanup that included dismantling tanks, removing more than five miles of pipe and vanquishing toxic stains in soil.



2001 – Ms. Carroll continues to explore real estate development options at the site. State and EPA officials plan further testing to determine whether more cleanup work is needed.

STAFF ART | STEVEN PIPES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

RECEIVED
MAR 21 2001
SUPERFUND SECTION

RECEIVED / DENR
DWQ GROUNDWATER SECTION
01 MAR 20 PM 2:16

March 15, 2001

Mr. Dan Lamontagne
North Carolina Department of Environment
and Natural Resources
P.O. Box 29578
Raleigh, North Carolina 27626-0578

RE: Removal Action Soil Sampling Data: Old ATC Refinery Site, Wilmington, N.C.

Dear Mr. Lamontagne:

Enclosed please find soil sampling data for the above-referenced site. There is an enclosure to this letter which helps to explain some of the materials provided to you. As stated in the enclosure, there is an enormous amount of data for this site and we have provided copies of the information we believe would be most helpful in preparing a letter for "No Further Remedial Action Planned."

If there are any questions concerning these reports, please contact Mr. Christopher Militscher of my staff at (404) 562-8771. Thank you.

Sincerely,

R. Donald Rigger

R. Donald Rigger, Chief
Removal Operations Section

Enclosures

Explanation of Data

Old ATC Refinery Removal Action Site
Wilmington, North Carolina

There are over six (6) full file boxes of sampling data and analytical results for the Old ATC Refinery Removal Action Site. Because of the volume of data, only select information is discussed in this attachment report. Much of the data involves the wastes found in tanks, drums, pipelines and from other obvious waste sources. Some of the data in the files involves health and safety monitoring data collected while removal activities were ongoing. The files are currently in the possession of the U.S. EPA attorney for the ongoing cost recovery case and are being re-organized (for the third or fourth time since the removal action was completed.

The compilation of all of the data taken for the contaminated soils continues by EPA. Several actions involving the contaminated soils occurred. First, hot spots were removed for off-site disposal based upon composite sampling and the established cleanup goals for the Site. Lead and Petroleum Hydrocarbons were two of the main contaminants on-site. Lead hot spots were removed at the 800 part per million (ppm) action level. Total petroleum hydrocarbon (TPH) hot spots were removed at approximately 1,200 ppm action level.

Soils which were still contaminated with TPH were further treated using the "Biopile Treatment System". The average concentration for the soils treated were 500-600 ppm. Approximately 120,000 cubic yards were treated over a 5 month period. The depth of contaminated soils ranged from 1 to3 feet on the Northside of the Site and between 2 to 6 feet on the Southside (SEE DRAFT REPORT entitled "The Biopile System").

Because of flooding on the Southside area, EPA selected chemical oxidation to augment the biopile treatment system and complete the breakdown of TPH contaminated soils. The reports included in this attachment include the following:

1. Soil sampling data from 10/09/98 to 03/18/99 from Tetra Tech (START contractor). Cover map (Figure #3) indicates general grid locations.
2. Summary of soil sampling data from Tetra Tech dated 11/15/99 (Data Validation Report), with Data Summary Tables (7 sheets).
3. Soil sampling data from Paradigm Analytical Laboratory Tracking Log dated 4/28/99. Paradigm was the ERRS contractor's laboratory. It includes summary results for the site berm areas adjacent to the Cape Fear River which were not part of earlier sampling efforts or part of the areas remediated. Includes total RCRA metals, total Recoverable Petroleum Hydrocarbons and Polyaromatic Hydrocarbons (PAHs).
4. Soil sampling results for the TPH contaminated soils (Southside biopiles) prior to final chemical oxidation treatment from Paradigm Analytical. Includes diesel range organics, TRPH, pH and RCRA heavy metals and dated 08/19/99.
5. Copy of the final draft report on the Biopile Treatment system. This was prepared in 2/2000 and includes a summary of the treatment of TPH-contaminated soils.

THE BIOPILE SYSTEM: A SUCCESSFUL ALTERNATIVE TO TREATING TPH-CONTAMINATED SOILS;

John A. Glaser, Ph.D., Research Scientist, USEPA National Risk Management Research Laboratory and Christopher A. Militscher, R.E.M., C.H.M.M., Environmental Scientist, USEPA Region 4 Emergency Response and Removal Branch; February, 2000.

1.0 Introduction

This paper summarizes and demonstrates the successful application of an alternative technology in treating soils contaminated with total petroleum hydrocarbons (TPH). The "Biopile System" has been utilized at past demonstration projects by the Department of the Navy. At the Old ATC Refinery Superfund Site in Wilmington, North Carolina, the U.S. Environmental Protection Agency (EPA) utilized an adapted version of the Navy's biopile system to meet site specific conditions. While the treatment process was actively being managed by EPA, this approximately 120,000 cubic yard system comprised 42 separate units. To date, it was the largest active biopile system employed in the U.S.

A Technology Evaluation and Design Plan Report for the construction of temporary biopiles for TPH-contaminated soils was designed and drafted in October of 1998. This report provided an analysis of various biological treatment systems (e.g. Conventional composting) as an alternative to off-site disposal at a permitted landfill. The plan report was prepared in expedited fashion so as not to potentially delay other ongoing cleanup activities which EPA was conducting at the Old ATC Refinery Site.

1.1 Site Background

Old ATC Refinery was a Superfund removal action which began as an EPA emergency response action in the fall of 1995. The site comprised approximately 18 acres, with 13 acres utilized for the refinery operations and bulk loading and storage tanks. Before it had been abandoned by former operators in the mid-1980's, the facility produced leaded gasoline from crude oil. High and low sulfur crude oils predominantly from Venezuela were off-loaded by boat along the Cape Fear River and into multi-million gallon bulk storage tanks.

The site was comprised of hundreds of drums of reactive and flammable wastes, twenty-two (22) above ground storage tanks, the refractory and distillation towers, the boiler and maintenance buildings, the laboratory building, 3 oil/water separators, numerous small containers, approximately 5.5 miles of pipelines, and loading and unloading tanker and tank truck racks. It was evident from sampling events and site investigations after storm incidents that a large portion of the 13 acres of the former refinery had been heavily contaminated with lead and total petroleum hydrocarbons (TPH).

EPA completed most of the surface and pipeline cleanup by September of 1998. Some of this work included the removal of 'hot spots' where the soil was saturated with crude oil and related contaminants. One of the obvious problems encountered during EPA's cleanup was periodic flooding. The main 13 acres of the refinery area were located with the 100-year floodplain to the Cape Fear River. In addition, there are also several natural springs which flow

out the up-gradient banks and directly through the contaminated areas. The flooding issue became a major consideration during the design, construction, and management of the biopile treatment system.

1.2 Site Specific Issues for the Selection of a Treatment System

As an option to off-site disposal of contaminated soils, the EPA's On-Scene Coordinator (OSC) for the site had requested the authors to perform an evaluation for some type of biological treatment. These contaminated soils would be considered essentially "non-hazardous" under RCRA regulations, but are still contaminated with CERCLA hazardous substances at concentrations which would contribute to the potentially off-site migration into the Cape Fear River (i.e. Waters of the United States). Under CERCLA Section 121 and NCP criteria at 40 CFR Part 300, on-site treatment should be considered where other factors, including costs, are equal. Off-site removal of contaminated soils containing TPH hazardous substances would potentially be more expensive than other on-site options. Therefore, the OSC had requested this evaluation in order to best utilize remaining project funding and which would be consistent with his approved scope of work.

One of the significant regulatory drivers pertaining to the TPH contamination at the site is the North Carolina Department of Environment and Natural Resources' (NCDENR's) underground storage tank cleanup criteria for TPH constituents. While not a formal standard, a 100 part per million (ppm) level became the treatment based goal. A majority of the contaminated soils had been characterized to range from 500 to 600 ppm on average, with the highest value seen at 1,010 ppm and the lowest concentration at 59 ppm. Other hot spots and sources of contamination had previously been removed.

The technology selection planning addressed only those soils which were "marginally" contaminated, but still represented a long-term threat to waters of the United States if not mitigated for in a responsible, reasonable and cost-effective manner. Based upon previous site characterization sampling, estimated volumes from the soil surface to the groundwater table had been made. The sampling and analytical results provided evidence that little or no natural biological processes were occurring within the soil surface zone to the shallow groundwater table.

EPA previously conducted a limited, but reliable "treatability study" on the site soil characteristics. This study showed that the existing soils of concern possess little or no nutrients or organic matter and were further characterized as being "non-productive". Thus, soil amendments, oxygen content, percent moisture and other parameters were factored into the proposed plan.

EPA utilized the Naval Facilities Engineering Service Center's Technical Memoranda for Biopile Design and Construction Manual and the Operations and Maintenance Manual, dated June of 1996, as a model for the proposed plan.

This plan was primarily prepared for the purpose of saving overall removal costs and to

address remnant soil contamination identified at this site. Based upon previous discussions with EPA's removal project managers and the North Carolina Department of Environment and Natural Resources, there were no future remedial plans proposed for this site. Therefore, any work conducted under this removal action for these contaminated soils needed to be designed and planned in such a manner as to contribute to the long-term remediation of the site. The overall objective of the treatment technology was to develop a cost-effective and environmentally-sound alternative which would reduce the toxicity and mobility of the contaminants while meeting a shortened project schedule.

1.3 Physical Factors and Constraints:

There were several physical factors and site constraints which influenced the design and ultimate outcome of the temporary biopile treatment system, including the concentration of the contamination, the depth to groundwater, the soil characteristics, the expected and actual precipitation, surface runoff and flooding, the extent of the impacted area and availability of space for the placement and maintenance of the biopiles.

Analytical data collected during additional site characterization activities and from excavated source removal stockpiles by EPA showed an average concentration of 500-600 milligrams per kilogram (mg/kg; Expressed in **Figure 1** in parts per million or ppm) for TRPH. Diesel range organic compounds were found to average 450 mg/kg. Heavy metals were found to be present at concentrations above background, but did not represent levels which would limit or impair biological treatment measures. Volatile organic compounds were found to be present at very high concentrations (e.g. tens of thousands of ppm). However, on-site air monitoring and sampling activities demonstrated a rapid volatilization of these organic compounds once the soil had been removed and mixed with organic materials.

The depth to groundwater was found to vary at the site. Based upon test pits and source excavations, groundwater was found to range from an estimated 1 to 6 feet from current ground elevation. The overall groundwater table is apparently altered by natural springs which come from the upper portion of the site (i.e. The eastern portion of the site) and from tidal influences along the Cape Fear River (i.e. The western portion of the site). The biopiles were designed so has not to potentially impact the existing groundwater table and to place additional material above areas which might normally become saturated during precipitation. Nevertheless, groundwater influences later became a significant factor after the biopile treatment system was activated.

The soil characteristics had been obtained during the treatability study phase of the project.. The contaminated soils were identified to be a silty-sand mineral soil with less than 1% organic matter. Furthermore, the contaminated soils were found to contain large quantities of brick, rock, wood, and other debris. Extremely large pieces were removed, wherever practicable. However, the contaminated soils were not screened for smaller but significant debris items due to the potential costs and time delays in performing this work. Nutrient capacity of the existing soils were found to be almost non-existent due to the lack of organic matter. A significant fertilizer addition was included in the plan along with the increase in organic matter.

General rainfall in the Wilmington, N.C. had be known to exceed 36 inches per year. Site flooding had been identified as a past and recurrent problem during past storm events and while previous cleanup activities were being conducted by EPA. Severe storm events could have a potential impact on the proposed biopiles. Therefore, surface erosion of the biopiles needed to be addressed in the plan.

Provisions from periodic flooding were addressed in the design and plan such that the biopiles would not be underwater for any extensive periods of time. Due to high tide events and the general direction of surface runoff, water was observed to collect at the western most portion of the site along the berm. Topography at the site had also been altered at the site to some degree due to EPA's cleanup activities. Thus, measures to help mitigate the problem of standing water needed to be incorporated. However, during the treatment phase these measures were found to be inadequate for a portion of the biopile system.

The availability of space on the site is another factor which potentially impacted the design of the biopiles. Roadways, exterior berms, surface runoff collection systems, tank rings and other infrastructure limited the available space for the treatment system. Site drawings were utilized to optimize the available space for the placement and configuration of the biopiles.

2.0 The Basic Design of the Biopiles

Thirty (30) biopiles were constructed on the "Southside" of the site. The biopiles were designed with an approximate 40-foot width, a 120-foot length and a 7-foot height. The height was from the pre-existing ground surface. There were twelve (12) additional biopiles constructed on the Northside of the site. There orientation followed the biopiles on the Southside: parallel to the Cape Fear River and north to south. The side slopes would be approximately 3:1.

It was determined that a 1:1 ratio of organic matter addition to the contaminated soils would be needed and that they would be separately mixed and then re-applied to the design area for each biopile. One of the reasons for the high organic matter ratio was that the inexpensive source of the organic matter was a chipped and recycled source from prior hurricanes in the Wilmington area. It contained a great deal of newly shredded wood and some sand and debris.

Two rows of 14 biopiles each were constructed on the Southside. Because of spacing limits, each end of the 14 biopile rows contained single units. The Northside contained two rows of 6 biopiles. The grids for each unit were laid out and the contaminated soil was excavated, mixed with the organic matter and then placed in 'rough' shape until sharper grading could be made. An 1 to1.5-foot gravel based was used to support three 6-inch diameter corrugated, perforated plastic pipes which were laid from one end of the biopile to the other. The pipes were laid approximately equi-distant from one another and spaced within the biopile to optimize the diffusion of air (i.e. oxygen). The pipes were wrapped with geo-tech fabric to minimize siltation into the numerous ½ diameter diffusion holes. The pipes were connected at the center aisle and connected to a blower system.

The blower system which was housed in a protective shelter was a low-speed, high

pressure fan system which kept air 'pumped' into the biopiles. Four (4) biopiles were connected to each blower except for the ends of the Southside system for a total of eight (8) blowers. The Northside possessed three (3) blowers for the twelve biopiles.

2.1 Initiation and Maintenance of the System

The biopiles were covered with a semi-permeable landscape fabric. The fabric was selected to minimize erosion, allow some permeation of precipitation, and increase aeration of the contaminated soil mixture. The rolls of fabric were weighted down with sand bags and tucked under the soils at the toe of the end and side slopes. Before the biopiles were covered a fertilizer application was made.

Fertilizer in the form of diammonium phosphate (DAP) and ammonium nitrate mixture were applied at an approximated rate of 1,620 lb. per biopile. The basic Nitrogen-Phosphate-Potassium (N-P-K) ratio had been established at 45-3-3 based upon the recognized need for increased nitrogen during the bio-degradation process. The solid fertilizer was pre-mixed into solution and sprayed onto the biopiles. While most of the application was made as a top-dressing, some solid fertilizer was evenly distributed within the vertical lifts of the biopile during construction.

The end pipes of the blower system pipes away from the center aisle of each biopile were capped. Temporary electricity was installed for the blower system and the biopiles were then "activated". Over a period of several weeks in March of 1999, all of the biopiles were activated and sampling and monitoring activities commenced. Except for the replacement of sand bags and sealing some pipe connections, there was little maintenance required to the system after they were initially activated.

2.2 Sampling and Monitoring Activities

A sampling and monitoring plan was prepared to confirm the treatment's effectiveness and potential efficiency. In addition to TRPH and DRO analysis, the plan included sampling and analytical measures for total characteristic leaching procedure (TCLP) semi-volatile compounds and nitrates. Periodic monitoring would also be performed for soil temperatures, oxygen and carbon dioxide levels within selected biopiles.

Due to timing and cost constraints, the frequency and type of some of the sampling and monitoring was limited. Nevertheless, baseline values were obtained and several biopiles were selected for more frequent monitoring.

To obtain representative samples from selected biopiles, the biopiles were divided into quarter quadrants and 5-point composited core samples were taken in each of the 4 quadrants. Results from the composited samples were average for statistical purposes.

The initial results in comparing baseline values to the selected (uniform) biopiles were dramatic. A 30 to 80% reduction in contaminant levels in all biopiles were achieved within the

first several weeks of the biopiles being activated. The average reduction was greater than 50%. Correspondingly, soil temperatures within the biopiles were dramatically increased over background, ambient soil temperatures. Both TRPH and DRO concentrations were significantly decreased as shown in **Figure 1**. The overall reduction in contaminants the first six weeks was extremely significant and predictable.

3.0 Problems Encountered

Beginning on April 29th and ending on May 1, 1999, the site received a record 12.3 inches of rainfall in 48 hours. Flooding was extensive throughout Wilmington area and conditions on-site were worse than after both Hurricanes Bertha and Fran in 1996. The biopiles were under 4-5 feet of water throughout most of the site. Contractors donned 'scuba' gear to remove the blowers before they were damaged. Only 3 of the 11 blowers were damaged from the event, although all of them potentially could have been lost. The flooding also caused some minor damages to the integrity of the biopiles. The dikes and berms along the Cape Fear River held as there were legitimate fears that the cresting of the river would further inundate the site.

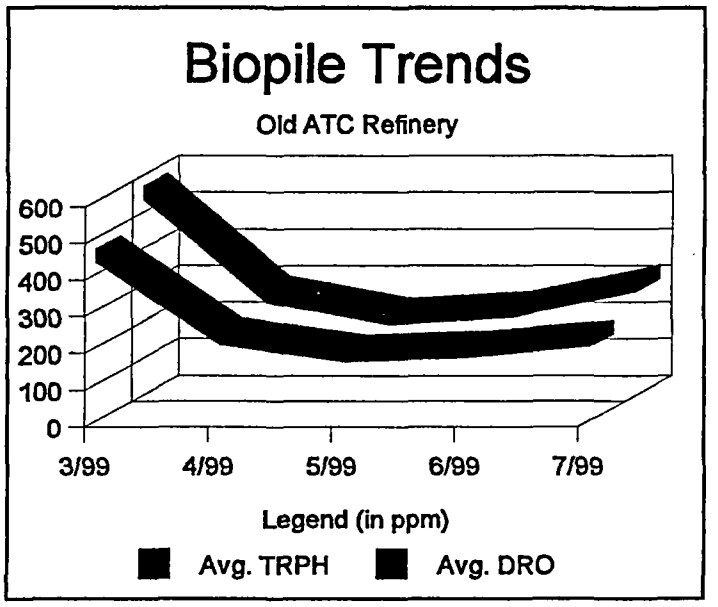


Figure 1: Overall Reduction

One of the worst problems caused by the flooding event was the leaching of the fertilizer. A re-application of fertilizer was made in mid-May with a reduced rate (total 10,000 lbs.). Sampling and monitoring effects were also disrupted immediately following this event. By May 12th, EPA's contractor had completed all of the repairs to the aeration system following the flood event.

It was later learned from the sampling and monitoring activities and through some direct observations that the treatment process had been altered for the Southside biopiles. Beginning in June of 1999, analytical results began to show a significant rise in contaminants for a majority of the biopiles. Sampling in July confirmed the dramatic rise in contaminant levels. At the same time, temperature and other readings indicated that bio-degradation was still occurring in nearly all of the biopiles. As indicated in **Figure 2**, the average concentrations for over 65% of the Southside biopiles had risen above initial baseline values for the same biopiles. This figure provides a comparison for four of the biopiles based upon DRO results. Re-sampling confirmed that there was no sampling or analytical errors which could help to explain the significant increases in TRPH and DRO contaminant concentrations.

For the Northside biopiles there was also a slight increase above previously treated concentrations for approximately 40% of the biopiles. Statistically, however, the rise was calculated to be not nearly as significant as for the Southside. Most of the biopiles on the Northside had neared or reached the target cleanup goal of 200 ppm. The cause of the problem occurring on most of the 30 Southside biopiles had not been identified and further evaluations due to the project completion schedule were intensified.

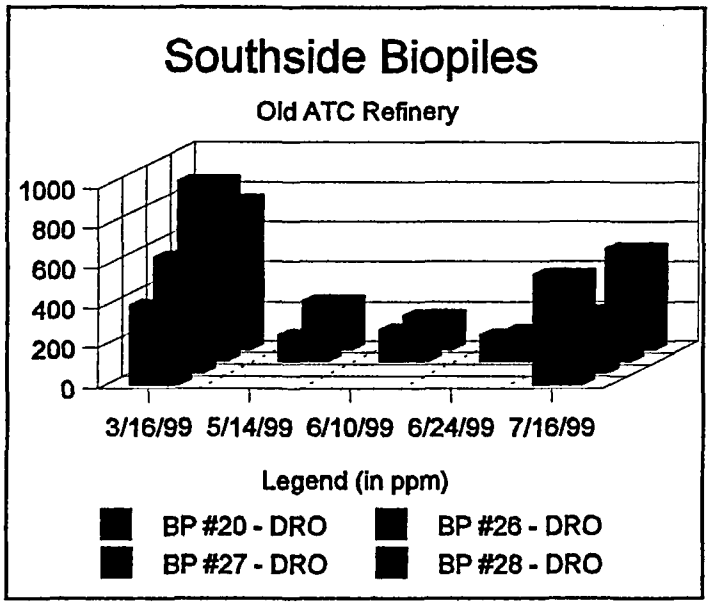


Figure 2: Southside Comparison

3.1 Treatment Evaluation

While the biological treatment processes were appearing to work successfully, the cause (or causes) of the problem of increased contamination for the Southside biopiles was uncertain. The project manager for the EPA contractor was the first to notice that during sampling there was 'standing' water within the auger holes for many of the biopiles. He observed that the biopiles had not dried out significantly since the flooding event in May. Subsequent rain events were creating pools of standing water around some of the most western and southern biopiles. Furthermore, several of the biopiles at the eastern end of the rows also appeared saturated.

Referring to the potential problem as a "Wicking Effect", the project manager suggested that off-site drainage from adjacent up-gradient properties might be the cause. A 7 to 8 foot perimeter drainage channel was cut along the eastern and southern boundaries on the Southside to intercept the off-site water. The drainage pond at the western edge of the biopiles to where the channel led was expanded and improved to allow for greater capacity of the overall surface waters. An underflow dam was constructed to keep any potential floating contaminants from entering the Cape

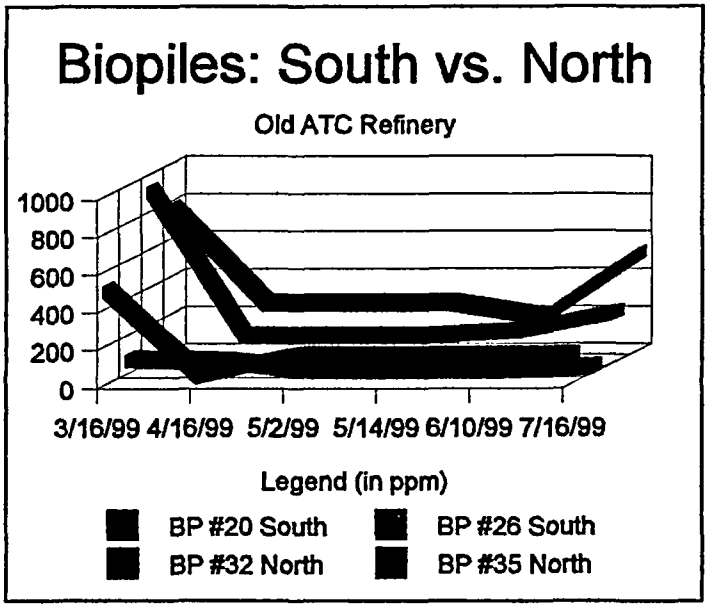


Figure 3: "Wicking Effect"

Fear River. The "Wicking Effect" in depicted in **Figure 3**. As can be seen, the effect on overall contaminant levels was much greater for biopiles on the Southside as opposed to the Northside.

Further evaluations and sampling confirmed that TRPH and DRO contamination was present in the off-site drainage seeps along the eastern and southern boundaries to the Southside biopiles. The biopiles along these edges and adjacent to the western drainage pond showed the greatest re-contamination. Most of the biopiles along the northern row showed the least amount of impact from the off-site sources.

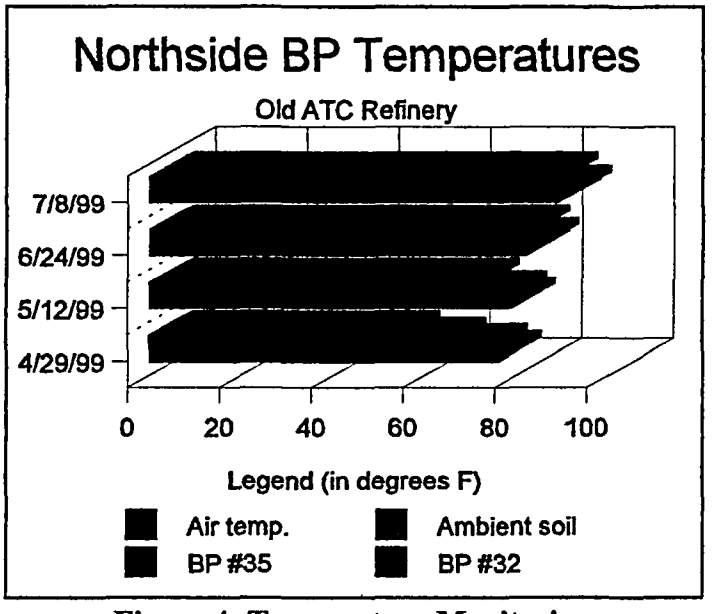


Figure 4: Temperature Monitoring

This correlation was important in ascertaining the viability of the biopile treatment system. Temperature readings within most of the biopiles continued to show biological treatment processes were still working, although the overall effectiveness was being impaired due to the moisture saturation of many of the biopiles. Once the drainage interceptor channel was constructed, the most dramatically impacted biopiles appeared to improve slightly. A continuation of heavy precipitation in the Wilmington area was not allowing many of the biopiles to dry out sufficiently.

For the Northside biopiles, most of the biopiles showed significant reductions to allow the biopile system to be shut down in August-September of 1999. **Figure 4** provides the average temperatures for two of the Northside biopiles from April to July. Biological oxidation processes continued in the biopiles as shown by the higher temperatures in the biopiles above ambient soil and in the air. Other periodic monitoring data, such as carbon dioxide levels, correlated with the temperature readings.

While some of the microbial activity was attributable to the breakdown of the organic matter added to the contaminated soils, overall TRPH and DRO reductions showed that these organic compounds were also undergoing oxidation.

3.2 Problem Resolution

The "Wicking Effect" for the Southside biopiles presented several technical challenges. It was believed that a great deal of the fertilizer which had been re-applied in May following the flood event had been utilized during the subsequent months. There also appeared that the biopiles were only slowly drying out. While work in dismantling the biopiles commenced on the

Northside, further analysis of the problem for the Southside ensued. Due to timing constraints for the completion of the overall project and in order to meet cleanup objectives, it was determined that continued biological oxidation via the biopile system would not be the most cost-effective solution.

Another round of sampling performed in July for DRO and TRPH contamination indicated that too many of the biopiles had been re-contaminated and at levels which exceeded initial baseline concentrations. Nitrate sampling further demonstrated that a very large re-application of nutrients would be required. **Figure 5** shows a comparison for 5 of the Southside biopiles. While the biopile treatment system was found to be very effective during the initial start-up phase for the reduction in contaminants, too many of the biopiles on the Southside were still saturated. The time required to re-apply fertilizer and also allow the system to return to 'normal' moisture levels would potentially delay the overall project and increase costs.

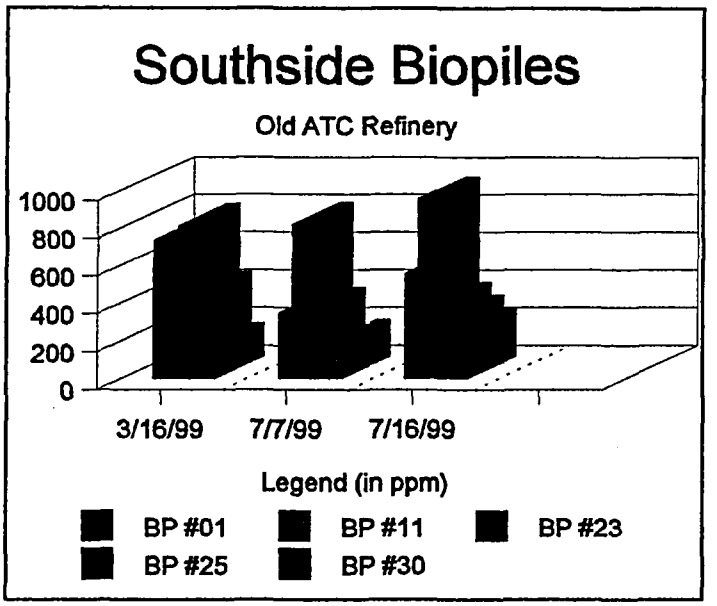


Figure 5: Southside Comparison

There was also the issue regarding if the biopiles had 'burned out'. Temperature readings for the Southside biopiles in July exceeded 95°Fahrenheit for several weeks. Overall organic matter content in the biopiles was suspected to have decreased significantly from the previous months of treatment. Dismantling and re-mixing in organic matter for the biopiles was projected to take weeks if not several months, depending upon weather, availability of the organic matter, etc. Thus, it was decided that another treatment option would be needed to meet the cleanup objectives for the site. After further analysis, it was determined that while the biopiles on the Southside were being dismantled, chemical oxidation using 35% hydrogen peroxide would be utilized overall contaminant levels.

4.0 Summary and Conclusions

It was found that the biopile treatment system is a very cost-effective treatment technology for enhancing natural microbial degradation of organic compound constituents. By increasing organic matter content and applying both oxygen and nutrients to the soil, native microorganisms can effectively destroy TRPH and DRO contaminants. This technology was demonstrated for this project on a very large scale involving extremely poor native soils. The native soils were essentially depleted of any nutrients and organic matter.

It was also learned from this project that off-site influences need to be identified wherever possible and that measures be planned and taken to limit these potential impacts. Nonetheless, the flood which occurred in May of 1999 was considered to be locally historic. The storm caused massive flooding throughout the Carolinas. The intensity of the storm was described as a 500-year storm event and its devastating impacts could not have been easily predicted.

For any future projects involving large-scale biopile treatment systems, there are three additional issues which would need to be evaluated in greater depth during the planning phases. While the costs for the materials needed for the Old ATC Refinery site were reasonable, the costs could have been significantly higher for the organic matter had not a very inexpensive source been found. A local company with a stockpile of approximately 1.8 million cubic yards of chipped and shredded debris provided the organic material needed for this project at a cost of less than $0.03 per loaded cubic yard.

The second issue involves the schedule and timing required for the overall treatment process to work effectively. There was insufficient time allowed to ascertain how far the biological treatment process would go in order to achieve a "non-detect" cleanup level for the contaminants if one was required. Future projects using biopiles should be designed to also study the completion issue. Theoretically, there is an oxidation limit where the soil microbes possess insufficient 'food' (contaminant) sources to sustain a thriving population. The time required to reach trace contaminant levels is potentially exponential for a project which requires 'non-detect' levels for all organic compound contaminants.

A third issue identified during this project deals with the focus and implementation of the sampling and monitoring plan. While the EPA contractors generally provided the necessary data for an overall treatment system evaluation, more emphasis might be needed to more accurately quantify moisture content, oxygen demand, and carbon dioxide output and also include speciation and activity levels of soil microbes. Before the flood event, the oxygen diffusion system using air blowers was generally believed to be very effective in providing increased oxygen throughout the biopile mass.

The biopile treatment system is a feasible and potentially cost-effective treatment technology for naturally degrading petroleum hydrocarbon contaminants without the introduction of 'oil-loving' bacteria into the media. Significant reductions in contamination levels can be achieved in a relatively quick time period provided the growth conditions for natural microbes are optimized. Soil moisture, organic matter content, nutrient levels, and particularly available oxygen are all vital requirements in the design and construction of the biopile treatment system. An aerobic environment within the biopile mass appears to be the most essential factor to the success of the system. For the Old ATC Refinery site, the biopile treatment system proved to be a viable and successful alternative to the treatment of petroleum contaminated soils.

5.0 References

U.S. Department of the Navy, Naval Facilities Engineering Service Center; Technical Memoranda for Biopile Design and Construction Manual and the Operations and Maintenance Manual; 6/96.

Glaser, J.A. and C.A. Militscher, USEPA; Technology Evaluation and Design Plan Report for the Temporary Biopiles for Contaminated Soils at the Old ATC Refinery Site, Wilmington, N.C.; 10/21/98; pp. 1-21.

Militscher, C.A., USEPA; Sampling and Analytical Protocol for the Biopile Treatment System at the Old ATC Refinery Site, Wilmington, N.C.; 12/16/98; pp. 1-4.

Glaser, J.A. and C.A. Militscher, USEPA; Biopile Treatment Evaluation Report for the Old ATC Refinery Site, Wilmington, N.C.; 5/14/99; pp. 1-7.

U.S. Environmental Protection Agency Region 4; Old ATC Refinery Removal Action Project Files; 10/2/98 to12/9/99; Vol. 1-47.

6.0 Credits

Tony A. Best, USEPA Region 4, On-Scene Coordinator

George W. Mick, Earth Tech Remediation Services, Sr. Project Manager

Parry Bhambra, Tetra Tech EM Inc., Technical Analytical Coordinator

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

FAX TRANSMITTAL RECORD

DATE: 10/13/00

TO: ANN FLUECKIGER

FAX #: 843 497 9542

FROM: STUART PARKER, Superfund Section

RE: OLD ATC REFINERY

Number of pages (including cover) 13

Comments:
- FINAL POLLUTION REPORT FROM EPA REMOVAL ACTION IN 1998-1999
- CONTRACTOR SITE ASSESSMENT REPORT DATED 9/2/93 (EXECUTIVE SUMMARY)
- SITE IS STILL BEING EVALUATED FOR LONG-TERM REMEDIATION BY EPA

Confirm receipt of document(s):

_____, Superfund Section (919) 733-2801, ext. 280

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Stu Parker

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
POLLUTION REPORT (POLREP)

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NOV 01 1999
SUPERFUND SECTION

POLREP #86 and Final
OLD ATC REFINERY
801 Surry Street
Wilmington, North Carolina

TO: Myron D. Lair, ERRB
Shane Hitchcock, ERRB
Ralph D. Rigger, ERRB
Dan Thorton, EPA HQ, ERD Regional Coordinator
EPA Region 4 Regional Response Center

CC: T. Best, ERRB
T. Cox/K. Beswick, EAD
R. Davidson, ERRB

BCC: J. Glaser, EPA-ORD

FROM: ~~Christopher A. Militscher,~~ OSC
Michael Taylor, OSC

DATE: October 25, 1999

Period Covered: 10/12/99 to 10/23/99

I. BACKGROUND:

Site No.:	04YR
Delivery Order No.:	4008-F4-002
Response Authority:	CERCLA, Non-NPL
Incident Category:	Time-Critical, Fund-lead Removal

PERSONNEL ON-SITE

OSC - 1/2
USCG-GST - 0
ERRS - 5/6

Weather: Hurricane Irene did not severely impact coastal N.C. However, heavy periodic rain during the reporting period delayed or caused disruptions to site activities.

II. SITUATION:

See previous POLREPs.

III. SITE ACTIVITIES:

EPA contractor

ERRS continued with demobilization activities. Drums used for the chemical treatment were rinsed and disposed of either through recycling or returned to the manufacturer. One drum of hydrogen peroxide was kept as a contingency and utilized on several small hot spots identified and treated on 10/20.

ERRS continued with packing up files, equipment and other materials. Telephone and trailer services were terminated on 10/22. Site security ended on 10/21. Electric service to the trailer was terminated on 10/20. ERRS continued with site grading activities on the Southside and completing modifications to the sediment pond. The under-flow dam system was observed to be functioning well and the sheens coming from the up-gradient areas were being held in the pond for potential natural bio-degradation. Surface water from the outfall appeared clean with little turbidity. The pH was field measured by the OSC at approximately 6.0 units. There was no significant odor detected. Clean brick, rock and concrete found on-site were utilized at the outfall to help stabilize the earthen berm and provide 'riprap' for the discharge pipe.

EPA on-scene coordinators

OSCs assisted in spreading seed, picking up site debris and packing equipment and materials. Temporary soil erosion control measures, including silt fencing, seeding and berm placement were completed as of 10/22. OSC Militscher provided a site tour to the property owner on 10/19. OSC provided general information regarding the surface water discharge system and the potential requirements for an NPDES permit for Northside and Southside discharge points.

PROJECT MANAGER

During the final walk-thru with the ERRS PM, the OSCs and PM discovered a small jar of elemental Mercury (CERCLA hazardous substance) hidden in one of the laboratory counter draws. There is an estimated 3-4 ounces of mercury and ERRS was directed to find a potential recycling and/or disposal source for this material. The past use for the elemental mercury is currently unknown. However, mercury was found in numerous tanks on-site (Tank #4, 5, 6, 7, 8, 9, 10, and 11; See attached report regarding tank contents and concentrations).

Non-hazardous contaminated debris was collected and off-site disposal activities for the two roll-offs have been arranged. One (1) roll-off container was removed on 10/20. Results from previous sampling indicate that chemical oxidation has been generally successful with an approximate 'average' concentration of 300 ppm remaining for TRPH (Southside). This represents an estimated 30 to 50% reduction in the mass of contaminants for the contaminated soils. The Northside average concentrations following the biopile treatment system were estimated around 200 ppm for TRPH. The last roll-off container was removed from the site on 10/22.

Total Petroleum

Working site files for the OSCs were organized and returned to Atlanta on 10/25. OSCs will continue coordination with ERRS contractor on the finalization of daily costs, awaits, etc.

IV. SUMMARY OF DISPOSAL/TREATMENT:

Wastestream & TSD Facility	Amount	Date (s)	Comments
WS-04 Haz. debris; Laidlaw	80 cy / 4 loads	4/9/98 (3) & 6/7/98	Cr, Pb, Ar, Cd solids
WS-02 Non-haz liquids; Laidlaw	162 cy / 9 loads	4/1/98 (2), 4/2/98 (4), 4/3/98 (3)	Contaminated tank sludge
WS-08 Haz. liquids; Laidlaw	18 cy / 1 load	4/1/98	Pb liquids
WS-10 Non-haz solids; Laidlaw	54 cy / 3 loads	5/22/98 (3)	Contaminated tank scale
WS-03 Non-haz solids; BFI	1 cy / 6 containers	9/18/98	Friable asbestos (ACM)
WS-07 Haz. Flam. Liquids; Giant Cement	34,859 gal. / 7 loads	10/8/98, 10/9/98, 10/12/98, 10/13/98, 10/14/98 (2), 10/15/98	D001; Ar, Pb, Hg, Se, Cd, Cr & Benzene
WS-01 Non-haz debris & PPE; BFI	200 cy / 8 loads	7/25/97, 9/26/97/ 10/31/97, 12/16/97, 1/9/98, 1/30/98, 10/21/99 & 10/22/99	Contaminated debris & PPE
WS-01 Non-haz debris & PPE; BFI	350 cy / 12 loads	3/10/98 (2), 5/26/98, 6/12/98, 8/21/98, 12/8/98, 3/5/99, 3/26/99, 4/5/99, 7/28/99, 8/13/99	Contaminated debris & PPE
WS-07 Haz. Flam. Liquids; Capital/City Environmental	27 tons / 2 loads	6/3/98, 6/4/98	Pb, Benzene sludge/liquids
WS-09-1 Non-haz soils; BFI	835 tons / 34 loads	6/23/98 (17), 6/24/98 (17)	Contaminated soils (TPH ~ 11,000 ppm)
WS-09-2 Non-haz soils; BFI	1,055 tons / 47 loads 1,086 tons / 48 loads 931 tons / 42 loads	11/16/98 11/17/98 11/18/98	Contaminated soils (TPH ~ 3,000 ppm)
WS-09-3 Non-haz soils; BFI	693 tons / 28 loads 860 tons / 40 loads 1,082 tons / 48 loads 957 tons / 41 loads	9/29/98 9/30/98 10/1/98 10/2/98	Contaminated soils (TPH ~ 1,100 ppm)
WS-13 Haz. solids; City Environmental	4 cy / 1 load	4/12/99	D003; Reactive sulfides
WS-12-A Non-haz soils; Northside	Treated on-site: ~ 14,400 cy (12 biopiles)	3/99 to 8/99	Contaminated soils (TPH avg. conc. 500-600 ppm) Hot spots > 800 ppm Results: Avg. conc. 200 ppm
WS-12-B Non-haz soils; Southside	Treated on-site: ~ 36,000 cy (30 biopiles)	4/99 to 8/99 biosystem 9/99 to 10/99 chem-ox	Contaminated soils (TPH avg. conc. 500-600 ppm) Hot spots > 1,100 ppm Results: Avg. conc. 300 ppm

WS-11 Non-haz aqueous	Collected & treated: 759,000 gal. (Northside area)	6/97 to 3/98	Oily contaminated surface waters.
WS-11 Non-haz aqueous	Collected & treated: 225,480 gal. (From tank #1, #8, decontamination of pipelines, etc.)	6/97 to 3/98	Contaminated water from decontamination and mixed with oil/haz. substances.

The treatment and re-application of wastewaters from decontamination, the collection and treatment of surface waters (referred to as 'groundwater' in certain POLREPs) on the Northside and wastes generated during RP-phase of the removal action are also documented in previous POLREPs and in the site files (See attached summary of T & D performed under AOC). The wastestream (WS-06), from the wastewater treatment activities (spent carbon) was consolidated in wastestream WS-09. WS-08 (tetraethyl lead) was removed during the emergency phase of the removal action. A final wastestream for the elemental mercury (WS-14) will be added to the site files following its ultimate recycling and/or disposal.

V. SIGNIFICANT SITE EVENTS/ISSUES:

Since 1996, the site has been impacted by numerous hurricanes, including Bertha, Fran, Bonnie, Dennis, Floyd and most recently, Irene. In addition, there have also been two 'northeasters' and several 'micro-burst' storms. Flooding on-site has been a major obstacle for the completion of the removal action. Furthermore, numerous discharges of oil and hazardous substances to waters of the U.S. (Cape Fear River) have occurred during these storm events. Site drainage will potentially continue to be a problem for any future development activities on the property and permanent drainage improvements would most likely be needed. Several natural springs are located along the property boundaries and they will continue to add to the flooding of the property following storm events. Surface drainage modifications on the Southside (temporary measures) were made to channel water from up-gradient areas (i.e. Southern Metals and JLM Terminal) around to the detention pond located adjacent to the Cape Fear River.

These temporary drainage measures were not employed to any significant extent on the Northside of the property because there does not appear to be a source of significant contamination emanating from the up-gradient areas on this side of the property. A detention pond was constructed on the Northside to control stormwater discharges. Some trace and remnant contamination may also exist under the existing dikes along the Cape Fear River, under the boiler building and the laboratory building. However, the cost-effectiveness and practicality of removing these structures was not deemed warranted by the OSCs based upon visual observations and from sampling around some of these structures. The subsurface drainage system previously identified to be running through the facility and under the dikes into the Cape Fear River has been terminated and this source of future releases has been potentially eliminated.

The voluntary action by the property owner aided EPA's overall removal efforts. The documentation regarding this assistance is provided in other reports to the site files. However, the fire involving the owner's contractors in Tank #14 caused some temporary problems.

Nonetheless, the owner and EPA required immediate changes to safety procedures and the problem was resolved expeditiously with little impact to the overall removal action. Fires which occurred during the removal of the refractory tower were generally anticipated and handled safely and properly by EPA's ERRS contractor. These fires were caused primarily because of cutting torch sparks igniting the extremely volatile soil contaminants found around the refractory tower.

The biopile treatment system (adapted from the U.S. Navy) for contaminated soils represented a significant cost savings (hundreds of thousands $$$) during the removal action. While it was generally very successful for a significant reduction in the volume of petroleum contaminants, the cleanup goal of 100 ppm based upon the "ARAR" for State of North Carolina for petroleum contaminated soils could not be achieved in the desired time-frame. Furthermore, the off-site migration problem on the Southside required additional treatment measures (chem-ox) to approach the cleanup goal. Nevertheless, the OSCs were fortunate to have Dr. John Glaser's assistance on the design and evaluation of the biopile treatment system.

The site is not considered by the OSCs to be 'pristine'. It is generally known from former employees from Old ATC and long-time Wilmington residents that the property had been filled in decades earlier with municipal-type trash and rubble, including bricks, rock, concrete, wood, metal, glass and other debris. However, removal activities conducted at the site are believed to be consistent with prior removal actions and eliminated the mobility, toxicity and volume of the hazardous substances present from the former refinery operations. The cleanup of the former Old ATC Refinery property will potentially allow for some future industrial /commercial use. Persons interested in any future remedial actions proposed for this site should contact Mr. Stewart Parker with the North Carolina Department of Environment and Natural Resources (NCDENR) and also the owner of property, Mrs. Linda Carroll.

VI. ESTIMATED COSTS:

ERRS estimated costs as of 10/22/99 are $4,787,000, with approximately $77,000 remaining in the D.O. ceiling. EPA direct costs are estimated at $162,600, with approximately $15,400 remaining in the revised ceiling (See Memorandum to site files dated 8/25/99). No new significant costs are anticipated for the GST, START contractor, or ERT/REAC.

VII. FUTURE ACTIVITIES:

The OSCs will continue work on the site file organization and in turning the records over to the Superfund Records Center. OSCs will continue with D.O. close-out activities with the ERRS contractor, including coordination on the final disposition of the mercury, review of the final 1900-55's & invoices, and review of the PM's final report. OSCs will coordinate with EAD and others, as requested and necessary, regarding cost recovery and enforcement issues.

In a separate report, the OSCs will refer both JLM Terminal and Southern Metals facilities to NCDENR for site assessments. EPA's remedial program will also be notified of the potential contamination problems at these facilities.

