Mr. Larry J. Smith  
Mid-South Peace and Justice Center  
P.O. Box 11428  
Memphis, Tennessee  38111-0428

RE: 4-RIN-3869-93

Dear Mr. Smith:

This is in response to your Freedom of Information Act (FOIA) request for information on MAPCO corrective actions, Shelby Co., Tennessee, from our Region IV CERCLA files.

Please find enclosed a copy of the requested material. Fees for compiling this information are waived as de minimis.

Should you have any questions, please contact Mr. Robert Morris at (404) 347-5065.

Sincerely yours,

H. Kirk Lucius, Chief  
Waste Programs Branch
MAPCO MEETS THE EPA
A TALE OF TWO TRUTHS

DECEMBER 17, 1993

INFORMATION PROVIDED BY THE
ENVIRONMENTAL PROTECTION AGENCY

MID-SOUTH PEACE AND JUSTICE CENTER
3012 PROGRAM

NEW SITE DISCOVERY INFORMATION

Site Name: **Mapco Landfill**  
County: **Shelby**

City: **Memphis**

Site Address: **543 West Mallory**

Latitude: **35/25/29**  
Longitude: **92D/25/31**

Size of Site: **Approx. 20 Acres**

Quadrangle: **Memphis Southwest**

(Attach a copy of the topo map with site marked)

General description of site: **Mapco is an oil refinery. Formerly Delta Refinery, with many holding tanks and reactor vessels on site. In the past tank bottoms from loaded gasoline storage have been placed in pits adjacent to the tanks. A landfill containing reactor catalysts and other wastes is also located off-site.**

Site Status: **active**

RCRA Facility: **Yes**

Years of Operation: **unknown to present**

Waste believed present and quantities:

- Unknown quantities of loaded gasoline tank bottoms, waste oily acids, poly reactor catalysts containing a located lead, arsenic, copper, nickel, chromium, and mercury.

Brief description of potential hazard:

- Deposited into unconsolidated alluvial material. Potential for groundwater contamination potential for body contact exposure by recreational boaters in McKellar Lake.
§3012 PROGRAM
NEW SITE DISCOVERY INFORMATION

Site Owner: Mapco Petroleum Inc.
Address: 543 West Mallory
City: Memphis, TN
Phone: (901) 724-3100

Site Operator: SAME AS OWNER
Address: 
City: 
Phone: 

Other resp. parties:
Address: 
City: 
Phone: 

DSWM Contact: Paul Patterson
Phone: 360-6695 (network)

Site Contact: Paul Upton of Mapco
Address: 543 West Mallory
City: Memphis, TN
Phone: (901) 724-3100

COMMENTS:

Please attach a copy of the topo map with the site clearly marked. Return this to the §3012 Program - Superfund Section - Central Office.
March 11, 1991

Mr. A.R. Hanke
Waste Programs Branch
Waste Management Division
Environmental Protection Agency
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Subject: Screening Site Inspection, Phase I
Mapco Petroleum
Memphis, Shelby County, Tennessee
EPA ID No. TND043101476
TDD No. F4-9004-48
Revision 0

Dear Mr. Hanke:

FIT 4 conducted a Screening Site Inspection, Phase I, of the Mapco Petroleum facility in Memphis, Shelby County, Tennessee. Phase I of this inspection included a review of EPA and state file material, completion of a target survey, and an offsite reconnaissance of the facility and the surrounding area.

The Mapco Petroleum facility is located west of Interstate 55 at 543 Mallory Avenue in southwest Memphis, Shelby County, Tennessee (35°05'08.9" north latitude, 90°05'00.9" west longitude) (Ref. 1). Mapco is an active petroleum refinery occupying approximately 140 acres in an industrial/residential area (Refs. 2, 3). The facility property surrounds a 20-acre petroleum distribution facility owned by Gulf Oil (Ref. 4). Mapco is bounded to the north by Martin Luther King Riverside Park, to the east by Interstate 55, to the south by Nonconnah Creek, and to the west by McKellar Lake (Ref. 5). The facility was owned by Delta Refining until it was sold to Mapco Petroleum in 1981 (Ref. 1). The years of operation at the facility prior to 1981 are unknown. Mapco is registered as a RCRA full-quantity generator (Ref. 6).