TANK CONTENTS AND CONCENTRATIONS

TANK 1	CONCENTRATIONS
VOLUME OF LIQUIDS - 406,000 Contents is water with sheen of oily scum on top of water	Lead - 18ppm

TANK 2	
VOLUME OF LIQUIDS - 70,000 Contents oil/sludge	Lead - 400ppm

TANK 3	
VOLUME OF LIQUIDS - 56,000 Contents oily/sludge	Lead - 590ppm

TANK 4	BOTTOMS	FLOATING ROOF
TANK SCALE	Chromium - 67.8 Lead - 186 Mercury - 0.371	Arsenic - 68.3 Cadmium - 24 Chromium - 157 Mercury - 0.524

TANK5		
TANK SCALE	Lead - 214 Mercury – 0.366	Arsenic - 80.3 Chromium - 30.1 Lead - 82.3 Mercury - 0.254

TANK 6		
TANK SCALE	Arsenic - 56 Chromium - 61.3 Lead - 5200 Mercury - 0.238	Chromium - 155 Lead - 155 Mercury - 0.521

TANK 7		
TANK SCALE IN BOTTOM High vis liquids in floating roof Pahs 110C	Arsenic - 63.9 Chromium - 156 Lead - 461 Mercury - 0.108	Lead - 225 Chromium - 95.9 Mercury - 0.15 Selenium - 1.39

TANK CONTENTS AND CONCENTRATIONS

TANK 8

VOLUME OF LIQUIDS - 9,627
Pahs 1300c

Lead - 74

Lead - 852
Mercury - .164

polycyclic aromatic hydrocarbons

TANK 9

VOLUME OF LIQUIDS - 16,000
Pahs 1100c

Lead - 319

Arsenic - 59.5
Cadmium - 24.7
Chromium - 48.9
Lead - 146
Mercury - 3.42

TANK 10

TANK SCALE
Pahs- 80,000

Chromium - 84.8
Lead - 75.8
Mercury - 0.0699

TANK 11

VOLUME OF LIQUIDS - 283,500
Standing water pahs 560c

Lead - 356

Arsenic - 52.1
Chromium - 52.6
Lead - 79.4
Mercury - .754

TANK 12

TANK SCALE
Pahs 180c

Arsenic - 65.4
Chromium - 159
Lead - 472
Mercury - 0.023

SUMP

Lead - 3.12

TANK 13

TANK SLUDGE
Pahs in bottom 980c
Pahs in floating roof 940c

FLOATING ROOF

Lead - 21.5

TANK 14

OPA TANK HANDLED BY CCO COMPANY

TANK 15

VOLUME OF LIQUIDS - 101,000

Lead - 234

floating roof sludge 500c

TANK CONTENTS AND CONCENTRATIONS

TANK 18

VOLUME OF LIQUIDS 52,000 Lead - 52
Off spec #6 oil

TANK 19

VOLUME OF LIQUIDS 2,500
Off spec. #6 oil lead 50

oil-water separator

OWS 2

Volume 3,540 (70% water / 30% oily/sludge) Lead - 220

OWS 3

Volume 7,180 (60% water / 40% oily/sludge) Lead – 14

Note: All volumes are in gallons.

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SEP 7 1993
EPA - REGION IV
ATLANTA, GA

FINAL
EXPANDED SITE INSPECTION

DATE REPORT ACCEPTED 2/10/94
DISPOSITION High priority
SAM SIGNATURE [illegible]

Old ATC Refinery
Wilmington, New Hanover County, North Carolina

EPA ID № NCD986186518
WasteLAN № 05591

EPA Work Assignment № 14
EPA Contract № 68-W9-0055

Prepared for the
U. S. Environmental Protection Agency
Region IV

Prepared by

B&V Waste Science and Technology Corp
BVWST Project № 52014.100

September 2, 1993

Prepared by
Jancie S. Hatcher for
Scotti Thomas
Site Manager

Reviewed by
Jancie S. Hatcher
Jancie S. Hatcher
Technical Reviewer

Approved by
Hubert Wieland
Project Manager

Executive Summary

The Old ATC Refinery is located in Wilmington, New Hanover County, North Carolina. The site is the location of an abandoned oil refinery. The refinery became operational in 1971 and produced Nº 2 and Nº 6 fuel oil and kerosene. It was classified as a generator under RCRA; that classification was changed to small quantity generator in 1985. The nature of the hazardous wastes generated was classified as tank bottoms (KO52) and dissolved air floatation float (KO48). The refinery received a Notice of Violation (NOV) in 1987 due to fuel oil leaks. Refinery operations ceased in 1986. In 1991, the U. S. Coast Guard became involved with the site when oil was discovered leaching from the banks of the drainage canal. Responding under the authority of the Oil Pollution Act, the U. S. Coast Guard was involved in activities to prevent oil pollution from the site from entering the Cape Fear River.

The Old ATC Refinery site is located in the Atlantic Coastal Plain Physiographic Province. The soil beneath the site is considered to be part of the Urban Land Complex and consists of soils which have been altered by cuts, filling, grading, and paving. Aquifers underlying the site are the unconfined upper sandy aquifer and the lower sandy aquifer. Groundwater flows toward the Cape Fear River which is a groundwater divide. There are few groundwater users within four miles of the site.

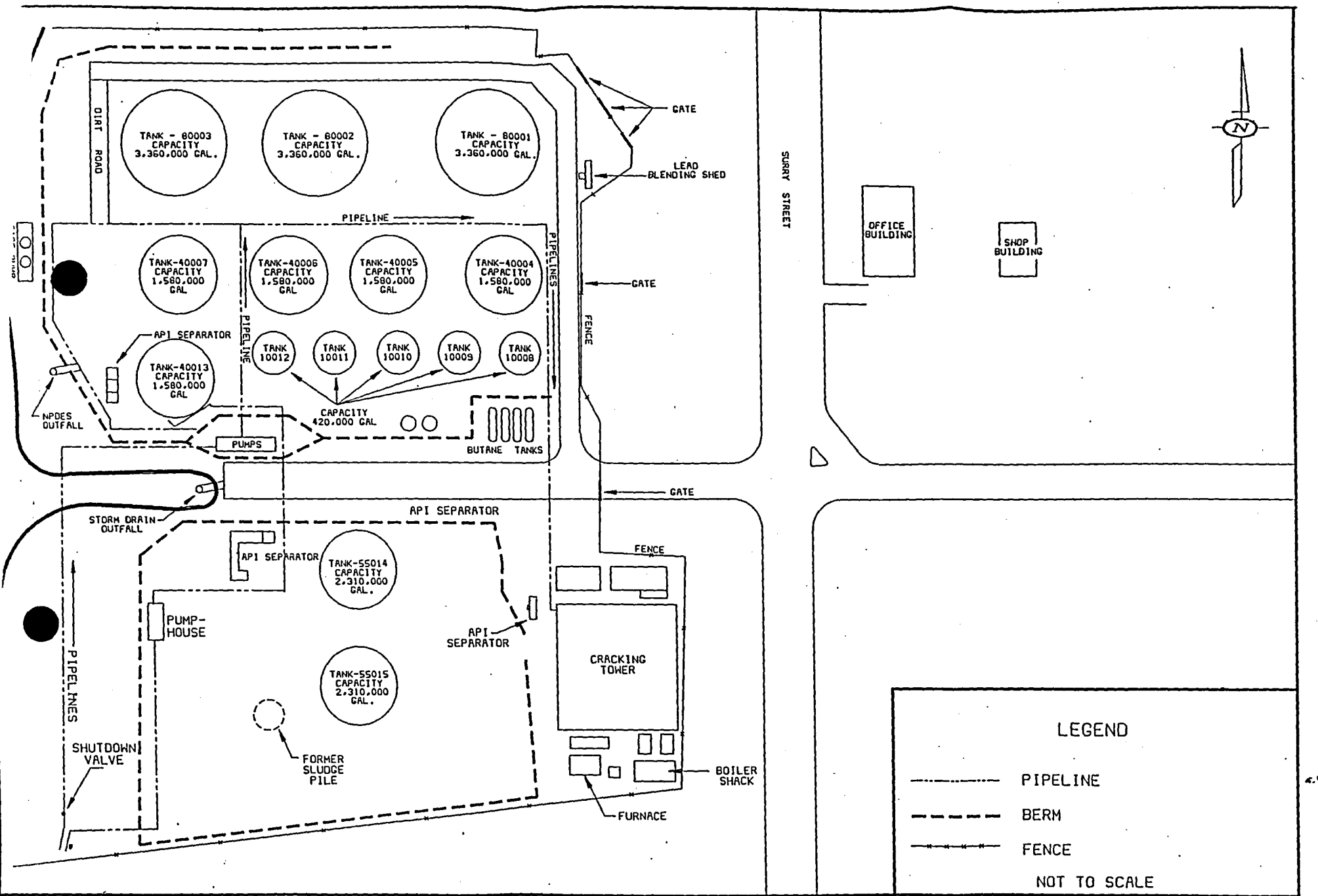
A portion of the surface water runoff from the site was treated by three on-site API oil/water separators. Effluent was discharged into the Cape Fear River via an NPDES permitted discharge; however, that discharge point has been capped. Some overland flow from the site enters the drainage canal located on the west central portion of the site. There is also the possibility for site runoff into the river during flood events and from non-point sources. The fifteen-mile surface water pathway begins in the drainage canal which empties into the Cape Fear River. The pathway expires along the Cape Fear River before it enters the Atlantic Ocean. Although there are no surface water intakes located along the surface water pathway, several federal or state endangered and threatened species are found in the Cape Fear River. Approximately 19.6 miles of wetlands frontage occurs along the surface water

pathway. The Cape Fear River is also used as a commercial fishery in the area of the site.

Analytical results indicate the presence of metals contamination on-site. Analytical evidence indicates that metals contamination has migrated into the surface water pathway. Based on the results of a site screening investigation conducted by the North Carolina Department of Environment, Health, and Natural Resources (DEHNR), there is some evidence of metals contamination in the groundwater. Because an upgradient sample was not collected, metals found in the groundwater samples cannot be conclusively attributed to the site.

During the ESI sampling visit, a portable organic vapor analyzer (OVA) detected a reading of greater than 1000 parts per million of an unidentified organic compound at a hole in a pipeline from the tetraethyl lead tank. A sweet fruity odor, characteristic of tetraethyl lead, was evident around the tank. No readings above ambient background were detected in the air surrounding the tank. However, the potential exists for a release of an organic compound to the atmosphere.

Based on the evidence of contamination on-site and in the migration pathways and the number of receptors, further action is recommended for the Old ATC Refinery site.



SITE LAYOUT MAP
OLD ATC REFINERY
WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

FIGURE 2

OLD ATC REFINERY REMOVAL ACTION
NED 986186778

11/15/96

SFP VISITED SITE SOLO — 14:45 - 15:20
SPOKE WITH TODD A WOLPERT, RESPONSE
SUPERVISOR, GULF STRIKE TEAM, MOBILE ALA
— SAMPLING 50000 + 20000 TANKS
SOME SOILS SAMPLING
— PETROLEAN SAMPLING TANKS
— GPM SAMPLING ~~TANKS~~ SOIL, AS OUTLINED
IN REMOVAL ACTION PLAN

— SOIL STAIN BY LARGE TANK BEING
VISUALLY CLEANED UP NOW, TO BE
SAMPLED WHEN NO VISIBLE STAIN
— SAMPLING ANTICIPATED COMPLETE BY THANKSGIVING
— AFTER ANALYTICAL WORK, SLUDGE AND
TANK REMOVAL WILL PROBABLY BE
AFTER THANKSGIVING.

PHONES BY TUESDAY. TRAILERS BEING SET UP
GATE CHAINED SHUT FOR SECURITY
SFP DID NOT GO ONSITE — COAST GUARD
OVERSEEING SAMPLING OPS. WOULD REQUIRE
ESCORT AND LIMITED TO PAVED AREAS OF
SITE, AS PER EPA SAFETY PLAN. SFP
WILL PROBABLY VISIT NEXT WEEK.

UNITED STATES COAST GUARD
NATIONAL STRIKE FORCE

TODD A. WOLPERT
RESPONSE SUPERVISOR

334
[redacted] 639-6601
FTS 537-6601
FAX 205-639-6610

GULF STRIKE TEAM
AVIATION TRAINING CENTER
MOBILE, AL 36608-9690

OLD ATC Refinery Removal Oversight 11/21/96
NED 986 186 578 WILMINGTON NC

SFP Arrived on site 1515. Met w/
Todd Wolpert and ~~Steve~~ Taylor
MAT described areas to be addressed
by AOC, AND OTHER SAMPLING.

Tetraethyl lead tank
All tanks have Pb in adulterated crude
~~#~~ all tanks except #14, which
MAY 100000 Gal of crude w/ < 5 ppm Pb

Cracking tower is under LINDA CARROLL,
NOT AXEL

AOC remove leaked contents of tanks,
pipelines + API # 2 + 3
(API 1 CLEAN)
LAB PACK + 55 GAL DRUMS (>100 total containers)
IN BLDG ACROSS STREET (MAINT)
CLEAN OUT
T.E.Pb piping removed.
Soil contam. in 5 areas

EPA will randomly sample Areas not
covered under AOC. IF contamination

OLD ATC REFINERY REMOVAL OVERSIGHT
NED 986 186 578 WILMINGTON NC 11/21/96

will also have to address

AREA (1) SW By waterfront — soil stockpiles
(1000 cu yd) removed previously
[SW of API Sep #2] BANK — BANKS (W) (E) (N) (S) FACE
GPM to sample soils there —

AREAS (2) + (3) — Soils around 80002 AND
80003 (3,360,000 Gal empty TANKS)
Pointed out oil front w of 80003. SOIL SFP

AREA (4) ACROSS STREET. MAINT SHOP BLDG
(Behind red brick office) ~~Contains~~ ~~AND~~
contains the Lab Packs and Drums.
Surrounding area never sampled by EPA.

AREA (5) West of cracking towers, areas
where drums removed previously

[Note: MAINT BLDG AT AREA 4 has asbestos,
rope, flammible liquids, and acids, PCP
chlorinated solvents, at least as labelled.
Chemists will be here cutting this weekend.]

OLD ATC REFINERY REMOVAL OVERSIGHT
NCD 986 186 STP 11/21/96 SFP

Toured site on foot, met w GEM team
sampling area 1 IN GRID COMPOSITES.

PUMP AREA WILL BE DISMANTLED, PIPES
FLUSHED FIRST BY VACUUM + HOT H_2O.
SAME AREA TO BE USED AS COLLECTION POINT.

SHOWED SFP AREA 5, TAPED OFF.

AT TANK 10008 VIEWED SUSPECT OVERFLOW
8 9 11 HAVE CONTENTS
AS WELL, 15 18 19
AND FLOATERS 1 2 3
AND SEPARATORS 2 AND 3
LIKELY AT 20000 GALLONS

NOTE OVERFLOW IS FUNNEL-SHAPED OPEN
TOPPED STANDPIPE ABOUT 1 FT HIGH.
DESTINATION OF OVERFLOW NOT KNOWN.
ONE PRESENT AT EACH TANK

OLD ATC REFINERY REMOVAL OVERSIGHT
NCD 986 186 STP 11/21/96 SFP

6000 SERIES TANKS EMPTY.

Tetra ethyl lead lines run ~~behind~~
between these and 8000 TANKS.

WILL BE CUT UP AND PULLOFF BOXED.
MAY USE "PIG" TO CLEAN LINE WHERE
IT PASSES BENEATH ROAD.

8000 HAS MOSTLY H_2O, LOW LEAD LEVELS
8000 TANKS HAVE 100's OF PPM PB.

3 POINTS W, SW, S ON TANK 8000 HAVE
LEAKED TO SURFACE. 8000 HAS 1 LEAK,
WHICH HAS BEEN SCRAPED UP (AREA 2)
AREA 3 ONLY COVERS THE W SPL. AT 8000 —
EPA WILL SAMPLE TO SW AND E.
SOIL
LEAD STD SET AT 1300 PPM BASED ON RISK.

1.2 MILLION GAL OF PRODUCT/MATERIAL NOT
COUNTING LINES.
— TAYLOR POINTED OUT WHERE SEV PIPES
GO TO RIVER. PURPOSE UNKNOWN, BUT
SOME APPEAR TO BE FROM API SEPARATORS.
PIPES AND DRAINAGE PIPE CUTOFF ON N SIDE OF INLET.

OLD ATC REFINERY REMOVAL OVERSIGHT
NCD 986 186 578 WILMINGTON NC 11/2/98 SFP

1991-92 COAST GUARD EXCAVATED TRENCH S OF TANK 40013. MATERIAL WENT TO AREA 1 STOCKPILES.

SFP FIELD DECONNED USING ON-SITE WET DRY DECON STATION BEFORE LEAVING SITE. AT 17:00.

OFFICE TRAILER
— 910 762 1851
~~910 762 1673~~ (DISCONNECTED 9/97)

(MIKE TAYLOR EPA # 404 562 8762)

Old ATC Refinery NCD 986 186 518
12/19/96 WILMINGTON NC

ARRIVED ONSITE 1510 MATT LASECKI
OF GERAGHTY & MILLER DOING FIELDWORK.
- PETROCLEAN JUST FINISHED TAKING
SECTIONS OF MODES 80002 AND 80003.
- LEFT SITE TODAY, ~~REAPPEARING~~
REMOBILIZING 1/2/97.
VISITED OTHER TRAILERS:
CHRIS MILITSCHER (EPA) ON DUTY IN PLACE OF MIKE TAYLOR

- 2 USTs DISCOVERED LAST THURSDAY ON SITE AREA 4
IF LEADED ~~EPA'S GROUP STARTED TEAM COM~~
AREA OWNERS TO DEAL WITH IT CAMPAIGN
IF NOT THEY DO OWNERS PROBLEM

BILL DOUCET ONSITE BRIEFLY - LITTLE CONTACT
CONCERNS:
- LAWYERS APPEAR TO BE LIMITING GEM'S
FLEXIBILITY RE PROCEDURES:
- GEM IS MORE FAMILIAR W/ REMEDIATION
ISSUES, NOT REMOVALS.
- SEVERAL KEY GEM PROJECT PEOPLE
HAVENT BEEN ON SITE INCL HGS
PROJ ENGINEER, ~~GM~~ (PROJ MGR - 1ST 3 DAYS ONLY)
MATT LASECKI LEAVING - NOT RETURNING.

OLD ATC REFINERY REMOVAL O/SIGHT
NCD 986 186 518 WILMINGTON 12/19/96

QUESTIONS ABOUT TREATMENT OF TANK
WATER + RUNOFF

MEET STATE SDWS

PRP LEAD, NOT EPA, SO WILL HAVE TO
NEGOTIATE FOR NPDES.

USE OF POTW COULD GET CITY IN TROUBLE

IS THERE EXPEDITED ~~MEANS~~ PROCESS FOR NPDES
FOR SHORT TERM, LIMITED TREATMENT
AND DISCHARGE
CAN SUBMIT DATA, MANIFESTS
DISCHARGE TO ~~CLEAN~~ AREAS OF CONTAINMENT
DIKES?

STEP TO SEE IF NPDES CAN EXPEDITE.
SO KNOW IF GEM IS GIVING REALISTIC
DESCRIPTION OF HURDLES IN ON SITE TREATMENT

MAIN CONCERNS -
GEM -
8-5 GROUPS OUT IN LAST 4 MONTHS - 1 MCS TO GO
3 WKS TO GET IN COMPLETE SAMPLES.

OLD ATC REFINERY NCD 988 186 518

1/10/97 REMOVAL OVERSIGHT

ANNUAL ONSITE 1430. PETROCLEAN REMOVING TANK TOP

DEAN LILICH HAD LEFT FOR ATLANTA

SFP WANTED TO ENTER SITE, BUT

COAST GUARD REQUIRED OSHA CARD.

DAVE THOMAS USCG PRESENT

GARY WELDON TODD WOLAHAN ABSENT

SPRAGUE ENERGY
TOTAL WASTE MGT] HEARING 6-1-97

NEXT WEEK 80002 + 80007 STUDIES

BEING ~~[illegible]~~ MAILED. NO OTHER ACT.

NOTE - BRING OSHA DOCUMENTATION

NOTE: SEE FILE MEMORANDA
FOR ADDITIONAL SITE STATUS
DATA, 12/96 - 2/97

OLD ATC REFINERY 1/30/97

NCD 986 186 578 WILMINGTON NC

ARRIVED ON SITE 1520

CHRIS MILITSCHER OSC
~~TONY BEST~~ ONSITE

TANKS
18 + 19 PUMPED TO #9
SAMPLED 5 WARENS FROM DRAINS
IN SIDES OF TANKS

THIS WEEK

HOLES IN #2 + 8 PRESSURE WASHING
NO WASTE REMOVED

MIKE IN EPA OFFICE, WANTING TO HELP
ASSESS ABOUT SITE CONCERNS

EPA
SAMPLING NEAR WATERFRONT — SOIL/SLUDGE
DEPTH SAMPLE AT 18" DEPTH HAS (PRELIMINARY
PRG QA) 94,000 ppm LEAD. (NOT IN WREAN)
SAME AS REFRACTORY — NOT — SO MUCH
INCREASE SCOPE OF WK. ABOUT SAMPLING
AXEL JOHNSON HAD VISITED, CITING EBCA
~~DOA~~ DONE BY BLACK + VEATCH. ($500 G)
EBCA ADDRESSED ONLY SOILS GIVEN
TWO TANKS AND CONTAINERS NOT SAMPLED.
AS PER C.M., EBCA IS INADEQUATE.

OLD ATC REFINERY 1/20/97
NCD 986 186 578 WILMINGTON NC

MAIN CONCERNS — NON COMPLIANCE INCIDENTS
BY PETROLEAN PERSONNEL
GPM APPARENTLY HAVING PROBLEMS
W/ PETROLEAN. GPM STILL MODIFYING PLAN.

DRUMS & CONTAINERS ON AREA 4
NOT REMOVED

OKAY POST- DISCUSS — BUT ONLY
POTW FOR WATER TREATMENT — 45000
GPD CAPACITY — BATCH TREATMENT

* TANKS 8000 1 + 8000 2 BOTH HAVE HOLES
IN BOTTOMS — SOME OF LEAKS.

15 + 19 TANKS — VACUUM WOULD PUMP
UPTIL HEATED — LONG 24 HR PROCESS,
HEAT BLANKETS. — TB ARRANGED IN COMING WEEKS

* AOC HAS NO COVENANT NOT TO SUE — ONLY ON
SPECIFICS. NOW D.O.J. HAS PROBLEM W/
AOC CLAUSES, SO ESP IF ADDITIONAL CONTAM
FOUND. DON'T WANT TO SET PRECEDENT, ESP
BIG SITE NOT WELL CHARACTERIZED.

BRUCE — GUNLEY, RESTORE

OLD ATC REFINERY — REMOVAL OVERSIGHT
NCD 986 186 578 — WILMINGTON NC — 1/30/97

NOW THAT > CONTAMINATION IS LIKELY, DOJ COULD REJECT COVENANT AND CONSENT ORDER, SO REMOVAL AOC SITE MAY HAVE TO BE RENEGOTIATED FROM SCRATCH AND IF THAT OCCURS, WORK WOULD BE SUSPENDED.

DRAFT OF UNILATERAL ORDER W/ EXPANDED AOC PROVISIONS IN WORKS.

REVISED WORKSCOPE WORKDOWN PROPOSED APPROACH DUE TO LIMITED FUNDING AND CONTRACTOR CAPACITY

LANDA CANNON
OWNER ~~WANTS~~ IS NOTEWORTHY, SO DONE.
PORT BOND (PERFORMANCE BOND)

↓ ~~AXEL JOHNSON A. ALLEN~~
AJ VERY LC, CATCH COLLUSION W/ ANOTHER, AS LC OUT BID THEM
LC SUEING AJ BECAUSE THEY SALVAGED TANK TOPS AFTER BEING GIVEN ACCESS TO PROP.

OLD ATC REFINERY — REMOVAL OVERSIGHT
NCD 986 186 578 — WILMINGTON NC — 1/30/97

BOTTOM LINE:

SITE NOT BEING CLEANED UP W/ EFFICIENCY — DELIVERABLES NOT ON TIME

LOT OF EPA/ CONTRACTOR/ SUBCONTRACTOR PROBLEMS, INCL HTS

BAD REL BETWEEN 2 PRPS — LAWSUITS

EXAMPLE — PRODUCT LINE STILL NOT SAMPLED!

SFP LEFT SITE AT 17:00

NOTE: SEE FILE MEMORANDA FOR ADDITIONAL UPDATES

3/7/97 OLD ATL REFINERY NCD 986 186 578 REMEDIAL OVERSIGHT

① WASTE TRANSPORT

EQUIMCHEM 30-300 GAL EST.

LEFT MANIF. 4700 → LWD,

OFFMOOD — NOT ALL SLUDGE REMOVED

DRIVER WENT TO GREENSBORO (SHAMROCK)

THEN BACK HERE TO REMOVE.

DISPOSAL LAND CANCER CITY

DRIVER BROUGHT UNMANIFESTED SCRAPS

BACK

RCRA IS HANDLING THE MATTER,

KOST IS SEPARATOR SLUDGE - LEADED

② DRUMS SHIPPED OFF MON 24th FEB

LWD MOST OF IT

WILDLAW NEXT

③ TANK IS BEING WASHED TODAY → NEXT WK

④ NEXT WASH TANK + PIPELINES →

ANOTHER SEPARATOR

OLD ATL REFINERY REMEDIAL OVERSIGHT
NCD 986 186 578 3/7/97

DATA COMING IN

TOWER 27000 Pb

3000 Cr

> 1000 V FROM TOWER

TPH, PAH, AROUND SITE

MANIFESTS — NOT COMPLETE AT SITE,

BUT AT AXEL JOHNSON IN CT.

PROMISED TO SEND AN UPDATED DISPOSAL

MT

2-003

TANK # WAS DEST

W/ NAME

WAITING FOR PLANS

SEPARATORS
ASBEST
CONT AREAS } ARE STILL ISSUES

→ CONT AT 8" NOW WANT TO GO TO 24 FT.

3/07/97 OLD ATC REFINERY REMOVAL O/SIGHT
NCD 986 186 578

TOWARD SITE IN LEVEL D.

TANK IS BEING WASHED OUT (S OF AREA 5)
UNCOVED OPENING IN SIDE

8000 GALLON GAL.
BEING TREATED AND VACUUMED CO VOC GAL
SCRAPING UP THE REST — DONE
TOMORROW

— MOLDED ASBESTOS WRAPS ON PIPES —
BAD CONDITION AFTER 11 YEARS.

— AREA 1 (BY WATER) — NOT SAMPLED
AROUND PERIMETER OF GRID SAMPLE AREA
93 000 ppm Pb. — PAST EMPLOYEES
REPORT PAST SLUDGE DUMPING 18" DEEP.

SO GRID DIDNT GET PB > 1300 ppm
(THE CLEANUP #), BUT MIKE DID
IN OVERLAPPING AREA.
SW CORNER, BY BERM, IS WORST.

3/07/97 OLD ATC REFINERY REMOVAL O/SIGHT
NCD 986 186 578

AP SEPARATOR #2 HAS OUTSIDE
WATER LEAKING IN — CONCRETE PAINT DRY

WANTED TO PUMP AREA TO USED
FOR STAGING WHEN CLEAN PIPES OUT.
ASBESTOS WRAPPING AROUND SEV.
OF THE PIPES

~~VPO~~ VOS AT OLD REFINERY
998 ppm < CLEANUP
SOME POOL IN BERM W OF TANK 3
NOT SAMPLED THERE, BUT WILL NOT YET

PHOTO BERM BY RIVER NEAR TANK
SOME SEEPAGE FROM SITE:
NOT SAW ONLY STAIN UNDER ROCKS
IN SAME AREA.

PHOTO
TANK 80003 INTERIOR — WATER ACCUMULATING

PHOTO RUNOFF W/ 80002

PHOTO CONTINUED LEAKAGE BENEATH 80002

~~#80001 40000 GAL H2O~~ — [NOTHING DONE YET]
LEFT SITE 1545.

OLD ATC REFINERY REMOVAL OVERSIGHT

NCD 986 186 518 [TELECOMMUNICATION] ON 6/4/97

MIKE TAYLOR CALLED SFF TO INFORM THAT WORK AT ATC SITE WILL RESUME AS AN EPA FUND-LEAD PROJECT.

THE NEW SITE CONTRACTOR IS ETI, ALONG WITH USCG CULT STRIKE TEAM

WORK WILL RESTART MONDAY, 6/9. MT WILL BE THERE THAT WEEK (6/16) CHRIS MILITSCHER WB THERE THE NEXT WEEK. WORK IS ANTICIPATED TO TAKE 3-4 MONTHS.

PER EPA REG IV NOW TRACKER # IS 910

6/19/97 SITE VISIT

ONSITE 1440 MET MIKE TAYLOR 1508 COMING OUT OF WORK ZONE

ETI EARTHTECH, INC EMERG MGTO

~~ERES CONTRACTOR~~ ERES WEST SERVICES

STOP WK ORDER SECTION 14 E

LETTER FOR EPA TAKEOVER ADMIN RECORD UP

OLD ATC REFINERY REMOVAL OVERSIGHT

NCD 986 186 518 SITE VISIT 6/19/97

DIV DIRECTOR TO PRM. 5/27/97

REASON + JUSTIFIC FOR TAKEOVER

MIKE IN OFFICE MON. CAN FAX/SEND LETTER

SINCE TAKEOVER BY EPA:

JUNE 2 PRMS SUMMOED TO DEMOB - NOT DONE

1ST WK

2nd WK ERAS + CHRIS MILITSCHER (NOW AT GURLEY PESTICIDE REMOVAL)

3rd WK MIKE

4th GARY SCOGGIN (NEXT WK)

9/2 STARTED WORK.

DISMANTLING 50002 + 80003, WHICH PETROCLEAN STOPPED WORKING ON.

TOUCHING EARTH TANK DOWN TO 8' PANEL AT BASE THEN COLD CUTTING SO DONT IGNITE ANY VAPORS BASE OF TANK. WATER HAS ACCUMULATED IN BASE OF TANKS.

NEXT, # 15 (CONFINED SPACE ENTRY) THEN PIPELINES - CONTENTS UNKNOWN. PIPELINE LINE ROTATED SO X CONTAM W/ LEAD POSSIBLE

ASBESTOS IN LINES / REFINERY TOWER TO COME DOWN THEN SOILS.

6/19/97

OLD ATC REFINERY
NCD 986 186 578

REMOVAL OVERSIGHT
6/19/97

PETROCLEAN —

— H2S VIOLATIONS

— REFUSING TO SAMPLE —

—

G+M — DELIVERABLES

—

PROS LITIGATION

LINDA CARROLL OFFICE TOO.
MAY USE 4 STATIONS
TO DO TANK (14) REMOVAL

AXEL JOHNSTON OFFSITE SPACE MARCH.

NEW TRAILER #'S 910 251 1886
910 251 2229?

(1) WORKERS AT PETROCLEAN ALLEGED THE COMPANY WAS UPPED AFTER 90 DAYS.

(2) HAD TO EAT COST OVERRUNS

(3) H2S CONCERNS
PPE
CONFINED SPACE

G+M AND PC HAD FRICTION

TRAILERS IN FENCED AREA ADJ TO BLDG WHERE CONTAINERS WERE HAZCADED AND REMOVED

6/19/97

OLD ATC REFINERY
NCD 986 186 578

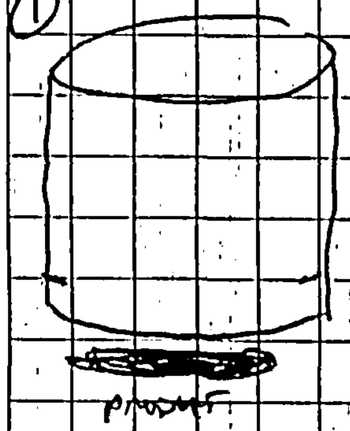
REMOVAL OVERSIGHT
6/19/97

SECURITY AT NIGHT ONLY. TRAILERS FENCED.

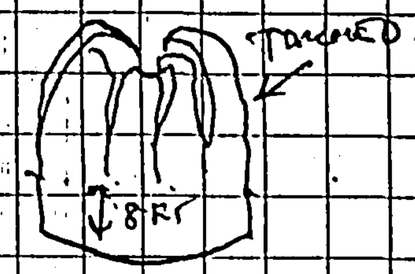
SEE LEFT SIDE 1600 TO LET MAT. INTERVIEW W/ WILMINGTON NEWSPAPER REPORTER.

TANK REMOVAL PROCEDURE:

(1)



(2)



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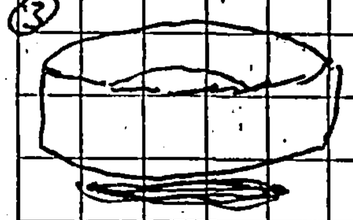


(4) "SLIPPED"

(5)

SLUDGE REMOVAL

SCRAP METAL NONHAZ, BEING STORED ONSITE UNTIL LINDA CARROLL CAN SELL OFF.

6/19/97

OLD ATC REFINERY REMOVAL OVERSIGHT

NCD 986 186 578 TELECON 7/2/97

SFP CALLED MIKE TAYLOR AT ATLANTA OFFICE (404 562 8762) FOR UPDATE

CHRIS MILITSCHER AT SITE THIS/NEXT WK. OFF ½ DAY 7/3, 1 DAY 7/4. BACK MONDAY 7/7. MIKE TAYLOR BACK ON 15th.

TANKS 80002 AND 80003:
WALLS REMOVED, WORKING ON TANK BOTTOMS.
ALSO STARTING CLEANING TANK # 55015.

SFP WILL VISIT SITE ON TUES/WED 7/8/7/9.

OLD ATC REFINERY REMOVAL OVERSIGHT

NCD 986 186 578

7/9/97 SFP ONSITE 1540 TODD WOLFE ONSITE C MILITSCHER IN SELMA AT GLENN PESTICIDES.

TANKS 80002 + 80003 DOWN —

TODAY
— WORKING ON WASTE WATER TREATMENT PLANT LOADING CARBON FILTER AND DOING WORK
— TO TREAT 1.0 FROM TANKS 80001 AND 100018.

GRUBBING TODAY + NEXT FEW DAYS IN PREP FOR PIPELINE CLEANING, NEXT WEEK.

WWTP HOLDING → ~~FILTER~~ SETTLING → ~~oil~~ OIL/H2O SEP → AERATOR → CARBON → TANK 15

TANK 15: OLD (PAP) CONTAMINANTS HEATED AND PUMPED OUT PRODUCT — NEW (EPA) CONTAMINATION CLEANED — TANK 15 WILL HOLD THE TREATED WATER FROM OTHER TANKS TO BE USED FOR DUST CONTROL WHEN EXCAVATING REFINERY — CONTAMINATED SOIL.

SFP LEFT 1620 BACK OFFICE 1900

OLD ATC REFINERY

NCD 986 186 518 ~~PELICAN~~ (USA) 7/16/97

910 257 1886

SFF AT TRAILER 1530

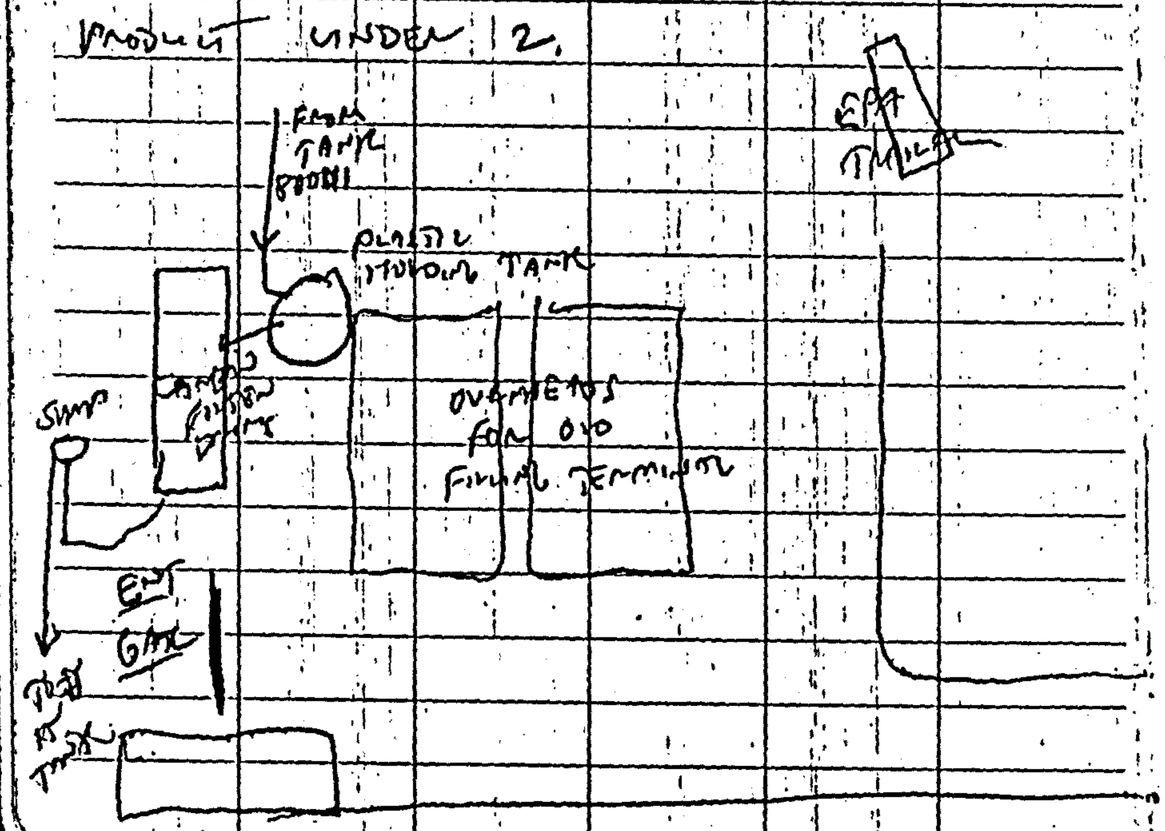
TREATING H_2O FROM TANK # 80001

PUMP UP + RUNNING — TO RAILTANK CAR FOR DISPOSAL

LINDA CARROLL HIRED FOR REASONS TO REMOVE OIL (CRUDE) FROM TANK 14

DH GAFFEN WILL DO TANK DEMOLITION AFTER EPA DONE

THIS WEEK SCRAP HANDLING AND REMO. SOIL REMOVAL. SOME FLOATING OIL PRODUCT UNDER 12.



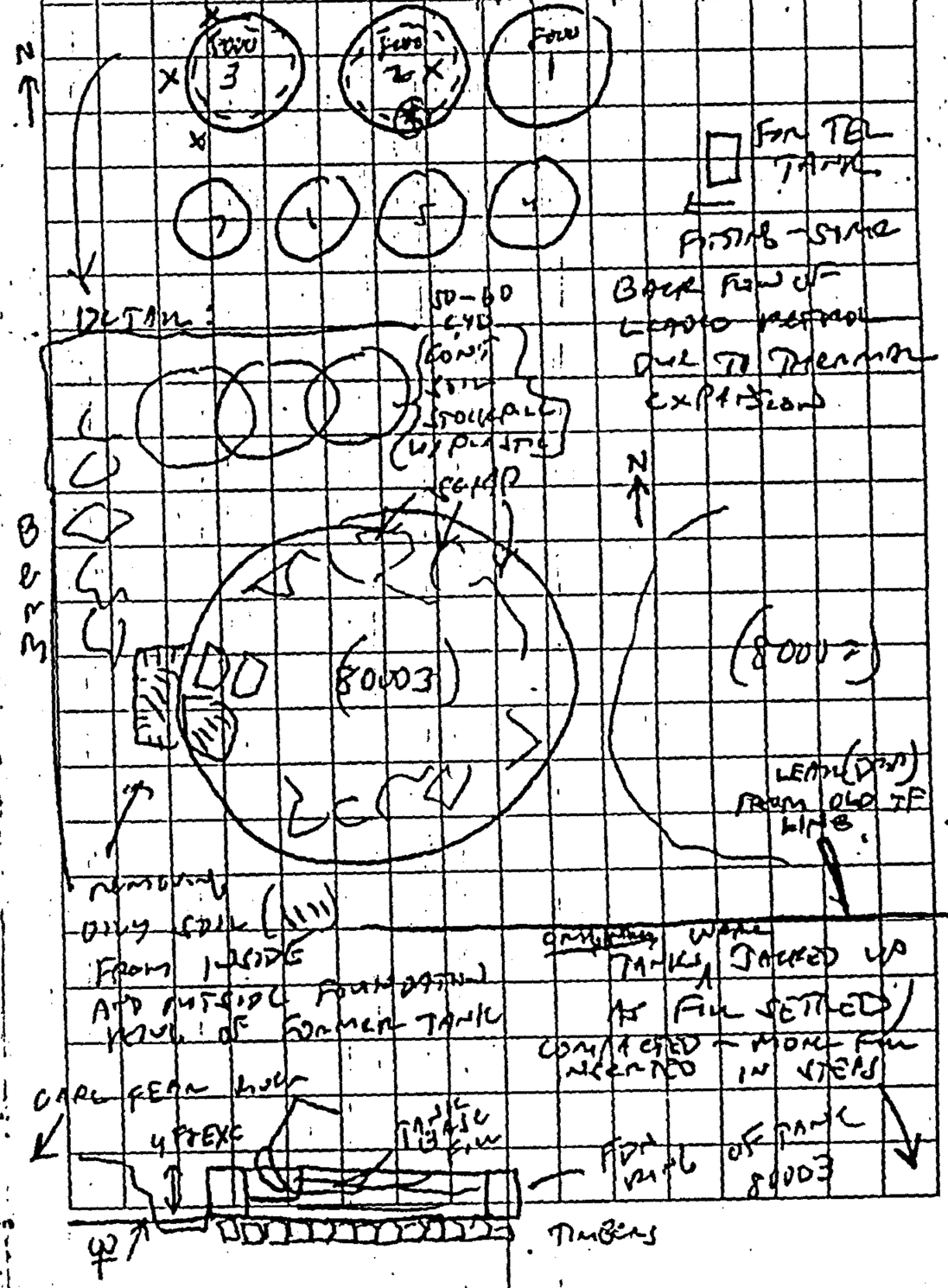
OLD ATC REFINERY

NCD 986 186 518 SITE VISIT 7/16/97

EXAMINED FORMER 80003 + 80002 LOCATIONS

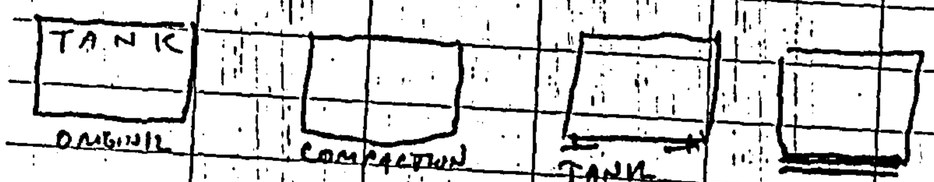
X ORIGINAL LEAK POINTS

SOME BACK LEAK OF OIL FROM LINE TO FORMER TANK = THERMAL EXP.

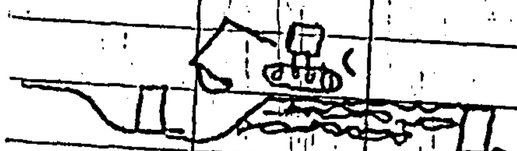


OLD ATC REFINERY
NCD 986 186 578 7/16/97

From PRP Pre: per MIKE TAYLOR



TANK BASE FILLED PERIODICALLY BY OPERATORS DURING SITE'S YEARS OF OPERATION.



ENVIROTECH EXCAVATING OILY STAINED T.B. FILL. (FDN RUNS UP TANK)

SFP OFFSITE 1700 OFF 1930 (PLEASANT STORMS)

TELECON 7/28/97
910 257 1886

SPOKE W/ CHRIS MILITELLO AT ATC TANNER — MIKE OUT OF STATE THIS WEEK. CHRIS THERE THIS FRIDAY (EXCEPT AT GUMLEY PESTICIDE WED)

CLEANUP GOALS SFP SAID COPY OF STATE GUIDELINES AVAILABLE — WILL BRING WHEN VISIT ON THURSDAY.
CHRIS SAID THAT CURRENT SITE-SPECIFIC

OLD ATC REFINERY
NCD 986 186 578 7/28/97

CLEANUP GOALS ARE BASED ON E.E.C.A REPORT. NEITHER HE NOR MIKE ARE CRAZY ABOUT THE GOALS (TOO LENIENT) WHICH ATSDR REVIEWED RISK ASSESSMENT PEOPLE CAME UP WITH. (1300 ppm Pb, for example)

SFP WANTS TO GET COPIES OF DOCUMENTS:

(1) UNILATERAL DECISION TO ↓ TO FUND-LEAD FROM PRP-LEAD.

(2) SAMPLING RESULTS (TO DATE) FROM REMOVAL INVESTIGATION, INCL EPA NEW DATA ON AREAS WHICH GEM REFUSED TO ADD TO SAMPLE PLAN.

CHRIS SAID HE WILL PROVIDE COPIES ON THURSDAY, WHEN SFP VISITS.
— WILL W/ CONTACT FOR DAWN BLEVINS OF EARTHTECH — DOESN'T HAVE IT IN HAND

SFP 7/28/97

FILE INFO
ADMIN RECORD UNDER CONSTRUCTION.
AVAILABLE NEXT WEEK OR SO SFP 7/29/97

OLD ATC REFINERY REMOVAL
NCD 055 359 079 7/31/97 SITE VISIT

(LEFT 1145 L 1345-1410)

SFP OFF 0930 ONSITE 1430 CHMS
MILLITSCHER

SOIL (ARARS) ADMIN RECORD 1300 PPM EPA ECA
400 PPM SF SECTION

— AXEL JOHNSON WILL BE FIGHTING EPA OVER COST RECOVERY — EPA WANTS TO ↓ CLEANUP TO > STRINGENT BUT A.J. COULD REGARD AS ARAR/CAP WITHOUT NEWER 400 PPM GUIDELINE WHICH WAS SET AFTER ECA (?) BY NC.

— MIKE TAYLOR CALLED — CM AND AHT DISCUSSED USE OF STATE GUIDELINE

— SFP POINTED OUT THAT STATE ARARS (INACTIVE SITE GUIDELINES/GOALS) MAY NOT ACTUALLY BE PROMULGATED, BUT CMP SAID IF THEY HAVE BEEN USED BY STATE, THEY WOULD BE RELEVANT AND APPROPRIATE.

— ON SITE — COAST GUARD REPORTED THAT ASBESTOS REMOVAL FROM PIPE WRAPS WAS THE PRIMARY ACTIVITY

OLD ATC REFINERY REMOVAL
NCD 055 359 079 7/31/97 SITE VISIT

ALSO — CHANGED OUT CARBON FOR TREATMENT OF 8000 WATER.

— WORKING ON 2 TANK SUMP ARCAS FOR 8002 + 8003 (SFP) — TARPS COVERING SUMPS REMOVED — (NO ACTIVITY THAT PM)

— SCRAP METAL FROM 8002 + 8003 (SFP) REMOVED.

SFP LEFT SITE 1540

OLD ATL REFINERY REMOVAL OVERSIGHT
NGD 986 186 518 8/19/97

TELECON

910 257 1886 MIKE TAYLOR REPORTED CLEANING OUT TRANSFER LINES, STARTING WITH SMALLER TERMINAL LEAD LINES OVER NEXT 2-3 WEEKS.

PROCEDURE:

1. DRAIN LINES
2. VACUUM SLOWLY
3. CONTAMINATION TESTING OF WASTE
4. STORE IN ONSITE TANK.

ALSO STILL CLEANING TANK AT STOIS (SOOIA? SFP)

DISCUSSED HAULING OFF SCRAP METAL

SFP WILL VISIT NEXT WEEK MON/TUES. CHRIS MINISCHER WILL BE THERE.

NOTE: CALLED C.M. ON 8/27. HE REPORTED WORK PROCEEDING OKAY.

NOTE: CALLED TODD WOLPERT (USCG: SAME #) 11th. HE REPORTED PIPE CLEANING PROCEEDING, BUT EPA NOT BACK ONSITE UNTIL TUES PM, 16th

8/13/97

OLD ATL MFNEM TELECON 8/27/97
NCD 986 186 578 910 251 1886

MIKE WILL BE BACK NEXT WK

DRAINING RESERVOIRS AND CUTTING THEM UP
W/W TRANT. OFF TANK 1
MODIFIED SYSTEM DOWN
~~[illegible]~~ 10,000/el gallons
RECOVERY TANK 2-3
SOOLS — DONE — ~~[illegible]~~ DONE ~~20~~ USED
FOR STORAGE FROM WTP.

NEXT POLLING #30

[SEE PREVIOUS PAGE]

[CALLED 9/10/97 1600 NO ANS]

OLD ATL TELECON 9/10/97
NCD 986 186 578 910 251 1886

SPP SPOKE W/ COMMISSIONER: SITE WORK GOING WELL
BUT OSC WORK BEING TIED UP BY LEGAL
ACTION BY AXEL JOHNSON. CM ADVISED
TO SCHEDULE VISIT AT LATER DATE. STP
W/ CM BACK WEEK OF 9/22.

OLD ATC REFINERY 10/20/97 STEVE

SFP LEFT PIER 1130 (LUNCH) ONSITE 1175

MET W/ USCG PETTY OFFICER WELDON, TOURED SITE IN LEVEL PROTECTION. OBSERVED + NOTED FOLLOWING

1) PET RECOVERY AREA, TANKS 80002/80003 TRENCHES DUG TO IRRIGATE + FACILITATE PRODUCT REMOVAL

2) TANK 80001 POWER WASHING INSIDE (CREW WORKING IN CONFINED SPACE) VISIBLE THROUGH TANK PORTAL.

3) LETTER POINTS AT TANK 9 (NOW PUMPED OUT).

4) PIPE CLEANING AT PUMP PIT/STAGING AREA.

5) TANK 14 BEING CLEANED, CUT OPEN NEARBY SPILL DURING PRODUCT TRANSFER.

SIGNED OUT 1550 LEFT SITE 1600

TURNED TO
PETTY OFFICER
RIZZO
MON, 10/20/97

OLD ATC NETWORK | 11/19/97
NCO 986 188 578 | TELECON
REMOVAL OVERSIGHT | 910 257 1888

MT AND CM OFFSITE / ATLANTA
TONY BEST ON DUTY BUT NOT ON SITE

OFFICER WOLDON (USCG) SAID THAT PLACE
CLEANING WAS THE ONLY ACTIVITY ONGOING.

NO SOIL REMOVAL YET — ACTIVITY
WILL BE SHUT DOWN BEGINNING TOMORROW
AND WILL RESUME ON 12/1 AFTER HOLIDAY.

XMAS SHUTDOWN WILL BE ~ 12/21 TH ---?

11/19/97 ADM

OLD ATC REFINERY 12/1/97

NED 986 186 578 910 257 1886

ONSITE 1530 AFTER VISITING REASON OWEN

- TANK 1 BEING TAKEN DOWN + SHIPPED
- SHIPPING ASST TO TANK 14
  THEN #15, OTHER TANKS REFINERY TOWER
- LAST LINES BEING TAKEN OUT
  BY END OF WEEK UNOFFICIAL ESTIMATE
  TOTALED 5 MILES, MOSTLY PIPE OF
  PRODUCT

<DIANE BARNETT FOR PUBLIC MEETING>

- TEST PIT BEHIND 14/15 — 8 FT DEEP
- EVIDENCE OF TANK BOTTOM SLUDGE BURIAL
  C+D ASBESTOS, RR TIES, ETC.

W/ TANK 3 GONE, CHLORINE + LAMPFARM
SOIL. OTHERWISE, NO SOIL ACTIVITY ANY TIME
SOON.

LEFT SITE 1645

RETD 10-1215 TT
130-3 LUNCH
3-500 SUP 5-730 TT

OLD ATC REFINERY (TEXAS) 1/23/98
~~NCD 988 186 518~~

SFP called Tony Best, getting OSC
at 910 251 1886. He reported the following,

- TANKS 40004 AND 40005 ARE CLEANED OUT AND READY TO DEMOLISH. - TANKS 40006 AND 40007 ARE BEING CLEANED.
- TANKS 50014 AND 50015 ARE BOTH DOWN, AND FLOORING FOR 50015 IS BEING CUT.
- REFRACTORY TOWER IS NOW GONE.
- SOIL INVEST TO BE ADDRESSED IN LATE FEB/EARLY MARCH

11/20/98

OLD BTC MEMORY dated 2/27/88

M. TAYLOR HAS LEFT FOR ATLANTA
TRAY PALMER COMES NEXT WEEK
TONY BEST 3/9-20. MS DAVE LATE
WEEK OF MARCH.

OLD ATC REFINERY 4/8/98 OPER 1700

TANK 8 ALL TANKS LEFT
OTHER TANKS GONE
LANDFARMING CONT COVER AT TANKS
TOWER (REFRACTORY) DOWN

FURNACE, PLATFORM, COMING DOWN

RECOVERY TRENCHES BACKFILLED

TREATING WATER FROM REFRACTORY TOWER.

OTHER TANKS HAD GASOLINE IN SOIL
MOST HAD LEAKED — DETERMINED
WHEN REMOVED

PHOTOGRAPHED FROM EAST EDGE OF EXCLUSION
ZONE. LEFT SITE 1745.

OLD ATC REFINERY 6/2/98

9102 2871886 ROD ELKINS

SCRAP METAL REMOVAL

ALL TANKS DOWN

NEXT WK SOIL SAMPLING.
PUSH REL TO PET LANDFARMING.

7/8 TONY BEST SEC. STEY / CHRIS IS NOW OSC

SOUTHERN SCRAP EXPLOSION COMP GAS

CREWS OFF SITE NOW
TANKS 2-3 SCRAP TOT
AREA — WORKING ON SOIL

SOUTHERN SCRAP WARRANT INVESTIGATION
- HIGH LEAD IN TANK
- EMPLOYEE INT. AS OTHER PREMISES
N OF WILL. OSHA

CALL TONY

OLD ATC REFINERY

TONY BEST 404 562 8754 (ATLANTA)

NOW ACTION ORG.

SUPPLIMENTED PART SAMPLING FULL PARAMETERS

ID & AREAS OF SOIL CONCERNS

— NEAR TOWER AREA

— 2 BURIAL AREA SW CORNER

OUTER EXTENT + DEPTH

— PIPELINE AREA EW S OF TANKS 8-13

[LOTS OF DEBRIS IN SOIL ON SITE]

PIPES PROBABLY LEAKED

— E OF TANK 14

OLD OIL WATER SEP

— ODDS + ENDS TEL. BOOGTANK BLDG

WILL WERE IN TANK

END HAD OPENING TO DO REAL QUICK

CONT MONITORED

100 SAMPLES (CONTAMED)

CA A SPOT COMP AS VARIOUS DEPTH

POINTS — STRETCHED OFF TO EV 2-3 WKS

ACTION MEMO + FUNDING EST

10000 CU YDS OF SOILS TO ADDRESS

LANDFARMING

MOBILIZE BACK IN NEXT WK, COMES TO

BEGIN SOIL REMOVAL ON 7/15/ 16TH, 5 MONTHS

CURVE TABLES

HOW TO USE CURVE TABLES

Table I. contains Tangents and Externals to a 1° curve. Tan. and Ext. to any other radius may be found nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I.: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

EXAMPLE

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P. = 23° 20' to the R. at Station 542+72.

Ext. in Tab. I opposite 23° 20' = 120.87
120.87 ÷ 12 = 10.07. Say a 10° Curve.

Tan. in Tab. I opp. 23° 20' = 1183.1
1183.1 ÷ 10 = 118.31.

Correction for A. 23° 20' for a 10° Cur. = 0.16
118.31 + 0.16 = 118.47 = corrected Tangent.

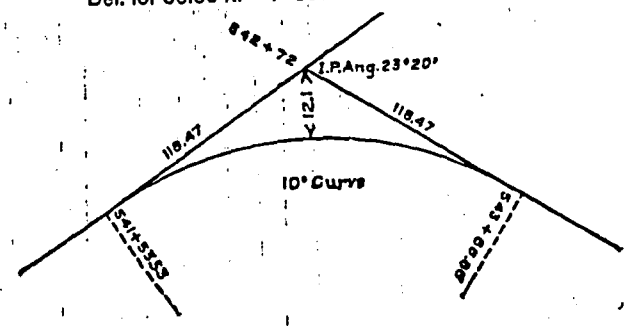
(If corrected Ext. is required find in same way)
Ang. 23° 20' = 23.33° ÷ 10 = 2.3333 = L. C.

2° 19½'	= def. for sta.	542	I. P.	= sta.	542+72
4° 49½'	= " " "	+50	Tan.	=	1 .18.47
7° 19½'	= " " "	543	B. C.	= sta.	541+53.53
9° 49½'	= " " "	+50	L. C.	=	2 .33.33
11° 40'	= " " "	543+ 86.86	E. C.	= Sta.	543+86.86

100 − 53.53 = 46.47 × 3'(def. for 1 ft. of 10° Cur.) = 139.41' = 2° 19½' = def. for sta. 542.

Def. for 50 ft. = 2° 30' for a 10° Curve.

Def. for 36.86 ft. = 1° 50½' for a 10° Curve.



CONTENTS

PAGE NO.	REFERENCE	DATE

OLD ATC REFINERY 7/30/98
NCD REMOVAL OVERSIGHT.

DRIVE TO ATC SITE THINK YOU
ONSITE AT 1630

MET W TONY BEST. EPA
GEORGE MICKE PROJ MGR
KEN MOLENAR USCG.

HIGH RISE SPILL ACROSS RIVER
T BEST LOOKED AT AFTER CG WORKED
ON IT
STATE LEADING IT GOT ESD TO
WINDEMUTH WRAPS UP THERE.

TOURED SITE IN LLD.

TEL TANK SLAB - PUMPING UP CONC
AND FOUND TEL PRODUCT. → DIG
UP 4 FT SOIL.

VIEWED OLD REFINERY TOWER LOCATION
PHOTOS FROM NEAR DOWN OFF LKD BLDG.
PANORAMA FROM E → S → NW

OLD BURIAL AREA - PLASTIC OVER
OLD TANK IN THIS AREAS. DARK
SOIL IN FROM SW AREA OF SITE
~ 1500 CYD.

SOUTH OF SITE
SOUTHERN METALS - MAF OF STORAGE
BLDG DESTROYED BY EXPLOSION IN JULY

PHOTO PLANNED SOIL STAGING AREA,
AND FORMER PUMP PIT AREA (OILY
SHEEN IN H_2O !!. FROM GROUND - EPA PLANS
TO EXCAVATE.
PHOTO TANK STOCKPILE FROM PIT

AT SW AREA OF SITE

PHOTO'd EXCAVATED AREA.
TOUR OUT SOME CONTAINED DRUMS.
BASED ON VISUAL CRITERIA: *
EXCAVATED DOWN TO 4 FT (BELOW WT
WITH ~~AEM~~ ARCHY EXCAV AREA WITHIN
(BUT NOT INCLUDING) BERM. WILL EXC
LOOKING DEEPER IF FIND THE 2 ACTUAL
BURIAL PITS REPORTED IN SW AREA.

STAINED SAND VISIBLE IN SIDES OF
PIT - POSS NATURAL MATERIAL.

ACTION MEMORANDUM - WILL DO WHAT
IS POSSIBLE WITH 4.8 MILLION
BUDGET CAP

* OTHER AREAS OF SITE WILL BE BASED
MORE ON ARCHITECT OPN.

Pb FROM EECA 1100 COMMON BUT EPA
Cr VA PAH / HEAVY BASED. SECTION 5- 1300

TREATABILITY STUDY FOR SOILS FROM
THE TANKS 0001 + 0002 AREA THAT
WERE REMOVED BY GTAP

→ TO INTRODUCE ORG MAT AND
FACILITATE VEGETATION OF GROUND
AND SOIL

PROVIDED TEL. A STOCKPILE NE
OF 80003 BASE - AND TEL.
EXCAVATION - MONO - USING VIDEO
CRITERIA AND DIGGING DOWN TO WATER TABLE
(ALSO PROFILE DATA: PUNDING)

DEBRIS AND TOXIC WASTE OF SOUTHERN
METALS THAN PERCH NOTED PIECES OF
DRUM RUNAWAYS W/ DYNOL. 1 AREA EXCAVATED THEN
VIEWED 2 50'x10' EXCAVATED AREA W/
"CHICKENS" OLD FILL AREA SE CORNER OF SITE
AT DAWSON + FRONT OF.

AT TRAILER. TONY BEST GIVE SFP COPY OF
ACTUAL BUDGET $5,933,000.
MIKE TOOK MAP PLANS UP TO JUNE
ALSO ACCUMULATED DATA.
SFP LEFT SITE @ 17:50 OFFC 20:15

Cristex
Oxford, Granville County, NC
USEPA ID: NCD 001 606 250
PA/SI Sampling
Wednesday, August 12, 1998
(continued)
Doug Moore } Team 3
Stuart Parker }

16:00 arrived at Cristex and
setup to sample MW-19 onsite
above lagoon for sample
CD-19-GW.
Stickup = 0.7 feet.
Depth of well 9.2 feet
Depth to waterfall 4.875 feet
Depth of water col. = 4.325 or
0.692 gals per well vol, x 3
for 2.1 gals per 3 well volumes.

16:15 - SFP collected MBAS sample
about 8' below top of wellhead.
Sample labelled "CD-19-GW". Sample
split received by James Gable of
Mid-Atlantic Associates. Turbidity
reading was 52.2 NTU.

DSM

OLD ATC REFINERY NCD 986186578 *

REMOVAL OVERSIGHT ~~8/31/98~~ 9/1/98

TONY BEST, OSC 910 251 1886

EPA CONTRACTOR REMOBILIZED TO SITE AFTER HURRICANE BONNIE CAME THROUGH

SOME FLOODING OCCURRED, BUT REMOVING SOILS NOW TO LOADERS AND STOCKPILING

LOCATED 2 DRUM BURIAL PITS.
SOME DRUMS, CRUSHED, BUT NO FREE PRODUCT
LOOKING FOR PIT VISUALLY, DATA NOT BACK FROM ESD YET. PERIMETER EXCAVATION LIMITED TO 0-4½ FT (UNDERC)

ANTICIPATE COMPLETION IN 60 DAYS
SW PITS IS WHERE WE TWO.

CLEANUP GOALS (PPM)

Pb	1300
Cr	1000
Va	500
PAH	100
PAH	50

OLD ATC REFINERY NCD 986186578

REMOVAL OVERSIGHT 10/6/98

LAST WEEK SENT OFF 200 LOADS OF NONHAZ PETROLEUM CONTAMINATED SOIL TO NORFOLK LANDFILL AFTER BIOTREATMENT

STOCKPILES ON SITE BEING MIXED W/ MULCH* TO BIOTREAT.

JOHN GLASER, BIOTREATMENT EXPERT FROM EPA R&D OFFICE IN CINCINNATI, IS ONSITE TO DISCUSS BIOTREAT ISSUES TODAY

2 LARGE AREAS NOT EXCAVATED TO DATE:
① REFRACTORY AREA
② BURIAL AREA BY LOT OF TANKS

LF DETERMINES, BASED ON ANALYTICAL DATA FROM STOCKPILES, DECIDES WHAT THEY CAN TAKE.
* (MULCH IS HURRICANE DEBRIS BEING RECYCLED)

SE CORNER OF LOT: ONE DRUM W/ UNKNOWN CONTENTS THAT BEEN OVERPACKED AND KEPT ONSITE.

AIR MONITORING BEING DONE BY STARR CONTRACTOR

ANTICIPATE COMPLETION IN DECEMBER.

OLD ATC REFINERY NCD 986 186 578

REMOVAL OVERSIGHT 10/7/98

ARRIVED ONSITE 1547

T BOST IN CONF W/ JOHN GLASER, EPA,

SO ROB ELKINS LED SFP ON TOUR OF SITE

(4SCG)

~~10/14/99~~

NOTE FROM JIM — MIKE TEDDER HAS ~~GAT~~

DATA AND POLREPS.

OLD ASC RETIREE NCO [illegible]

NEWSOME TELECON 1/11/99

910 2ND 1886 TONY BEST OSC

404 229 9508 <CELL PHONE>

LATEST COMPLETION DATE: MARCH/APRIL

SPOKE W/ PETTY OFFICER PAZZO

T BEST WILL BE ONSITE NEXT WEEK.

BEST TO COORDINATE W/ HIM VIA CELL PHONE.

1/19/99 T BEST ~~[illegible]~~ AT REGION III OFFICE, ATLANTA WILL RETURN NEXT WEEK.

1/26 STOPPED BY SITE EN ROUTE TO SWMP WILMINGTON PUBLIC MEETING

RECON — TONY BEST WAS EN ROUTE TO WILMINGTON FROM ATLANTA.

SPOKE W/ SINGLETON (USCG)

2/18 PHONE CONFERENCE (PACIFIC STRIKE TEAM) REPORTED TONY BEST AFFIRMS THIS WEEK'S WORK WILL BE IN NEXT WEEK (AFTER NOW).

— ACTIVITY LIMITED TO MULCH DEPLOYMENT AND BIOTREATMENT OF PETROLEUM-CONTAMIN. SOILS.

2/24 910 2ND 1886

REMOVAL O/SIGHT

OLD ATC REFINERY 2/24/99

NCD 986 186 474 SF PARKER

WILMINGTON NC

T BEST — MET ONSITE. TOURED SITE

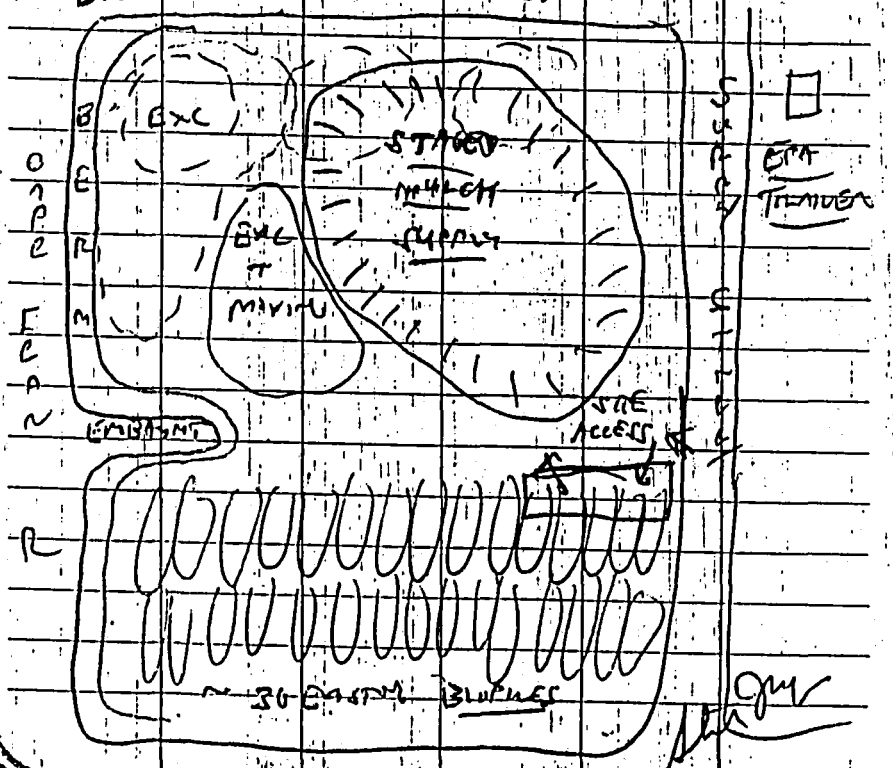
HAS BEEN DECIMAL

AND MULCH ON SITE.

MIXING OCCURRING W/ BIOREACTORS IN UCC PROTECTION

HOSES FROM AIR FEED IN PLACE WITHIN

BIOPILES — WERE FROM POND



OLD ATC REFINERY REMOVAL OVERSIGHT 2/24/99

MANAGE: WILL PAY THE BILLS

ACTIVELY — MOST CREW OFF SITE

BY 1ST OF APRIL. WILL PAY BILLS

NEXT 90+ DAYS. EXTENSIVE →

W/ SECURITY + SKEL CREW

→ SAMPLING IN 2 PILES TO DOCUMENT.

CONTINUE

BIOTREATMENT

PROGRESS. BEF/AFTER SAMPLING IN PROGRESS.

OF PILES TO CONFIRM THAT TPH ARE

SAMPLE PLAN COMPLETED IN DETAIL

EST TOTAL 50 BIOPILES (OUT OF EST.

ORIGINALLY 70) EXPANDED TO. GUNT

INORGANICS — ADDRESSED BY OFFSITE DISPOSAL

BATCH UP CHARACTERIZE ANALYTICAL DATA.

EXCAVATED DOWN TO WT (BELOW)

SO CONFIRM SAMPLING NOT FEASIBLE.

PETROL) SOURCE REMOVAL BASED ON

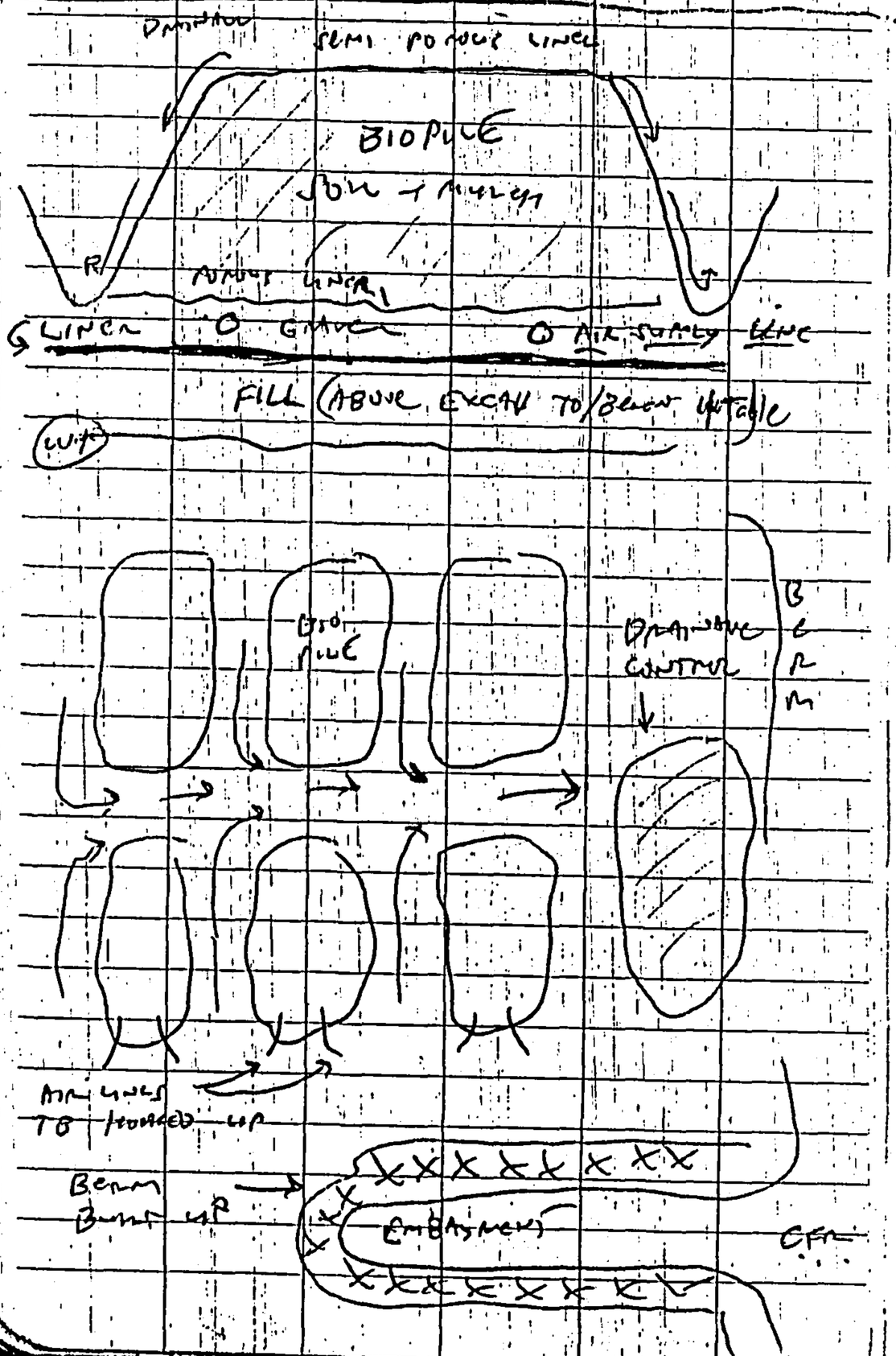
VISUAL (+ SOME ANALYTICAL). EXCAVATED

DOWN THROUGH SOIL (GW) INTERFACE

FOR ENV. STANDPOINT TPH ARE

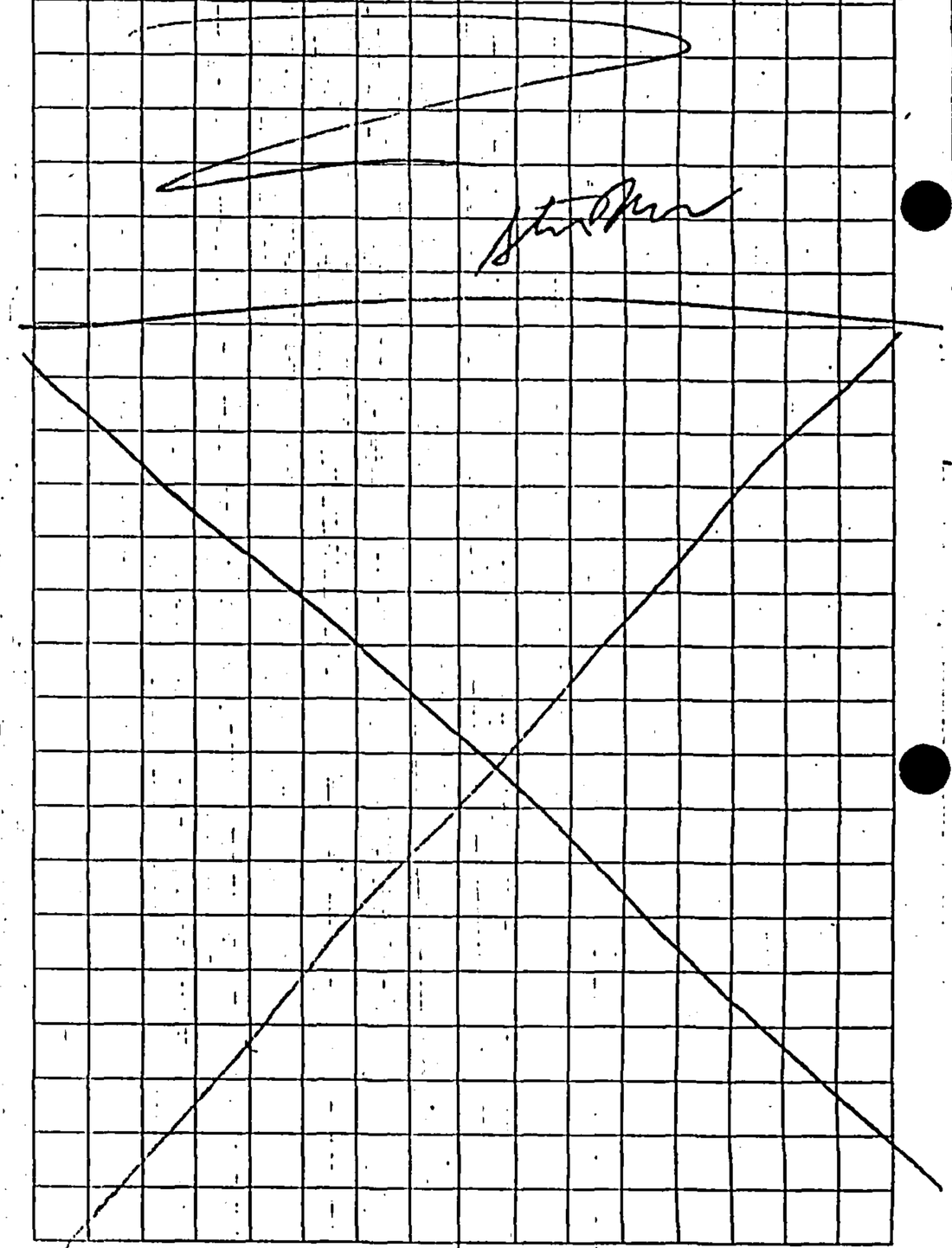
MAYBE TOO OFFSITE LOW-MOV — BIOTREAT.

OLD ATC REFINERY REMOVAL OVERSIGHT
NCD 986 186 578 2/24/99



OLD ATC REFINERY REMOVAL OVERSIGHT
NCD 986 186 578 2/24/99

SFP LEFT SITE 1645.
OFFICE 1915 OUT 1950



OLD ATC REFINERY 9/23/99
WILMINGTON NC
NCD 986 186 518

CALLED CHRIS MILLISCHER ON 9/22 (EPA)
AND LEFT MESSAGE INQUIRING RE
STATUS OF SITE, GIVEN FLOODING
CONDITIONS POST HURRICANE FLOYD

910 251 1886 EPA OFFICE # OUT OF SERVICE

LJM

OLD ATC REFINERY 9/23/99
NCD 986 186 518

1400 CHRIS IN LEFT VOICE MAIL.
PER MIKE TAYLOR:
— FLOODING HAS REACHED ONSITE, BUT
NO DAMAGE.
— RIVERFRONT BERM STILL ABOVE H_2O
— ONCE WATER DROPS AND SOIL DRIES
CONTRACTOR WILL RESUME FINAL
SOIL TREATMENT BY CHEMICAL OXIDATION
— SHOULD BE DONE THERE IN A FEW WEEKS

LJM

GASTONIA INDUSTRIAL TRUCK CO.
NCD 002374445 9/24/99
PA RESEARCH

1030 AM
DRIVE TO GASTONIA COUNTY LAND RECORDS
212 W MAIN ST GASTONIA

COPIED TAX MAP (82) SHOWING LOTS
(12) (GIT FACILITY) AND (13) VACANT PARCEL
5.89 AC 9.48 AC
ON HEMPHILL RD.

LOT (12)	TF DATE	LOT (13)	TF DATE
TRANTHAM	4/28/72	HUFF STETLER	6/19/57
FROM OF	3/24/57	TRANTHAM	9/29/80

REVIEW OF PROPERTY OWNER INDEX
FOR MAP NO 82 CONFIRMED DATES
L. TRANTHAM PURCHASED PROPERTY

OBTAINED ORTHOPHOTO PRINTOUT
1" = 200'

SPOKE WITH GARY QUILLIAMS OF
CITY ENGINEERS — HE DESCRIBED SEVERAL
ADDITIONS TO WATER SUPPLY LINES,

GIT NCD002374445, 9/24/99
GASTON CO.

WHICH SFP MARKED ON USGS 1:24000
STUDY AREA MAP.

1530
SFP PROCEEDED TO GASTON COUNTY
COURTHOUSE TO CHECK DEEDS

CONFIRMED CARL HERDING OWNED GIT
SOUTHEAST PARCEL (LOT 13) 9.48 ACRES
FROM 4/8/57 TO 2/16/87.

LEFT COURTHOUSE 5 PM (17:00)
REACHED OFFICE 8:30 PM (20:30)

Stu Parker

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
POLLUTION REPORT (POLREP)

RECEIVED
NOV 01 1999
SUPERFUND SECTION

POLREP #86 and Final
OLD ATC REFINERY
801 Surry Street
Wilmington, North Carolina

TO: Myron D. Lair, ERRB
Shane Hitchcock, ERRB
Ralph D. Rigger, ERRB
Dan Thorton, EPA HQ, ERD Regional Coordinator
EPA Region 4 Regional Response Center

CC: T. Best, ERRB
T. Cox/K. Beswick, EAD
R. Davidson, ERRB

BCC: J. Glaser, EPA-ORD

FROM: Christopher A. Militscher, OSC
Michael Taylor, OSC

DATE: October 25, 1999

Period Covered: 10/12/99 to 10/23/99

I. BACKGROUND:

Site No.:	04YR
Delivery Order No.:	4008-F4-002
Response Authority:	CERCLA, Non-NPL
Incident Category:	Time-Critical, Fund-lead Removal

PERSONNEL ON-SITE

OSC - 1/2
USCG-GST - 0
ERRS - 5/6

Weather: Hurricane Irene did not severely impact coastal N.C. However, heavy periodic rain during the reporting period delayed or caused disruptions to site activities.

II. SITUATION:

See previous POLREPs.

III. SITE ACTIVITIES:

ERRS continued with demobilization activities. Drums used for the chemical treatment were rinsed and disposed of either through recycling or returned to the manufacturer. One drum of hydrogen peroxide was kept as a contingency and utilized on several small hot spots identified and treated on 10/20.

ERRS continued with packing up files, equipment and other materials. Telephone and trailer services were terminated on 10/22. Site security ended on 10/21. Electric service to the trailer was terminated on 10/20. ERRS continued with site grading activities on the Southside and completing modifications to the sediment pond. The under-flow dam system was observed to be functioning well and the sheens coming from the up-gradient areas were being held in the pond for potential natural bio-degradation. Surface water from the outfall appeared clean with little turbidity. The pH was field measured by the OSC at approximately 6.0 units. There was no significant odor detected. Clean brick, rock and concrete found on-site were utilized at the outfall to help stabilize the earthen berm and provide 'riprap' for the discharge pipe.

OSCs assisted in spreading seed, picking up site debris and packing equipment and materials. Temporary soil erosion control measures, including silt fencing, seeding and berm placement were completed as of 10/22. OSC Militscher provided a site tour to the property owner on 10/19. OSC provided general information regarding the surface water discharge system and the potential requirements for an NPDES permit for Northside and Southside discharge points.

During the final walk-thru with the ERRS PM, the OSCs and PM discovered a small jar of elemental Mercury (CERCLA hazardous substance) hidden in one of the laboratory counter draws. There is an estimated 3-4 ounces of mercury and ERRS was directed to find a potential recycling and/or disposal source for this material. The past use for the elemental mercury is currently unknown. However, mercury was found in numerous tanks on-site (Tank #4, 5, 6, 7, 8, 9, 10, and 11; See attached report regarding tank contents and concentrations).

Non-hazardous contaminated debris was collected and off-site disposal activities for the two roll-offs have been arranged. One (1) roll-off container was removed on 10/20. Results from previous sampling indicate that chemical oxidation has been generally successful with an approximate 'average' concentration of 300 ppm remaining for TRPH (Southside). This represents an estimated 30 to 50% reduction in the mass of contaminants for the contaminated soils. The Northside average concentrations following the biopile treatment system were estimated around 200 ppm for TRPH. The last roll-off container was removed from the site on 10/22.

Working site files for the OSCs were organized and returned to Atlanta on 10/25. OSCs will continue coordination with ERRS contractor on the finalization of daily costs, awaits, etc.

IV. SUMMARY OF DISPOSAL/TREATMENT:

Wastestream & TSD Facility	Amount	Date (s)	Comments
WS-04 Haz. debris; Laidlaw	80 cy / 4 loads	4/9/98 (3) & 6/7/98	Cr, Pb, Ar, Cd solids
WS-02 Non-haz liquids; Laidlaw	162 cy / 9 loads	4/1/98 (2), 4/2/98 (4), 4/3/98 (3)	Contaminated tank sludge
WS-08 Haz. liquids; Laidlaw	18 cy / 1 load	4/1/98	Pb liquids
WS-10 Non-haz solids; Laidlaw	54 cy / 3 loads	5/22/98 (3)	Contaminated tank scale
WS-03 Non-haz solids; BFI	1 cy / 6 containers	9/18/98	Friable asbestos (ACM)
WS-07 Haz. Flam. Liquids; Giant Cement	34,859 gal. / 7 loads	10/8/98, 10/9/98, 10/12/98, 10/13/98, 10/14/98 (2), 10/15/98	D001; Ar, Pb, Hg, Se, Cd, Cr & Benzene
WS-01 Non-haz debris & PPE; BFI	200 cy / 8 loads	7/25/97, 9/26/97/ 10/31/97, 12/16/97, 1/9/98, 1/30/98, 10/21/99 & 10/22/99	Contaminated debris & PPE
WS-01 Non-haz debris & PPE; BFI	350 cy / 12 loads	3/10/98 (2), 5/26/98, 6/12/98, 8/21/98, 12/8/98, 3/5/99, 3/26/99, 4/5/99, 7/28/99, 8/13/99	Contaminated debris & PPE
WS-07 Haz. Flam. Liquids; Capital/City Environmental	27 tons / 2 loads	6/3/98, 6/4/98	Pb, Benzene sludge/liquids
WS-09-1 Non-haz soils; BFI	835 tons / 34 loads	6/23/98 (17), 6/24/98 (17)	Contaminated soils (TPH ~ 11,000 ppm)
WS-09-2 Non-haz soils; BFI	1,055 tons / 47 loads 1,086 tons / 48 loads 931 tons / 42 loads	11/16/98 11/17/98 11/18/98	Contaminated soils (TPH ~ 3,000 ppm)
WS-09-3 Non-haz soils; BFI	693 tons / 28 loads 860 tons / 40 loads 1,082 tons / 48 loads 957 tons / 41 loads	9/29/98 9/30/98 10/1/98 10/2/98	Contaminated soils (TPH ~ 1,100 ppm)
WS-13 Haz. solids; City Environmental	4 cy / 1 load	4/12/99	D003; Reactive sulfides
WS-12-A Non-haz soils; Northside	Treated on-site: ~ 14,400 cy (12 biopiles)	3/99 to 8/99	Contaminated soils (TPH avg. conc. 500-600 ppm) Hot spots > 800 ppm Results: Avg. conc. 200 ppm
WS-12-B Non-haz soils; Southside	Treated on-site: ~ 36,000 cy (30 biopiles)	4/99 to 8/99 biosystem 9/99 to 10/99 chem-ox	Contaminated soils (TPH avg. conc. 500-600 ppm) Hot spots > 1,100 ppm Results: Avg. conc. 300 ppm

WS-11 Non-haz aqueous	Collected & treated: 759,000 gal. (Northside area)	6/97 to 3/98	Oily contaminated surface waters.
WS-11 Non-haz aqueous	Collected & treated: 225,480 gal. (From tank #1, #8, decontamination of pipelines, etc.)	6/97 to 3/98	Contaminated water from decontamination and mixed with oil/haz. substances.

The treatment and re-application of wastewaters from decontamination, the collection and treatment of surface waters (referred to as 'groundwater' in certain POLREPs) on the Northside and wastes generated during RP-phase of the removal action are also documented in previous POLREPs and in the site files (See attached summary of T & D performed under AOC). The wastestream (WS-06), from the wastewater treatment activities (spent carbon) was consolidated in wastestream WS-09. WS-08 (tetraethyl lead) was removed during the emergency phase of the removal action. A final wastestream for the elemental mercury (WS-14) will be added to the site files following its ultimate recycling and/or disposal.

V. SIGNIFICANT SITE EVENTS/ISSUES:

Since 1996, the site has been impacted by numerous hurricanes, including Bertha, Fran, Bonnie, Dennis, Floyd and most recently, Irene. In addition, there have also been two 'northeasters' and several 'micro-burst' storms. Flooding on-site has been a major obstacle for the completion of the removal action. Furthermore, numerous discharges of oil and hazardous substances to waters of the U.S. (Cape Fear River) have occurred during these storm events. Site drainage will potentially continue to be a problem for any future development activities on the property and permanent drainage improvements would most likely be needed. Several natural springs are located along the property boundaries and they will continue to add to the flooding of the property following storm events. Surface drainage modifications on the Southside (temporary measures) were made to channel water from up-gradient areas (i.e. Southern Metals and JLM Terminal) around to the detention pond located adjacent to the Cape Fear River.

These temporary drainage measures were not employed to any significant extent on the Northside of the property because there does not appear to be a source of significant contamination emanating from the up-gradient areas on this side of the property. A detention pond was constructed on the Northside to control stormwater discharges. Some trace and remnant contamination may also exist under the existing dikes along the Cape Fear River, under the boiler building and the laboratory building. However, the cost-effectiveness and practicality of removing these structures was not deemed warranted by the OSCs based upon visual observations and from sampling around some of these structures. The subsurface drainage system previously identified to be running through the facility and under the dikes into the Cape Fear River has been terminated and this source of future releases has been potentially eliminated.

The voluntary action by the property owner aided EPA's overall removal efforts. The documentation regarding this assistance is provided in other reports to the site files. However, the fire involving the owner's contractors in Tank #14 caused some temporary problems.

Nonetheless, the owner and EPA required immediate changes to safety procedures and the problem was resolved expeditiously with little impact to the overall removal action. Fires which occurred during the removal of the refractory tower were generally anticipated and handled safely and properly by EPA's ERRS contractor. These fires were caused primarily because of cutting torch sparks igniting the extremely volatile soil contaminants found around the refractory tower.

The biopile treatment system (adapted from the U.S. Navy) for contaminated soils represented a significant cost savings (hundreds of thousands $$$) during the removal action. While it was generally very successful for a significant reduction in the volume of petroleum contaminants, the cleanup goal of 100 ppm based upon the "ARAR" for State of North Carolina for petroleum contaminated soils could not be achieved in the desired time-frame. Furthermore, the off-site migration problem on the Southside required additional treatment measures (chem-ox) to approach the cleanup goal. Nevertheless, the OSCs were fortunate to have Dr. John Glaser's assistance on the design and evaluation of the biopile treatment system.

The site is not considered by the OSCs to be 'pristine'. It is generally known from former employees from Old ATC and long-time Wilmington residents that the property had been filled in decades earlier with municipal-type trash and rubble, including bricks, rock, concrete, wood, metal, glass and other debris. However, removal activities conducted at the site are believed to be consistent with prior removal actions and eliminated the mobility, toxicity and volume of the hazardous substances present from the former refinery operations. The cleanup of the former Old ATC Refinery property will potentially allow for some future industrial /commercial use. Persons interested in any future remedial actions proposed for this site should contact Mr. Stewart Parker with the North Carolina Department of Environment and Natural Resources (NCDENR) and also the owner of property, Mrs. Linda Carroll.

VI. ESTIMATED COSTS:

ERRS estimated costs as of 10/22/99 are $4,787,000, with approximately $77,000 remaining in the D.O. ceiling. EPA direct costs are estimated at $162,600, with approximately $15,400 remaining in the revised ceiling (See Memorandum to site files dated 8/25/99). No new significant costs are anticipated for the GST, START contractor, or ERT/REAC.

VII. FUTURE ACTIVITIES:

The OSCs will continue work on the site file organization and in turning the records over to the Superfund Records Center. OSCs will continue with D.O. close-out activities with the ERRS contractor, including coordination on the final disposition of the mercury, review of the final 1900-55's & invoices, and review of the PM's final report. OSCs will coordinate with EAD and others, as requested and necessary, regarding cost recovery and enforcement issues.

In a separate report, the OSCs will refer both JLM Terminal and Southern Metals facilities to NCDENR for site assessments. EPA's remedial program will also be notified of the potential contamination problems at these facilities.