For an undetermined number of years, tank bottoms, containing leaded gasoline, and waste oil have been buried on site in pits adjacent to oil holding tanks (Ref. 1). There are no available records which indicate the method or frequency of tank cleanings, or the amount of sludge removed. It is unknown how many burial pits are located on the Mapco property, or amount of wastes disposed. Also, there is no information as to the adequacy of containment (Ref. 1).

A 20-acre landfill located on site was used for the disposal of reactor catalysts and other undisclosed wastes; however, there is no information as to the number of years of disposal, waste quantity, or containment (Refs. 1, 7). The reactor catalysts have a pH of below 4.0 (Ref. 1).
In June 1584, Mapco Petroleum contracted Engineering Enterprises, Inc. to conduct an investigation of groundwater underlying the Mapco property. This action resulted from the proclamation from Gulf Oil stating the discovery of hydrocarbons detected in the groundwater underlying the Gulf Oil property. Gulf Oil disclaimed ownership and responsibility for the hydrocarbon contamination (Ref. 8).

As part of the investigation, six monitoring wells were constructed to study the direction of groundwater flow, and presence or absence of hydrocarbons. Results from the investigation revealed that groundwater flow trended northeast to southwest, and that a pool of oil existed beneath the property. To this date, no remedial action has been conducted at the Mapco Petroleum facility (Ref. 8).

The Mapco Petroleum facility is located in the Gulf Coastal Plain hydrogeologic regime which consists of complexly interbedded sand silt, and clay layers which dip toward the coast. The facility is located west of the axis of the Mississippi Embayment (Ref. 9, p. 5). The topography in the area is characterized by areas of low relief dissected by various creeks and rivers (Ref. 10, p. 5). The area has a warm and humid climate with an average annual net precipitation of 11 inches, and a 1-year, 24-hour rainfall of 3.4 inches (Refs. 9, p. 3; 11, pp. 43, 63; 12, p. 93).

There are three aquifers beneath the facility: an unnamed surficial aquifer, the confined Memphis Sand aquifer, and the Fort Pillow aquifer (Ref. 10, p. 5). The surficial aquifer consists of Recent-age alluvial deposits of sand, clay, and gravel that generally range in thickness from 0 to 50 feet along the Wolf River area. Similar sediments typically have hydraulic conductivity in the $1.0 \times 10^{-5}$ to $1.0 \times 10^{-7}$ cm/sec range (Ref. 13, p. 29). This aquifer is used in some areas for domestic water supply (Ref. 10, p. 5).

Below the surficial aquifer are the water-bearing zones of the Memphis Sand, an Eocene-age Formation of the Claiborne Group (Ref. 10, pp. 6-8). The Memphis Sand consists of an 800-foot thick body of fine- to-coarse sand with interspersed lenses of clay and silt (Ref. 10, p. 8). The aquifer is confined at its top in most places by approximately 200 feet of clay from the Jackson Formation, but in areas along the Nonconnah Creek, the confining layer has been eroded to the point that the Memphis Sand is hydraulically connected to the overlying alluvial deposits (Ref. 10, pp. 6, 7, 8, 14, 17, 37, 38). The aquifer is confined below by approximately 260 feet of clay from the Flour Island Formation (Ref. 10, p. 12). Depth to groundwater in the Memphis Sand is approximately 200 feet below land surface (Ref. 10, p. 15). The deepest aquifer in the area is the water-bearing sands of the Paleocene-age Fort Pillow Sand Formation of the Wilcox Group, also known as the Fort Pillow aquifer. The Fort Pillow Sand consists of 125 to 305 feet of sand with some clay and lignite (Ref. 10, p. 6). The aquifer is confined below by 180 to 350 feet of clays from the Old Breastworks Formation (Ref. 10, p. 6).