TANK CONTENTS AND CONCENTRATIONS

TANK 1	CONCENTRATIONS
VOLUME OF LIQUIDS - 406,000 Contents is water with sheen of oily scum on top of water	Lead - 18ppm

TANK 2	
VOLUME OF LIQUIDS - 70,000 Contents oil/sludge	Lead - 400ppm

TANK 3	
VOLUME OF LIQUIDS - 56,000 Contents oily/sludge	Lead - 590ppm

TANK 4	BOTTOMS	FLOATING ROOF
TANK SCALE	Chromium - 67.8 Lead - 186 Mercury - 0.371	Arsenic - 68.3 Cadmium - 24 Chromium - 157 Mercury - 0.524

TANK5		
TANK SCALE	Lead - 214 Mercury -- 0.366	Arsenic - 80.3 Chromium - 30.1 Lead - 82.3 Mercury - 0.254

TANK 6		
TANK SCALE	Arsenic - 56 Chromium - 61.3 Lead - 5200 Mercury - 0.238	Chromium - 155 Lead - 155 Mercury - 0.521

TANK 7		
TANK SCALE IN BOTTOM High vis liquids in floating roof Pahs 110C	Arsenic - 63.9 Chromium - 156 Lead - 461 Mercury - 0.108	Lead - 225 Chromium - 95.9 Mercury - 0.15 Selenium - 1.39

TANK CONTENTS AND CONCENTRATIONS

TANK 8

VOLUME OF LIQUIDS - 9,627
Pahs 1300c

Lead - 74

Lead - 852
Mercury - .164

TANK 9

VOLUME OF LIQUIDS - 16,000
Pahs 1100c

Lead - 319

Arsenic - 59.5
Cadmium - 24.7
Chromium - 48.9
Lead - 146
Mercury - 3.42

TANK 10

TANK SCALE
Pahs- 80,000

Chromium - 84.8
Lead - 75.8
Mercury - 0.0699

TANK 11

VOLUME OF LIQUIDS - 283,500
Standing water pahs 560c

Lead - 356

Arsenic - 52.1
Chromium - 52.6
Lead - 79.4
Mercury - .754

TANK 12

TANK SCALE
Pahs 180c

Arsenic - 65.4
Chromium - 159
Lead - 472
Mercury - 0.023

SUMP

Lead - 3.12

TANK 13

TANK SLUDGE
Pahs in bottom 980c
Pahs in floating roof 940c

FLOATING ROOF

Lead - 21.5

TANK 14

OPA TANK HANDLED BY CCO COMPANY

TANK 15

VOLUME OF LIQUIDS - 101,000

Lead - 234

floating roof sludge 500c

TANK CONTENTS AND CONCENTRATIONS

TANK 18

VOLUME OF LIQUIDS 52,000 Lead - 52
Off spec #6 oil

TANK 19

VOLUME OF LIQUIDS 2,500
Off spec. #6 oil lead 50

OWS 2

Volume 3,540 (70% water / 30% oily/sludge) Lead - 220

OWS 3

Volume 7,180 (60% water / 40% oily/sludge) Lead – 14

Note: All volumes are in gallons.

Customer# : 15723
Group :
Please call with changes by
02/13/98

HAZARDOUS WASTE RECEIVED SUMMARY
LWD, Inc. - KYD088438817
FROM 1/1/97 TO 12/31/97

AXEL JOHNSON, INC.
801 SURRY ST.
WILMINGTON, NC 28401

Enclosed are the records we will submit to the Commonwealth of Kentucky as our 1997 Annual Report. In case you are not responsible for making Hazardous Waste Annual Reports to the regulatory agency, please forward this information urgently to the person in your organization with this responsibility. Wastes which are non-hazardous in Kentucky are excluded from this report. Please reconcile the information against your copies of the shipping papers and manifests for accuracy. Please note that we have compiled the information in accordance with the U.S. EPA 1997 Hazardous Waste report format, all volumes having been converted using the EPA Conversion Rate Chart. The total amount of each waste stream (by LWD's PC#) has also been provided for your use. In case of a discrepancy, please contact our Annual Report Project Staff (Phone 502-395-8313) no later than February 13, 1998. Please ask for the Annual Report Project section.

LWD, Inc.

Summary for: AXEL JOHNSON, INC.

EPA ID	# of Manifest	Pounds
NCD986186518	8	160519

Transporter Summary

EPA ID	# of Manifest	Pounds
NCD982170292	ENVIRO-CHEM ENVIRONMENTAL SRVCS 1	39200
NJD054126164	FREEHOLD CARTAGE 2	19040
OKD981605363	ENVIRONMENTAL TRANSPORTATION 3	100500
PAD987399292	PETROCLEAN, INC 2	1779

Product Code Summary

Summary	Units	Volume	Pounds
RA27 TT G	6	20928	158740
RB92 DM P	2	500	500
RB95 DF P	1	20	20
RB96 DF P	2	400	400
RB99 DM G	1	10	89
RC01 CF P	1	475	475
RC02 DF P	1	20	20
RC03 DM P	1	275	275

Manifest/ Line #	Rec'd Date	PC#	Description	Units	Volume	Lbs.	Waste Codes	Form Code	Facility
03001 1	02/18/97	RA27	RQ, HAZARDOUS WASTE LIQUID, NOS (K051), 9, NA3082, PGIII	1 TT	4307 G	39200	K051	B603	KYD088438817
00002 2	02/26/97	RB99	WASTE CORROSIVE LIQUID, NOS (D002), ALKALINE, 8, UN1760, II	1 DM	10 G	89	D002	B119	KYD088438817
00002 3	02/26/97	RC01	RQ, WASTE FLAMMABLE LIQUID, NOS (TOLUENE, XYLENE), 3, UN1993, II	1 CF	475 P	475	D001 D006 D008 D018	B219	KYD088438817
00002 4	02/26/97	RC03	HAZARDOUS WASTE SOLID, NOS, (BARIUM, SELENIUM) 9, NA3077, III	1 DM	275 P	275	D005 D010	B609	KYD088438817
00003 5	02/26/97	RB96	RQ, WASTE CORROSIVE LIQUID, NOS, (SULFURIC, HYDROCHLORIC ACID), 8, UN1760, II	2 DF	400 P	400	D002	B105	KYD088438817

Customer# : 15723

Manifest/ Line #	Rec'd Date	PC#	Description	Units	Volume	Lbs.	Waste Codes	Form Code	Facility
00003 6	02/26/97	RB95	WASTE AMINES, LIQUID, CORROSIVE NOS (D002), 8, UN2735, II	1 DF	20 P	20	D002	B219	KYD088438817
00003 7	02/26/97	RC02	WASTE AEROSOLS, FLAMMABLE (EACH NOT EXCEEDING 1 L CAPACITY), 2.1, UN1950	1 DF	20 P	20	D001 D035	B119	KYD088438817
00003 8	02/26/97	RB92	HAZARDOUS WASTE LIQUID, NOS, 9, NA3082, III	2 DM	500 P	500	D006 D008 D010 D018	B519	KYD088438817
02001 9	03/05/97	RA27	RQ, HAZARDOUS WASTE LIQUID, NOS (K051), 9, NA3082, III	1 TT	4432 G	36920	K051	B603	KYD088438817
02002 10	03/17/97	RA27	HAZARDOUS WASTE LIQUID, NOS (K051), 9, NA3082, III	1 TT	4586 G	34060	K051	B603	KYD088438817
02003 11	03/25/97	RA27	RQ, HAZARDOUS WASTE LIQUID, NOS (K051), 9, NA3082, III	1 TT	3603 G	29520	K051	B603	KYD088438817
23001 12	06/19/97	RA27	HAZARDOUS WASTE LIQUID, NOS (K051), 9, NA3082, III	1 TT	2000 G	9520	K051	B603	KYD088438817
23001 13	06/19/97	RA27	HAZARDOUS WASTE LIQUID, NOS (K051), 9, NA3082, III	1 TT	2000 G	9520	K051	B603	KYD088438817

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
POLLUTION REPORT (POLREP)

POLREP #60
OLD ATC REFINERY
801 Surry Street
Wilmington, North Carolina

TO: Myron D. Lair, ERRB
Shane Hitchcock, ERRB
Dan Thorton, EPA HQ, ERD Regional Coordinator
Michael Henderson, R4 Community Relations
EPA Region 4 Regional Response Center

FROM: Christopher A. Militscher, OSC
Tony Best, OSC

DATE: July 17, 1998

Period Covered: 6/26 to 7/17/98

I. BACKGROUND:

Site No.:	04YR
Delivery Order No.:	4005-F4-050
Response Authority:	CERCLA, Non-NPL
Incident Category:	Time-Critical, Fund-lead Removal

PERSONNEL ON-SITE

OSC - 1
USCG-GST - 1
ERRS - 7

Weather: Conditions were generally hot and humid, with temperatures in the low 90's and partly to mostly cloudy. Some precipitation the week of 7/13.

II. SITUATION:

See POLREP #1 and other POLREPs for additional details of response actions.

III. SITE ACTIVITIES:

ERRS re-mobilized personnel and equipment to the site on 7/13 following the holiday break. An explosion and fire next door at Southern Metals on 7/2 re-initiated media and local

interest on EPA's work at ATC. The PM, George F. Mick responded to the incident and assisted burn victims until EMS arrived. He also secured equipment and materials away from the "fenceline" as the fire lasted several days. Run-off from the fire is not believed to have impacted the Site.

ERRS set up the tarp for the soil and waste excavation work and completed other preparations for the next phase of activities by 7/15. On 7/16, ERRS began excavation work based upon the sample grid map at "Pelican Point". As of 7/17, one grid area has been excavated and stockpiled. The grid average depth is 5 feet. Air monitoring at the excavation hole peaked at 20,000 units above background on the FID. Breathing zone concentrations did not exceed the 5 ppm action level for Level C PPE.

A visible sheen is present in the excavation hole. Excavations will be limited to infiltration of groundwater, where necessary. Stockpiled soils will be sampled for waste characterization parameters.

ERRS is nearing completion of the first phase of the treatability study for the contaminated soils on the northwestern portion of the site. Samples will be taken to confirm preliminary test conditions. Additional work will be needed to identify optimum soil treatment conditions.

ERRS removed a small area of visibly contaminated soils from the pump station area and OSC/GST took a confirmatory sample for analysis.

OSC coordinated with CCO owner and former employee Don Arthur this week. A summary report was provided to CCO owner on the status of removal activities. OSC also gave brief news update to Wilmington Star News reporter.

IV. ESTIMATED COSTS:

ERRS costs as of 7/15/98 were estimated at approximately $2,361,000 with $284,000 remaining in the current D.O. EPA/GST costs as of 7/16 are a combined $331,120.

V. FUTURE ACTIVITIES:

ERRS will continue with soil and waste excavation activities and stockpiling.

Lead OSC Best will continue with coordination on sampling and analytical test results with ESD. GST will continue with health and safety monitoring and contractor oversight tasks during this next phase of the removal action.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
POLLUTION REPORT (POLREP)

POLREP #59
OLD ATC REFINERY
801 Surry Street
Wilmington, North Carolina

TO: Myron D. Lair, ERRB
Shane Hitchcock, ERRB
Dan Thorton, EPA HQ, ERD Regional Coordinator
Michael Henderson, R4 Community Relations
EPA Region 4 Regional Response Center

FROM: Christopher A. Militscher, OSC
Tony Best, OSC

DATE: June 26, 1998

Period Covered: 6/20 to 6/26/98

I. BACKGROUND:

Site No.:	04YR
Delivery Order No.:	4005-F4-050
Response Authority:	CERCLA, Non-NPL
Incident Category:	Time-Critical, Fund-lead Removal

PERSONNEL ON-SITE

OSC - 1
USCG-GST - 1
ERRS - 8

Weather: Conditions were generally hot and humid, with temperatures in the upper 90's and partly cloudy.

II. SITUATION:

See POLREP #1 and other POLREPs for additional details of response actions.

III. SITE ACTIVITIES:

ERRS continued with scrap and debris collection, decon and removal activities. ERRS began and completed the loading and removal of non-haz soil stockpile this week. Thirty-four (34)

truck loads comprising 850 tons were loaded out and transported to a permitted TSD facility for treatment and disposal. Trucks were properly decontaminated before leaving the Site.

ERRS continued on preparations for soil removal in the refractory area pending the analytical results from ESD. Concrete, metal piping and other debris were removed, where practicable, from this area and staged with other solid wastes or site debris. ERRS re-deployed boom at the end of the canal as small sheens have been observed along certain points along the bank following afternoon rainstorms.

In anticipation of a temporary demobilization over the July 4th holiday, ERRS began decontamination of specific equipment and tools. ERRS, GST and OSC made overflight trip on 6/24/98 to obtain aerial photographs of current site conditions and for future soil removal work.

IV. ESTIMATED COSTS:

ERRS costs as of 6/25/98 were estimated at approximately $2,544,000, including await bills for T&D.

V. FUTURE ACTIVITIES:

ERRS will continue preparations for soil removal and arrange for T& D of ACM. ERRS will continue with scrap and debris decontamination, where necessary, and removal. OSC Taylor will continue work with the GST on the project file consolidation and summaries for the previous phase of the removal action. Next week is expected to be a short-week in anticipation of the 2 week demobilization period.

Lead OSC Best will continue with coordination on sampling and analytical test results with ESD. GST will continue with health and safety monitoring and contractor oversight tasks during this next phase of the removal action.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
POLLUTION REPORT (POLREP)

POLREP #58
OLD ATC REFINERY
801 Surry Street
Wilmington, North Carolina

TO: Myron D. Lair, ERRB
Shane Hitchcock, ERRB
Dan Thorton, EPA HQ, ERD Regional Coordinator
Michael Henderson, R4 Community Relations
EPA Region 4 Regional Response Center

FROM: Christopher A. Militscher, OSC
Tony Best, OSC

DATE: June 19, 1998

Period Covered: 6/12 to 6/19/98

I. BACKGROUND:

Site No.:	04YR
Delivery Order No.:	4005-F4-050
Response Authority:	CERCLA, Non-NPL
Incident Category:	Time-Critical, Fund-lead Removal

PERSONNEL ON-SITE

OSC - 1
USCG-GST - 1
ERRS - 9
ESD - 6
START - 4

Weather: Conditions were generally hot and humid, with temperatures in the upper 90's and partly cloudy.

II. SITUATION:

See POLREP #1 and other POLREPs for additional details of response actions.

III. SITE ACTIVITIES:

ERRS continued with scrap and debris collection, decon and removal. ERRS also assisted ESD and START with decon and

obtaining depth samples. ERRS continued land-tilling operations around tanks 1 thru 7.

ERRS and OSC discovered another partially buried oil pipeline adjacent to pump pit area. Oil was seeping into a low area and ERRS recovered this oil and removed the pipe for decontamination. ERRS arranged for the T & D of the haz soil wastestream to Laidlaw, Pinewood, SC on 6/17/98.

ERRS worked on arrangements for future soil excavation materials, including a temporary liner and stockpile covers. As directed by OSC, ERRS performed a small, field treatability study on two test plots for the biological/chemical enhancement of land-tilling operations. The pH of the test plots were greater than 8 units, so the addition of lime is believed to be unnecessary. A pH adjustment may be needed, but the results of the field treatability study will be evaluated before any recommendations are made.

START completed grid surveying and staking on 6/16/98. ESD began grid sampling according to the sampling plan map on 6/16/98 and two-thirds of the sampling was completed by 6/18/98. ESD has encountered various "haz-debris" during sampling, including a 30 gallon rusted drum, car batteries and other waste materials. Some sampling areas showed elevated organic vapor readings, and Level B PPE was necessary to perform the sampling in certain areas where action levels were exceeded and engineering controls could not reduce the concentrations. START has been assisting ESD during the sampling efforts.

IV. ESTIMATED COSTS:

ERRS costs as of 6/16/98 were estimated at $2,204,000.

V. FUTURE ACTIVITIES:

ERRS will continue preparations for soil removal and arrange for T& D of ACM next week. ERRS will continue with scrap and debris decontamination, where necessary, and removal. OSC Taylor will continue work with the GST on the project file consolidation and summaries for the previous phase of the removal action.

Lead OSC Best will continue with coordination on sampling and analytical test results with ESD. GST will continue with health and safety monitoring and contractor oversight tasks during this next phase of the removal action.

U.S ENVIRONMENTAL PROTECTION AGENCY
POLLUTION REPORT

POLREP 57
OLD ATC REFINERY
801 SURRY STREET
WILMINGTON, NORTH CAROLINA

TO: Myron D. Lair, Chief, ERRB, EPA Region 4
Shane Hitchcock, ERRB
Dan Thornton, EPA HQTRS, ERD Regional Coordinator
Michael Henderson, Region 4, Community Relations
Region 4, Regional Response Center

FROM: Michael Taylor, OSC
Tony Best, OSC
Christopher Militscher, OSC

DATE: 12 June, 1998

DATES COVERED BY THIS POLREP: 26 May to 12 June, 1998

I. BACKGROUND

RESPONSE AUTHORITY: CERCLA
NPL STATUS: NON-NPL
FUND-LEAD

PERSONNEL ON-SITE

EPA	- 1
ERRS	- 10
USCG/GST	- 2

WEATHER: General conditions were hot summer temperatures in the 90's with the heat index exceeding 100 degrees. Occasional thunderstorms affected the site work during this period.. Temperatures ranged from the low 70's to mid 90's.

II. SITUATION

A. See previous POLREPs for additional details of response.

III. SITE ACTIVITIES

Earth Tech completed the demolition of Tank #8, a 10,000 barrel capacity oil storage tank, during this period. The tank was cut and removed on 29 May. The innerface waste contained within the storage tank was completely removed and placed inside sludge boxes awaiting transportation and disposal prior to the demolition work. The waste was transported to the City Environmental facility on the third and fourth day of June.

The ERRS contractor inerted and breached the final UST on 27 May. Earth Tech decontaminated this tank and continues to collect all miscellaneous scrap metal throughout the site for access to contaminated soil areas. All metal, including the former storage tanks and pipelines, is decontaminated and stockpiled for future recycling.

Elevated temperatures during this period have resulted in alternate work schedules to allow for a continued safe and productive removal action. Site temperatures have exceeded 95 degrees with the heat index reaching greater than 100 degrees Fahrenheit. The OSC adjusted the work schedule to allow the crew to continue removal actions during the early morning hours and take advantage of cooler temperatures. This approach was advantageous during the confined space entry work for the decontamination process of two multi-gallon poly storage tanks.

The former pump pit area was prepared for collecting soil samples after all pipes and valves have been removed. In addition, the former TEL area was removed on 09 June in preparation for future sampling. All scrap and debris will follow decontamination procedures established for this removal.

A 30 yard rolloff box containing nonhazardous waste was transported off site for disposal on 12 June. An additional rolloff box is in place for collecting other waste generated on-site for this removal action.

Cultivation of the soil around former tanks #1 through #7 has continued during this period. Earth Tech is utilizing scrap metal from the site, configured as a plow/harrow, to till the soils in an effort to address the volatiles contained in these areas since specialty equipment for this purpose is not readily available. Landfarming and other treatment options are underway.

The site has been prepared for future gridding and sampling of soil within the former fractionating towers, burial areas, and known spill areas on-site. Surface and subsurface soil samples are planned to further identify contamination areas in addition to previous data collected. Five soil test pits were excavated on 01 June along the southeast and southwest portion of the site. A depth of approximately 18 feet was excavated for each pit resulting in a varied stratification of deposited debris, sludge, along with a miscellaneous soil mixture. Air monitoring instruments indicated several thousand units above background from the volatiles detected from the excavation. These readings were recorded and included in the site files. These test pits are another confirmation of contaminants identified within the soil.

IV. ESTIMATED COSTS

ERRS costs as of 12 June were estimated at $ 2,196,860.

V. FUTURE ACTIONS

EPA will continue to remove all waste from the site. Asbestos accumulated from the removal is scheduled for disposal during the week of 22 June. In addition, all soil stockpiled from the removal of storage tanks #2 and #3 will be addressed during the week of 22 June. EPA will await the results of the soil sampling effort coordinated by ESD and the START contractor. Soil excavation and stockpiling will be addressed in early July. Treatment technologies will be evaluated. Future transportation and disposal will be also be arranged for all contaminated soils.

The OSC is exploring transportation options to include not only "over the road" trucks but also rail and barge service due to the availability of a rail spur on-site and the bordering Cape Fear River. Final arrangements are pending soil volumes, facility compliance status, cost analysis and other disposal options.

OLD ATC REFINERY SITE
WILMINGTON, NEW HANOVER, NORTH CAROLINA

ESTABLISHED ACTION LEVELS/CLEANUP GOALS FOR SOIL

A.	Lead	1,300 mg/kg
B.	Chromium	1,000 mg/kg
C.	Vanadium	500 mg/kg
D.	Total PAHs	100 mg/kg
E.	Carcinogenic PAHs	50 mg/kg
F.	Total petroleum hydrocarbons	TBD

Federal
Trip Notification & Authorization

Prepared by: SF PARKER

Today's Date: 8/31/99

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only.

Site Trip

Date of Trip: ~~9/99 – 11/99~~ 9/2/99 to 11/30/99

If trip date changed or cancelled note below:
Trip Date Changed To: _____ Cancelled: ___

NCD#: 986 186 518 Site Name: OLD ATC REFINERY
City: WILMINGTON County: NEW HANOVER

Reason for Trip: REMOVAL OVERSIGHT (RENEWAL)

Name of Hotel (Overnight Trip): NA Hotel Telephone Number: ( ) ___ -

Authorized by: _____
Industrial Hygienist

Project Team Leader: S F PARKER

Assistants: _____, _____, _____

Attach To Notification Form: 1 copy each:
Submit to the
Industrial Hygienist

Preliminary Assessment Form (First page only)
Site Map
PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)
Environmental Supervisor or Health Director to call: Dianne Harvell Title: Director Env. Health
(Note if Dr., M.P., etc.)
Telephone Number: (910) 343-4667

Notes: Health Department Official Contacted: Dianne Harvell's voice mail
Back Up Letter Required: Yes ___ No ✓
Notified Ms. Harvell via voice mail on 9/1/99 (DBC)

Note: Signed original to Data Manager

Federal
Trip Notification & Authorization

Prepared by: S F Parker

Today's Date: 1/19/99

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only.

Site Trip

Date of Trip: ~~1/19/99~~ 1/1 – 3/1/99 [NEXT VISIT 1/26/99]

If trip date changed or cancelled note below:
Trip Date Changed To: —— Cancelled: ——

NCD#: NCD 986186518 **Site Name:** OLD ATC REFINERY
City: WILMINGTON **County:** NEW HANOVER

Reason for Trip: REMOVAL OVERSIGHT – SITE VISIT

Name of Hotel (Overnight Trip): —— Hotel Telephone Number: (—) —-——

Authorized by: _____
Industrial Hygienist

Project Team Leader: S F Parker

Assistants: ——, ——, ——

Attach To Notification Form: 1 copy each:
Submit to the Industrial Hygienist

- Preliminary Assessment Form (First page only)
- Site Map
- PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)
Environmental Supervisor or Health Director to call: Ms Dianne Harvell Title: Env. Health Director
(Note if Dr., M.P., etc.)
Telephone Number: (910) 343 - 6667

Notes: Health Department Official Contacted: Dianne Harvell
Back Up Letter Required: Yes ___ No ✓
Notified Ms. Harvell on 1-20-99 (DBC)

Note: Signed original to Data Manager

ATC Refinery Site

CONVERSATION RECORD

TIME	DATE
voice message 1450-1455 1515-	10/28/98

TYPE

☐ VISIT ☐ CONFERENCE ☒ TELEPHONE ☐ INCOMING ☒ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO:
Tim Simpson	ESD	706-355-5734

ROUTING	
NAME/SYMBOL	INT

SUBJECT

clarification on 6/15/98 Sampling Event sample ID #'s

grid depth matrix

SUMMARY

5610	✓	✓	SF-017-001
5615	✓		SF-717-001 Duplicate
5630	✓		SF-727-001 Duplicate @ SF-027-00
5631	✓		SB-019-002
5659	✓		SB-710-002 Duplicate @ SF-010-00
5660	✓		SB-011-003
5667	✓		SB-035-003

Site: OLD ATC
Break: 2.2
Other:

waste → ESD lab
organics → lab #1
Inorganics → lab #2

* all 3 labs assigned separate ID #s so track by ESD initial ID # to eliminate any confusion!

have 5599 → 5684

ACTION REQUIRED

N/A

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
TONY A. BEST		

ACTION TAKEN

N/A

SIGNATURE	TITLE	DATE

ATC Refinery Site

CONVERSATION RECORD

TIME	DATE

TYPE ☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO:
–	–	–

ROUTING	
NAME/SYMBOL	INT

SUBJECT

Summary of Analytical Collected

6/15/98, SESD Sampling Event (START Summary Tables)

SUMMARY

① PAH's & Conc. PAH's were found in all but 6 samples... 1 sample exceeded the "health-based" cleanup goals for "CARCINOGENIC" PAH's...

Note: grids affected = 021...

Note: samples collected @ 37 locations for soils @ depths to 3 ft...

ACTION REQUIRED

–

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
TONYA. BEST (OSC)		

ACTION TAKEN

–

SIGNATURE	TITLE	DATE

ATC Refinery Site

CONVERSATION RECORD

TIME	DATE

TYPE

☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO.
–	–	–

ROUTING	
NAME/SYMBOL	INT

SUBJECT

Summary of Analytical Collected

6/15/98 SESD Sampling Event (START Summary Tables)

SUMMARY

① Pb - found in all samples collected (soils) from 8.1 ppm to 1,400 ppm...

② Cr - found in all samples collected (soils) from 2.2 ppm to 360 ppm...

③ Vn - found in all samples collected (soils) from 2.3 ppm to 320 ppm...

Note: Pb in refinery area exceeding "health based" clean-up goals is concentrated @ the 2 & 3 ft. depths... Cr & Vn "health based" clean-up goals are not exceeded...

Site: OLD ATC
Break: 2.2
Item: V31

Note: grids affected = 019, 025 + 027...

Note: 37 soil ~~samples~~ locations collected @ depths to 3 ft...

ACTION REQUIRED

–

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
TONY A. BEST (OSC)		

ACTION TAKEN

–

SIGNATURE	TITLE	DATE

ATC Refinery Site

CONVERSATION RECORD

TIME: 1650-1705 | DATE: 10/27/98

TYPE: ☑ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO:
Parry Bhambra ~~Tim Simpson~~	START	on-site

ROUTING

NAME/SYMBOL	INT

SUBJECT

questions regarding 6/15/98 Sampling Event Sample ID nomenclature

SUMMARY

① sample ID 5599 → 5684

lab # / sub-surface / grid #

② 5913 = 58-029-002 → depth collected (24"-36")

③ sb = subsurface

sf = surface

④ 001 → 037 = grid #'s KNOWN

⑤ 001 = 0"-6" ~~0"-24"~~

002 = 24"-36"

003 = 48"-54" ~~36"-48"~~

⑥ why do some show TPH & some nothing but samplers have

ACTION REQUIRED

call Tim Simpson (ESD) for clarification...

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
TONY A. BEST		10/27/98

ACTION TAKEN

SIGNATURE	TITLE	DATE

on 10/28/98 conversation record

note: see attachment ① missing grid depths & ② matrix's are needed to complete the tabulations...

Federal
Trip Notification & Authorization

Prepared by: SF PARKER

Today's Date: 10/1/98
RENEWAL

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only.

Site Trip

Date of Trip: 10/1/98 through 12/1/98

If trip date changed or cancelled note below:
Trip Date Changed To: —— Cancelled: ——

NCD#: NCD 986 186 518 Site Name: OLD ATC NEWBY
City: WILMINGTON County: NEW HANOVER

Reason for Trip: EPA REMOVAL OVERSIGHT

Name of Hotel (Overnight Trip): —— Hotel Telephone Number: ( ) ___ - _____

Authorized by: [signature]
Industrial Hygienist

Project Team Leader: STUART PARKER

Assistants: ——, ——, ——

Attach To Notification Form: 1 copy each:
Submit to the
Industrial Hygienist

Preliminary Assessment Form (First page only)
Site Map
PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)
Environmental Supervisor or Health Director to call: Dianne Harvell Title: Env. Health Director
(Note if Dr., M.P., etc.)
Telephone Number: (910) 343- 6667

Notes: Health Department Official Contacted: Dianne Harvell
Back Up Letter Required: Yes ___ No ✓
Notified Dianne on 10-1-98 (DBL)

Note: Signed original to Data Manager

Site: OLD ATC
Break: 2.8
Other:

Tetra Tech EM Inc.

Gwinnett Corporate Center ◆ 1750 Corporate Drive, Suite 735 ◆ Norcross, GA 30093 ◆ (770) 935-1542 ◆ FAX (770) 935-9049

July 2, 1998

Tony Best, OSC
U.S. Environmental Protection Agency Region 4
Emergency Removal and Response Branch
61 Forsyth Street, SW, 11th Floor
Atlanta, Georgia 30303

Subject: **Letter Report**
ATC Refinery
Wilmington, New Hanover County, North Carolina
TDD No. 04-9805-0003

Dear Mr. Best:

Enclosed is a copy of the letter report for the site activities conducted at Wilmington, New Hanover County, North Carolina from June 15 to June 19, 1998. If you have any questions, comments, or need additional copies of the report, please contact me at (770) 717-2300 or Michael Sparks at (770) 717-2343.

Sincerely,

R. Steve Pierce
START Leader, Region 4
Tetra Tech EM Inc.

cc: Douglas Thompson, Project Officer (letter only)
Michael Sparks, START Project Manager

LETTER REPORT
ATC REFINERY
WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4 Emergency Response and Removal Branch
61 Forsyth Street, SW, 11th Floor
Atlanta, Georgia 30303

TDD No.	:	04-9805-0003
Date Prepared	:	July 3, 1998
Contract No.	:	68-W5-0021
Prepared by	:	Tetra Tech EM Inc.
START Project Manager	:	S. Michael Sparks
Telephone No.	:	(770) 717-2343
EPA Task Monitor	:	Tony Best
Telephone No.	:	(404) 562-8754

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1.0 INTRODUCTION 1

2.0 BACKGROUND 1

3.0 SITE ACTIVITIES 1

4.0 CONCLUSIONS 3

Appendices

A LOGBOOK NOTES

B PHOTOGRAPH LOG

C TABLE OF WITNESSES

Figures

1 GENERAL SITE LOCATION MAP 4

2 SITE DIAGRAM 5

LETTER REPORT
ATC REFINERY SITE
WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA

1.0 INTRODUCTION

This letter report has been prepared in accordance with the requirements of Technical Direction Document (TDD) No. 04-9805-0003, which the U.S. Environmental Protection Agency (EPA) assigned to the Tetra Tech EM Inc. Superfund Technical Assessment and Response Team (START). The scope of this TDD was to prepare a health and safety plan (HSP), mark sampling grids, assist EPA Science and Ecosystem Support Division (SESD) with soil sampling, provide air monitoring, and prepare a letter report of site activities at ATC Refinery in Wilmington, New Hanover County, North Carolina (see Figures 1 and 2). This letter report discusses the site background (see Section 2.0), summarizes site activities (see Section 3.0), and provides conclusions (see Section 4.0). Appendix A contains logbook notes, and Appendix B contains photographs taken during site activities.

2.0 BACKGROUND

The ATC Refinery site covers 15 acres and is located at 801 Surry Street, on the east bank of the Cape Fear River in Wilmington, New Hanover County, North Carolina. The site is in an industrial area, but it is located less than 0.25 mile from a residential area. Since the facility terminated petroleum refining operations in 1986, several emergency responses have been conducted at the facility by the EPA, U.S. Coast Guard (USCG), and North Carolina Department of Environment, Health, and Natural Resources. EPA initiated a removal action on June 1997, which is currently underway. The site had 17 aboveground petroleum storage tanks that ranged in capacity from 2,000 to 3.36 million gallons. Four liquid butane tanks, three oil-water separators, and a 2,000-gallon tetraethyl lead tank were also on site. The 17 tanks have been demolished and removed from site.

3.0 SITE ACTIVITIES

Based on information provided by EPA, START prepared a HSP and departed for Wilmington, North Carolina, on June 14, 1998. START arrived on site June 15, 1998, and met with representatives of

USCG and Emergency Response and Removal Services (ERRS) contractor, Earth Tech. During the meeting START was briefed on site conditions. START then toured the site while performing preliminary air monitoring with a radiation meter, flame ionization detector (FID), and combustible gas/oxygen level indicator (CGI). All initial air monitoring results were below 5.0 parts per million (ppm) using the FID, CGI readings were stable, and no elevated readings were detected with the radiation meter.

After the initial tour and air monitoring, START established a series of sampling grids, as instructed by the EPA on-scene coordinator (OSC). Thirty-seven grids were created throughout the site using a surveying transit and tape measure to ensure consistent sizing and layout of the grids (see Figure 2). The center point of each grid was flagged and labeled according to OSC instructions.

On June 16, 1998, SESD arrived on site and toured the areas to be sampled. From June 16 to 18, 1998, START and ERRS assisted SESD with soil sampling in 36 grids. At SESD's decision, Grid 018 was not sampled due to the presence of a remaining structure and foundation. Composite soil samples were taken at the surface and at depths of 2 and 4 feet below ground surface. When possible, SESD and START took samples with hand augers. When necessary, ERRS equipment operators excavated sample areas to the desired depth with a back-hoe or excavator. Samples are to be analyzed for volatile organic compounds, semivolatile organic compounds, metals, and total petroleum hydrocarbons. While sampling, START provided air monitoring with a FID and photoionization detector (PID). If FID or PID readings were sustained at 5.0 (ppm) above background level, SESD's HSP required that personal protection be upgraded from modified Level D to modified Level C. Three grids (022, 032, and 036) were sampled in modified Level C due to sustained organic vapor levels that were greater than 5.0 ppm above background. In addition to soil samples, SESD collected two grab waste samples outside the grids established by START. These two grab samples were taken at depth, west of grid 026.

In addition to sampling, START assisted SESD personnel with the repositioning and locating of grid center points using a global positioning system (GPS) unit. START also marked and noted a series of reference points throughout the site for use in identifying grid and sample locations on an aerial photograph to be taken at a later date.

4.0 CONCLUSIONS

START assisted SESD with site investigation activities from June 14 to 18, 1998. START established sampling grids, performed air monitoring, and assisted SESD with soil sampling. SESD maintained sample custody and arranged for analytical services; SESD will also report results directly to the OSC. START demoblized from Wilmington on June 19, 1998. EPA will determine future site activities and START involvement.

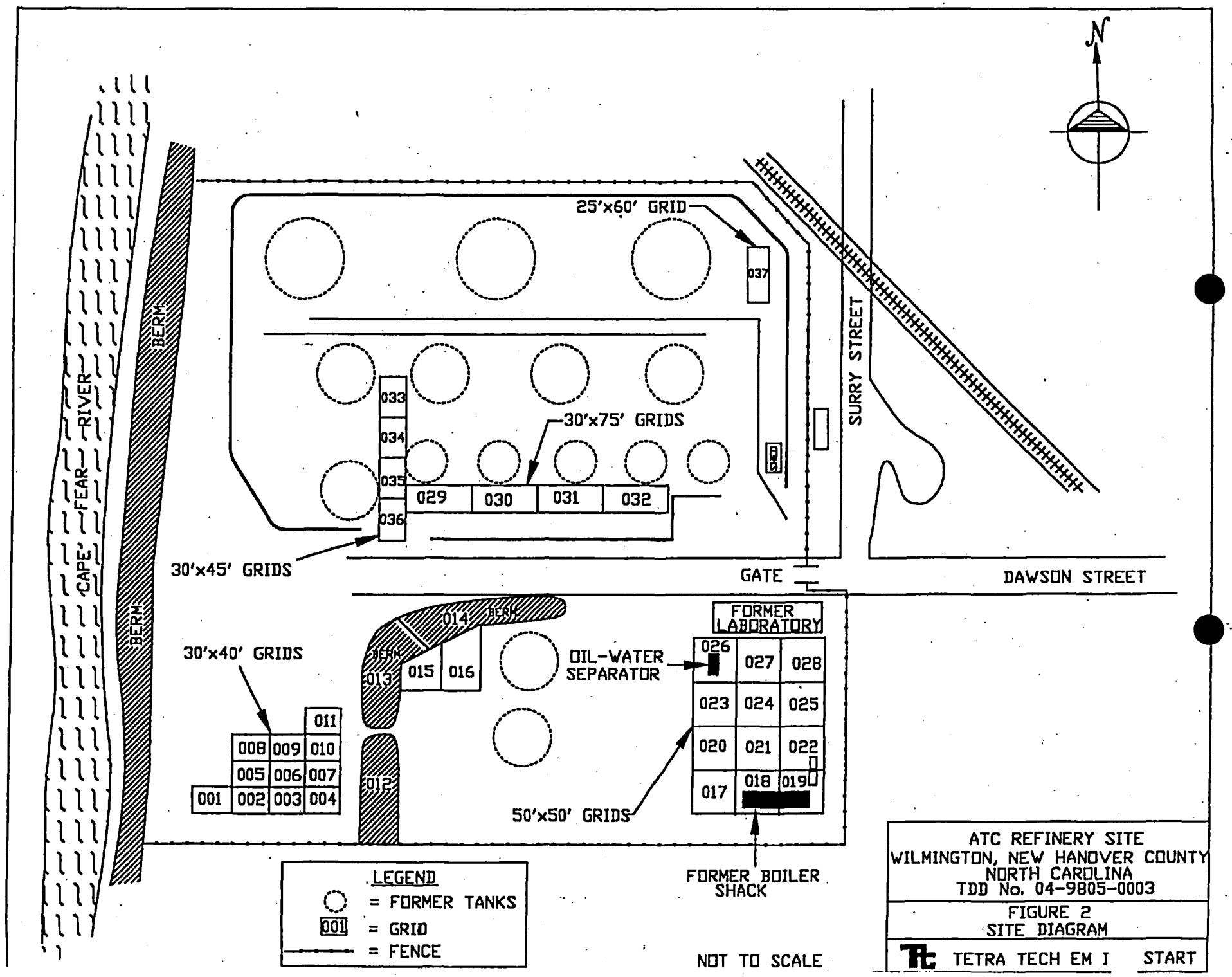
Modified from North Carolina
Department of Natural and Economic Resources
7.5 Minute Series Orthophotomap
Wilmington Quadrangle

WILMINGTON,
NORTH CAROLINA

ATC REFINERY SITE
WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA
TDD No. 04-9805-0003

FIGURE 1 - GENERAL SITE LOCATION MAP

Tt TETRA TECH EM INC. START


N
CAPE FEAR RIVER
BERM
BERM
25'x60' GRID
037
SURRY STREET
DAWSON STREET
GATE
033
034
035
036
029
030
031
032
30'x75' GRIDS
30'x45' GRIDS
014
BERM
BERM
013
015
016
012
FORMER LABORATORY
026
027
028
023
024
025
020
021
022
017
018
019
OIL-WATER SEPARATOR
30'x40' GRIDS
011
008
009
010
005
006
007
001
002
003
004
50'x50' GRIDS
FORMER BOILER SHACK
LEGEND
= FORMER TANKS
001 = GRID
= FENCE
NOT TO SCALE
ATC REFINERY SITE
WILMINGTON, NEW HANOVER COUNTY
NORTH CAROLINA
TDD No. 04-9805-0003
FIGURE 2
SITE DIAGRAM
TETRA TECH EM I
START

APPENDIX A

LOGBOOK NOTES

(8 pages)

ATC Refinery

ALL-WEATHER
Horizontal Line
No. 390NF

TDD No.

04-9805-0003

INCH CM

MEASUREMENT CONVERSIONS

IF YOU KNOW	MULTIPLY BY	TO FIND
LENGTH		
inches	2.540	centimeters
feet	30.480	centimeters
yards	0.914	meters
miles	1.609	kilometers
millimeters	0.039	inches
centimeters	0.393	inches
meters	3.280	feet
meters	1.093	yards
kilometers	0.621	miles
WEIGHT		
ounces	28.350	grams
pounds	0.453	kilograms
grams	0.035	ounces
kilograms	2.204	pounds
VOLUME		
fluid ounces	29.573	milliliters
pints	0.473	liters
quarts	0.946	liters
gallons (U.S.)	3.785	liters
milliliters	0.033	fluid ounces
liters	1.056	quarts
liters	0.264	gallons (U.S.)

TEMPERATURE

°C = (°F - 32) x .555
°F = (°C x 1.8) + 32

Inches	Decimals of foot	Milli-meters
1/16	.0052	1.5875
1/8	.0104	3.1750
3/16	.0156	4.7625
1/4	.0208	6.3500
5/16	.0260	7.9350
3/8	.0313	9.5250
1/2	.0417	12.700
5/8	.0521	15.875
3/4	.0625	19.050
7/8	.0729	22.225
1"	.0833	25.400
2"	.1667	50.800
3"	.2500	76.200
4"	.3333	101.60
5"	.4167	127.00
6"	.5000	152.40
7"	.5833	177.80
8"	.6667	203.20
9"	.7500	228.60
10"	.8333	254.00
11"	.9167	279.40
1 foot	1.0000	304.80

04-S-0268

LEGAL DOCUMENT
DO NOT DESTROY

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name ATC Refinery

Address

Wilmington, NC

Phone

Project

"Rite in the Rain" - a unique all-weather writing surface created to shed water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

a product of

J. L. DARLING CORPORATION
TACOMA, WA 98424-1017 USA
www.riteintherain.com

CONTENTS

PAGE	REFERENCE	DATE

ATC Refinery Monday, June 15, 1998

0625 START arrives on site. START members present: Michael Sparks, Tim Royer, Mina Vseer, and Frank Donabella. START Royer taking log notes.

0630 START attends EarthTech (ERRS contractor) safety meeting.

0700 START calibrates MicroFID and CGI.

0720 START Vseer and START Donabella leave site to acquire fluids.

0750 START Vseer and START Donabella return to site.

0805 START, ERRS RM, and USCG enter hot zone for site tour and air monitoring with MicroFID, CGI, and Rad meter.

NOTE: Air monitoring indicated no levels above background inside hot zone. All personnel in hot zone required to wear modified Level D personal protection at a minimum.

0910 START enters hot zone to establish sampling grids as directed by EPA OSC.

Jim Royer 6/15/98

ATC Refinery Monday, June 15, 1998

1125 START exits hot zone.

1150 START off site for lunch and supplies.

1315 START returns to site.

1330 START enters hot zone to continue marking sample grids.

1835 START decons field equipment.

1850 START exits hot zone. START meets with OSC at command post and receives background information on site activities.

1925 START leaves site for day.

Jim Ryan
6/15/98

ATC Refinery Tuesday, June 16, 1998

0625 START arrives on site.

0630 START attends ERRS safety meeting.

0710 START enters hot zone to complete sample grids.

0845 START PM Sparks leaves hot zone to meet with EPA SESD, which had arrived earlier.

0910 Other START members leave hot zone.

0950 START enters hot zone to assist SESD with sampling. All personnel in modified Level D protection.

1245 START exits hot zone and leaves site for lunch.

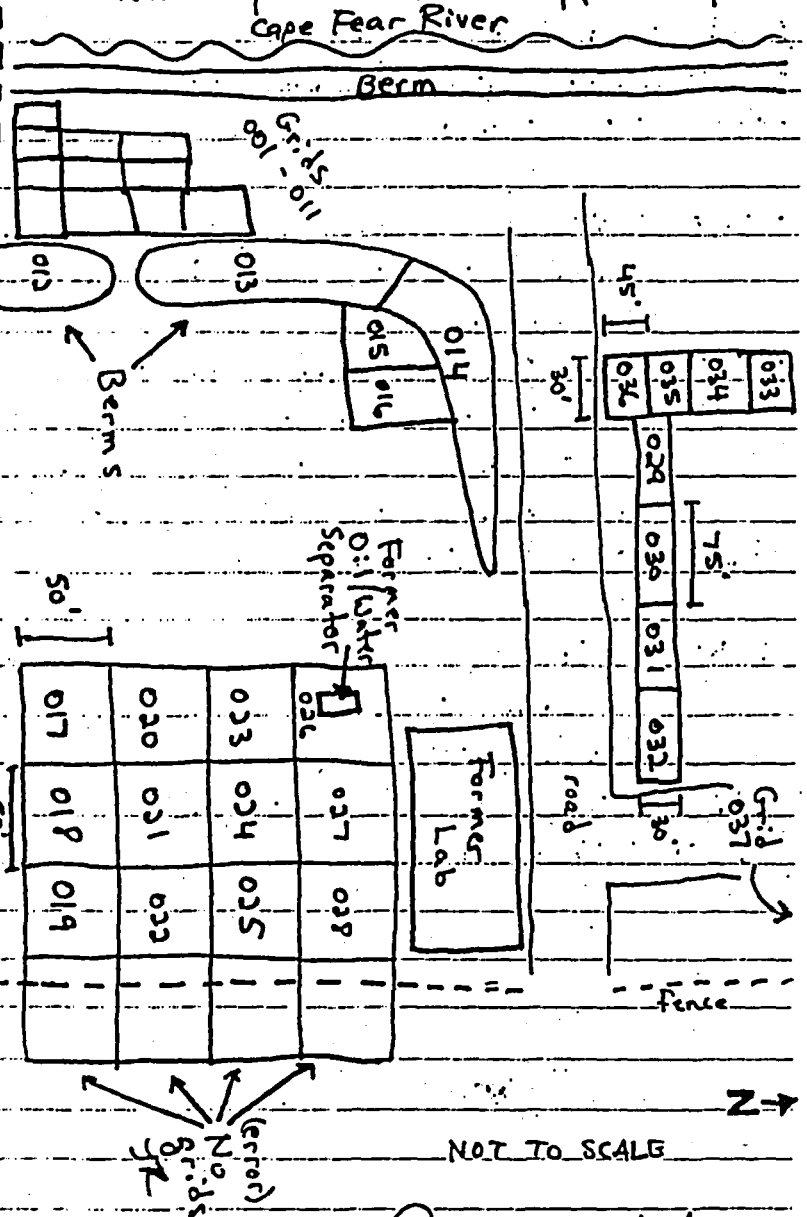
1350 START returns to site and enters hot zone to assist SESD with sampling.

1720 START exits hot zone.

1730 START leaves site for day.

Jim Ryan
6/16/98

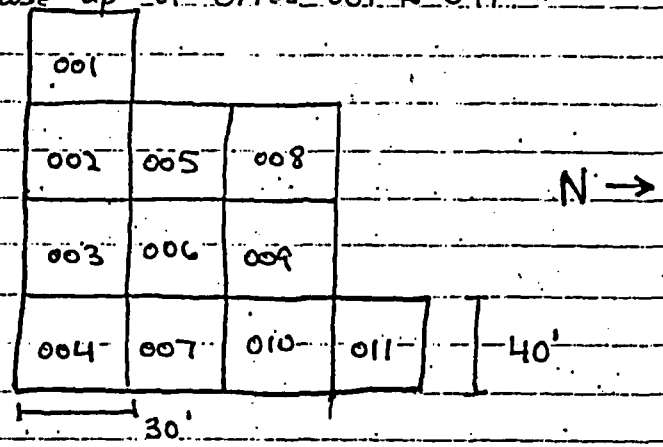
ATC Refinery Wednesday, June 17, 1998



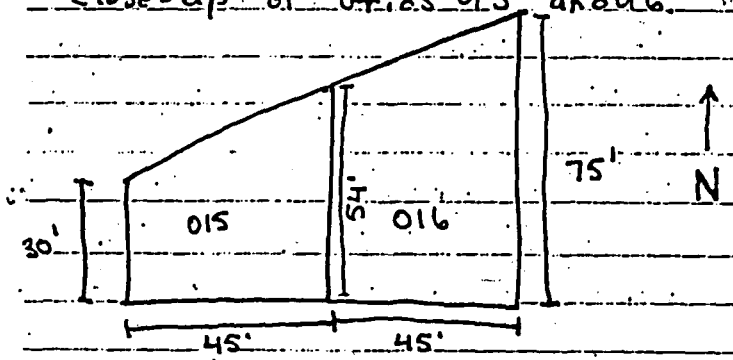
Jim Rogers 6/17/98

ATC Refinery Wednesday, June 17, 1998

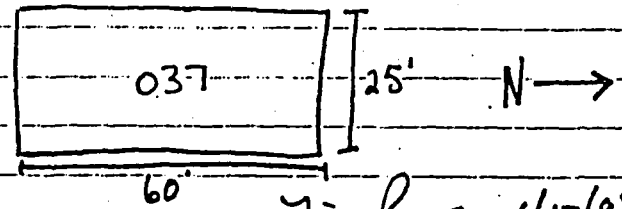
Close-up of Grids 001 to 011



Close-up of Grids 015 and 016



Close-up of Grid 037.



Jim Rogers 6/17/98

ATC Refinery Wednesday, June 17, 1998

0705 START arrives on site and enters hot zone to assist SESD with sampling of grids.

NOTE: START Sparks makes a modified Level C entry (with SCBA) with SESD to sample Grid 022.

1130 START exits hot zone and leaves site for lunch and supplies.

1300 START returns to site and enters hot zone. All personnel in modified Level D protection.

1720 ~~1520~~ JR START exits hot zone and leaves site to obtain ice and vermiculite for use in sample packing and shipping by SESD.

1800 START returns to site with supplies and assists SESD with packing of samples outside the hot zone.

1820 START leaves site for day.

Jim Rop 6/17/98

ATC Refinery Wednesday, June 17, 1998

Photolog of ATC Refinery:

#01 (East, 1605) "Pipeline" grid; Grids 029 - 032.

02 (East, 1605) "Pipeline" grid.

03 (North, 1610) Grids 033 - 036.

04 (West, 1615) SESD and START begin sampling in Grid 032.

05 (SW, 1615) SESD sampling Grid 011; track hoe in background.

06 (South, 1615) SESD sampling Grid 010, START performing air monitoring; southern fenceline in background.

07 (South, 1615) Southern fenceline in SW corner of site; air monitoring and sample mixing visible in Grid 010.

08 (NW, 1620) Grids 005 - 011.

09 (West-NW, 1620) Grids 001 - 007.

10 (North, 1620) Grids 015 and 016; berm in background.

11 (SE, 1625) Grids 017 - 024

12 (SE, 1625) Grids 024 and 025

13 (East, 1630) Grids 027 and 028; western fenceline in background

14 (West, 1630) Grid 026; former tanks in near background; berm in far background

Jim Rop 6/17/98

ATC Refinery Wednesday, June 17, 1998

Photolog of ATC Refinery (continued):

15 (NE, 1635) Former laboratory adjacent to Grids 027 and 028.

NOTE: All photos taken by START PM Michael Sparks and witnessed by START Tim Royer.

Tim Royer 6/17/98

ATC Refinery Thursday, June 18, 1998

0715 START arrives on site.

0730 START to hot zone to assist SESD with sampling and locating grid center points with global positioning system (GPS).

1130 START off site for lunch.

1230 START returns to site and enters hot zone in Level D protection (modified).

NOTE: START measured multiple reference points to aid with future aerial photographs. They are listed below.

- Center of Grid 017 is 57.5' from southern fenceline.
- Oil/Water Separator in Grid 026 measures 29.0' N to S and 7.4' E to W. The center point of Grid 026 is located on the separator 18.5' from the north end and 6.0' from the west end.
- Center of Grid 032 is 72.0' from the center of the road running E to W.
- Center of Grid 026 is 86.5' from the center of the road running E to W.
- Grid 014 (berm) is 98.0' E to W.
- Grid 013 (berm) is 113.0' E to W and bends south 45° approx. 30' from west end.

Tim Royer 6/18/98

ATC Refinery Thursday, June 18, 1998

- Grid 012 (berm) is 122.2' N to S.
- Center of Grid 004 is 45.9' from southern fenceline.
- NW corner of Grid 001 is 96' from Cape Fear River and 48' from center of (unsampled) berm adjacent to river.
- Center of Grid 004 is 35.5' from berm edge of Grid 012. Center of Grid 004 is 96' from eastern berm edge of Grid 012.
- The southern boundary of Grids 015 and 016 runs parallel to the southern fenceline and is 185' from the southern fenceline.
- Center of road running E to W to SW corner of Grid 037 is 298'.
- Eastern boundary of Grids 019, 022, 025, and 028 is 17' from eastern fenceline.
- No sample was taken at Grid 018.

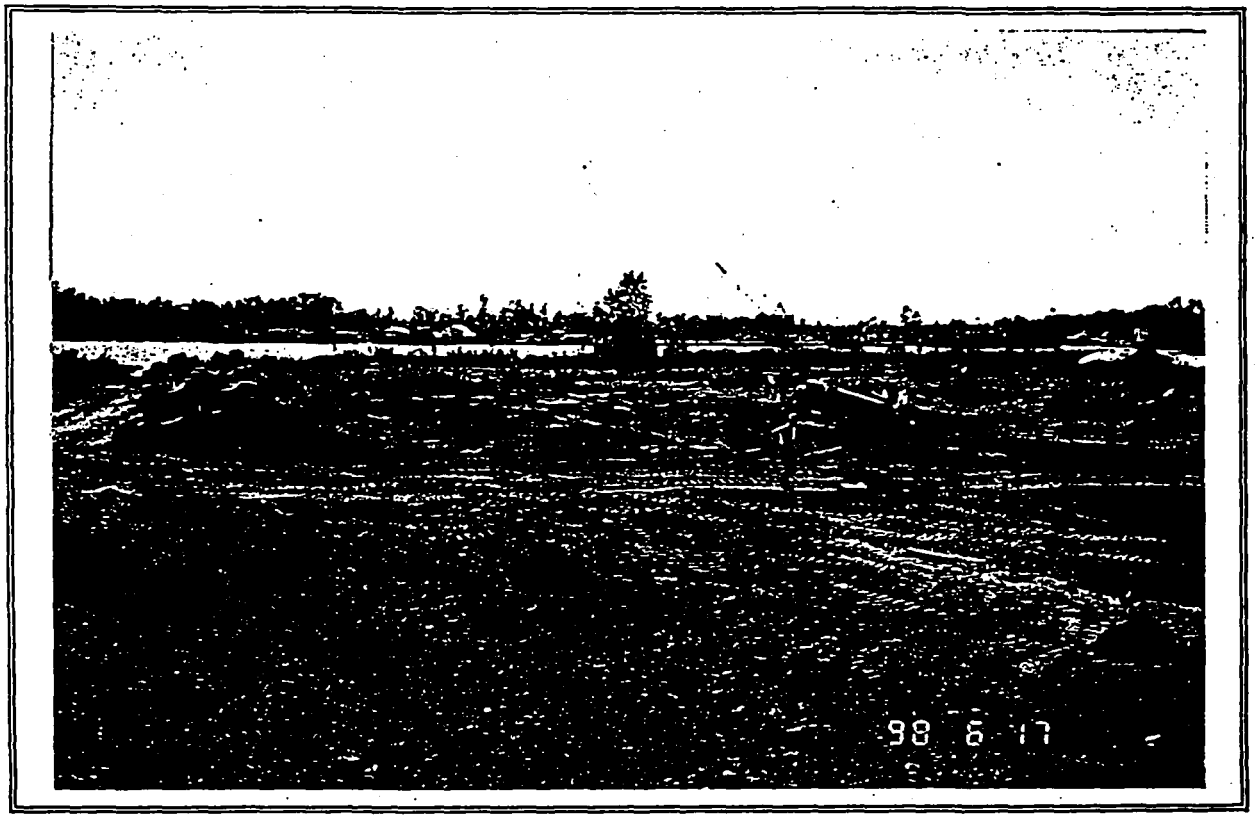
1615 START leaves site for the day after assisting SESD with clean up of temporary command post in former laboratory.

Jim [illegible] 6/18/98

APPENDIX B

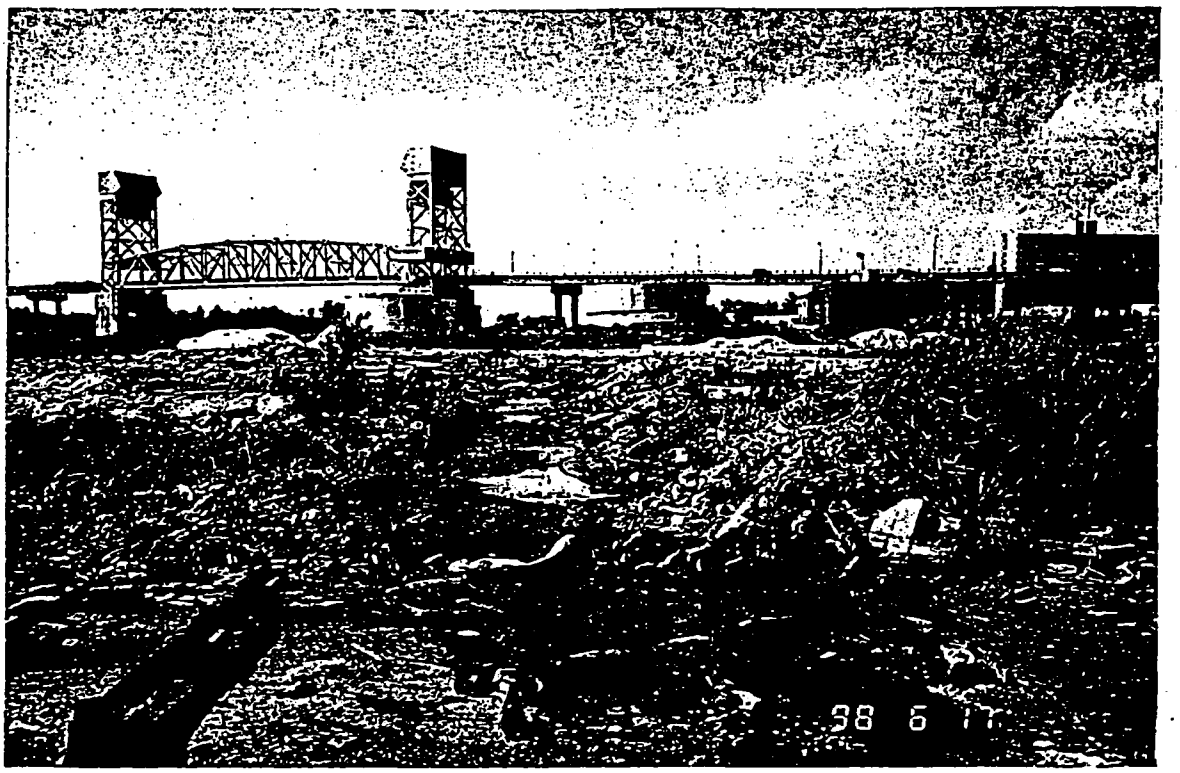
PHOTOGRAPH LOG

(12 pages)



OFFICIAL PHOTOGRAPH 1
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	View of Grids 029-032 over former pipeline; Cape Fear River in background		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	West		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START



OFFICIAL PHOTOGRAPH 2
U.S. ENVIRONMENTAL PROTECTION AGENCY

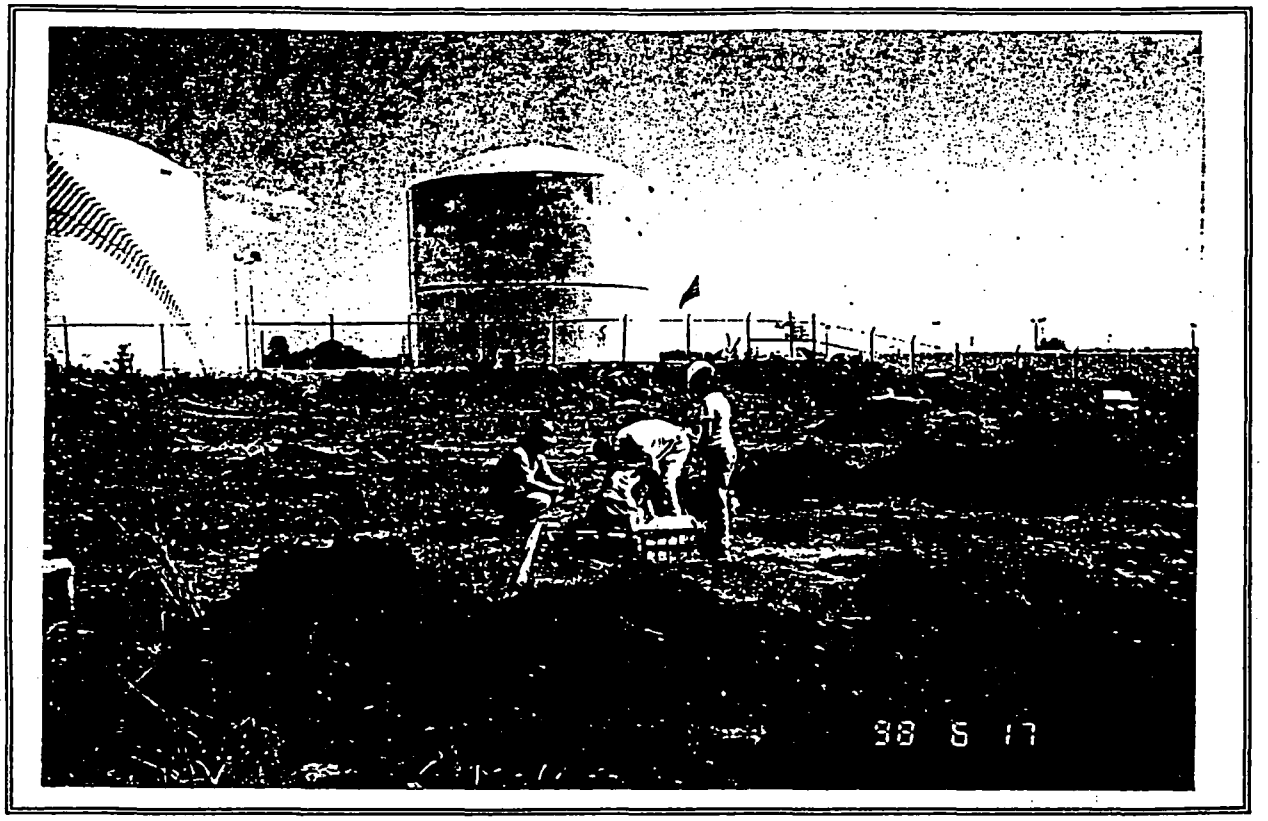
Subject:	View of Grids 033-036; adjacent active industrial facility in background		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	North		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START

OFFICIAL PHOTOGRAPH 3
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	SESD and START begin sampling in Grid 032		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	West		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START

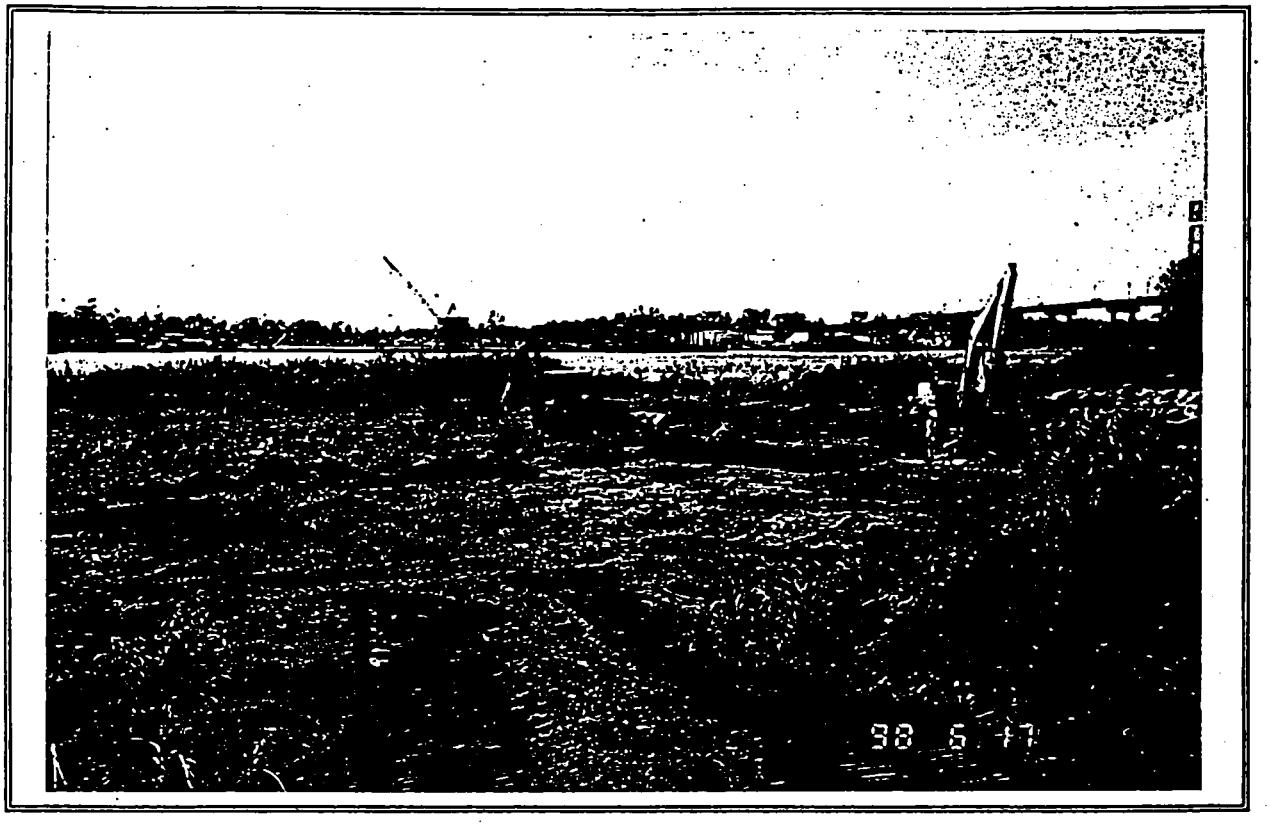
OFFICIAL PHOTOGRAPH 4
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	SESD sampling Grid 011 with track hoe in background		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	Southwest		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START



OFFICIAL PHOTOGRAPH 5
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	START performs air monitoring as SESD mixes sample in Grid 010; note southern fenceline and adjacent active industrial facility in background		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	South		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START

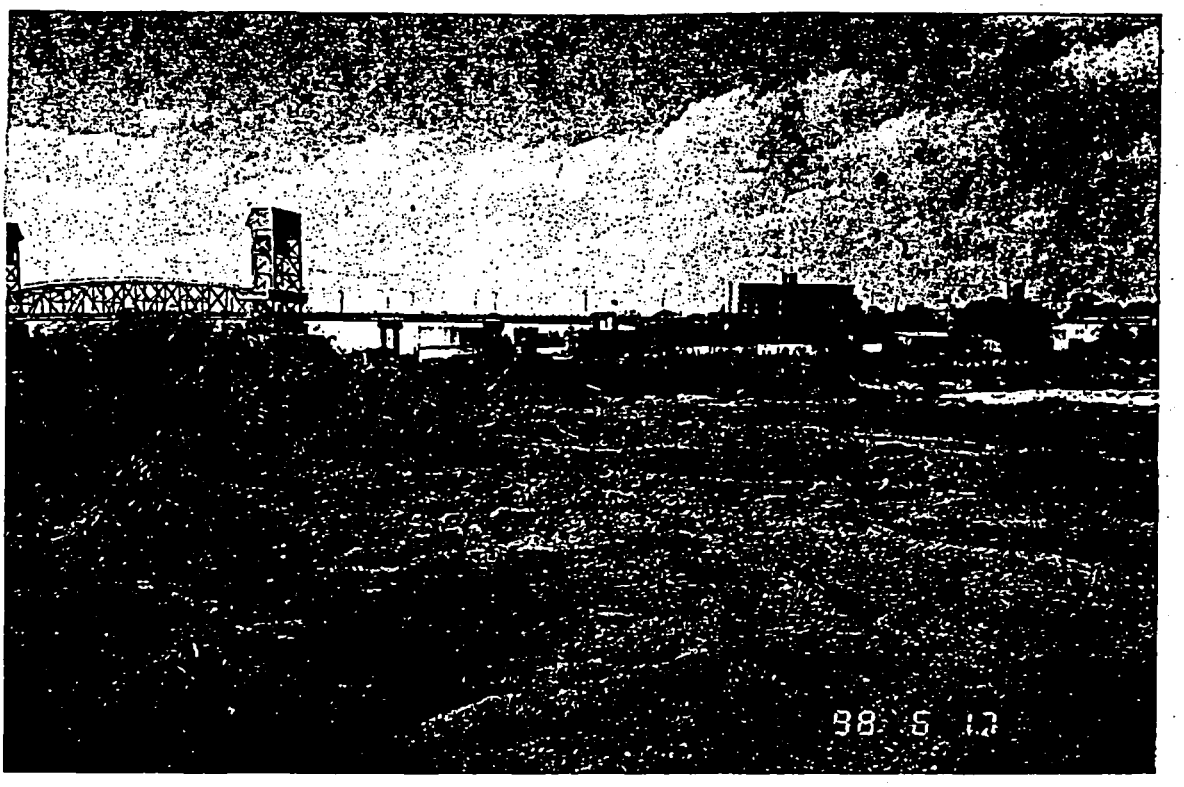


OFFICIAL PHOTOGRAPH 6
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	View of Grids 005-011; note excavation equipment in background utilized in sampling		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	Northwest		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START

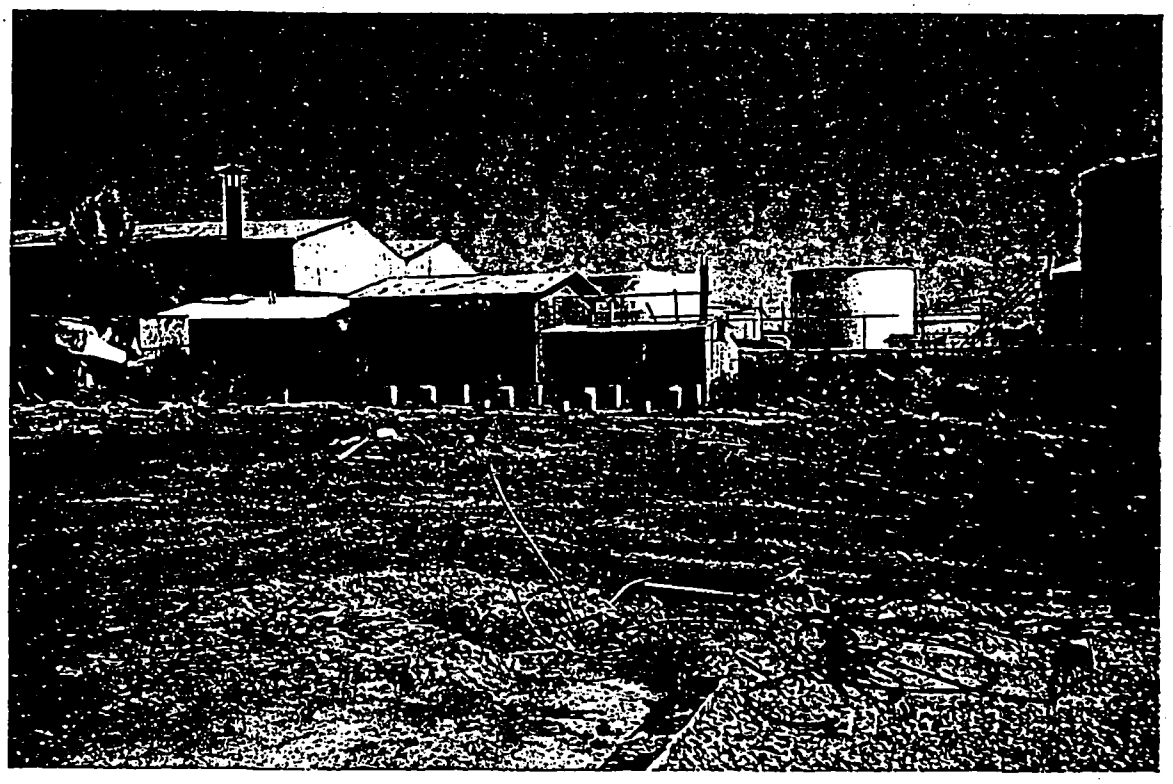
OFFICIAL PHOTOGRAPH 7
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	View of Grids 001-007; pin flags denote corners and center points of grids		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	Northwest		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START



OFFICIAL PHOTOGRAPH 8
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	View of Grids 015 and 016; bordering berm includes Grids 012-014		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	North		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START

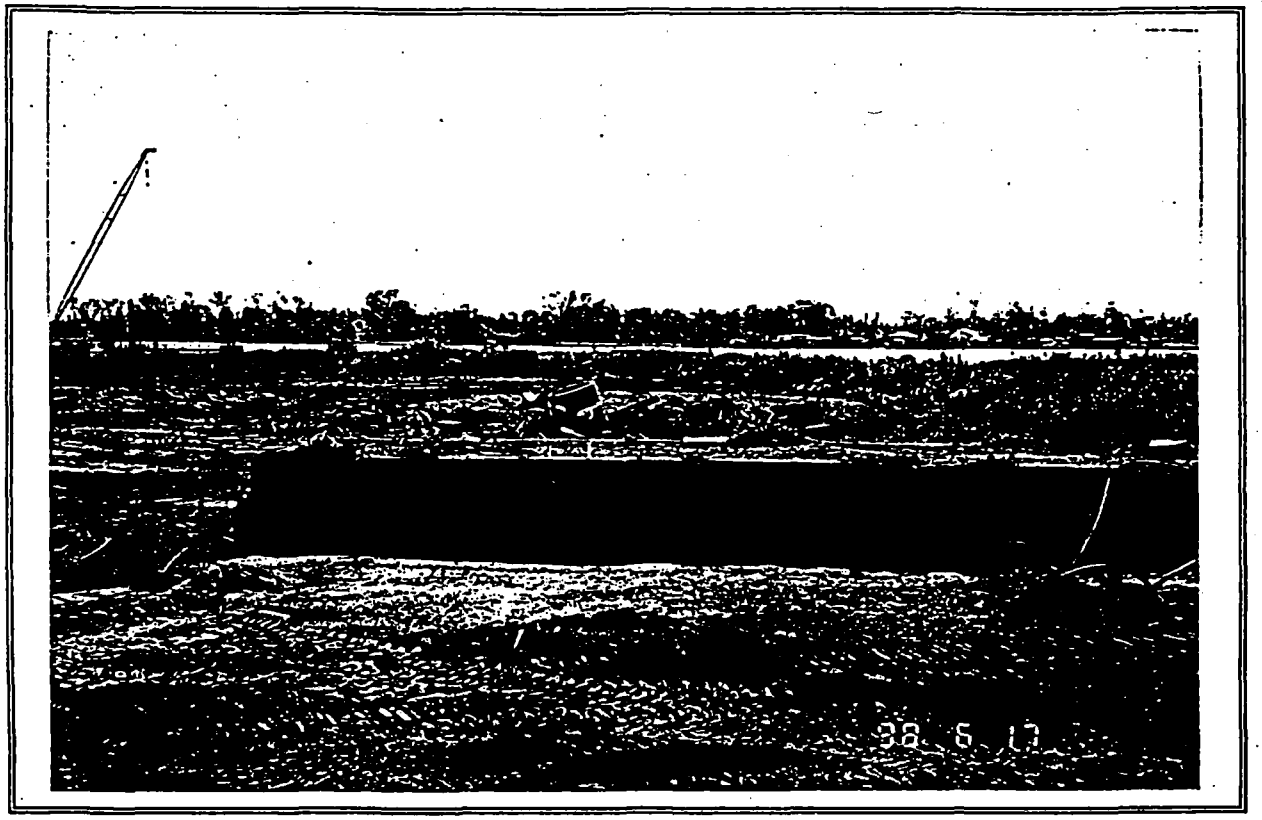


OFFICIAL PHOTOGRAPH 9
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	View of Grids 017-024. Former boiler shack in background prevented sampling in Grid 018		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	Southeast		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START

OFFICIAL PHOTOGRAPH 10
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	Grids 024 and 025 with debris from foundation of former cracking tower in background		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	Southeast		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START



OFFICIAL PHOTOGRAPH 11
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	View of Grid 026 which includes the base of former oil-water separator, site of former above ground oil storage tanks in near background and berm in far background		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	West		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START

OFFICIAL PHOTOGRAPH 12
U.S. ENVIRONMENTAL PROTECTION AGENCY

Subject:	Former laboratory adjacent to Grids 027 and 028		
Location:	ATC Refinery Site Wilmington, New Hanover County, North Carolina		
Orientation:	Northeast		
TDD Number:	04-9805-0003	**Date:**	June 17, 1998
Photographer:	Michael Sparks, START	**Witness:**	Timothy Royer, START

APPENDIX C

TABLE OF WITNESSES

(1 page)

TABLE OF WITNESSES

Chris Militscher, On-Scene Coordinator
U.S. Environmental Protection Agency
Region 4 Emergency Response and Removal Branch
61 Forsyth Street, SW
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Michael Sparks, Project Manager
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Tim Simpson, Lead
Katherine Hastie
Archie Lee
Bobby Lewis
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Science and Ecosystem Support Division
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Pete Davenport, Chief Petty Officer
U.S. Coast Guard
National Gulf Strike Team
Aviation Training Center
Mobile, Alabama 36608

6/15/98
Sampling Event
Locations

SAMPLE LOCATIONS
OLD ATC REFINERY
WILMINGTON, NORTH CAROLINA
JUNE15-19, 1998

Site: OLD ATC
Page: 2.2
Other: V.03

Grid	Depth
001	002,-003
002	002, 003
003	002*, 003
004	002, 003
005	002, 003
006	002, 003
007	002, 003
008	002, 003
009	002, 003
010	002*, 003
011	002, 003
012	002
013	002
014	002
015	001
016	001, 002
017	001*, 002, 003
018	Not sampled
019	002 (grab sample)
020	001, 002, 003
021	001, 002, 003
022	002
023	001, 002, 003
024	001, 002, 003
025	002, 003
026	001, 002, 003
027	001*, 002, 003
028	001, 002, 003
029	002, 003
030	002, 003
031	002, 003
032	002, 003
033	002*, 003
034	002, 003
035	002, 003
036	002, 003
037	001, 002

* - duplicate.
All samples are composites unless noted.

Waste Samples

HZ-101 (tar waste)
HZ-102 (greenish soil)

Quality Control Samples

QA-901-TBS (trip blank soil)
QA-902-POT (raw source water)
QA-903-OFW(organic-free water system)
QA-904-ERB (equipment rinse blank)
QA-905-PRE (preservative blank)
QA-906-ERB (equipment rinse blank)
QA-907-TBS (trip blank soil)

Depth

001 = surface
002 = 24-36 inches
003 = 48-54 inches

Sample ID	Grid-Depth	Matrix
5599	15-001	Surface Soil 0-12"
5600	12-002	Subsurface Soil >12"
5601	37-001	Surface Soil 0-12"
5602	16-001	Surface Soil 0-12"
5603	37-002	Subsurface Soil >12"
5604	13-002	Subsurface Soil >12"
5605	16-002	Subsurface Soil >12"
5606	14-002	Subsurface Soil >12"
5607	28-001	Surface Soil 0-12"
5608	28-002	Subsurface Soil >12"
5609	28-003	Subsurface Soil >12"
5610		
5611	17-002	Subsurface Soil >12"
5612	17-003	Subsurface Soil >12"
5613	23-001	Surface Soil 0-12"
5614	23-002	Subsurface Soil >12"
5615		Surface Soil 0-12"
5616	23-003	Subsurface Soil >12"
5617	26-001	Surface Soil 0-12"
5618	24-001	Surface Soil 0-12"
5619	24-002	Subsurface Soil >12"
5620	24-003	Subsurface Soil >12"
5621	26-002	Subsurface Soil >12"
5622	26-003	Subsurface Soil >12"
5623	20-001	Surface Soil 0-12"
5624	20-002	Subsurface Soil >12"
5625	21-001	Surface Soil 0-12"
5626	21-002	Subsurface Soil >12"
5627	21-003	Subsurface Soil >12"
5628	20-003	Subsurface Soil >12"
5629	27-001	Surface Soil 0-12"
5630		Surface Soil 0-12"
5631		Subsurface Soil >12"
5632	22-002	Subsurface Soil >12"
5633	27-002	Subsurface Soil >12"
5634	27-003	Subsurface Soil >12"
5635	25-002	Subsurface Soil >12"
5636	25-003	Subsurface Soil >12"
5637	3-002	Subsurface Soil >12"
5638		Subsurface Soil >12"
5639	1-002	Subsurface Soil >12"
5640	1-003	Subsurface Soil >12"
5641	3-003	Subsurface Soil >12"

5642	4-002	Subsurface Soil >12"
5643	4-003	Subsurface Soil >12"
5644	5-002	Subsurface Soil >12"
5645	2-002	Subsurface Soil >12"
5646	2-003	Subsurface Soil >12"
5647	5-003	Subsurface Soil >12"
5648	7-002	Subsurface Soil >12"
5649	8-002	Subsurface Soil >12"
5650	8-003	Subsurface Soil >12"
5651	7-003	Subsurface Soil >12"
5652	6-002	Subsurface Soil >12"
5653	6-003	Subsurface Soil >12"
5654	9-002	Subsurface Soil >12"
5655	9-003	Subsurface Soil >12"
5656	11-002	Subsurface Soil >12"
5657	10-002	Subsurface Soil >12"
5658	10-003	Subsurface Soil >12"
5659		Subsurface Soil >12"
5660		Subsurface Soil >12"
5661	33-002	Subsurface Soil >12"
5662	31-002	Subsurface Soil >12"
5663	32-002	Subsurface Soil >12"
5664	32-003	Subsurface Soil >12"
5665	33-003	Subsurface Soil >12"
5666	31-003	Subsurface Soil >12"
5667		Subsurface Soil >12"
5668	34-002	Subsurface Soil >12"
5669	30-002	Subsurface Soil >12"
5670	30-003	Subsurface Soil >12"
5671	34-003	Subsurface Soil >12"
5672	29-002	Subsurface Soil >12"
5673	29-003	Subsurface Soil >12"
5674	36-002	Subsurface Soil >12"
5675	36-003	Subsurface Soil >12"
5676	35-002	Subsurface Soil >12"
5677	35-003	Subsurface Soil >12"
5678		Water
5679		Water
5680		Water
5681		Water
5682		Water

OLD ATC
2.2

Old ATC Refinery
Metals Results
June 18, 1998

Parameter	HZ-101 (mg/kg)	HZ-102 (mg/kg)
Arsenic	5.0U	16
Barium	20J	26
Beryllium	0.2U	1.3
Cobalt	1.0U	7.9
Chromium	2.2	86
Copper	250J	2.5
Nickel	1.5	21
Lead	71J	7.9
Strontium	4.7	12
Titanium	40	120
Vanadium	3.6	70
Yttrium	1.0U	3.3
Zinc	65J	39
Total mercury	0.05U	0.06
Aluminum	1100	17000
Manganese	41J	83
Calcium	1500J	1600
Magnesium	180	4900
Iron	5900	39000
Sodium	730	200U
Potassium	120	7700

* ESD data on two samples collected by pit area
HZ-101 (tar waste)
HZ-102 (greenish soil)

ANALYTICAL DATA FOR OLD ATC REFINERY

METALS SCAN

	Grid-Depth	Matrix	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead
mg/kg	01-002	Subsurface Soil >12"	2400	ND	3.8	130	0.34	0.5	8800	10	ND	50	8200	390
mg/kg	01-003	Subsurface Soil >12"	1900	ND	2.8	51	0.31	ND	2300	8.1	ND	69	4500	120
mg/kg	02-002	Subsurface Soil >12"	980	ND	ND	9.3	0.25	ND	480	2.4	ND	ND	1700	8.9
mg/kg	02-003	Subsurface Soil >12"	800	ND	ND	8.5	0.27	ND	440	2.5	ND	ND	1500	10
mg/kg	03-002	Subsurface Soil >12"	2000	ND	2.8	72	0.29	0.67	4000	6.9	ND	8	6300	210
mg/kg	03-002D	Subsurface Soil >12"	1900	ND	ND	38	ND	ND	1900	5.7	ND	21	4700	100
mg/kg	03-003	Subsurface Soil >12"	830	ND	ND	8.6	ND	ND	1500	2.6	ND	ND	2000	8.1
mg/kg	04-002	Subsurface Soil >12"	2300	ND	ND	26	0.29	0.29	1500	5.1	ND	15	4500	47
mg/kg	04-003	Subsurface Soil >12"	1100	ND	8	150	0.26	1.7	4800	40	15	190	160000	650
mg/kg	05-002	Subsurface Soil >12"	800	ND	ND	18	0.23	0.24	970	2.6	ND	13	3500	390
mg/kg	05-003	Subsurface Soil >12"	670	ND	ND	8.6	0.25	ND	540	2.3	ND	7.4	1700	100
mg/kg	06-002	Subsurface Soil >12"	800	ND	ND	18	0.23	0.25	2500	3	ND	12	2300	55
mg/kg	06-003	Subsurface Soil >12"	850	ND	ND	18	0.26	1	1500	3	ND	13	3100	43
mg/kg	07-002	Subsurface Soil >12"	2800	ND	4.2	70	0.42	1.1	3600	6.6	ND	47	7800	200
mg/kg	07-003	Subsurface Soil >12"	1100	ND	ND	12	0.28	ND	590	2.9	ND	7.8	2400	22
mg/kg	08-002	Subsurface Soil >12"	1600	ND	ND	18	0.35	ND	740	5.7	ND	ND	3000	20
mg/kg	08-003	Subsurface Soil >12"	2500	60	4.2	55	0.36	ND	5400	6.9	ND	43	13000	450
mg/kg	09-002	Subsurface Soil >12"	1400	ND	3	19	ND	1.1	630	2.6	ND	130	12000	22
mg/kg	09-003	Subsurface Soil >12"	2100	ND	3	31	ND	0.65	4500	4.8	ND	19	5000	27
mg/kg	10-002	Subsurface Soil >12"	2100	ND	4.5	46	ND	0.65	1600	6.5	ND	37	5600	120
mg/kg	10-002D	Subsurface Soil >12"	1100	ND	1	17	ND	ND	1100	3.5	ND	7	2900	42
mg/kg	10-003	Subsurface Soil >12"	1700	ND	2	17	ND	ND	810	5	ND	7.7	3300	23
mg/kg	11-002	Subsurface Soil >12"	1200	ND	2.7	180	ND	0.35	3300	4.7	ND	23	4100	110
mg/kg	11-003	Subsurface Soil >12"	1700	ND	2.4	500	ND	ND	2900	5.9	ND	36	6500	120
mg/kg	12-002	Subsurface Soil >12"	2000	ND	9.4	55	ND	ND	2400	9.2	ND	54	4900	210
mg/kg	13-002	Subsurface Soil >12"	1970	1.5	11	59	0.24	0.41	2800	7.6	ND	57	6500	160
mg/kg	14-002	Subsurface Soil >12"	1900	ND	10	44	ND	0.24	2500	6.8	ND	29	3800	110
mg/kg	15-001	Surface Soil 0-12"	1600	ND	4.9	53	ND	0.34	76000	9.5	ND	34	9900	140
mg/kg	16-001	Surface Soil 0-12"	1600	ND	6.1	45	ND	0.46	81000	9.8	ND	160	6000	180
mg/kg	16-002	Subsurface Soil >12"	ND	ND	6	150	ND	1.5	3600	12	ND	35	4400	350
mg/kg	17-001	Surface Soil 0-12"	1500	ND	6.4	48	ND	0.4	84000	11	ND	160	6000	180

ANALYTICAL DATA FOR OLD ATC REFINERY

METALS SCAN

	Grid-Depth	Matrix	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead
mg/kg	17-001D	Surface Soil 0-12"	1400	ND	4	38	ND	0.26	85000	13	ND	41	5200	250
mg/kg	17-002	Subsurface Soil >12"	2000	ND	5.9	83	ND	0.95	26000	14	ND	70	15000	450
mg/kg	17-003	Subsurface Soil >12"	2400	ND	4.6	85	ND	0.34	4800	4.7	ND	43	5200	200
mg/kg	19-002	Subsurface Soil >12"	15000	13	15	230	ND	27	2700	75	ND	940	79000	1300
mg/kg	20-001	Surface Soil 0-12"	2900	ND	8.1	80	ND	0.55	20000	28	ND	110	21000	580
mg/kg	20-002	Subsurface Soil >12"	2900	ND	6.1	140	0.24	0.64	13000	11	ND	100	8900	660
mg/kg	20-003	Subsurface Soil >12"	4300	ND	9.6	350	0.37	0.64	6000	9.2	ND	100	9600	390
mg/kg	21-001	Surface Soil 0-12"	4400	ND	5.3	60	ND	0.26	23000	32	ND	72	28000	310
mg/kg	21-002	Subsurface Soil >12"	2300	ND	3.3	160	ND	0.76	19000	9.4	ND	76	9600	400
mg/kg	21-003	Subsurface Soil >12"	2800	ND	8.4	270	0.35	1.9	16000	20	ND	93	19000	950
mg/kg	22-002	Subsurface Soil >12"	6500	ND	50	220	2.1	4.9	6300	15	ND	98	16000	170
mg/kg	23-001	Surface Soil 0-12"	2100	ND	7.3	80	ND	0.41	19000	15	ND	87	26000	250
mg/kg	23-002	Subsurface Soil >12"	2600	ND	15	150	0.27	0.52	9700	14	ND	190	33000	510
mg/kg	23-003	Subsurface Soil >12"	3900	ND	7.8	210	0.49	0.6	9200	11	ND	130	14000	420
mg/kg	24-001	Surface Soil 0-12"	3100	ND	5.2	68	ND	0.24	17000	19	ND	100	15000	270
mg/kg	24-002	Subsurface Soil >12"	3300	14	4.6	170	0.35	0.54	6700	8.5	ND	81	8900	370
mg/kg	24-003	Subsurface Soil >12"	2800	ND	7.3	290	0.26	1.1	8900	14	ND	95	29000	940
mg/kg	25-002	Subsurface Soil >12"	7100	26	10	251	1.6	1.3	13000	16	ND	120	16000	1400
mg/kg	25-003	Subsurface Soil >12"	2000	ND	6	250	0.42	1	3700	360	ND	64	10000	320
mg/kg	26-001	Surface Soil 0-12"	5200	ND	3.8	69	ND	ND	12000	10	ND	53	13000	130
mg/kg	26-002	Subsurface Soil >12"	3400	ND	2.9	210	ND	0.42	3600	8.2	ND	46	7100	210
mg/kg	26-003	Subsurface Soil >12"	2700	ND	4.8	190	ND	0.6	7900	8.9	ND	78	9400	340
mg/kg	27-001	Surface Soil 0-12"	3600	ND	5.2	120	ND	0.58	32000	14	ND	96	18000	340
mg/kg	27-001D	Surface Soil 0-12"	3600	ND	4.2	91	ND	0.33	17000	11	ND	140	21000	280
mg/kg	27-002	Subsurface Soil >12"	2500	ND	6.2	310	ND	0.56	11000	8.8	ND	110	31000	590
mg/kg	27-003	Subsurface Soil >12"	3300	ND	6.4	540	ND	1.4	16000	9.6	ND	160	23000	1300
mg/kg	28-001	Surface Soil 0-12"	7000	ND	8.5	130	0.33	0.69	57000	40	ND	240	50000	500
mg/kg	28-002	Subsurface Soil >12"	2200	ND	2.9	170	ND	0.66	18000	7	ND	50	4600	390
mg/kg	28-003	Subsurface Soil >12"	2000	ND	2.2	240	ND	0.37	7400	6	ND	37	4000	320
mg/kg	29-002	Subsurface Soil >12"	2200	ND	ND	26	ND	ND	1800	4.2	ND	11	2400	32
mg/kg	29-003	Subsurface Soil >12"	2300	ND	ND	17	ND	ND	1800	4.6	ND	ND	2000	12

ANALYTICAL DATA FOR OLD ATC REFINERY

METALS SCAN

	Grid-Depth	Matrix	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead
mg/kg	30-002	Subsurface Soil >12"	1200	ND	ND	14	ND	ND	66000	3.4	ND	6.6	2000	13
mg/kg	30-003	Subsurface Soil >12"	1300	ND	ND	7.5	ND	ND	930	2.2	ND	ND	1300	8.8
mg/kg	31-002	Subsurface Soil >12"	1500	ND	ND	14	ND	ND	2000	3.2	ND	ND	2200	18
mg/kg	31-003	Subsurface Soil >12"	1100	ND	ND	10	ND	ND	1300	2.6	ND	ND	1900	11
mg/kg	32-002	Subsurface Soil >12"	1400	ND	ND	40	ND	ND	2600	4.2	ND	9.4	2500	82
mg/kg	32-003	Subsurface Soil >12"	840	ND	ND	12	ND	ND	880	2.2	ND	ND	810	15
mg/kg	33-002	Subsurface Soil >12"	1800	ND	3.7	35	ND	ND	16000	7.3	ND	34	5500	44
mg/kg	33-002D	Subsurface Soil >12"	2200	ND	2.8	37	ND	ND	5400	8.1	ND	20	6100	58
mg/kg	33-003	Subsurface Soil >12"	2000	ND	3.6	48	ND	ND	9200	18	ND	16	4500	60
mg/kg	34-002	Subsurface Soil >12"	21000	ND	4.2	30	ND	ND	17000	6.5	ND	13	5300	45
mg/kg	34-003	Subsurface Soil >12"	1900	ND	ND	28	ND	ND	3900	5.6	ND	13	3400	41
mg/kg	35-002	Subsurface Soil >12"	2000	ND	ND	22	ND	ND	10000	6	ND	10	3400	81
mg/kg	35-003	Subsurface Soil >12"	2100	ND	ND	28	ND	ND	4300	4.8	ND	10	2800	26
mg/kg	36-002	Subsurface Soil >12"	2600	ND	5.9	72	ND	0.36	6200	9.3	ND	34	10000	110
mg/kg	36-003	Subsurface Soil >12"	2600	ND	11	74	ND	ND	4000	9.3	ND	65	16000	60
mg/kg	37-001	Surface Soil 0-12"	1300	ND	ND	15	ND	ND	28000	4	ND	7.3	3600	63
mg/kg	37-002	Subsurface Soil >12"	1500	ND	ND	17	ND	0.29	6400	2.5	ND	14	2300	48
ug/l	902-POT	Water	ND	ND	ND	19	ND	ND	6100	ND	ND	ND	240	ND
ug/l	903-OFW	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ug/l	904-ERB	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ug/l	905-PRE	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ug/l	906-ERB	Water	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