The majority of the population within 4 miles of the Mapco facility is served by municipal water. Memphis Light, Gas, and Water Division supplies 185,000 residential connections. The water system also supplies a major portion of Shelby County (Ref. 14). Water is obtained from approximately 151 wells ranging in depth from 275 to 1,400 feet (Ref. 15). These wells are mostly located in the Memphis Sand, and 26 are located in the Allen Wellfield are within 3 miles northeast of the facility (Ref. 2). The nearest municipal well is located 2.1 miles northeast of the facility (Ref. 5). The water system is open and allows for mixing in the distribution system (Ref. 14).
Surface water run-off from the majority of the facility trends in a southward direction to Nonconnah Creek. Nonconnah Creek borders the southern boundary of the Mapco property for 5,000 feet, and flows into McKellar Lake. Since disposal areas are unknown and the southern border of Mapco lies adjacent to the creek, overland surface water run-off distance cannot be determined. Surface water run-off from the extreme western portions of the property trends in a westward direction to McKellar Lake. Surface water flows approximately 5.5 miles through the lake and merges with the Mississippi River. The remaining 9.5 miles of the extended, 15-mile, surface water migration pathway is completed on the Mississippi River (Ref. 5). There are no surface water intakes along the 15-mile, surface water migration pathway (Ref. 16). McKellar Lake and the Mississippi River are used for recreational fishing and boating (Ref. 2). There are no major freshwater wetlands areas along the 15-mile, surface water pathway (Ref. 5).

The ranges of several endangered or threatened species include the state of Tennessee. The species include: the gray bat (Myotis grisescens), the bald eagle (Haliaeetus leucocephalus), the Arctic peregrine falcon (Falco peregrinus tundrius), the least tern (Sterna antillarum), Bachman’s warbler (Vermivora bachmanii), and the ivory-billed woodpecker (Campephilus principalis). There are no critical habitats designated in Shelby County (Ref. 17). There are also no major freshwater wetland areas within 4 miles of the facility (Ref. 15).

During an offsite reconnaissance, it was noted that the facility is completely fenced and entrance/exit gates are guarded. There are numerous oil holding tanks and reactor vessels located on site. Land use in the area was noted to be industrial to the south and southeast, and residential to the north and northeast. The nearest residence is located approximately 0.2 mile northeast of the facility on Rile Street. The population is approximately 3,330 within the 1-mile radius of the facility, and 105,674 within the facility’s 4-mile radius (Ref. 18). Ridgeview, the closest school to Mapco, is located 0.7 mile north. Martin Luther King Riverside Park is adjacent to Mapco’s northern border, and recreational activities offered include picnicking, golfing, fishing, and boating (Ref. 2).

Based on the enclosures and the above-referenced material, FIT 4 recommends that a joint Phase II of this Screening Site Inspection be conducted at the Mapco Petroleum and Gulf Oil facilities in an attempt to isolate the sources of contamination. If you have any questions concerning this assessment, please contact me at NUS Corporation.

Very truly yours,

Rebecca Hoffmann
Project Manager

Approved:

NUS CORPORATION
REFERENCES

1. Potential Hazardous Waste Site Preliminary Assessment (EPA Form 2070-12) and attachments for Mapco Petroleum, October 4, 1986.


5. U.S. Geological Survey, 7.5 minute series Topographic Quadrangle Maps of Tennessee: Southwest Memphis (Photorevised 1973), Northwest Memphis (PR 1973), West Memphis (PR 1973), and Fletcher Lake (PR 1973), scale 1:24,000.


7. Information needed to enter site into the ERRIS Data Base Sheet for Mapco Petroleum. Filed by Paul Upton.


15. Will Cole, Supervisor, Memphis Gas, Light and Water, Engineering Department, telephone conversation with Matthew McCoy, NUS Corporation, February 9, 1990. Subject: Municipal wells used by the Memphis water system.