METALS SCAN

	Grid-Depth	Magnesium	Manganese	Total Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Cyanide
mg/kg	01-002	540	73	0.53	6.3	180	ND	ND	350	ND	9.4	280	ND
mg/kg	01-003	320	30	0.2	3.3	320	ND	ND	340	ND	7.6	140	ND
mg/kg	02-002	110	7.7	0.17	1.1	130	ND	ND	280	ND	2.9	12	ND
mg/kg	02-003	120	9.3	0.1	0.96	150	ND	ND	310	ND	3.2	14	ND
mg/kg	03-002	360	61	0.37	4.6	190	ND	ND	310	ND	9	170	ND
mg/kg	03-002D	290	26	0.18	ND	280	ND	ND	300	ND	7.2	82	ND
mg/kg	03-003	130	8.9	ND	1.4	180	ND	ND	250	ND	4.6	13	ND
mg/kg	04-002	320	28	0.21	3	280	ND	ND	310	ND	9.2	89	ND
mg/kg	04-003	1000	770	0.16	30	200	1.3	ND	590	2.8	38	250	ND
mg/kg	05-002	110	24	0.15	2.2	ND	ND	ND	250	ND	3.7	67	ND
mg/kg	05-003	ND	9.1	ND	2	120	1.2	ND	270	ND	26	38	ND
mg/kg	06-002	150	17	0.12	2.1	110	1.1	ND	280	ND	3.2	63	ND
mg/kg	06-003	150	17	0.11	3.2	110	ND	ND	280	ND	3.9	92	ND
mg/kg	07-002	380	67	0.18	6.2	230	ND	ND	300	ND	9.2	260	ND
mg/kg	07-003	140	12	ND	3.2	140	ND	ND	280	ND	3.8	100	ND
mg/kg	08-002	270	18	ND	2.1	440	ND	ND	320	ND	6.9	54	ND
mg/kg	08-003	800	110	ND	4.1	280	ND	ND	320	ND	12	100	ND
mg/kg	09-002	ND	12	ND	6.4	82	ND	ND	390	ND	2.6	240	ND
mg/kg	09-003	350	34	ND	6.2	260	ND	ND	610	ND	6.4	270	ND
mg/kg	10-002	360	32	ND	4	180	ND	ND	360	ND	8	160	ND
mg/kg	10-002D	200	15	ND	2	110	ND	ND	290	ND	5.5	47	ND
mg/kg	10-003	350	18	ND	3.5	270	ND	ND	310	ND	6	42	ND
mg/kg	11-002	260	29	ND	4.1	88	ND	ND	320	ND	11	100	ND
mg/kg	11-003	320	44	0.13	5.7	200	ND	ND	320	ND	15	130	ND
mg/kg	12-002	330	58	0.18	3.4	210	ND	ND	280	ND	7.8	93	ND
mg/kg	13-002	340	66	0.22	3.8	170	ND	ND	280	ND	7.7	100	ND
mg/kg	14-002	290	55	ND	3.3	200	ND	ND	210	ND	8.3	82	ND
mg/kg	15-001	1000	95	0.13	7.6	250	ND	ND	470	ND	27	110	ND
mg/kg	16-001	1200	80	0.88	30	220	ND	ND	340	ND	200	130	NA
mg/kg	16-002	320	65	0.14	5.1	170	ND	ND	310	ND	18	180	NA
mg/kg	17-001	1200	60	0.66	30	220	ND	ND	340	ND	200	130	NA

ANALYTICAL DATA FOR OLD ATC REFINERY

METALS SCAN

	Grid-Depth	Magnesium	Manganese	Total Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Cyanide
mg/kg	17-001D	1200	73	1.1	9.3	150	ND	ND	360	ND	49	95	NA
mg/kg	17-002	570	99	0.24	8.6	200	ND	ND	360	ND	28	300	NA
mg/kg	17-003	410	42	0.4	5	120	ND	ND	390	ND	6.7	130	NA
mg/kg	19-002	400	350	3.1	190	73	1.3	ND	320	ND	37	2500	NA
mg/kg	20-001	780	160	0.36	39	160	ND	ND	370	ND	230	260	NA
mg/kg	20-002	820	89	0.27	12	140	ND	ND	390	ND	84	360	NA
mg/kg	20-003	560	110	0.31	8	210	ND	ND	480	ND	57	500	NA
mg/kg	21-001	940	190	0.36	61	260	ND	ND	480	ND	320	210	NA
mg/kg	21-002	680	85	ND	8.9	130	ND	ND	450	ND	33	310	NA
mg/kg	21-003	760	120	0.46	15	17	ND	ND	410	ND	17	550	NA
mg/kg	22-002	430	48	0.4	50	310	1.9	ND	540	ND	37	1400	NA
mg/kg	23-001	540	180	0.52	17	110	ND	ND	340	ND	56	280	NA
mg/kg	23-002	600	180	0.38	17	130	ND	ND	380	ND	14	420	NA
mg/kg	23-003	620	150	0.21	21	250	ND	ND	470	ND	13	420	NA
mg/kg	24-001	630	120	0.33	24	150	ND	ND	230	ND	22	160	NA
mg/kg	24-002	400	140	1.1	7.4	150	ND	ND	400	ND	12	350	NA
mg/kg	24-003	540	170	0.25	11	120	ND	ND	350	ND	13	620	NA
mg/kg	25-002	1400	130	0.31	16	400	ND	ND	540	ND	28	360	NA
mg/kg	25-003	260	47	0.23	5.2	150	ND	ND	350	ND	6.6	380	NA
mg/kg	26-001	380	61	0.23	7.7	150	ND	ND	340	ND	13	140	NA
mg/kg	26-002	310	64	0.19	4.2	140	ND	ND	310	ND	8.3	510	NA
mg/kg	26-003	480	110	0.29	7.8	200	ND	ND	380	ND	7.9	400	NA
mg/kg	27-001	1300	130	0.4	13	280	ND	ND	550	ND	19	300	NA
mg/kg	27-001D	680	130	0.53	11	150	ND	ND	370	ND	19	230	NA
mg/kg	27-002	560	160	0.14	6	190	ND	1	420	ND	8.3	590	NA
mg/kg	27-003	1000	190	0.31	8	270	ND	ND	470	ND	8.8	1100	NA
mg/kg	28-001	2200	310	0.43	29	590	ND	ND	790	ND	27	580	NA
mg/kg	28-002	740	98	0.44	4.4	170	ND	ND	370	ND	7.2	380	NA
mg/kg	28-003	410	47	0.45	3.3	140	ND	ND	330	ND	5.7	250	NA
mg/kg	29-002	260	52	ND	3.1	160	ND	ND	ND	ND	4.7	31	NA
mg/kg	29-003	260	22	ND	2.5	230	ND	ND	ND	ND	5.9	18	NA

ANALYTICAL DATA FOR OLD ATC REFINERY

METALS SCAN

	Grid-Depth	Magnesium	Manganese	Total Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Cyanide
mg/kg	30-002	700	32	ND	1.8	ND	ND	ND	ND	ND	4.3	24	NA
mg/kg	30-003	ND	11	ND	2	ND	ND	ND	ND	ND	2.7	14	NA
mg/kg	31-002	160	17	ND	1.8	ND	ND	ND	440	ND	3.5	19	NA
mg/kg	31-003	130	12	ND	1.4	ND	ND	ND	230	ND	2.5	9.7	NA
mg/kg	32-002	200	21	ND	2.2	110	ND	ND	230	ND	3.9	68.7	NA
mg/kg	32-003	ND	6.2	ND	0.99	ND	ND	ND	220	ND	2.3	23	NA
mg/kg	33-002	490	93	ND	3.9	210	ND	ND	350	ND	6.2	71	NA
mg/kg	33-002D	610	82	ND	3.7	190	ND	ND	ND	ND	6.4	100	NA
mg/kg	33-003	1800	91	ND	4.1	200	ND	ND	ND	ND	7.9	84	NA
mg/kg	34-002	460	78	ND	2.9	230	ND	ND	ND	ND	5.4	60	NA
mg/kg	34-003	290	51	ND	2.6	150	ND	ND	ND	ND	4.8	70	NA
mg/kg	35-002	550	77	ND	2.9	220	ND	ND	ND	ND	5.6	49	NA
mg/kg	35-003	380	39	ND	2.1	140	ND	ND	ND	ND	5.1	140	NA
mg/kg	36-002	430	220	ND	4.2	210	ND	ND	ND	ND	9.4	170	NA
mg/kg	36-003	330	150	ND	7.1	170	ND	ND	ND	ND	8.2	76	NA
mg/kg	37-001	430	32	ND	3	95	ND	ND	320	ND	5.3	54	NA
mg/kg	37-002	690	20	ND	2.3	ND	ND	ND	290	ND	3.4	30	NA
ug/l	902-POT	1900	13	ND	ND	2800	ND	ND	25000	ND	ND	ND	ND
ug/l	903-OFW	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ug/l	904-ERB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ug/l	905-PRE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ug/l	906-ERB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Chloromethane	Bromomethane	Vinyl chloride	Chloroethane	Methylene chloride	Acetone
micro g/kg	01-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	02-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	02-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Chloromethane	Bromomethane	Vinyl chloride	Chloroethane	Methylene chloride	Acetone
micro g/kg	17-001D	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	17-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	21-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	100
micro g/kg	24-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	29-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	110

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Chloromethane	Bromomethane	Vinyl chloride	Chloroethane	Methylene chloride	Acetone
micro g/kg	30-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	Subsurface Soil >12"	ND	ND	ND	ND	7,200	ND
micro g/kg	31-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	35-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	Subsurface Soil >12"	280	ND	ND	ND	ND	ND
micro g/kg	36-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	37-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	Water	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	Water	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	Water	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE	Water						
micro g/kg	906-ERB	Water	ND	ND	ND	ND	ND	ND

Not detected
Not applicable

Soil sample results in ug/kg
Water sample results in ug/L

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Carbon disulfide	1,1-Dichloroethene	1,1-Dichloroethane	1,2-Dichloroethene (Total)	Chloroform	1,2-Dichloroethane
micro g/kg	01-002	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND
micro g/kg	02-002	ND	ND	ND	ND	ND	ND
micro g/kg	02-003	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Carbon disulfide	1,1-Dichloroethene	1,1-Dichloroethane	1,2-Dichloroethene (Total)	Chloroform	1,2-Dichloroethane
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND
micro g/kg	17-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	ND
micro g/kg	29-002	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Carbon disulfide	1,1-Dichloroethene	1,1-Dichloroethane	1,2-Dichloroethene (Total)	Chloroform	1,2-Dichloroethane
micro g/kg	30-002	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	ND	ND
micro g/kg	36-003	ND	ND	ND	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	38	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE						
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Methyl ethyl ketone	1,1,1-Trichloroethane	Carbon tetrachloride	Bromodichloromethane	1,2-Dichloropropane
micro g/kg	01-002	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND
micro g/kg	02-002	ND	ND	ND	ND	ND
micro g/kg	02-003	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Methyl ethyl ketone	1,1,1-Trichloroethane	Carbon tetrachloride	Bromodichloromethane	1,2-Dichloropropane
micro g/kg	17-001D	ND	ND	ND	ND	ND
micro g/kg	17-002	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND
micro g/kg	29-002	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Methyl ethyl ketone	1,1,1-Trichloroethane	Carbon tetrachloride	Bromodichloromethane	1,2-Dichloropropane
micro g/kg	30-002	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	ND
micro g/kg	36-003	ND	ND	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	15	ND
micro g/kg	903-OFW	70	ND	ND	ND	ND
micro g/kg	904-ERB	15	ND	ND	ND	ND
micro g/kg	905-PRE					
micro g/kg	906-ERB	10	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	cis-1,3-Dichloropropene	Trichloroethene	Dibromochloromethane	1,1,2-Trichloroethane	Benzene	trans-1,3-Dichloropropene
micro g/kg	01-002	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND
micro g/kg	02-002	ND	ND	ND	ND	ND	ND
micro g/kg	02-003	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	cis-1,3-Dichloropropene	Trichloroethene	Dibromochloromethane	1,1,2-Trichloroethane	Benzene	trans-1,3-Dichloropropene
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND
micro g/kg	17-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	ND
micro g/kg	29-002	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	cis-1,3-Dichloropropene	Trichloroethene	Dibromochloromethane	1,1,2-Trichloroethane	Benzene	trans-1,3-Dichloropropene
micro g/kg	30-002	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	3,000	ND
micro g/kg	36-003	ND	ND	ND	ND	7,400	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	6	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE						
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Bromoform	Methyl isobutyl ketone	Methyl butyl ketone	Tetrachloroethene	1,1,2,2-Tetratchloroethane	Toluene	Chlorobenzene
micro g/kg	01-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	02-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	02-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Bromoform	Methyl isobutyl ketone	Methyl butyl ketone	Tetrachloroethene	1,1,2,2-Tetratchloroethane	Toluene	Chlorobenzene
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	29-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	2	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Bromoform	Methyl isobutyl ketone	Methyl butyl ketone	Tetrachloroethene	1,1,2,2-Tetratchloroethane	Toluene	Chlorobenzene
micro g/kg	30-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND	550	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	ND	2,200	ND
micro g/kg	36-003	ND	ND	ND	ND	ND	21,000	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	59	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	120	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE							
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Ethylbenzene	Styrene	Total Xylenes	Percent Moisture	Sample ID
micro g/kg	01-002	ND	ND	ND	18	5639
micro g/kg	01-003	ND	ND	ND	28	5640
micro g/kg	02-002	ND	ND	ND	18	5645
micro g/kg	02-003	ND	ND	ND	17	5646
micro g/kg	03-002	ND	ND	ND	18	5637
micro g/kg	03-002D	ND	ND	ND	18	5638
micro g/kg	03-003	ND	ND	ND	21	5641
micro g/kg	04-002	ND	ND	ND	21	5642
micro g/kg	04-003	ND	ND	ND	26	5643
micro g/kg	05-002	ND	ND	ND	14	5644
micro g/kg	05-003	ND	ND	ND	17	5647
micro g/kg	06-002	ND	ND	ND	12	5652
micro g/kg	06-003	ND	ND	ND	23	5653
micro g/kg	07-002	ND	ND	ND	24	5648
micro g/kg	07-003	ND	ND	ND	16	5651
micro g/kg	08-002	ND	ND	ND	18	5649
micro g/kg	08-003	ND	ND	ND	29	5650
micro g/kg	09-002	ND	ND	ND	16	5654
micro g/kg	09-003	ND	ND	ND	25	5655
micro g/kg	10-002	ND	ND	ND	20	5657
micro g/kg	10-002D	ND	ND	ND	14	5659
micro g/kg	10-003	ND	ND	ND	24	5658
micro g/kg	11-002	ND	ND	ND	21	5656
micro g/kg	11-003	ND	ND	ND	24	5660
micro g/kg	12-002	ND	ND	ND	9	5600
micro g/kg	13-002	ND	ND	ND	8	5604
micro g/kg	14-002	ND	ND	ND	6	5606
micro g/kg	15-001	ND	ND	ND	13	5599
micro g/kg	16-001	ND	ND	ND	16	5602
micro g/kg	16-002	ND	ND	ND	20	5605
micro g/kg	17-001	ND	ND	ND	na	5610

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Ethylbenzene	Styrene	Total Xylenes	Percent Moisture	Sample ID
micro g/kg	17-001D	ND	ND	ND	8	5615
micro g/kg	17-002	ND	ND	ND	17	5611
micro g/kg	17-003	ND	ND	ND	22	5612
micro g/kg	19-002	ND	ND	ND	15	5631
micro g/kg	20-001	ND	ND	ND	10	5623
micro g/kg	20-002	ND	ND	ND	16	5624
micro g/kg	20-003	ND	ND	ND	na	5628
micro g/kg	21-001	ND	ND	ND	8	5625
micro g/kg	21-002	ND	ND	ND	9	5626
micro g/kg	21-003	ND	ND	ND	14	5627
micro g/kg	22-002	ND	ND	ND	24	5632
micro g/kg	23-001	ND	ND	ND	10	5613
micro g/kg	23-002	ND	ND	ND	15	5614
micro g/kg	23-003	ND	ND	ND	20	5616
micro g/kg	24-001	ND	ND	ND	8	5618
micro g/kg	24-002	ND	ND	ND	14	5619
micro g/kg	24-003	ND	ND	ND	20	5620
micro g/kg	25-002	ND	ND	ND	17	5635
micro g/kg	25-003	ND	ND	ND	11	5636
micro g/kg	26-001	ND	ND	ND	8	5617
micro g/kg	26-002	ND	ND	ND	15	5621
micro g/kg	26-003	ND	ND	ND	22	5622
micro g/kg	27-001	ND	ND	ND	9	5629
micro g/kg	27-001D	ND	ND	ND	8	5630
micro g/kg	27-002	ND	ND	ND	11	5633
micro g/kg	27-003	ND	ND	ND	13	5634
micro g/kg	28-001	ND	ND	ND	13	5607
micro g/kg	28-002	ND	ND	ND	10	5608
micro g/kg	28-003	ND	ND	ND	8	5609
micro g/kg	29-002	ND	ND	ND	16	5672
micro g/kg	29-003	ND	ND	ND	18	5673

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Ethylbenzene	Styrene	Total Xylenes	Percent Moisture	Sample ID
micro g/kg	30-002	ND	ND	ND	23	5669
micro g/kg	30-003	ND	ND	ND	15	5670
micro g/kg	31-002	6,400	ND	12,000	14	5662
micro g/kg	31-003	8,700	ND	2,700	20	5666
micro g/kg	32-002	ND	ND	260	18	5663
micro g/kg	32-003	ND	ND	ND	19	5664
micro g/kg	33-002	ND	ND	ND	19	5661
micro g/kg	33-002D	ND	ND	ND	18	5667
micro g/kg	33-003	ND	ND	ND	18	5665
micro g/kg	34-002	ND	ND	ND	15	5668
micro g/kg	34-003	ND	ND	ND	16	5671
micro g/kg	35-002	570	ND	990	11	5676
micro g/kg	35-003	8	ND	ND	16	5677
micro g/kg	36-002	29,000	ND	22,000	18	5674
micro g/kg	36-003	12,000	ND	31,000	23	5675
micro g/kg	37-001	ND	ND	240	12	5601
micro g/kg	37-002	46	ND	320	19	5603
micro g/kg	902-POT	ND	ND	ND	na	5678
micro g/kg	903-OFW	ND	ND	ND	na	5679
micro g/kg	904-ERB	ND	ND	ND	na	5680
micro g/kg	905-PRE					5681
micro g/kg	906-ERB	ND	ND	ND	na	5682

TOTAL PETROLEUM HYDROCARBONS

Sample ID	Depth (feet)	Grid Number	DRO Results (mg/kg) *
5913	2-3	29	100
5914	2-3	30	70
5915	2-3	31	1100
5916	2-3	32	1900
5917, 5922	2-3	33	80/60
5918	>3	33	60
5919	2-3	34	440
5920	2-3	35	2600
5921	2-3	36	2200
5923	<2	15	310
5924	<2	16	380
5925	<2	17	190
5926	<2	23	160

* Diesel Range Organic Hydrocarbon results reported in milligrams per kilogram

ANALYTICAL DATA FOR OLD ATC REFINERY

TOTAL PAH AND CARCINOGENIC PAH ANALYSIS

01-003	Subsurface Soil	1	1
03-003	Subsurface Soil	6	6
04-002	Subsurface Soil	3	2
04-003	Subsurface Soil	29	15
05-002	Subsurface Soil	2	2
02-002	Subsurface Soil	0	0
02-003	Subsurface Soil	1	1
05-003	Subsurface Soil	1	1
07-002	Subsurface Soil	2	2
08-002	Subsurface Soil	8	7
08-003	Subsurface Soil	1	1
07-003	Subsurface Soil	6	5
06-002	Subsurface Soil	1	1
06-003	Subsurface Soil	26	25
09-002	Subsurface Soil	1	1
09-003	Subsurface Soil	2	2
11-002	Subsurface Soil	17	15
10-002	Subsurface Soil	18	17
10-003	Subsurface Soil	19	17
10-002D	Subsurface Soil	4	4
11-003	Subsurface Soil	9	8
33-002	Subsurface Soil	2	2
31-002	Subsurface Soil	5	4
32-003	Subsurface Soil	2	2
32-003	Subsurface Soil	0	0
33-003	Subsurface Soil	1	1
31-003	Subsurface Soil	3	2
33-002D	Subsurface Soil	3	3
34-002	Subsurface Soil	4	3
30-002	Subsurface Soil	0	0
30-003	Subsurface Soil	0	0
34-003	Subsurface Soil	5	4
29-002	Subsurface Soil	3	3
29-003	Subsurface Soil	1	1
36-002	Subsurface Soil	18	15
36-003	Subsurface Soil	8	6
35-002	Subsurface Soil	3	2
35-003	Subsurface Soil	1	1
902-POT	Water	0	0
903-OFW	Water	0	0
904-ERB	Water	0	0
905-PRE	Water	0	0

All units in ppm

ANALYTICAL DATA FOR OLD ATC REFINERY

TOTAL PAH AND CARCINOGENIC PAH ANALYSIS

Grid-Depth	Matrix	TOTAL PAH	TOTAL CARC
15-001	Surface Soil	7	7
12-002	Subsurface Soil	6	6
37-001	Surface Soil	0	0
16-001	Surface Soil	4	4
37-002	Subsurface Soil	0	0
13-002	Subsurface Soil	7	7
16-002	Subsurface Soil	9	8
14-002	Subsurface Soil	3	3
28-001	Surface Soil	3	3
28-002	Subsurface Soil	2	1
28-003	Subsurface Soil	1	1
17-001	Surface Soil	2	2
17-002	Subsurface Soil	3	3
17-003	Subsurface Soil	3	3
23-001	Surface Soil	2	2
23-002	Subsurface Soil	2	2
17-001D	Surface Soil	2	2
23-003	Subsurface Soil	2	2
26-001	Surface Soil	1	1
24-001	Surface Soil	1	1
24-002	Subsurface Soil	1	1
24-003	Subsurface Soil	1	1
26-002	Subsurface Soil	1	1
26-003	Subsurface Soil	1	1
20-001	Surface Soil	1	1
20-002	Subsurface Soil	4	4
21-001	Surface Soil	1	1
21-002	Subsurface Soil	54	52
21-003	Subsurface Soil	46	44
20-003	Subsurface Soil	2	1
27-001	Surface Soil	1	1
27-001D	Surface Soil	1	1
19-002	Subsurface Soil	3	3
22-002	Subsurface Soil	1	1
27-002	Subsurface Soil	5	5
27-003	Subsurface Soil	3	3
25-002	Subsurface Soil	2	1
25-003	Subsurface Soil	2	2
03-002	Subsurface Soil	2	2
03-002D	Subsurface Soil	1	1
01-002	Subsurface Soil	7	7

All units in ppm

ANALYTICAL DATA FOR OLD ATC REFINERY

TOTAL PAH AND CARCINOGENIC PAH ANALYSIS

906-ERB	Water	0	0

PAHs and Carcinogenic PAHs

Sample ID	Matrix	*TOTAL PAH*	*TOTAL CARC*	PAH Naphthalene	PAH Acenaphthylene	PAH Acenaphthene	PAH CARC. Fluorene	PAH CARC. Phenanthrene
5599	Surface Soil	*7*	*7*	56	64	0	0	240
5600	Subsurface Soil	*6*	*6*	0	45	46	37	650
5601	Surface Soil	*0*	*0*	0	0	0	0	0
5602	Surface Soil	*4*	*4*	53	41	0	0	200
5603	Subsurface Soil	*0*	*0*	0	0	0	0	0
5604	Subsurface Soil	*7*	*7*	65	36	120	91	1,100
5605	Subsurface Soil	*9*	*8*	100	58	170	0	510
5606	Subsurface Soil	*3*	*3*	0	40	0	0	220
5607	Surface Soil	*3*	*3*	130	0	0	650	1,300
5608	Subsurface Soil	*2*	*1*	560	74	0	0	210
5609	Subsurface Soil	*1*	*1*	220	0	0	170	200
5610	Surface Soil	*2*	*2*	0	0	0	0	110
5611	Subsurface Soil	*3*	*3*	49	51	0	0	250
5612	Subsurface Soil	*3*	*3*	0	0	0	0	360
5613	Surface Soil	*2*	*2*	0	0	0	0	120
5614	Subsurface Soil	*2*	*2*	44	0	0	0	200
5615	Surface Soil	*2*	*2*	0	0	0	0	140
5616	Subsurface Soil	*2*	*2*	55	0	0	0	170
5617	Surface Soil	*1*	*1*	0	0	0	0	87
5618	Surface Soil	*1*	*1*	0	0	0	0	100
5619	Subsurface Soil	*1*	*1*	64	0	0	0	160
5620	Subsurface Soil	*1*	*1*	100	0	0	0	120
5621	Subsurface Soil	*1*	*1*	0	0	0	0	92
5622	Subsurface Soil	*1*	*1*	140	0	0	110	200
5623	Surface Soil	*1*	*1*	0	0	0	0	140
5624	Subsurface Soil	*4*	*4*	66	0	0	0	460
5625	Surface Soil	*1*	*1*	0	0	0	0	140

PAHs and Carcinogenic PAHs

Sample ID	PAH CARC. Anthracene	PAH CARC. Fluoranthene	PAH CARC. Pyrene	PAH CARC. Benzo(a)anthracene	PAH CARC. Chrysene	PAH CARC. Benzo(b a0/or k) fluoranthene	PAH CARC. Benzo(a)pyrene
5599	97	720	860	640	950	1,100	2,200
5600	160	850	910	600	590	860	520
5601	0	42	58	0	39	42	0
5602	82	450	650	440	550	650	460
5603	0	48	42	45	0	44	0
5604	220	1,200	980	550	570	890	540
5605	210	1,400	1,200	910	850	1,500	910
5606	81	550	540	340	300	470	270
5607	0	310	500	0	190	170	100
5608	0	130	240	0	150	250	110
5609	39	140	190	0	66	110	51
5610	0	190	260	160	200	320	180
5611	71	400	470	260	270	620	300
5612	82	510	500	320	290	590	240
5613	0	240	270	230	250	310	230
5614	0	280	210	160	180	300	180
5615	140	170	480	260	450	370	280
5616	0	310	220	190	190	380	150
5617	0	150	78	97	89	150	41
5618	0	130	220	98	110	130	83
5619	0	160	53	90	77	0	0
5620	120	190	76	99	100	210	42
5621	0	160	100	120	140	250	53
5622	0	180	240	100	120	210	99
5623	0	180	250	140	180	240	170
5624	76	550	520	340	340	560	310
5625	0	180	190	100	120	120	100

PAHs and Carcinogenic PAHs

Sample ID	PAH CARC. I0eno(1,2,3-cd) pyrene	PAH Dibenzo (a,h) anthracene	PAH CARC. Benzo(ghi) perylene
5599	240	0	290
5600	310	100	350
5601	0	0	0
5602	190	0	250
5603	0	0	45
5604	280	92	330
5605	430	120	460
5606	72	0	67
5607	0	0	0
5608	50	0	68
5609	0	0	0
5610	42	0	83
5611	80	0	160
5612	74	0	0
5613	170	60	250
5614	130	54	68
5615	88	0	66
5616	94	0	0
5617	40	0	0
5618	68	0	100
5619	0	0	0
5620	0	0	0
5621	52	0	0
5622	96	0	0
5623	93	0	100
5624	190	66	220
5625	62	0	87

Sample ID	Matrix	*TOTAL PAH*	*TOTAL CARC*	PAH Naphthalene	PAH Acenaphthylene	PAH Acenaphthene	PAH CARC. Fluorene	PAH CARC. Phenanthrene
5626	Subsurface Soil	*54*	*52*	360	0	640	660	8,000
5627	Subsurface Soil	*46*	*44*	460	0	450	480	5,200
5628	Subsurface Soil	*2*	*1*	150	0	0	0	320
5629	Surface Soil	*1*	*1*	0	0	0	0	69
5630	Surface Soil	*1*	*1*	0	0	0	0	89
5631	Subsurface Soil	*3*	*3*	0	0	0	0	290
5632	Subsurface Soil	*1*	*1*	52	0	0	0	220
5633	Subsurface Soil	*5*	*5*	62	0	53	46	950
5634	Subsurface Soil	*3*	*3*	54	0	0	0	110
5635	Subsurface Soil	*2*	*1*	1,100	0	0	0	110
5636	Subsurface Soil	*2*	*2*	210	0	0	81	340
5637	Subsurface Soil	*2*	*2*	78	0	0	58	220
5638	Subsurface Soil	*1*	*1*	0	0	0	0	0
5639	Subsurface Soil	*7*	*7*	85	49	140	0	1,600
5640	Subsurface Soil	*1*	*1*	0	0	0	0	56
5641	Subsurface Soil	*6*	*6*	0	0	0	390	1,000
5642	Subsurface Soil	*3*	*2*	380	0	0	410	950
5643	Subsurface Soil	*29*	*15*	11,000	0	0	2,400	6,500
5644	Subsurface Soil	*2*	*2*	0	0	0	0	130
5645	Subsurface Soil	*0*	*0*	0	0	0	0	0
5646	Subsurface Soil	*1*	*1*	0	0	0	0	56
5647	Subsurface Soil	*1*	*1*	0	0	0	0	0
5648	Subsurface Soil	*2*	*2*	0	0	0	0	150
5649	Subsurface Soil	*8*	*7*	0	74	0	0	120
5650	Subsurface Soil	*1*	*1*	0	0	97	0	50
5651	Subsurface Soil	*6*	*5*	0	0	0	0	250
5652	Subsurface Soil	*1*	*1*	0	0	0	0	76
5653	Subsurface Soil	*26*	*25*	0	190	54	90	1,700

	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.
Sample ID	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b a0/or k) fluoranthene	Benzo(a)pyrene
5626	2,100	10,000	8,100	5,000	4,100	6,100	4,000
5627	1,400	8,100	7,000	4,000	3,400	6,200	4,100
5628	0	180	210	130	160	160	110
5629	0	62	120	54	68	72	51
5630	0	140	170	110	110	130	70
5631	50	480	360	240	300	600	250
5632	0	150	140	120	150	120	75
5633	160	1,000	780	440	320	440	240
5634	0	530	520	330	320	470	290
5635	0	86	110	98	81	120	63
5636	0	220	240	100	140	220	99
5637	0	300	350	250	220	340	210
5638	0	67	88	79	61	70	73
5639	200	820	950	610	600	940	580
5640	0	140	200	160	120	170	140
5641	97	750	830	620	670	870	610
5642	42	120	130	90	220	100	74
5643	0	1,200	1,400	0	1,900	1,200	1,300
5644	0	210	270	140	150	280	140
5645	0	0	0	0	0	0	0
5646	0	150	170	130	120	200	130
5647	0	120	140	85	73	100	84
5648	0	250	310	170	180	310	190
5649	130	670	1,200	880	820	1,200	900
5650	0	110	150	110	120	250	160
5651	94	730	980	580	480	810	580
5652	0	170	200	110	120	200	110
5653	350	4,900	5,100	2,200	2,200	3,300	2,200

Sample ID	PAH CARC. I0eno(1,2,3-cd) pyrene	PAH Dibenzo (a,h) anthracene	PAH CARC. Benzo(ghi) perylene
5626	2,300	670	2,400
5627	2,300	640	2,400
5628	45	0	62
5629	0	0	49
5630	43	0	60
5631	150	0	220
5632	58	0	80
5633	180	60	200
5634	210	67	270
5635	98	0	110
5636	110	0	130
5637	170	51	190
5638	57	0	75
5639	160	61	170
5640	110	0	140
5641	220	62	240
5642	0	0	0
5643	760	0	970
5644	100	0	220
5645	0	0	0
5646	85	0	110
5647	60	0	80
5648	140	0	180
5649	610	170	780
5650	140	0	190
5651	420	100	520
5652	88	0	110
5653	1,400	470	1,600

Sample ID	Matrix	*TOTAL PAH*	*TOTAL CARC*	PAH Naphthalene	PAH Acenaphthylene	PAH Acenaphthene	PAH CARC. Fluorene	PAH CARC. Phenanthrene
5654	Subsurface Soil	*1*	*1*	0	0	0	0	0
5655	Subsurface Soil	*2*	*2*	0	0	77	95	55
5656	Subsurface Soil	*17*	*15*	0	0	530	940	2,600
5657	Subsurface Soil	*18*	*17*	77	0	0	150	600
5658	Subsurface Soil	*19*	*17*	68	140	910	420	440
5659	Subsurface Soil	*4*	*4*	0	0	0	0	120
5660	Subsurface Soil	*9*	*8*	0	0	540	740	1,700
5661	Subsurface Soil	*2*	*2*	0	0	52	46	320
5662	Subsurface Soil	*5*	*4*	440	0	0	1,100	1,800
5663	Subsurface Soil	*2*	*2*	0	0	110	150	450
5664	Subsurface Soil	*0*	*0*	120	0	0	0	44
5665	Subsurface Soil	*1*	*1*	0	0	0	0	180
5666	Subsurface Soil	*3*	*2*	490	0	190	440	1,000
5667	Subsurface Soil	*3*	*3*	0	0	0	0	280
5668	Subsurface Soil	*4*	*3*	230	0	120	110	370
5669	Subsurface Soil	*0*	*0*	0	0	0	0	0
5670	Subsurface Soil	*0*	*0*	0	0	0	0	0
5671	Subsurface Soil	*5*	*4*	140	0	120	190	680
5672	Subsurface Soil	*3*	*3*	83	0	0	0	310
5673	Subsurface Soil	*1*	*1*	42	0	0	0	110
5674	Subsurface Soil	*18*	*15*	1,900	230	340	590	2,000
5675	Subsurface Soil	*8*	*6*	1,600	0	470	640	1,400
5676	Subsurface Soil	*3*	*2*	560	0	150	260	320
5677	Subsurface Soil	*1*	*1*	63	0	0	0	57
5678	Water	*0*	*0*	0	0	0	0	0
5679	Water	*0*	*0*	0	0	0	0	0
5680	Water	*0*	*0*	0	0	0	0	0
5682	Water	*0*	*0*	0	0	0	0	0

Sample ID	PAH CARC. Anthracene	PAH CARC. Fluoranthene	PAH CARC. Pyrene	PAH CARC. Benzo(a)anthracene	PAH CARC. Chrysene	PAH CARC. Benzo(b a0/or k) fluoranthene	PAH CARC. Benzo(a)pyrene
5654	0	66	110	100	99	160	120
5655	0	160	230	230	200	410	270
5656	410	1,600	1,700	1,600	1,600	2,500	1,700
5657	300	2,600	2,700	1,900	1,800	3,100	2,100
5658	370	2,200	2,600	2,000	1,800	3,100	2,300
5659	49	440	480	460	460	760	530
5660	200	720	630	640	840	1,200	780
5661	52	310	320	160	170	220	140
5662	210	570	490	190	190	140	100
5663	92	220	300	120	140	200	120
5664	0	0	0	0	0	0	0
5665	0	220	240	120	130	190	100
5666	140	300	350	130	120	81	73
5667	49	520	560	300	310	460	290
5668	100	600	520	260	290	450	270
5669	0	68	69	0	0	0	0
5670	0	0	0	0	0	0	0
5671	100	810	760	340	400	830	390
5672	62	540	470	240	280	390	210
5673	0	180	170	80	86	160	85
5674	400	2,600	2,600	1,700	1,500	2,400	1,300
5675	220	900	860	440	550	750	350
5676	75	440	460	200	180	320	140
5677	0	110	120	59	60	82	55
5678	0	0	0	0	0	0	0
5679	0	0	0	0	0	0	0
5680	0	0	0	0	0	0	0
5682	0	0	0	0	0	0	0

Sample ID	PAH CARC. I0eno(1,2,3-cd) pyrene	PAH Dibenzo (a,h) anthracene	PAH CARC. Benzo(ghi) perylene
5654	80	0	110
5655	200	57	250
5656	790	240	900
5657	1,100	300	1,200
5658	1,100	320	1,300
5659	270	80	330
5660	400	120	420
5661	80	0	94
5662	0	0	0
5663	87	0	120
5664	0	0	0
5665	73	0	87
5666	0	0	0
5667	190	57	200
5668	95	0	92
5669	0	0	0
5670	0	0	0
5671	92	0	0
5672	73	0	64
5673	0	0	0
5674	320	100	280
5675	92	0	82
5676	38	0	51
5677	0	0	0
5678	0	0	0
5679	0	0	0
5680	0	0	0
5682	0	0	0

Parameter	HZ-101 (mg/kg)
Octahydrodimethyl(methyl)phenanthrenecarboxaldehyde	7000 JN
Dimethylphenanthrene	9000 JN
Trimethylphenthrene	8000 JN
Tetramethylphenanthrenehexahydrochrysene	60000 JN
Octahydrodimethyl(methyl)phenanthrenecarboxylic acid, methyl ester	7000 JN
Hexahydrochrysene	5000 JN
One unidentified compound	8000 J

J - estimated
N - presumptive evidence of presence of material

Parameter	HZ-101
Toluene	6.2
Ethyl Benzene	1.7 J
(M-and/or P-)Xylene	1.8 J
P-Isopropyltoluene	4.5
Limonene	20 JN

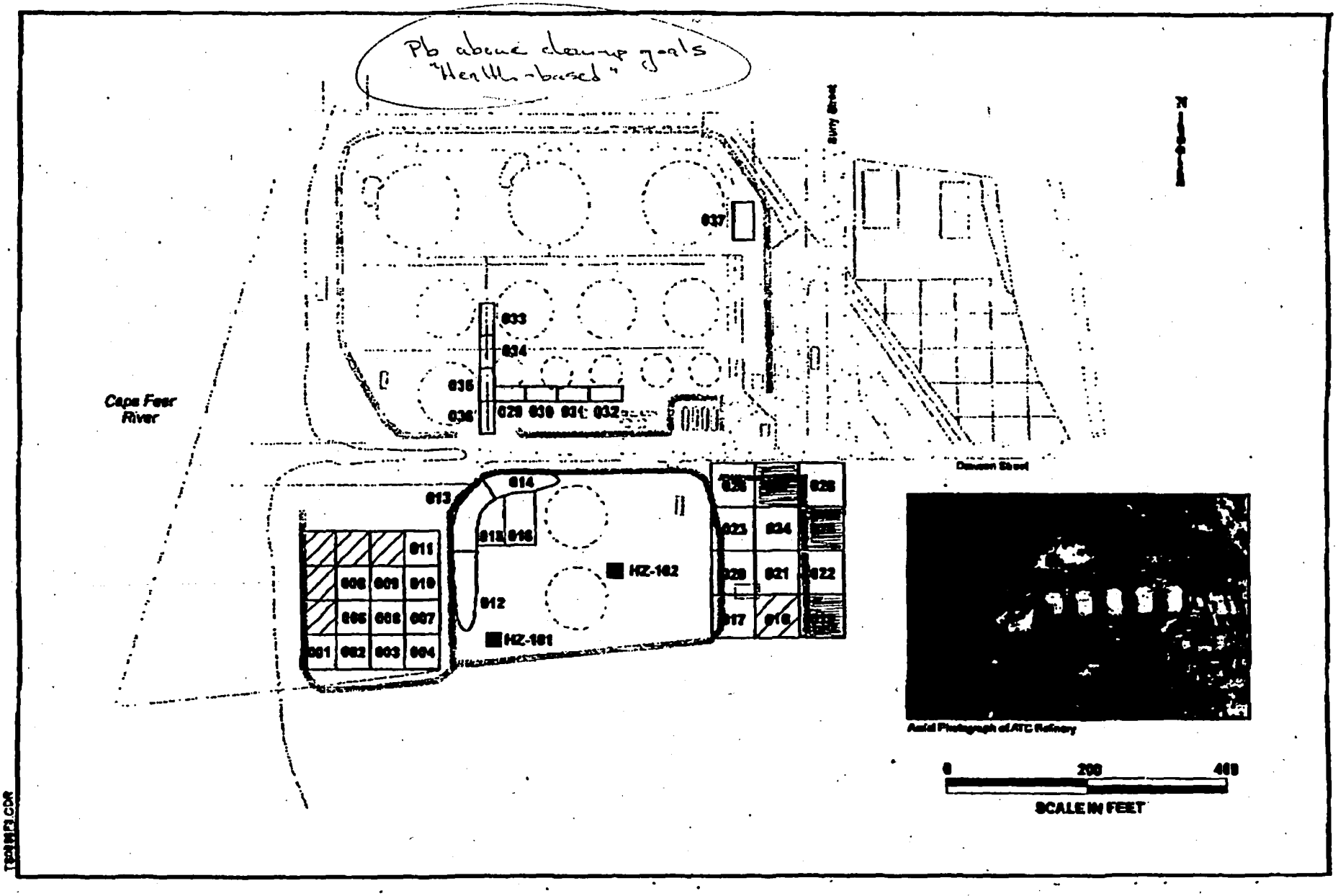

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Figure 3

ATC Refinery
Soil Sample Location Map
Wilmington, North Carolina

LEGEND:

■ Waste Sample Location

ANALYTICAL DATA FOR OLD ATC REFINERY

TOTAL PAH AND CARCINOGENIC PAH ANALYSIS

01-003	Subsurface Soil	1	1
03-003	Subsurface Soil	6	6
04-002	Subsurface Soil	3	2
04-003	Subsurface Soil	29	15
05-002	Subsurface Soil	2	2
02-002	Subsurface Soil	0	0
02-003	Subsurface Soil	1	1
05-003	Subsurface Soil	1	1
07-002	Subsurface Soil	2	2
08-002	Subsurface Soil	8	7
08-003	Subsurface Soil	1	1
07-003	Subsurface Soil	6	5
06-002	Subsurface Soil	1	1
06-003	Subsurface Soil	26	25
09-002	Subsurface Soil	1	1
09-003	Subsurface Soil	2	2
11-002	Subsurface Soil	17	15
10-002	Subsurface Soil	18	17
10-003	Subsurface Soil	19	17
10-002D	Subsurface Soil	4	4
11-003	Subsurface Soil	9	8
33-002	Subsurface Soil	2	2
31-002	Subsurface Soil	5	4
32-003	Subsurface Soil	2	2
32-003	Subsurface Soil	0	0
33-003	Subsurface Soil	1	1
31-003	Subsurface Soil	3	2
33-002D	Subsurface Soil	3	3
34-002	Subsurface Soil	4	3
30-002	Subsurface Soil	0	0
30-003	Subsurface Soil	0	0
34-003	Subsurface Soil	5	4
29-002	Subsurface Soil	3	3
29-003	Subsurface Soil	1	1
36-002	Subsurface Soil	18	15
36-003	Subsurface Soil	8	6
35-002	Subsurface Soil	3	2
35-003	Subsurface Soil	1	1
902-POT	Water	0	0
903-OFW	Water	0	0
904-ERB	Water	0	0
905-PRE	Water	0	0

ANALYTICAL DATA FOR OLD ATC REFINERY

TOTAL PAH AND CARCINOGENIC PAH ANALYSIS

Grid-Depth	Matrix	TOTAL PAH	TOTAL CARC
15-001	Surface Soil	7	7
12-002	Subsurface Soil	6	6
37-001	Surface Soil	0	0
16-001	Surface Soil	4	4
37-002	Subsurface Soil	0	0
13-002	Subsurface Soil	7	7
16-002	Subsurface Soil	9	8
14-002	Subsurface Soil	3	3
28-001	Surface Soil	3	3
28-002	Subsurface Soil	2	1
28-003	Subsurface Soil	1	1
17-001	Surface Soil	2	2
17-002	Subsurface Soil	3	3
17-003	Subsurface Soil	3	3
23-001	Surface Soil	2	2
23-002	Subsurface Soil	2	2
17-001D	Surface Soil	2	2
23-003	Subsurface Soil	2	2
26-001	Surface Soil	1	1
24-001	Surface Soil	1	1
24-002	Subsurface Soil	1	1
24-003	Subsurface Soil	1	1
26-002	Subsurface Soil	1	1
26-003	Subsurface Soil	1	1
20-001	Surface Soil	1	1
20-002	Subsurface Soil	4	4
21-001	Surface Soil	1	1
21-002	Subsurface Soil	54	52
21-003	Subsurface Soil	46	44
20-003	Subsurface Soil	2	1
27-001	Surface Soil	1	1
27-001D	Surface Soil	1	1
19-002	Subsurface Soil	3	3
22-002	Subsurface Soil	1	1
27-002	Subsurface Soil	5	5
27-003	Subsurface Soil	3	3
25-002	Subsurface Soil	2	1
25-003	Subsurface Soil	2	2
03-002	Subsurface Soil	2	2
03-002D	Subsurface Soil	1	1
01-002	Subsurface Soil	7	7