Mr. Phil Blackwell  
NUS Corporation  
1927 Lakeside Parkway  
Tucker, Georgia 30084

Dear Mr. Blackwell:

This letter concerns the proposed/completed FIT report on the following CERCLA site:

Site Name: Macon Petroleum  
Site I.D.#: TMD 04 310 476  
Site Reference#: 3G-53  
EPA Project Manager: Morris

The above site has been assessed by EPA and a disposition made on it. Therefore, it has now been assigned to FIT for the following action:

- NFRAP
- PA
- SSI Phase I (PAR)
- SSI Phase II
- LSI Evaluation
- LSI
- Other

Sincerely,

Susan M. Deihl, Chief  
North Unit  
Site Assessment Section

cc: Fran Harrell
Dear Mr. Diehl:

The United States Environmental Protection Agency (EPA), pursuant to the authority and requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act (SARA), Public Law 99-499, is planning to conduct an investigation at the above referenced site. Mapco is located in Memphis, Tennessee. EPA has reason to believe that there may be a release or threat of a release of hazardous substances from the site into the surrounding environment. The purpose of the investigation is to determine the nature and extent of contamination at the site and to determine what, if any, further response action would be appropriate.

As discussed in a telephone conversation with Robert Morris on April 15, 1991, EPA is requesting permission for access to your property beginning on or about May 20, 1991 and continuing through completion of the investigation on or about May 24, 1991. Activities to be conducted during the investigation may include:

1. Inspect, sketch, and photograph the premises;
2. Collect surface and subsurface soil samples;
3. Collect groundwater and subsurface water samples;
4. Collect sediment samples;

5. Conduct air monitoring;

6. Transportation of equipment onto and about the site as necessary to accomplish the activities above, including trucks and sampling equipment.

Pursuant to Section 104 of CERCLA, as amended by SARA, Congress has given EPA express authority to conduct this investigation. Further, CERCLA authorizes designated EPA representatives to enter and obtain samples from any facility where there exists a reasonable basis to believe there may be a release or threat of release of a hazardous substance or pollutant or contaminant (42 U.S.C. 9604(e)). Should you deny this request for access to your property, an administrative order directing compliance with the request may be issued, civil action to compel compliance may be initiated, or access may be obtained by any other lawful means. Under certain circumstances, a court may impose a civil penalty in an amount not to exceed $25,000 per day for failure to grant access or comply with any administrative order directing that access be granted.

If you will voluntarily give permission for EPA to conduct the above described investigation of the Mapco Petroleum Site, please sign and return the original of this letter to:

Robert Morris
Environmental Engineer
Waste Management Division
U.S. EPA-Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

Your signature will represent your agreement to grant EPA, its contractor(s), subcontractor(s) and employees, access to your property during the periods stated and for the purpose of conducting some or all of the activities described above, and any other activity deemed necessary by EPA to properly perform the assessment. Failure to respond to this letter within seven (7) calendar days of your receipt of this letter will be deemed a denial of the request for access to your property.
A copy of this letter is enclosed for your records. If you have any questions, please contact Robert Morris at (404) 347-5065. Your cooperation in this matter is appreciated.

Sincerely,

Donald J. Guinyard
Acting Director
Waste Management Division

Signature:  

Date:  May 1, 1991

Enclosure

cc:  Gordon Caruthers, TDE
     Jerald Tittle, NUS Corporation
     David Ceppos, NUS Corporation
June 18, 1991

Mr. Lin Patterson
General Counsel and Secretary
MAPCO PETROLEUM, INC.
1800 South Baltimore Avenue
Post Office Box 64J
Tulsa, Oklahoma 74101-0645

Dear Mr. Patterson:

RE: Summary of Sampling Efforts at
MAPCO's Memphis, Tennessee Refinery
McLAREN/HART Project No. JA279-01

On May 20-22, 1991, McLaren/Hart Environmental Engineering Corporation (McLAREN/HART) personnel were present at the subject facility to observe and split samples with the Environmental Protection Agency's (EPA's) Region IV Field Investigation Team (FIT). This letter has been prepared to provide a brief summary of the sampling efforts conducted and to convey our impression of the FIT's procedures and protocols and apparent motives in sample selection.