All units in ppm

ANALYTICAL DATA FOR OLD ATC REFINERY

TOTAL PAH AND CARCINOGENIC PAH ANALYSIS

906-ERB	Water	0	0

All units in ppm

PAHs and Carcinogenic PAHs

Sample ID	Matrix	*TOTAL PAH*	*TOTAL CARC*	PAH Naphthalene	PAH Acenaphthylene	PAH Acenaphthene	PAH CARC. Fluorene	PAH CARC. Phenanthrene
5599	Surface Soil	*7*	*7*	56	64	0	0	240
5600	Subsurface Soil	*6*	*6*	0	45	46	37	650
5601	Surface Soil	*0*	*0*	0	0	0	0	0
5602	Surface Soil	*4*	*4*	53	41	0	0	200
5603	Subsurface Soil	*0*	*0*	0	0	0	0	0
5604	Subsurface Soil	*7*	*7*	65	36	120	91	1,100
5605	Subsurface Soil	*9*	*8*	100	58	170	0	510
5606	Subsurface Soil	*3*	*3*	0	40	0	0	220
5607	Surface Soil	*3*	*3*	130	0	0	650	1,300
5608	Subsurface Soil	*2*	*1*	560	74	0	0	210
5609	Subsurface Soil	*1*	*1*	220	0	0	170	200
5610	Surface Soil	*2*	*2*	0	0	0	0	110
5611	Subsurface Soil	*3*	*3*	49	51	0	0	250
5612	Subsurface Soil	*3*	*3*	0	0	0	0	360
5613	Surface Soil	*2*	*2*	0	0	0	0	120
5614	Subsurface Soil	*2*	*2*	44	0	0	0	200
5615	Surface Soil	*2*	*2*	0	0	0	0	140
5616	Subsurface Soil	*2*	*2*	55	0	0	0	170
5617	Surface Soil	*1*	*1*	0	0	0	0	87
5618	Surface Soil	*1*	*1*	0	0	0	0	100
5619	Subsurface Soil	*1*	*1*	64	0	0	0	160
5620	Subsurface Soil	*1*	*1*	100	0	0	0	120
5621	Subsurface Soil	*1*	*1*	0	0	0	0	92
5622	Subsurface Soil	*1*	*1*	140	0	0	110	200
5623	Surface Soil	*1*	*1*	0	0	0	0	140
5624	Subsurface Soil	*4*	*4*	66	0	0	0	460
5625	Surface Soil	*1*	*1*	0	0	0	0	140

PAHs and Carcinogenic PAHs

	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.
Sample ID	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b a0/or k) fluoranthene	Benzo(a)pyrene
5599	97	720	860	640	950	1,100	2,200
5600	160	850	910	600	590	860	520
5601	0	42	58	0	39	42	0
5602	82	450	650	440	550	650	460
5603	0	48	42	45	0	44	0
5604	220	1,200	980	550	570	890	540
5605	210	1,400	1,200	910	850	1,500	910
5606	81	550	540	340	300	470	270
5607	0	310	500	0	190	170	100
5608	0	130	240	0	150	250	110
5609	39	140	190	0	66	110	51
5610	0	190	260	160	200	320	180
5611	71	400	470	260	270	620	300
5612	82	510	500	320	290	590	240
5613	0	240	270	230	250	310	230
5614	0	280	210	160	180	300	180
5615	140	170	480	260	450	370	280
5616	0	310	220	190	190	380	150
5617	0	150	78	97	89	150	41
5618	0	130	220	98	110	130	83
5619	0	160	53	90	77	0	0
5620	120	190	76	99	100	210	42
5621	0	160	100	120	140	250	53
5622	0	180	240	100	120	210	99
5623	0	180	250	140	180	240	170
5624	76	550	520	340	340	560	310
5625	0	180	190	100	120	120	100

PAHs and Carcinogenic PAHs

Sample ID	PAH CARC. I0eno(1,2,3-cd) pyrene	PAH Dibenzo (a,h) anthracene	PAH CARC. Benzo(ghi) perylene
5599	240	0	290
5600	310	100	350
5601	0	0	0
5602	190	0	250
5603	0	0	45
5604	280	92	330
5605	430	120	460
5606	72	0	67
5607	0	0	0
5608	50	0	68
5609	0	0	0
5610	42	0	83
5611	80	0	160
5612	74	0	0
5613	170	60	250
5614	130	54	68
5615	88	0	66
5616	94	0	0
5617	40	0	0
5618	68	0	100
5619	0	0	0
5620	0	0	0
5621	52	0	0
5622	96	0	0
5623	93	0	100
5624	190	66	220
5625	62	0	87

Sample ID	Matrix	*TOTAL PAH*	*TOTAL CARC*	PAH Naphthalene	PAH Acenaphthylene	PAH Acenaphthene	PAH CARC. Fluorene	PAH CARC. Phenanthrene
5626	Subsurface Soil	*54*	*52*	360	0	640	660	8,000
5627	Subsurface Soil	*46*	*44*	460	0	450	480	5,200
5628	Subsurface Soil	*2*	*1*	150	0	0	0	320
5629	Surface Soil	*1*	*1*	0	0	0	0	69
5630	Surface Soil	*1*	*1*	0	0	0	0	89
5631	Subsurface Soil	*3*	*3*	0	0	0	0	290
5632	Subsurface Soil	*1*	*1*	52	0	0	0	220
5633	Subsurface Soil	*5*	*5*	62	0	53	46	950
5634	Subsurface Soil	*3*	*3*	54	0	0	0	110
5635	Subsurface Soil	*2*	*1*	1,100	0	0	0	110
5636	Subsurface Soil	*2*	*2*	210	0	0	81	340
5637	Subsurface Soil	*2*	*2*	78	0	0	58	220
5638	Subsurface Soil	*1*	*1*	0	0	0	0	0
5639	Subsurface Soil	*7*	*7*	85	49	140	0	1,600
5640	Subsurface Soil	*1*	*1*	0	0	0	0	56
5641	Subsurface Soil	*6*	*6*	0	0	0	390	1,000
5642	Subsurface Soil	*3*	*2*	380	0	0	410	950
5643	Subsurface Soil	*29*	*15*	11,000	0	0	2,400	6,500
5644	Subsurface Soil	*2*	*2*	0	0	0	0	130
5645	Subsurface Soil	*0*	*0*	0	0	0	0	0
5646	Subsurface Soil	*1*	*1*	0	0	0	0	56
5647	Subsurface Soil	*1*	*1*	0	0	0	0	0
5648	Subsurface Soil	*2*	*2*	0	0	0	0	150
5649	Subsurface Soil	*8*	*7*	0	74	0	0	120
5650	Subsurface Soil	*1*	*1*	0	0	97	0	50
5651	Subsurface Soil	*6*	*5*	0	0	0	0	250
5652	Subsurface Soil	*1*	*1*	0	0	0	0	76
5653	Subsurface Soil	*26*	*25*	0	190	54	90	1,700

	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.	PAH CARC.
Sample ID	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b a0/or k) fluoranthene	Benzo(a)pyrene
5626	2,100	10,000	8,100	5,000	4,100	6,100	4,000
5627	1,400	8,100	7,000	4,000	3,400	6,200	4,100
5628	0	180	210	130	160	160	110
5629	0	62	120	54	68	72	51
5630	0	140	170	110	110	130	70
5631	50	480	360	240	300	600	250
5632	0	150	140	120	150	120	75
5633	160	1,000	780	440	320	440	240
5634	0	530	520	330	320	470	290
5635	0	86	110	98	81	120	63
5636	0	220	240	100	140	220	99
5637	0	300	350	250	220	340	210
5638	0	67	88	79	61	70	73
5639	200	820	950	610	600	940	580
5640	0	140	200	160	120	170	140
5641	97	750	830	620	670	870	610
5642	42	120	130	90	220	100	74
5643	0	1,200	1,400	0	1,900	1,200	1,300
5644	0	210	270	140	150	280	140
5645	0	0	0	0	0	0	0
5646	0	150	170	130	120	200	130
5647	0	120	140	85	73	100	84
5648	0	250	310	170	180	310	190
5649	130	670	1,200	880	820	1,200	900
5650	0	110	150	110	120	250	160
5651	94	730	980	580	480	810	580
5652	0	170	200	110	120	200	110
5653	350	4,900	5,100	2,200	2,200	3,300	2,200

Sample ID	PAH CARC. I0eno(1,2,3-cd) pyrene	PAH Dibenzo (a,h) anthracene	PAH CARC. Benzo(ghi) perylene
5626	2,300	670	2,400
5627	2,300	640	2,400
5628	45	0	62
5629	0	0	49
5630	43	0	60
5631	150	0	220
5632	58	0	80
5633	180	60	200
5634	210	67	270
5635	98	0	110
5636	110	0	130
5637	170	51	190
5638	57	0	75
5639	160	61	170
5640	110	0	140
5641	220	62	240
5642	0	0	0
5643	760	0	970
5644	100	0	220
5645	0	0	0
5646	85	0	110
5647	60	0	80
5648	140	0	180
5649	610	170	780
5650	140	0	190
5651	420	100	520
5652	88	0	110
5653	1,400	470	1,600

Sample ID	Matrix	*TOTAL PAH*	*TOTAL CARC*	PAH Naphthalene	PAH Acenaphthylene	PAH Acenaphthene	PAH CARC. Fluorene	PAH CARC. Phenanthrene
5654	Subsurface Soil	*1*	*1*	0	0	0	0	0
5655	Subsurface Soil	*2*	*2*	0	0	77	95	55
5656	Subsurface Soil	*17*	*15*	0	0	530	940	2,600
5657	Subsurface Soil	*18*	*17*	77	0	0	150	600
5658	Subsurface Soil	*19*	*17*	68	140	910	420	440
5659	Subsurface Soil	*4*	*4*	0	0	0	0	120
5660	Subsurface Soil	*9*	*8*	0	0	540	740	1,700
5661	Subsurface Soil	*2*	*2*	0	0	52	46	320
5662	Subsurface Soil	*5*	*4*	440	0	0	1,100	1,800
5663	Subsurface Soil	*2*	*2*	0	0	110	150	450
5664	Subsurface Soil	*0*	*0*	120	0	0	0	44
5665	Subsurface Soil	*1*	*1*	0	0	0	0	180
5666	Subsurface Soil	*3*	*2*	490	0	190	440	1,000
5667	Subsurface Soil	*3*	*3*	0	0	0	0	280
5668	Subsurface Soil	*4*	*3*	230	0	120	110	370
5669	Subsurface Soil	*0*	*0*	0	0	0	0	0
5670	Subsurface Soil	*0*	*0*	0	0	0	0	0
5671	Subsurface Soil	*5*	*4*	140	0	120	190	680
5672	Subsurface Soil	*3*	*3*	83	0	0	0	310
5673	Subsurface Soil	*1*	*1*	42	0	0	0	110
5674	Subsurface Soil	*18*	*15*	1,900	230	340	590	2,000
5675	Subsurface Soil	*8*	*6*	1,600	0	470	640	1,400
5676	Subsurface Soil	*3*	*2*	560	0	150	260	320
5677	Subsurface Soil	*1*	*1*	63	0	0	0	57
5678	Water	*0*	*0*	0	0	0	0	0
5679	Water	*0*	*0*	0	0	0	0	0
5680	Water	*0*	*0*	0	0	0	0	0
5682	Water	*0*	*0*	0	0	0	0	0

Sample ID	PAH CARC. Anthracene	PAH CARC. Fluoranthene	PAH CARC. Pyrene	PAH CARC. Benzo(a)anthracene	PAH CARC. Chrysene	PAH CARC. Benzo(b a0/or k) fluoranthene	PAH CARC. Benzo(a)pyrene
5654	0	66	110	100	99	160	120
5655	0	160	230	230	200	410	270
5656	410	1,600	1,700	1,600	1,600	2,500	1,700
5657	300	2,600	2,700	1,900	1,800	3,100	2,100
5658	370	2,200	2,600	2,000	1,800	3,100	2,300
5659	49	440	480	460	460	760	530
5660	200	720	630	640	840	1,200	780
5661	52	310	320	160	170	220	140
5662	210	570	490	190	190	140	100
5663	92	220	300	120	140	200	120
5664	0	0	0	0	0	0	0
5665	0	220	240	120	130	190	100
5666	140	300	350	130	120	81	73
5667	49	520	560	300	310	460	290
5668	100	600	520	260	290	450	270
5669	0	68	69	0	0	0	0
5670	0	0	0	0	0	0	0
5671	100	810	760	340	400	830	390
5672	62	540	470	240	280	390	210
5673	0	180	170	80	86	160	85
5674	400	2,600	2,600	1,700	1,500	2,400	1,300
5675	220	900	860	440	550	750	350
5676	75	440	460	200	180	320	140
5677	0	110	120	59	60	82	55
5678	0	0	0	0	0	0	0
5679	0	0	0	0	0	0	0
5680	0	0	0	0	0	0	0
5682	0	0	0	0	0	0	0

Sample ID	PAH CARC. I0eno(1,2,3-cd) pyrene	PAH Dibenzo (a,h) anthracene	PAH CARC. Benzo(ghi) perylene
5654	80	0	110
5655	200	57	250
5656	790	240	900
5657	1,100	300	1,200
5658	1,100	320	1,300
5659	270	80	330
5660	400	120	420
5661	80	0	94
5662	0	0	0
5663	87	0	120
5664	0	0	0
5665	73	0	87
5666	0	0	0
5667	190	57	200
5668	95	0	92
5669	0	0	0
5670	0	0	0
5671	92	0	0
5672	73	0	64
5673	0	0	0
5674	320	100	280
5675	92	0	82
5676	38	0	51
5677	0	0	0
5678	0	0	0
5679	0	0	0
5680	0	0	0
5682	0	0	0

ATC Refinery Site

CONVERSATION RECORD

TIME	DATE

TYPE ☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO:
–	–	–

ROUTING	
NAME/SYMBOL	INT

SUBJECT

Summary of Analytical Collected

6/15/98 SESD Sampling Event (START Summary Tables)

SUMMARY

(1) 2,4-Dimethylphenol was found in 1 sample @ 230 ppb...

(2) Isophorone was found in 1 sample @ 240 ppb...

(3) Naphthalene was found in 39 samples @ 42 ppb to 11,000 ppb...

(4) 4-Chloro-3-Methylphenol was found in 1 sample @ 61 ppb...

(5) 4-Chloroaniline was found in 1 sample @ 49 ppb...

(6) 2-Methylnaphthalene was found in 37 samples @ 42 ppb to 20,000 ppb...

(7) Acenaphthylene was found in 11 samples @ 36 ppb to 230 ppb...

(8) Acenaphthene was found in 21 samples @ 46 ppb to 910 ppb...

(9) Dibenzofuran was found in 5 samples @ 120 ppb to 330 ppb...

(10) Fluorene was found in 28 samples @ 37 ppb to 2,400 ppb...

(11) 4-Nitroaniline was found in 1 sample @ 57 ppb...

(12) 4-Nitrosodiphenylamine/Diphenylamine was found in 2 samples @ 48 ppb to 160 ppb

(13) Phenanthrene was found in 71 samples @ 44 ppb to 8,000 ppb...

(14) Anthracene was found in 37 samples @ 39 ppb to 2,100 ppb...

ACTION REQUIRED

continued →

–

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
TONY A. BEST (OSC)		

ACTION TAKEN

–

SIGNATURE	TITLE	DATE

ATC Railway Site

CONVERSATION RECORD

TIME	DATE

TYPE ☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO.
—	—	—

ROUTING	
NAME/SYMBOL	INT

SUBJECT

Summary of Analytical Collected 6/15/88 SESD Sampling Event (START Summary Tables)

SUMMARY

(15) Carbazole was found in 8 samples @ 41 ppb to 750 ppb...
(16) di-N-Butylphalate was found in 1 sample @ 1,500 ppb...
(17) Fluoranthene was found in 76 samples @ 42 ppb to 10,000 ppb...
(18) Pyrene was found in 76 samples @ 42 ppb to 8,100 ppb...
(19) Benzo(a)anthracene was found in ~~63~~ 70 samples @ 54 ppb to 5,000 ppb...
(20) Chrysene was found in 74 samples @ 39 ppb to 4,100 ppb...
(21) Benzo(b and k)Fluoranthene was found in 74 samples @ 42 ppb to 6,200 ppb
(22) Benzo(a)pyrene was found in 72 samples @ 41 ppb to 4,100 ppb...
(23) Indeno(1,2,3cd)Pyrene was found in 63 samples @ 38 ppb to 2,300 ppb...
(24) Dibenzo(a,h)Anthracene was found in 24 samples @ 51 ppb to 670 ppb...
(25) Benzo(g,h,i)Perylene was found in 59 samples @ 45 ppb to 2,400 ppb...

Note: 37 locations sampled @ depths to 3 ft...

ACTION REQUIRED

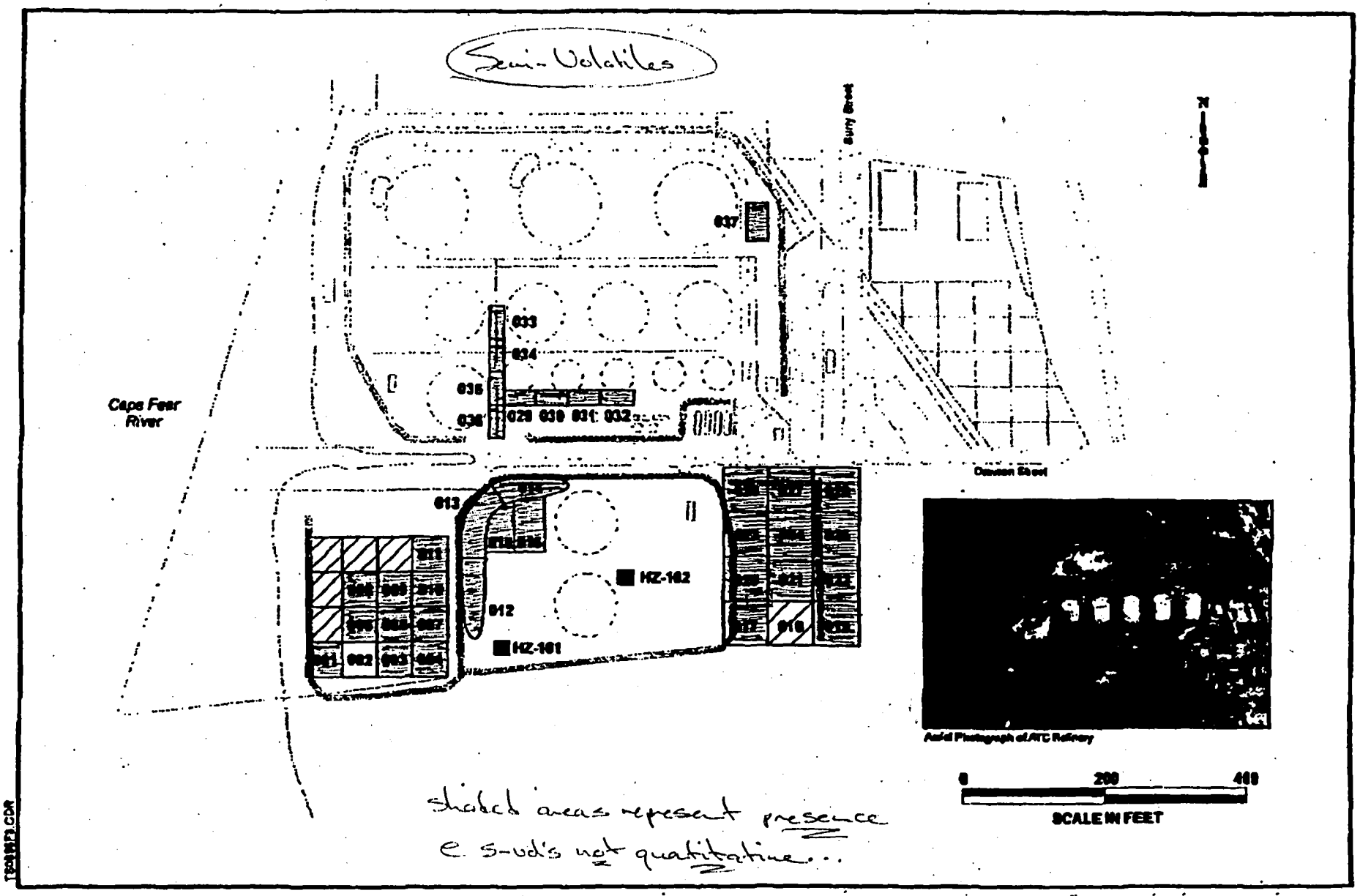
—

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
TONY A. BEST (OSC)		

ACTION TAKEN

—

SIGNATURE	TITLE	DATE



EPA

Figure 3

ATC Refinery
Soil Sample Location Map
Wilmington, North Carolina

LEGEND:

■ Waste Sample Location

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Phenol	bis(2-Chloroethyl) ether	2-Chlorophenol	1,3-Dichlorobenzene	1,4-Dichlorobenzene
micro g/kg	01-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	01-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	03-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	03-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	03-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	04-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	04-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	05-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	05-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	06-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	06-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	07-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	07-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	08-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	08-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	09-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	09-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	10-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	10-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	10-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	11-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	11-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	12-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	13-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	14-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	15-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	16-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	16-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	17-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	17-001D	Surface Soil 0-12"	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Phenol	bis(2-Chloroethyl) ether	2-Chlorophenol	1,3-Dichlorobenzene	1,4-Dichlorobenzene
micro g/kg	17-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	17-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	19-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	20-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	20-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	20-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	2-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	2-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	21-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	21-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	21-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	22-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	23-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	23-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	23-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	24-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	24-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	24-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	25-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	25-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	26-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	26-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	26-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	27-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	27-001D	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	27-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	27-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	28-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	28-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	28-003	Subsurface Soil >12"	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Phenol	bis(2-Chloroethyl) ether	2-Chlorophenol	1,3-Dichlorobenzene	1,4-Dichlorobenzene
micro g/kg	29-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	29-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	30-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	30-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	31-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	31-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	32-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	32-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	33-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	33-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	33-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	34-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	34-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	35-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	35-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	36-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	36-003	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	37-001	Surface Soil 0-12"	ND	ND	ND	ND	ND
micro g/kg	37-002	Subsurface Soil >12"	ND	ND	ND	ND	ND
micro g/kg	902-POT	Water	2	ND	ND	ND	ND
micro g/kg	903-OFW	Water	ND	ND	ND	ND	ND
micro g/kg	904-ERB	Water	ND	ND	ND	ND	ND
micro g/kg	905-PRE	Water					
micro g/kg	906-ERB	Water	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	1,2-Dichlorobenzene	2-Methylphenol	bis(2-Chloroisopropyl) ether	(3 and or 4-)Methylphenol	N-Nitrosodi-Npropylamine
micro g/kg	01-002	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND
micro g/kg	17-001D	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	1,2-Dichlorobenzene	2-Methylphenol	bis(2-Chloroisopropyl) ether	(3 and or 4-)Methylphenol	N-Nitrosodi-Npropylamine
micro g/kg	17-002	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND
micro g/kg	2-002	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	1,2-Dichlorobenzene	2-Methylphenol	bis(2-Chloroisopropyl) ether	(3 and or 4-)Methylphenol	N-Nitrosodi-Npropylamine
micro g/kg	29-002	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND
micro g/kg	30-002	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	ND
micro g/kg	36-003	ND	ND	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND
micro g/kg	905-PRE					
micro g/kg	906-ERB	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Hexachloroethane	Nitrobenzene	Isophorone	2-Nitrophenol	2,4-Dimethylphenol	bis(2-Chloroethoxy) methane
micro g/kg	01-002	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	230	300
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Hexachloroethane	Nitrobenzene	Isophorone	2-Nitrophenol	2,4-Dimethylphenol	bis(2-Chloroethoxy) methane
micro g/kg	17-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND
micro g/kg	2-002	ND	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	240	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Hexachloroethane	Nitrobenzene	Isophorone	2-Nitrophenol	2,4-Dimethylphenol	bis(2-Chloroethoxy) methane
micro g/kg	29-002	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	ND
micro g/kg	30-002	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	ND	ND
micro g/kg	36-003	ND	ND	ND	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE						
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2,4-Dichlorophenol	1,2,4-Trichlorobenzene	Naphthalene	4-Chloroaniline	Hexachlorobutadiene	4-Chloro-3-methylphenol
micro g/kg	01-002	ND	ND	85	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	120	ND	78	ND	ND	61
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	380	ND	ND	ND
micro g/kg	04-003	ND	ND	11,000	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	77	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	68	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	65	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	56	ND	ND	ND
micro g/kg	16-001	ND	ND	53	ND	ND	ND
micro g/kg	16-002	ND	ND	100	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2,4-Dichlorophenol	1,2,4-Trichlorobenzene	Naphthalene	4-Chloroaniline	Hexachlorobutadiene	4-Chloro-3-methylphenol
micro g/kg	17-002	ND	ND	49	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	66	ND	ND	ND
micro g/kg	20-003	ND	ND	150	ND	ND	ND
micro g/kg	2-002	ND	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	360	ND	ND	ND
micro g/kg	21-003	ND	ND	460	ND	ND	ND
micro g/kg	22-002	ND	ND	52	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	44	ND	ND	ND
micro g/kg	23-003	ND	ND	55	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	64	ND	ND	ND
micro g/kg	24-003	ND	ND	100	ND	ND	ND
micro g/kg	25-002	ND	ND	1,100	ND	ND	ND
micro g/kg	25-003	ND	ND	210	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	140	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	62	ND	ND	ND
micro g/kg	27-003	ND	ND	54	ND	ND	ND
micro g/kg	28-001	ND	ND	130	ND	ND	ND
micro g/kg	28-002	ND	ND	660	ND	ND	ND
micro g/kg	28-003	ND	ND	220	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2,4-Dichlorophenol	1,2,4-Trichlorobenzene	Naphthalene	4-Chloroaniline	Hexachlorobutadiene	4-Chloro-3-methylphenol
micro g/kg	29-002	ND	ND	83	ND	ND	ND
micro g/kg	29-003	ND	ND	42	ND	ND	ND
micro g/kg	30-002	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	440	ND	ND	ND
micro g/kg	31-003	ND	ND	490	49	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	120	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	230	ND	ND	ND
micro g/kg	34-003	ND	ND	140	ND	ND	ND
micro g/kg	35-002	ND	ND	560	ND	ND	ND
micro g/kg	35-003	ND	ND	63	ND	ND	ND
micro g/kg	36-002	ND	ND	1,900	ND	ND	ND
micro g/kg	36-003	ND	ND	1,600	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE						
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Methylnaphthalene	Hexachlorocyclopentadiene	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	2-Chloronaphthalene
micro g/kg	01-002	64	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND
micro g/kg	03-002	120	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND
micro g/kg	04-002	3,200	ND	ND	ND	ND
micro g/kg	04-003	20,000	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND
micro g/kg	11-002	920	ND	ND	ND	ND
micro g/kg	11-003	220	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND
micro g/kg	13-002	44	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND
micro g/kg	16-001	65	ND	ND	ND	ND
micro g/kg	16-002	63	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND
micro g/kg	17-001D	42	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Methylnaphthalene	Hexachlorocyclopentadiene	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	2-Chloronaphthalene
micro g/kg	17-002	66	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND
micro g/kg	20-002	79	ND	ND	ND	ND
micro g/kg	20-003	130	ND	ND	ND	ND
micro g/kg	2-002	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND
micro g/kg	21-002	490	ND	ND	ND	ND
micro g/kg	21-003	430	ND	ND	ND	ND
micro g/kg	22-002	54	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND
micro g/kg	23-002	64	ND	ND	ND	ND
micro g/kg	23-003	54	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND
micro g/kg	24-002	97	ND	ND	ND	ND
micro g/kg	24-003	130	ND	ND	ND	ND
micro g/kg	25-002	1,800	ND	ND	ND	ND
micro g/kg	25-003	500	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND
micro g/kg	26-003	84	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND
micro g/kg	27-003	120	ND	ND	ND	ND
micro g/kg	28-001	240	ND	ND	ND	ND
micro g/kg	28-002	220	ND	ND	ND	ND
micro g/kg	28-003	270	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Methylnaphthalene	Hexachlorocyclopentadiene	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	2-Chloronaphthalene
micro g/kg	29-002	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND
micro g/kg	30-002	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND
micro g/kg	31-002	5,900	ND	ND	ND	ND
micro g/kg	31-003	1,500	ND	ND	ND	ND
micro g/kg	32-002	2,300	ND	ND	ND	ND
micro g/kg	32-003	710	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND
micro g/kg	34-002	490	ND	ND	ND	ND
micro g/kg	34-003	1,200	ND	ND	ND	ND
micro g/kg	35-002	340	ND	ND	ND	ND
micro g/kg	35-003	76	ND	ND	ND	ND
micro g/kg	36-002	2,300	ND	ND	ND	ND
micro g/kg	36-003	2,600	ND	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND
micro g/kg	905-PRE					
micro g/kg	906-ERB	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Nitroaniline	Dimethyl phthalate	Acenaphthylene	2,6-Dinitrotoluene	3-Nitroaniline	Acenaphthene	2,4-Dinitrophenol
micro g/kg	01-002	ND	ND	49	ND	ND	140	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	190	ND	ND	54	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	74	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	97	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	77	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	140	ND	ND	910	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	530	ND
micro g/kg	11-003	ND	ND	ND	150	ND	540	ND
micro g/kg	12-002	ND	ND	45	ND	ND	46	ND
micro g/kg	13-002	ND	ND	36	ND	ND	120	ND
micro g/kg	14-002	ND	ND	40	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	64	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	41	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	58	ND	ND	170	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Nitroaniline	Dimethyl phthalate	Acenaphthylene	2,6-Dinitrotoluene	3-Nitroaniline	Acenaphthene	2,4-Dinitrophenol
micro g/kg	17-002	ND	ND	51	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	2-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND	640	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	450	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	53	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	74	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Nitroaniline	Dimethyl phthalate	Acenaphthylene	2,6-Dinitrotoluene	3-Nitroaniline	Acenaphthene	2,4-Dinitrophenol
micro g/kg	29-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	30-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	190	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	110	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	52	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	120	ND
micro g/kg	34-003	ND	ND	ND	ND	ND	120	ND
micro g/kg	35-002	ND	ND	ND	ND	ND	150	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	230	ND	ND	340	ND
micro g/kg	36-003	ND	ND	ND	ND	ND	470	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE							
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	4-Nitrophenol	Dibenzofuran	2,4-Dinitrotoluene	Diethyl phthalate	4-Chlorophenyl phenyl ether	Fluorene	4-Nitroaniline
micro g/kg	01-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND	58	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	390	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	410	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	2,400	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	90	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	95	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	150	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	210	ND	ND	ND	420	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	940	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	740	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	37	ND
micro g/kg	13-002	ND	ND	ND	ND	ND	91	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	88	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	4-Nitrophenol	Dibenzofuran	2,4-Dinitrotoluene	Diethyl phthalate	4-Chlorophenyl phenyl ether	Fluorene	4-Nitroaniline
micro g/kg	17-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND	57
micro g/kg	20-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	2-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	420	ND	ND	ND	660	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	480	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	81	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	110	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	46	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	650	ND
micro g/kg	28-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	170	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	4-Nitrophenol	Dibenzofuran	2,4-Dinitrotoluene	Diethyl phthalate	4-Chlorophenyl phenyl ether	Fluorene	4-Nitroaniline
micro g/kg	29-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	30-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	1,100	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	440	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	150	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	46	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	110	ND
micro g/kg	34-003	ND	120	ND	ND	ND	190	ND
micro g/kg	35-002	ND	150	ND	ND	ND	260	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	280	ND	ND	ND	590	ND
micro g/kg	36-003	ND	330	ND	ND	ND	640	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE							
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Methyl-dinitrophenol	N-Nitrosodiphenylamine/diphenylamin	4-Bromophenyl phenyl ether	Hexachlorobenzene
micro g/kg	01-002	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND
micro g/kg	04-002	ND	160	ND	ND
micro g/kg	04-003	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND
micro g/kg	17-001D	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Methyl-dinitrophenol	N-Nitrosodiphenylamine/diphenylamin	4-Bromophenyl phenyl ether	Hexachlorobenzene
micro g/kg	17-002	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND
micro g/kg	2-002	ND	ND	ND	ND
micro g/kg	2-003	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND
micro g/kg	24-003	ND	48	ND	ND
micro g/kg	25-002	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	2-Methyl-dinitrophenol	N-Nitrosodiphenylamine/diphenylamin	4-Bromophenyl phenyl ether	Hexachlorobenzene
micro g/kg	29-002	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND
micro g/kg	30-002	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND
micro g/kg	36-003	ND	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND
micro g/kg	905-PRE				
micro g/kg	906-ERB	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Pentachlorophenol	Phenanthrene	Anthracene	Carbazole	di-N-Butylphthalate	Fluoranthene	Pyrene
micro g/kg	01-002	ND	1,600	200	ND	ND	820	950
micro g/kg	01-003	ND	56	ND	ND	ND	140	200
micro g/kg	03-002	ND	220	ND	ND	ND	600	650
micro g/kg	03-002D	ND	ND	ND	ND	ND	67	88
micro g/kg	03-003	ND	1,000	97	ND	ND	750	830
micro g/kg	04-002	ND	950	42	ND	ND	120	130
micro g/kg	04-003	ND	6,500	ND	ND	ND	1,200	1,400
micro g/kg	05-002	ND	130	ND	ND	ND	210	270
micro g/kg	05-003	ND	ND	ND	ND	ND	120	140
micro g/kg	06-002	ND	76	ND	ND	ND	170	200
micro g/kg	06-003	ND	1,700	650	83	ND	4,900	5,100
micro g/kg	07-002	ND	150	ND	ND	ND	250	310
micro g/kg	07-003	ND	250	94	ND	ND	730	980
micro g/kg	08-002	ND	120	130	ND	ND	670	1,200
micro g/kg	08-003	ND	50	ND	ND	ND	110	150
micro g/kg	09-002	ND	ND	ND	ND	ND	66	110
micro g/kg	09-003	ND	55	ND	ND	ND	160	230
micro g/kg	10-002	ND	600	300	ND	ND	2,600	2,700
micro g/kg	10-002D	ND	120	49	ND	ND	440	480
micro g/kg	10-003	ND	440	370	ND	ND	2,200	2,600
micro g/kg	11-002	ND	2,600	410	ND	ND	1,600	1,700
micro g/kg	11-003	ND	1,700	200	ND	ND	720	630
micro g/kg	12-002	ND	650	160	68	ND	850	910
micro g/kg	13-002	ND	1,100	220	110	ND	1,200	980
micro g/kg	14-002	ND	220	81	ND	ND	550	540
micro g/kg	15-001	ND	240	97	ND	ND	720	860
micro g/kg	16-001	ND	200	82	ND	ND	450	650
micro g/kg	16-002	ND	510	210	ND	ND	1,400	1,200
micro g/kg	17-001	ND	110	ND	ND	ND	190	260
micro g/kg	17-001D	ND	140	140	ND	ND	170	480

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Pentachlorophenol	Phenanthrene	Anthracene	Carbazole	di-N-Butylphthalate	Fluoranthene	Pyrene
micro g/kg	17-002	ND	250	71	ND	ND	400	470
micro g/kg	17-003	ND	360	82	ND	ND	510	500
micro g/kg	19-002	ND	290	60	ND	ND	480	360
micro g/kg	20-001	ND	140	ND	ND	ND	180	250
micro g/kg	20-002	ND	460	76	41	ND	550	520
micro g/kg	20-003	ND	320	ND	ND	ND	180	210
micro g/kg	2-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	56	ND	ND	ND	150	170
micro g/kg	21-001	ND	140	ND	ND	ND	180	190
micro g/kg	21-002	ND	8,000	2,100	750	1,800	10,000	8,100
micro g/kg	21-003	ND	5,200	1,400	440	ND	8,100	7,000
micro g/kg	22-002	ND	220	ND	ND	ND	150	140
micro g/kg	23-001	ND	120	ND	ND	ND	240	270
micro g/kg	23-002	ND	200	ND	ND	ND	280	210
micro g/kg	23-003	ND	170	ND	ND	ND	310	220
micro g/kg	24-001	ND	100	ND	ND	ND	130	220
micro g/kg	24-002	ND	160	ND	ND	ND	160	53
micro g/kg	24-003	ND	120	120	ND	ND	190	76
micro g/kg	25-002	ND	110	ND	ND	ND	86	110
micro g/kg	25-003	ND	340	ND	ND	ND	220	240
micro g/kg	26-001	ND	87	ND	ND	ND	150	78
micro g/kg	26-002	ND	92	ND	ND	ND	160	100
micro g/kg	26-003	ND	200	ND	ND	ND	180	240
micro g/kg	27-001	ND	69	ND	ND	ND	62	120
micro g/kg	27-001D	ND	89	ND	ND	ND	140	170
micro g/kg	27-002	ND	950	160	120	ND	1,000	780
micro g/kg	27-003	ND	110	ND	ND	ND	530	520
micro g/kg	28-001	ND	1,300	ND	ND	ND	310	500
micro g/kg	28-002	ND	210	ND	ND	ND	130	240
micro g/kg	28-003	ND	200	39	ND	ND	140	190

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Pentachlorophenol	Phenanthrene	Anthracene	Carbazole	di-N-Butylphthalate	Fluoranthene	Pyrene
micro g/kg	29-002	ND	310	62	ND	ND	540	470
micro g/kg	29-003	ND	110	ND	ND	ND	180	170
micro g/kg	30-002	ND	ND	ND	ND	ND	68	69
micro g/kg	30-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	1,800	210	ND	ND	670	490
micro g/kg	31-003	ND	1,000	140	ND	ND	300	350
micro g/kg	32-002	ND	450	92	ND	ND	220	300
micro g/kg	32-003	ND	44	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	320	52	ND	ND	310	320
micro g/kg	33-002D	ND	280	49	ND	ND	520	560
micro g/kg	33-003	ND	180	ND	ND	ND	220	240
micro g/kg	34-002	ND	370	100	ND	ND	600	520
micro g/kg	34-003	ND	680	100	ND	ND	810	760
micro g/kg	35-002	ND	320	75	ND	ND	440	460
micro g/kg	35-003	ND	57	ND	ND	ND	110	120
micro g/kg	36-002	ND	2,000	400	ND	ND	2,600	2,600
micro g/kg	36-003	ND	1,400	220	56	ND	900	860
micro g/kg	37-001	ND	ND	ND	ND	ND	42	58
micro g/kg	37-002	ND	ND	ND	ND	ND	48	42
micro g/kg	902-POT	ND	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE							
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Benzyl butyl phthalat	3,3'-Dichlorobenzidine	Benzo(a)anthracene	Chrysene	bis(2-Ethylhexyl) phthalate
micro g/kg	01-002	ND	ND	610	600	ND
micro g/kg	01-003	ND	ND	160	120	ND
micro g/kg	03-002	ND	ND	250	220	ND
micro g/kg	03-002D	ND	ND	79	61	ND
micro g/kg	03-003	ND	ND	620	670	ND
micro g/kg	04-002	ND	ND	90	220	ND
micro g/kg	04-003	ND	ND	ND	1,900	ND
micro g/kg	05-002	ND	ND	140	150	ND
micro g/kg	05-003	ND	ND	85	73	ND
micro g/kg	06-002	ND	ND	110	120	ND
micro g/kg	06-003	ND	ND	2,200	2,200	ND
micro g/kg	07-002	ND	ND	170	180	ND
micro g/kg	07-003	ND	ND	580	480	ND
micro g/kg	08-002	ND	ND	880	820	ND
micro g/kg	08-003	ND	ND	110	120	ND
micro g/kg	09-002	ND	ND	100	99	ND
micro g/kg	09-003	ND	ND	230	200	ND
micro g/kg	10-002	ND	ND	1,900	1,800	ND
micro g/kg	10-002D	ND	ND	460	460	ND
micro g/kg	10-003	ND	ND	2,000	1,800	ND
micro g/kg	11-002	ND	ND	1,600	1,600	ND
micro g/kg	11-003	ND	ND	640	840	ND
micro g/kg	12-002	ND	ND	600	590	ND
micro g/kg	13-002	ND	ND	550	570	ND
micro g/kg	14-002	ND	ND	340	300	ND
micro g/kg	15-001	ND	ND	640	950	ND
micro g/kg	16-001	ND	ND	440	550	ND
micro g/kg	16-002	ND	ND	910	850	ND
micro g/kg	17-001	ND	ND	160	200	ND
micro g/kg	17-001D	ND	ND	260	450	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Benzyl butyl phthalat	3,3'-Dichlorobenzidine	Benzo(a)anthracene	Chrysene	bis(2-Ethylhexyl) phthalate
micro g/kg	17-002	ND	ND	260	270	ND
micro g/kg	17-003	ND	ND	320	290	ND
micro g/kg	19-002	ND	ND	240	300	ND
micro g/kg	20-001	ND	ND	140	180	ND
micro g/kg	20-002	ND	ND	340	340	ND
micro g/kg	20-003	ND	ND	130	160	ND
micro g/kg	2-002	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	ND	130	120	ND
micro g/kg	21-001	ND	ND	100	120	ND
micro g/kg	21-002	ND	ND	5,000	4,100	ND
micro g/kg	21-003	ND	ND	4,000	3,400	ND
micro g/kg	22-002	ND	ND	120	150	ND
micro g/kg	23-001	ND	ND	230	250	ND
micro g/kg	23-002	ND	ND	160	180	ND
micro g/kg	23-003	ND	ND	190	190	ND
micro g/kg	24-001	ND	ND	98	110	ND
micro g/kg	24-002	ND	ND	90	77	ND
micro g/kg	24-003	ND	ND	99	100	ND
micro g/kg	25-002	ND	ND	98	81	ND
micro g/kg	25-003	ND	ND	100	140	ND
micro g/kg	26-001	ND	ND	97	89	ND
micro g/kg	26-002	ND	ND	120	140	ND
micro g/kg	26-003	ND	ND	100	120	ND
micro g/kg	27-001	ND	ND	54	68	ND
micro g/kg	27-001D	ND	ND	110	110	ND
micro g/kg	27-002	ND	ND	440	320	ND
micro g/kg	27-003	ND	ND	330	320	ND
micro g/kg	28-001	ND	ND	ND	190	ND
micro g/kg	28-002	ND	ND	ND	150	ND
micro g/kg	28-003	ND	ND	ND	66	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Benzyl butyl phthalat	3,3'-Dichlorobenzidine	Benzo(a)anthracene	Chrysene	bis(2-Ethylhexyl) phthalate
micro g/kg	29-002	ND	ND	240	280	ND
micro g/kg	29-003	ND	ND	80	86	ND
micro g/kg	30-002	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	190	190	ND
micro g/kg	31-003	ND	ND	130	120	ND
micro g/kg	32-002	ND	ND	120	140	ND
micro g/kg	32-003	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	160	170	ND
micro g/kg	33-002D	ND	ND	300	310	ND
micro g/kg	33-003	ND	ND	120	130	ND
micro g/kg	34-002	ND	ND	260	290	ND
micro g/kg	34-003	ND	ND	340	400	ND
micro g/kg	35-002	ND	ND	200	180	ND
micro g/kg	35-003	ND	ND	59	60	ND
micro g/kg	36-002	ND	ND	1,700	1,500	ND
micro g/kg	36-003	ND	ND	440	550	ND
micro g/kg	37-001	ND	ND	ND	39	ND
micro g/kg	37-002	ND	ND	45	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND
micro g/kg	905-PRE					
micro g/kg	906-ERB	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	di-N-Octylphthalate	Benzo(b and/or k) fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd) pyrene	Dibenzo (a,h) anthracene
micro g/kg	01-002	ND	940	580	160	61
micro g/kg	01-003	ND	170	140	110	ND
micro g/kg	03-002	ND	340	210	170	51
micro g/kg	03-002D	ND	70	73	57	ND
micro g/kg	03-003	ND	870	610	220	62
micro g/kg	04-002	ND	100	74	ND	ND
micro g/kg	04-003	ND	1,200	1,300	760	ND
micro g/kg	05-002	ND	280	140	100	ND
micro g/kg	05-003	ND	100	84	60	ND
micro g/kg	06-002	ND	200	110	88	ND
micro g/kg	06-003	ND	3,300	2,200	1,400	470
micro g/kg	07-002	ND	310	190	140	ND
micro g/kg	07-003	ND	810	580	420	100
micro g/kg	08-002	ND	1,200	900	610	170
micro g/kg	08-003	ND	250	160	140	ND
micro g/kg	09-002	ND	160	120	80	ND
micro g/kg	09-003	ND	410	270	200	57
micro g/kg	10-002	ND	3,100	2,100	1,100	300
micro g/kg	10-002D	ND	760	530	270	80
micro g/kg	10-003	ND	3,100	2,300	1,100	320
micro g/kg	11-002	ND	2,500	1,700	790	240
micro g/kg	11-003	ND	1,200	780	400	120
micro g/kg	12-002	ND	860	520	310	100
micro g/kg	13-002	ND	890	540	280	92
micro g/kg	14-002	ND	470	270	72	ND
micro g/kg	15-001	ND	1,100	2,200	240	ND
micro g/kg	16-001	ND	650	460	190	ND
micro g/kg	16-002	ND	1,500	910	430	120
micro g/kg	17-001	ND	320	180	42	ND
micro g/kg	17-001D	ND	370	280	88	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	di-N-Octylphthalate	Benzo(b and/or k) fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd) pyrene	Dibenzo (a,h) anthracene
micro g/kg	17-002	ND	620	300	80	ND
micro g/kg	17-003	ND	590	240	74	ND
micro g/kg	19-002	ND	600	250	150	ND
micro g/kg	20-001	ND	240	170	93	ND
micro g/kg	20-002	ND	560	310	190	66
micro g/kg	20-003	ND	160	110	45	ND
micro g/kg	2-002	ND	ND	ND	ND	ND
micro g/kg	2-003	ND	200	130	85	ND
micro g/kg	21-001	ND	120	100	62	ND
micro g/kg	21-002	ND	6,100	4,000	2,300	670
micro g/kg	21-003	ND	6,200	4,100	2,300	640
micro g/kg	22-002	ND	120	75	58	ND
micro g/kg	23-001	ND	310	230	170	60
micro g/kg	23-002	ND	300	180	130	54
micro g/kg	23-003	ND	380	150	94	ND
micro g/kg	24-001	ND	130	83	68	ND
micro g/kg	24-002	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	210	42	ND	ND
micro g/kg	25-002	ND	120	63	98	ND
micro g/kg	25-003	ND	220	99	110	ND
micro g/kg	26-001	ND	150	41	40	ND
micro g/kg	26-002	ND	250	53	52	ND
micro g/kg	26-003	ND	210	99	96	ND
micro g/kg	27-001	ND	72	51	ND	ND
micro g/kg	27-001D	ND	130	70	43	ND
micro g/kg	27-002	ND	440	240	180	60
micro g/kg	27-003	ND	470	290	210	67
micro g/kg	28-001	ND	170	100	ND	ND
micro g/kg	28-002	ND	250	110	50	ND
micro g/kg	28-003	ND	110	51	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	di-N-Octylphthalate	Benzo(b and/or k) fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd) pyrene	Dibenzo (a,h) anthracene
micro g/kg	29-002	ND	390	210	73	ND
micro g/kg	29-003	ND	160	85	ND	ND
micro g/kg	30-002	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	140	100	ND	ND
micro g/kg	31-003	ND	81	73	ND	ND
micro g/kg	32-002	ND	200	120	87	ND
micro g/kg	32-003	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	220	140	80	ND
micro g/kg	33-002D	ND	460	290	190	57
micro g/kg	33-003	ND	190	100	73	ND
micro g/kg	34-002	ND	450	270	95	ND
micro g/kg	34-003	ND	830	390	92	ND
micro g/kg	35-002	ND	320	140	38	ND
micro g/kg	35-003	ND	82	55	ND	ND
micro g/kg	36-002	ND	2,400	1,300	320	100
micro g/kg	36-003	ND	750	350	92	ND
micro g/kg	37-001	ND	42	ND	ND	ND
micro g/kg	37-002	ND	44	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND
micro g/kg	905-PRE					
micro g/kg	906-ERB	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Benzo(ghi) perylene	Percent Moisture
micro g/kg	01-002	170	18
micro g/kg	01-003	140	28
micro g/kg	03-002	190	18
micro g/kg	03-002D	75	18
micro g/kg	03-003	240	21
micro g/kg	04-002	ND	21
micro g/kg	04-003	970	26
micro g/kg	05-002	220	14
micro g/kg	05-003	80	17
micro g/kg	06-002	110	12
micro g/kg	06-003	1,600	23
micro g/kg	07-002	180	24
micro g/kg	07-003	620	16
micro g/kg	08-002	780	18
micro g/kg	08-003	190	29
micro g/kg	09-002	110	16
micro g/kg	09-003	250	25
micro g/kg	10-002	1,200	20
micro g/kg	10-002D	330	14
micro g/kg	10-003	1,300	24
micro g/kg	11-002	900	21
micro g/kg	11-003	420	24
micro g/kg	12-002	350	9
micro g/kg	13-002	330	8
micro g/kg	14-002	67	6
micro g/kg	15-001	290	13
micro g/kg	16-001	250	16
micro g/kg	16-002	460	20
micro g/kg	17-001	83	9
micro g/kg	17-001D	66	8

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Benzo(ghi) perylene	Percent Moisture
micro g/kg	17-002	160	17
micro g/kg	17-003	ND	22
micro g/kg	19-002	220	15
micro g/kg	20-001	100	10
micro g/kg	20-002	220	16
micro g/kg	20-003	62	19
micro g/kg	2-002	ND	18
micro g/kg	2-003	110	17
micro g/kg	21-001	87	8
micro g/kg	21-002	2,400	9
micro g/kg	21-003	2,400	14
micro g/kg	22-002	80	24
micro g/kg	23-001	250	10
micro g/kg	23-002	68	15
micro g/kg	23-003	ND	20
micro g/kg	24-001	100	8
micro g/kg	24-002	ND	14
micro g/kg	24-003	ND	20
micro g/kg	25-002	110	17
micro g/kg	25-003	130	11
micro g/kg	26-001	ND	8
micro g/kg	26-002	ND	15
micro g/kg	26-003	ND	18
micro g/kg	27-001	49	9
micro g/kg	27-001D	60	8
micro g/kg	27-002	200	11
micro g/kg	27-003	270	13
micro g/kg	28-001	ND	13
micro g/kg	28-002	68	10
micro g/kg	28-003	ND	8

ANALYTICAL DATA FOR OLD ATC REFINERY

SEMI-VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Benzo(ghi) perylene	Percent Moisture
micro g/kg	29-002	64	16
micro g/kg	29-003	ND	18
micro g/kg	30-002	ND	23
micro g/kg	30-003	ND	15
micro g/kg	31-002	ND	14
micro g/kg	31-003	ND	20
micro g/kg	32-002	120	18
micro g/kg	32-003	ND	19
micro g/kg	33-002	94	19
micro g/kg	33-002D	200	18
micro g/kg	33-003	87	18
micro g/kg	34-002	92	15
micro g/kg	34-003	ND	16
micro g/kg	35-002	51	11
micro g/kg	35-003	ND	16
micro g/kg	36-002	280	18
micro g/kg	36-003	82	23
micro g/kg	37-001	ND	12
micro g/kg	37-002	45	19
micro g/kg	902-POT	ND	na
micro g/kg	903-OFW	ND	na
micro g/kg	904-ERB	ND	na
micro g/kg	905-PRE		
micro g/kg	906-ERB	ND	na

#11 Kedzie Site

CONVERSATION RECORD

TIME	DATE

TYPE ☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO:
–	–	–

ROUTING	
NAME/SYMBOL	INT

SUBJECT

Summary & Analytical Collected...
6/15/98 SESD Sampling Event (START Summary Tables)

SUMMARY

① TPH was found in all samples... 10% & all samples were also analyzed for TPH to determine associatio + "migration medium" characteristics... TPH was found @ 60 ppm to 20,000 ppm...