The actual field investigation occurred over a three day period during which time eight (8) groundwater samples, eight (8) surface water samples, eight (8) sediment samples, two (2) surface soil samples, eleven (11) subsurface soil samples, and two (2) product samples (from recovery wells) were collected. In addition, two (2) duplicate groundwater samples and two (2) duplicate subsurface soil samples were collected as quality assurance samples.

Several less than ideal FIT sampling procedures were noted, and included failure to decontaminate the electronic water level indicator prior to inserting it into each well; inconsistent sampling techniques for composite soil and sediment samples; disturbance of bottom sediments prior to surface water sample collection; and, handling of foreign objects by the samplers during well purging and sampling efforts. Any one of these witnessed practices may effect sample integrity, thereby rendering suspect the qualitative and quantitative accuracy of the sample analyses. More detail will be provided on this topic in the final report.

Of more significant concern is the FIT's selected command post/decontamination station which they set-up in the public park located north of the refinery. The inherent problem with this selected location lies in the fact that if significant contamination is detected in
samples collected from the site, the EPA has in effect transferred the contamination to a public facility. The liabilities associated with this potential transfer of contamination should be investigated to ensure MAPCO is not held responsible for any liability associated with the EPA's use of the park.

We will continue work on this project so that we may be prepared to submit a more detailed report on the field investigation as soon as the analytical data are available. If you have any questions or comments in the interim, please do not hesitate to give me a call directly at 904-384-8772.

Sincerely,

McLAREN/HART

Gary E. Hayes, CEA
Environmental Specialist III

GEH/jcw
Robert Morris  
Environmental Engineer  
Waste Management Division  
U.S. EPA - Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365

Re: MAPCO PETROLEUM (including the former Gulf Oil Property)  
Memphis, Shelby County, Tennessee  TND043101476

Dear Mr. Morris:

I am taking the liberty of forwarding to you a copy of a letter dated June 18, 1991 which was submitted to MAPCO by our consultant, McLaren Hart. Obviously, the content of the letter should be of concern to both the EPA and MAPCO. It is indeed unfortunate that the sampling procedures of the Field Investigative Team were so poorly implemented, and of course, the use of a public park as a post/decontamination station raises serious questions as to the judgment and level of environmental sensitivity of the Field Investigative Team.

Although MAPCO incurred several thousand dollars in the sampling efforts, none of which was required by the EPA, it now appears questionable as to whether the actual field investigation will produce a sample analysis with sufficient integrity to reach accurate conclusions. We, of course, hope our concerns are proven to be unjustified, but on the strength of the attached summary report they would seem legitimate. In any event, MAPCO felt obligated to share with you our observations concerning the sampling process.

MAPCO is looking forward to receiving a copy of the Phase II investigative report when it is available, and would, of course, be happy to discuss this letter and the enclosure with you if this would be helpful to the EPA.

Yours truly,

Lin Patterson

Lin Patterson
July 10, 1991

Mr. A.R. Hanke
Waste Programs Branch
Waste Management Division
Environmental Protection Agency
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Subject: Response to Responsible Party Comments
Field Operations
Site Inspections
MAPCO Petroleum
EPA ID No. TND04310476, TDD No. F4-9004-48
Gulf Oil (Memphis)
EPA ID No. TND061655247, TDD No. F4-9004-51
Memphis, Shelby County, Tennessee

Dear Mr. Hanke:

This letter is in response to comments received concerning the above referenced field operations conducted during site inspections. McLaren/Hart Environmental Engineering Corporation (McLAREN/HART), a consultant for MAPCO Petroleum, accompanied FIT during site inspections (SIs) conducted at the MAPCO facilities on May 20-22, 1991. McLaren/Hart representatives observed FIT's field operations and received split samples. After the completion of the SIs, McLaren/Hart submitted a letter to MAPCO Petroleum which questioned the "judgment and environmental sensitivity of the Field Investigation Team".