Note: 37 locations sampled & depths to 3 ft...

ACTION REQUIRED

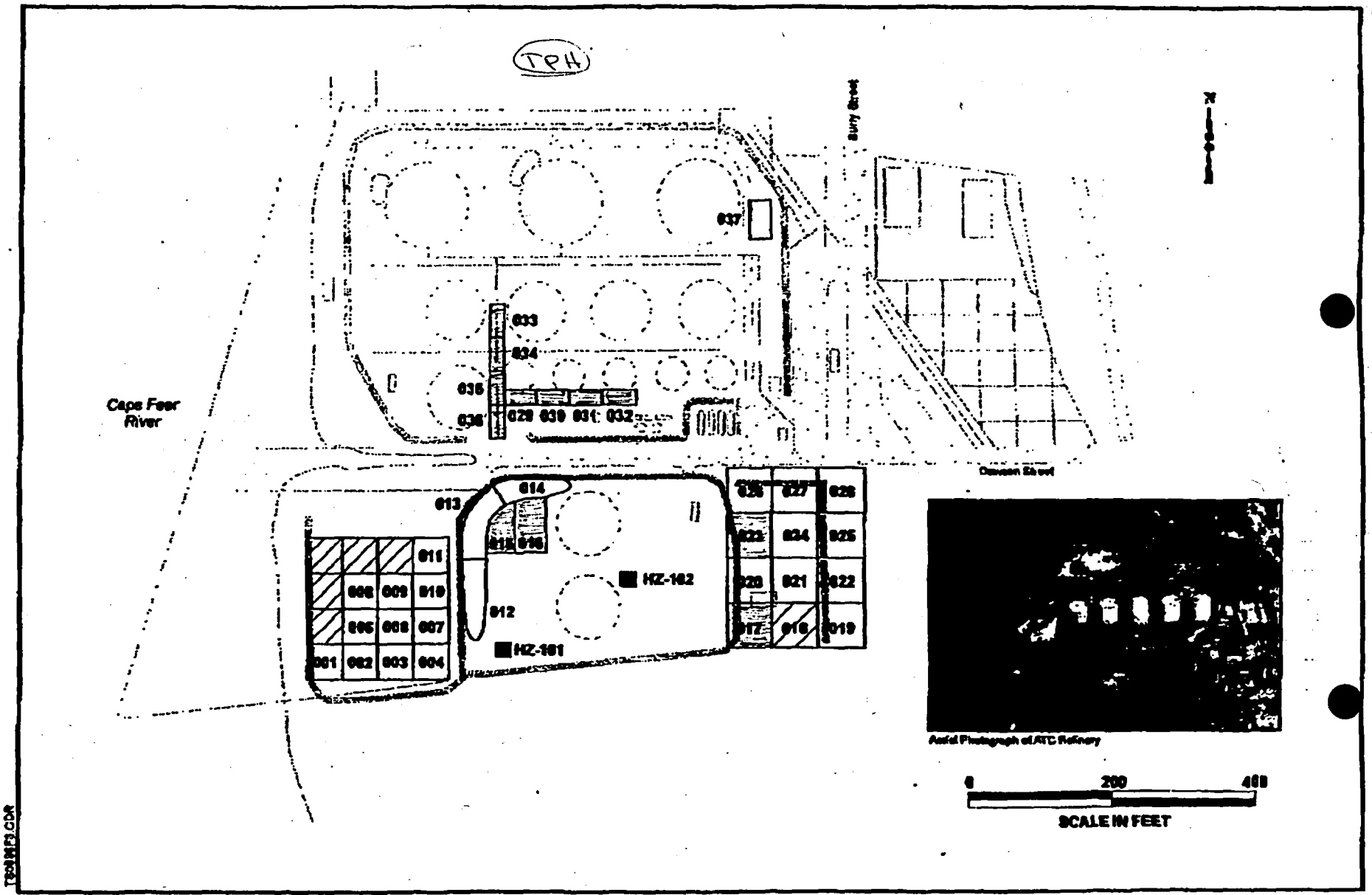
–

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
TONY A. BEST (OSC)		

ACTION TAKEN

–

SIGNATURE	TITLE	DATE



EPA

Figure 3

ATC Refinery
Soil Sample Location Map
Wilmington, North Carolina

LEGEND:

■ Waste Sample Location

TOTAL PETROLEUM HYDROCARBONS

Sample ID	Depth (feet)	Grid Number	DRO Results (mg/kg) *
5913	2-3	29	100
5914	2-3	30	70
5915	2-3	31	1100
5916	2-3	32	1900
5917, 5922	2-3	33	80, 60
5918	>3	33	60
5919	2-3	34	440
5920	2-3	35	2600
5921	2-3	36	2200
5923	<2	15	310
5924	<2	16	380
5925	<2	17	190
5926	<2	23	160

* Diesel Range Organic Hydrocarbon results reported in milligrams per kilogram

ATC Refinery Site

CONVERSATION RECORD

TIME	DATE

TYPE ☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO:
—	—	—

ROUTING	
NAME/SYMBOL	INT

SUBJECT

Summary of Analytical Collected

6/15/98 SESD Sampling Event (START Summary Tables)

SUMMARY

(1) Methylene Chloride was found in 1 sample @ 7,200 ppb.

(2) Benzene was found in 2 samples @ 1 location @ 3,000 ppb to 7,400 ppb

(3) Toluene was found in ~~X~~ 4 samples @ ~~X~~ 2 locations @ (2) 2,200 ppb to 21,000 ppb (1) 59 ppb to 120 ppb

(4) Ethylbenzene was found in 7 samples @ 4 locations @ 8 ppb to 29,000 ppb

(5) Total Xylenes were found in 8 samples @ 5 locations @ 240 ppb to 31,000 ppb

Note: grids affected = 031, 032, 035, 036 & 037...

Note: 37 ~~samples~~ locations (soil) collected @ depths to 3 ft...

ACTION REQUIRED

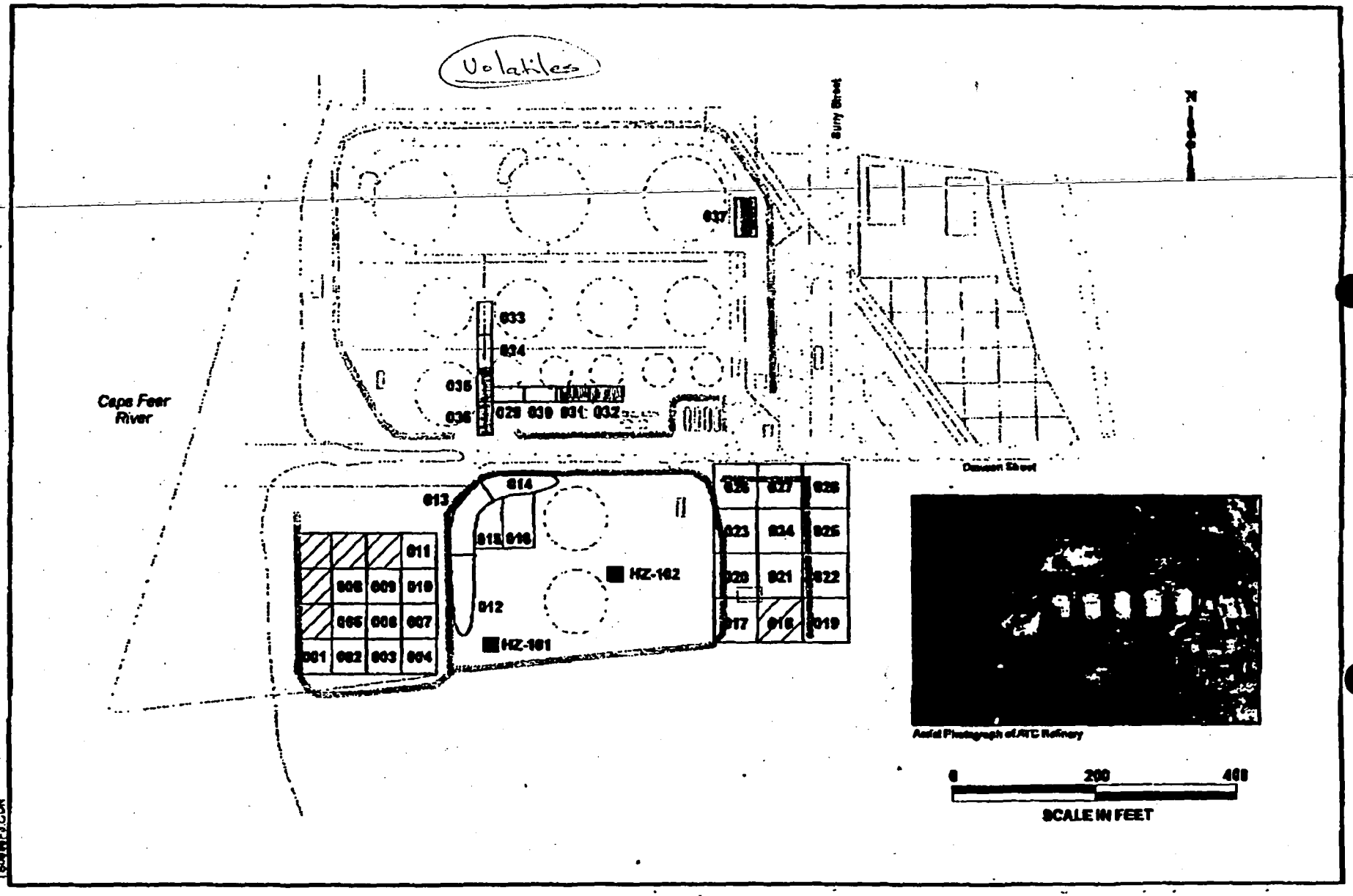
—

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
TOUR A. BEST		

ACTION TAKEN

—

SIGNATURE	TITLE	DATE



EPA

Figure 3

ATC Refinery
Soil Sample Location Map
Wilmington, North Carolina

LEGEND:

■ Waste Sample Location

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Chloromethane	Bromomethane	Vinyl chloride	Chloroethane	Methylene chloride	Acetone
micro g/kg	01-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	02-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	02-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Chloromethane	Bromomethane	Vinyl chloride	Chloroethane	Methylene chloride	Acetone
micro g/kg	17-001D	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	17-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	21-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	100
micro g/kg	24-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	29-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	110

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Matrix	Chloromethane	Bromomethane	Vinyl chloride	Chloroethane	Methylene chloride	Acetone
micro g/kg	30-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	Subsurface Soil >12"	ND	ND	ND	ND	7,200	ND
micro g/kg	31-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	35-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	Subsurface Soil >12"	280	ND	ND	ND	ND	ND
micro g/kg	36-003	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	37-001	Surface Soil 0-12"	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	Subsurface Soil >12"	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	Water	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	Water	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	Water	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE	Water						
micro g/kg	906-ERB	Water	ND	ND	ND	ND	ND	ND

Not detected
Not applicable

Soil sample results in ug/kg
Water sample results in ug/L

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Carbon disulfide	1,1-Dichloroethene	1,1-Dichloroethane	1,2-Dichloroethene (Total)	Chloroform	1,2-Dichloroethane
micro g/kg	01-002	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND
micro g/kg	02-002	ND	ND	ND	ND	ND	ND
micro g/kg	02-003	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Carbon disulfide	1,1-Dichloroethene	1,1-Dichloroethane	1,2-Dichloroethene (Total)	Chloroform	1,2-Dichloroethane
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND
micro g/kg	17-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	ND
micro g/kg	29-002	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Carbon disulfide	1,1-Dichloroethene	1,1-Dichloroethane	1,2-Dichloroethene (Total)	Chloroform	1,2-Dichloroethane
micro g/kg	30-002	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	ND	ND
micro g/kg	36-003	ND	ND	ND	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	ND	38	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE						
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Methyl ethyl ketone	1,1,1-Trichloroethane	Carbon tetrachloride	Bromodichloromethane	1,2-Dichloropropane
micro g/kg	01-002	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND
micro g/kg	02-002	ND	ND	ND	ND	ND
micro g/kg	02-003	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Methyl ethyl ketone	1,1,1-Trichloroethane	Carbon tetrachloride	Bromodichloromethane	1,2-Dichloropropane
micro g/kg	17-001D	ND	ND	ND	ND	ND
micro g/kg	17-002	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND
micro g/kg	29-002	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Methyl ethyl ketone	1,1,1-Trichloroethane	Carbon tetrachloride	Bromodichloromethane	1,2-Dichloropropane
micro g/kg	30-002	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	ND
micro g/kg	36-003	ND	ND	ND	ND	ND
micro g/kg	37-001	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	ND	15 ×	ND
micro g/kg	903-OFW	70	ND	ND	ND	ND
micro g/kg	904-ERB	15	ND	ND	ND	ND
micro g/kg	905-PRE					
micro g/kg	906-ERB	10	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	cis-1,3-Dichloropropene	Trichloroethene	Dibromochloromethane	1,1,2-Trichloroethane	Benzene	trans-1,3-Dichloropropene
micro g/kg	01-002	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND
micro g/kg	02-002	ND	ND	ND	ND	ND	ND
micro g/kg	02-003	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	cis-1,3-Dichloropropene	Trichloroethene	Dibromochloromethane	1,1,2-Trichloroethane	Benzene	trans-1,3-Dichloropropene
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND
micro g/kg	17-002	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	ND
micro g/kg	29-002	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	cis-1,3-Dichloropropene	Trichloroethene	Dibromochloromethane	1,1,2-Trichloroethane	Benzene	trans-1,3-Dichloropropene
micro g/kg	30-002	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	3,000	ND
micro g/kg	36-003	ND	ND	ND	ND	7,400	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	ND
micro g/kg	902-POT	ND	ND	6	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE						
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Bromoform	Methyl isobutyl ketone	Methyl butyl ketone	Tetrachloroethene	1,1,2,2-Tetratchloroethane	Toluene	Chlorobenzene
micro g/kg	01-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	01-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	02-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	02-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	03-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	04-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	04-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	05-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	05-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	06-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	06-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	07-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	07-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	08-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	08-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	09-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	09-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	10-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	11-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	11-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	12-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	13-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	14-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	15-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	16-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	16-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-001	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Bromoform	Methyl isobutyl ketone	Methyl butyl ketone	Tetrachloroethene	1,1,2,2-Tetratchloroethane	Toluene	Chlorobenzene
micro g/kg	17-001D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	17-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	19-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	20-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	21-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	22-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	23-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	24-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	25-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	25-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	26-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-001D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	27-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-001	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	28-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	29-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	29-003	ND	ND	ND	ND	ND	2	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Bromoform	Methyl isobutyl ketone	Methyl butyl ketone	Tetrachloroethene	1,1,2,2-Tetratchloroethane	Toluene	Chlorobenzene
micro g/kg	30-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	30-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	31-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	31-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	32-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	32-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-002D	ND	ND	ND	ND	ND	ND	ND
micro g/kg	33-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	34-002	ND	ND	ND	ND	ND	ND	ND
micro g/kg	34-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	35-002	ND	ND	ND	ND	ND	550	ND
micro g/kg	35-003	ND	ND	ND	ND	ND	ND	ND
micro g/kg	36-002	ND	ND	ND	ND	ND	2,200	ND
micro g/kg	36-003	ND	ND	ND	ND	ND	21,000	ND
micro g/kg	37-001	ND	ND	ND	ND	ND	59	ND
micro g/kg	37-002	ND	ND	ND	ND	ND	120	ND
micro g/kg	902-POT	ND	ND	ND	ND	ND	ND	ND
micro g/kg	903-OFW	ND	ND	ND	ND	ND	ND	ND
micro g/kg	904-ERB	ND	ND	ND	ND	ND	ND	ND
micro g/kg	905-PRE							
micro g/kg	906-ERB	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Ethylbenzene	Styrene	Total Xylenes	Percent Moisture	Sample ID
micro g/kg	01-002	ND	ND	ND	18	5639
micro g/kg	01-003	ND	ND	ND	28	5640
micro g/kg	02-002	ND	ND	ND	18	5645
micro g/kg	02-003	ND	ND	ND	17	5646
micro g/kg	03-002	ND	ND	ND	18	5637
micro g/kg	03-002D	ND	ND	ND	18	5638
micro g/kg	03-003	ND	ND	ND	21	5641
micro g/kg	04-002	ND	ND	ND	21	5642
micro g/kg	04-003	ND	ND	ND	26	5643
micro g/kg	05-002	ND	ND	ND	14	5644
micro g/kg	05-003	ND	ND	ND	17	5647
micro g/kg	06-002	ND	ND	ND	12	5652
micro g/kg	06-003	ND	ND	ND	23	5653
micro g/kg	07-002	ND	ND	ND	24	5648
micro g/kg	07-003	ND	ND	ND	16	5651
micro g/kg	08-002	ND	ND	ND	18	5649
micro g/kg	08-003	ND	ND	ND	29	5650
micro g/kg	09-002	ND	ND	ND	16	5654
micro g/kg	09-003	ND	ND	ND	25	5655
micro g/kg	10-002	ND	ND	ND	20	5657
micro g/kg	10-002D	ND	ND	ND	14	5659
micro g/kg	10-003	ND	ND	ND	24	5658
micro g/kg	11-002	ND	ND	ND	21	5656
micro g/kg	11-003	ND	ND	ND	24	5660
micro g/kg	12-002	ND	ND	ND	9	5600
micro g/kg	13-002	ND	ND	ND	8	5604
micro g/kg	14-002	ND	ND	ND	6	5606
micro g/kg	15-001	ND	ND	ND	13	5599
micro g/kg	16-001	ND	ND	ND	16	5602
micro g/kg	16-002	ND	ND	ND	20	5605
micro g/kg	17-001	ND	ND	ND	na	5610

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Ethylbenzene	Styrene	Total Xylenes	Percent Moisture	Sample ID
micro g/kg	17-001D	ND	ND	ND	8	5615
micro g/kg	17-002	ND	ND	ND	17	5611
micro g/kg	17-003	ND	ND	ND	22	5612
micro g/kg	19-002	ND	ND	ND	15	5631
micro g/kg	20-001	ND	ND	ND	10	5623
micro g/kg	20-002	ND	ND	ND	16	5624
micro g/kg	20-003	ND	ND	ND	na	5628
micro g/kg	21-001	ND	ND	ND	8	5625
micro g/kg	21-002	ND	ND	ND	9	5626
micro g/kg	21-003	ND	ND	ND	14	5627
micro g/kg	22-002	ND	ND	ND	24	5632
micro g/kg	23-001	ND	ND	ND	10	5613
micro g/kg	23-002	ND	ND	ND	15	5614
micro g/kg	23-003	ND	ND	ND	20	5616
micro g/kg	24-001	ND	ND	ND	8	5618
micro g/kg	24-002	ND	ND	ND	14	5619
micro g/kg	24-003	ND	ND	ND	20	5620
micro g/kg	25-002	ND	ND	ND	17	5635
micro g/kg	25-003	ND	ND	ND	11	5636
micro g/kg	26-001	ND	ND	ND	8	5617
micro g/kg	26-002	ND	ND	ND	15	5621
micro g/kg	26-003	ND	ND	ND	22	5622
micro g/kg	27-001	ND	ND	ND	9	5629
micro g/kg	27-001D	ND	ND	ND	8	5630
micro g/kg	27-002	ND	ND	ND	11	5633
micro g/kg	27-003	ND	ND	ND	13	5634
micro g/kg	28-001	ND	ND	ND	13	5607
micro g/kg	28-002	ND	ND	ND	10	5608
micro g/kg	28-003	ND	ND	ND	8	5609
micro g/kg	29-002	ND	ND	ND	16	5672
micro g/kg	29-003	ND	ND	ND	18	5673

ANALYTICAL DATA FOR OLD ATC REFINERY

VOLATILE ORGANIC COMPOUNDS

Units	Grid-Depth	Ethylbenzene	Styrene	Total Xylenes	Percent Moisture	Sample ID
micro g/kg	30-002	ND	ND	ND	23	5669
micro g/kg	30-003	ND	ND	ND	15	5670
micro g/kg	31-002	6,400	ND	12,000	14	5662
micro g/kg	31-003	8,700	ND	2,700	20	5666
micro g/kg	32-002	ND	ND	260	18	5663
micro g/kg	32-003	ND	ND	ND	19	5664
micro g/kg	33-002	ND	ND	ND	19	5661
micro g/kg	33-002D	ND	ND	ND	18	5667
micro g/kg	33-003	ND	ND	ND	18	5665
micro g/kg	34-002	ND	ND	ND	15	5668
micro g/kg	34-003	ND	ND	ND	16	5671
micro g/kg	35-002	570	ND	990	11	5676
micro g/kg	35-003	8	ND	ND	16	5677
micro g/kg	36-002	29,000	ND	22,000	18	5674
micro g/kg	36-003	12,000	ND	31,000	23	5675
micro g/kg	37-001	ND	ND	240	12	5601
micro g/kg	37-002	46	ND	320	19	5603
micro g/kg	902-POT	ND	ND	ND	na	5678
micro g/kg	903-OFW	ND	ND	ND	na	5679
micro g/kg	904-ERB	ND	ND	ND	na	5680
micro g/kg	905-PRE					5681
micro g/kg	906-ERB	ND	ND	ND	na	5682

6/15/98 Sampling Plan

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4, SCIENCE and ECOSYSTEM SUPPORT DIVISI(
ATHENS, GEORGIA 30605-2720

4SES-EI

JUN 0 5 1998

MEMORANDUM

SUBJECT: Old ATC Refinery Study Plan
Wilmington, North Carolina
SESD Project No: 98-0457, 98-0461

FROM: Tim Simpson, Environmental Scientist T. Simpson
Hazardous Waste Section

THRU: Archie Lee, Chief
Hazardous Waste Section

TO: Tony Best, On-Scene Coordinator
Emergency Response and Removal Branch
Waste Management Division

Attached is a copy of the study plan for the work to be conducted at the Old ATC Refinery in Wilmington, North Carolina. The study will be conducted the week of June 15, 1998.

If you have any questions or comments, please call me at (706) 355-8736.

Attachment

cc: Vail (w/o enclosures)

FIELD SAMPLING INVESTIGATION
ATC REFINERY
WILMINGTON, NORTH CAROLINA
SESD PROJECT NUMBERS 98-0457, 98-0461

INTRODUCTION

A soil sampling investigation has been requested by Tony Best, United States Environmental Protection Agency, Region 4 (USEPA). Waste Management Division. Tim Simpson, Don Hunter, Charles Till, Archie Lee, Bobby Lewis, and Katharine Hastie, USEPA, Science and Ecosystems Support Division, will collect soil samples from the ATC Refinery site located at 801 Surry Street in Wilmington, New Hanover County, North Carolina (Figure 1). Personnel from the Environmental Services Assistant Team will provide air monitoring, decontamination of field equipment, run FORMs, and will screen samples for radionuclides prior to shipment as required by the EISOPQM.

This investigation is being conducted to determine the extent of contamination of the soil on-site.

BACKGROUND AND SCOPE

ATC refinery is a 15-acre facility that once had 17 above ground petroleum storage tanks ranging from 2,000 gallons to 3.36 million gallons, 3 oil/water separators, and a petroleum cracking tower. Currently all tanks and buildings are being removed from the site. Figure 2 shows the site layout prior to any removal.

PREVIOUS SAMPLING:

Previous investigations have been conducted at the site. Soil samples were last collected from the site in 1997. The samples collected in 1997 were analyzed for metals.. Analytical results indicated the presence of several metals including arsenic (12 mg/kg), barium (220 mg/kg), cadmium (1.1 mg/kg), vanadium (160 mg/kg), and lead (2800 mg/kg).

SAMPLING STRATEGIES:

Soil samples will be collected from approximately 37 grids located on several areas of the site. The locations of the grids are shown on Figure 3. Soil will be composited from each grid (3-5 point composites) for all intervals. The soil samples will be collected at a depth of 0-6 inches below land surface (bls), 24-30 inches bls, and 48-54 inches bls. The samples will be analyzed for metals, extractable organic compounds, pesticides, PCBs, volatile organic compounds, and TPH. The samples will be collected using stainless steel hand augers and, when appropriate, mixed in glass pans with a stainless steel spoon.

QA/QC SAMPLES

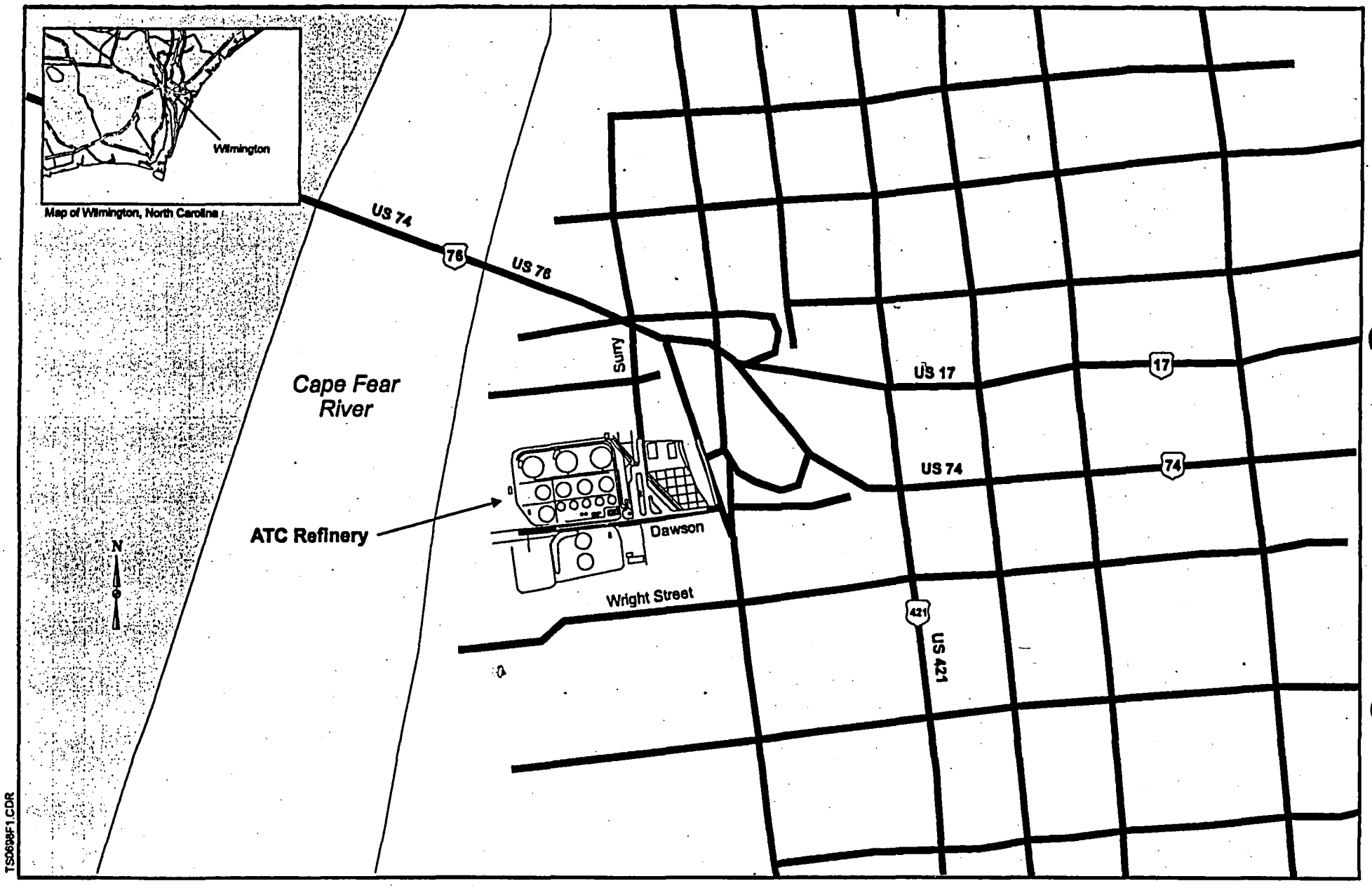
Duplicate samples will be collected at five soil sampling locations. One post-preservative blank will be collected for metals analyses. Rinse blanks and organic-free water system blanks will be collected for metals, extractable organic compounds, pesticides, PCBs, and volatile organic compounds analyses. A trip blank will be prepared prior to arriving on site.

METHODOLOGY

All samples will be collected in accordance with the USEPA, Region IV, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), May 1996. The soil samples will be analyzed under the Contract Laboratory Program (CLP) in accordance with the CLP statement of work.

SAFETY

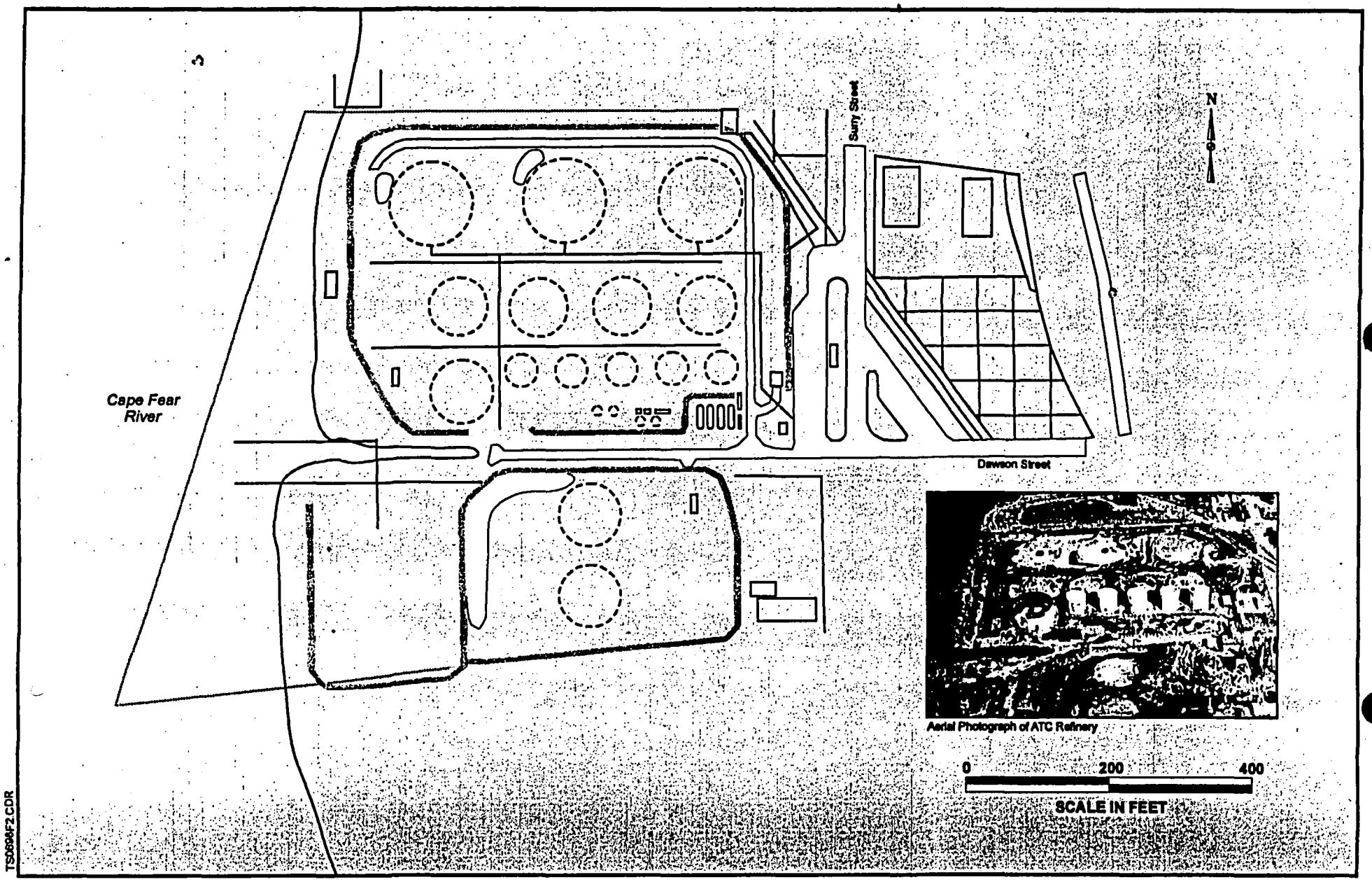
All field operations will be conducted in accordance with a site specific safety plan prepared in accordance with the Office of Safety and Health Administration (29 CFR 1910.120). This plan is supplemented by the USEPA/SESD Environmental Compliance Branch Hazardous Waste Section Safety Manual.



EPA

Figure 1

Site Location Map
ATC Refinery
Wilmington, North Carolina



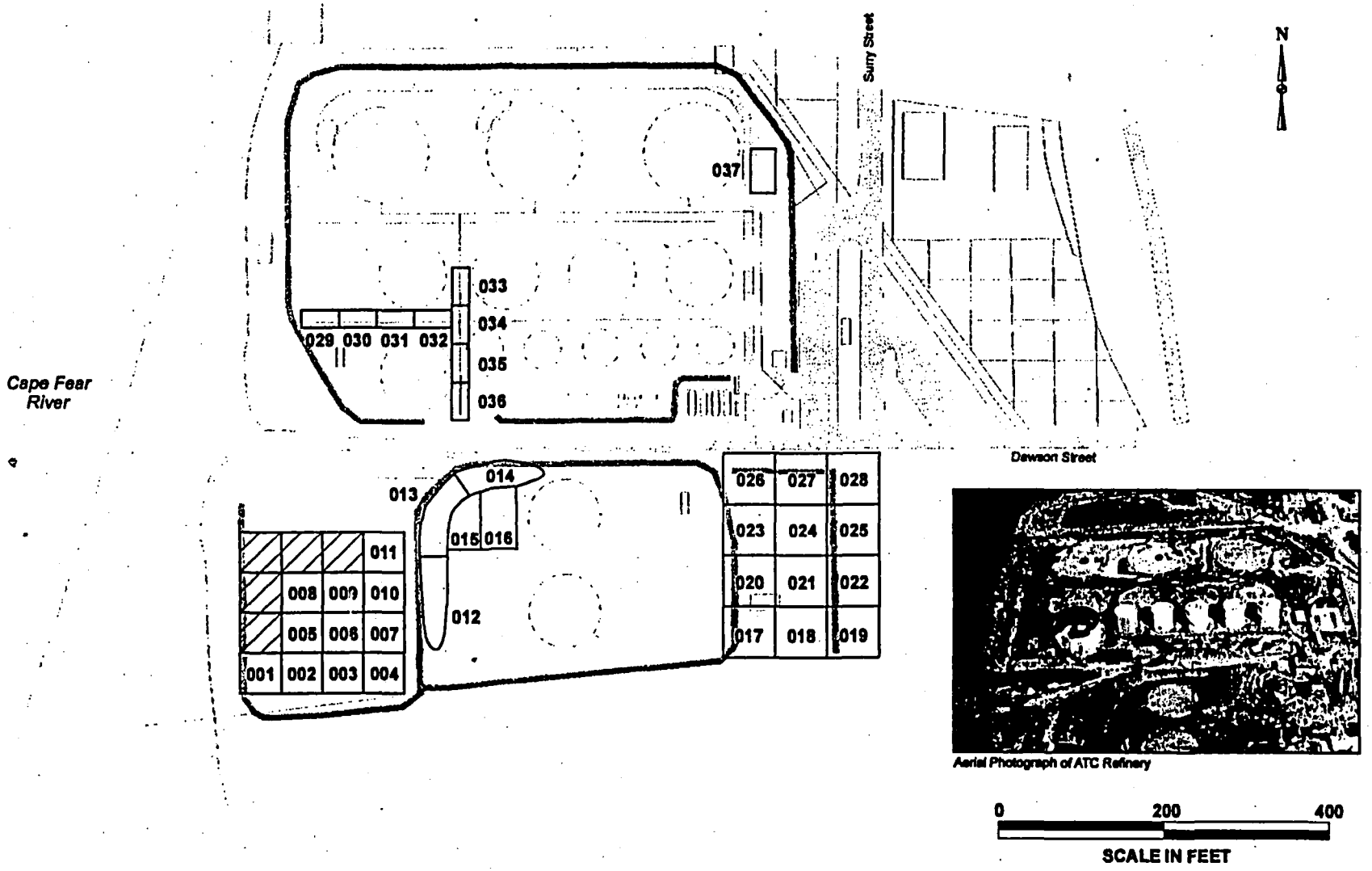
EPA

Figure 2

ATC Refinery
Site Layout Map
Wilmington, North Carolina

Legend:

Roads
Berm



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EPA

Figure 3

ATC Refinery
Soil Sample Location Map
Wilmington, North Carolina

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

NCDENR

JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

WILLIAM L. MEYER
DIRECTOR

June 2, 1998

FILE COPY

Ms. Dianne Harvell
Director, Environmental Health
New Hanover County Health Department
2029 S. 17th Street
Wilmington, NC 28401

RE: Removal Evaluation-Site Visit
Old ATC Refinery
NCD986186518

Dear Ms. Harvell:

David Lilley of the NC Superfund Section left a voice message for you today to notify you that the NC Superfund Section will conduct a site inspection of the subject site located in New Hanover County, North Carolina. The inspection will be conducted on June 4 to August 31, 1998 by Stuart Parker of the NC Superfund Section.

The purpose of the inspection is to oversee the status of removal activities at the site. You may want to have your representative meet the inspection team at the site. If so, please contact Stuart Parker at (919) 733-2801, ext. 277 and he will coordinate a meeting.

If the inspection indicates the need for future study of the site we will contact your office to advise. If you have any questions, please don't hesitate to call David Lilley or me at (919) 733-2801.

Sincerely,

Pat DeRosa, Head
Site Evaluation and Removal Branch
NC Superfund Section

Enclosures

cc: Phil Prete
Doug Holyfield
Pat Williamson
Scott Ross
David Lilley
Donna Keith

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605
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Federal
Trip Notification & Authorization

Prepared by: STUART PARKER

Today's Date: 6/1/98

*Use Black Ink or Typewriter only-Staff to fill out first 2 blocks only=

Site Trip

Date of Trip: JUNE 4 – August 31

If trip date changed or cancelled note below:
Trip Date Changed To: _____ Cancelled: ___

NCD#: 986 186 518 Site Name: OLD ATC REFINERY
City: WILMINGTON County: New Hanover

Reason for Trip: REMOVAL EVALUATION – SITE VISIT

Name of Hotel (Overnight Trip): NA Hotel Telephone Number: (–) – –

Authorized by: _____
Industrial Hygienist

Project Team Leader: SF Parker

Assistants: NA, ___, ___

Attach To Notification Form: 1 copy each:
Submit to the
Industrial Hygienist

Preliminary Assessment Form (First page only)
Site Map
PA Transmittal Letter

(Please list appropriate County Health Department contact person to call to advise of trip)
Environmental Supervisor or Health Director to call: Ms. Dianne Harrell Title: Director, Env. Health
(Note if Dr., M.P., etc.)
Telephone Number: (910) 343 - 6665

Notes: Health Department Official Contacted: Ms Harrell
Back Up Letter Required: Yes ✓ No ___
Notified Ms. Harrell v.a voice mail on 6-2-98 (DBL)

Note: Signed original to Data Manager

MEMORANDUM

To: File
From: Stuart F. Parker, Hydrogeologist
Date: March 13, 1998
Subject: Old ATC Refinery,
Wilmington, NC
NCD 986 186 518
Removal Action: State Oversight.

SFP obtained updates on the status of the removal on 2/23/98 and 3/13/98. Work was continuing on pipeline removal and on demolition of the Refractory Tower, however, adverse climatic conditions and frequent site flooding continued to hinder the removal operations and set back the timetable. As of 3/13, Michael Taylor reported that soil removal was not anticipated to commence for at least several more weeks, beginning in early May at the earliest. Tony Best would be the OSC on a part-time basis

MEMORANDUM

To: File
From: Stuart F. Parker, Hydrogeologist
Date: January 23, 1998
Subject: Old ATC Refinery, Wilmington, NC
NCD 986 186 518
Removal Action: State Oversight.

SFP spoke with EPA OSC Tony Best (910-251-1886) who reported the following:

* Tanks # 55014 and # 55015 were down and, their flooring was being cut up.

* Tanks # 40004 and # 40005 were decontaminated and ready for demolition.

* Tanks # 40006 and # 40007 were in the process of being decontaminated.

* The Refractory Tower is expected to be demolished next week.

* Soil removal is expected to be addressed beginning in 5 to 6 weeks (late February / early March).