One of the items mentioned in the letter was the use of a public park as a command post/decontamination station (CP). Although the use of a public park for a CP should in no way jeopardize the integrity of the study, the selection of the park was a poor choice. Corrective action is being taken to ensure that better judgment will be used in future selections for CPs.

The remaining comments were directed toward FIT's sampling procedures. The McLaren/Hart letter states that, "Several less than ideal FIT sampling procedures were noted and included failure to decontaminate the electronic water level indicator prior to inserting it into each well; inconsistent sampling techniques for composite soil and sediment samples; disturbance of bottom sediment prior to surface water sample collection; and handling of foreign objects by the samplers during well purging and sampling efforts".

As for the decontamination of the water level indicator, interviews with the SI team members revealed that the instrument was rinsed with organic-free water prior to each use. This procedure is in accordance with Section 7.7.5 of the USEPA Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual regarding decontamination of water level indicators.
The remaining comments are difficult to address due to their vagueness. More specific information is needed to determine if the integrity of the samples was indeed jeopardized.

Based on the comments received and information obtained from interviews with the SI team members. The integrity of the inspection does not appear to have been compromised. Please call me if you have any questions.

Very truly yours,

R. Roger Franklin
Director of Field Operations

RRF/sec

Attachment
April 6, 1992

IT Project No. 408472.03

Mr. Dale Morris
Environmental Quality Control Manager
Mapco Petroleum, Inc.
P.O. Box 2930
Memphis, Tennessee 38101-2930

Dear Dale:

IT Corporation (IT) is pleased to provide Mapco Petroleum, Inc. (Mapco) with the following review of the above referenced final Site Inspection Report (SIR) for the Mapco Refinery at 543 West Mallory in Memphis, Tennessee. The report, dated October 22, 1991, was prepared by Halliburton NUS Environmental Corporation Superfund Division (NUS) for the United States Environmental Protection Agency (USEPA) Region IV. The report was titled "Final Report, Site Inspection, Gulf Oil, Memphis, Shelby County, Tennessee, EPA ID NO.: TND061655247." The site inspection was tasked by the USEPA Waste Management Division under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The site inspection was performed to satisfy the requirements of Technical Directive Document (TDD) number F4-9004-51. NUS conducted the site inspection on May 22, 1991 according to the report.

The SIR contains a number of incorrect statements and conclusions. Without addressing all of those, we will focus on the more substantial ones.

1. The last sentence of the 2nd paragraph on page 3, indicates that all but one of the monitoring wells were installed into the first alluvial sands with the additional well installed into the Memphis Sands at a depth of 480 feet. This is incorrect. All of the monitoring wells and recovery wells at the Mapco site are installed in the alluvial sands of the upper water table aquifer. No monitoring wells were installed into the
Memphis Sands. The well referred to is a production well for cooling water make-up for the Mapco refinery. This well was installed in 1973. At the request of the Tennessee Department of Environment and Conservation (TDEC), this well is sampled quarterly for petroleum hydrocarbon related volatile organic compounds (VOCs). No VOCs have been detected and this data is reported quarterly to the TDEC along with all the other alluvial sand aquifer well monitoring and recovery system data for the Mapco site.

2. The last sentence on page 5 before section 2.2: The amount of recovered petroleum hydrocarbons is stated to be 45,000 barrels or 1,890,000 gallons. This is incorrect. This was the estimated amount based on changes in the measured thickness of the petroleum hydrocarbon (free product) contours between 1987 and 1989. The amount of free product actually recovered and brought to the surface during this period was approximately 772,000 gallons. This information is contained in Appendix C of IT's August 1990 report titled, "Ground Water Assessment Report For The Mapco Petroleum, Inc. Refinery in Memphis, Tennessee", (Reference no. 6 in SIR). Estimating volumes of free product from product thickness measurements in wells usually results in an overestimation by a factor of three or more and this was pointed out in the IT report.

3. Contrary to the information reported on page 11 of the SIR, the evidence points to there being no communication between the shallow sand layer and underlying gravel (Memphis sand). In fact, it appears that the clay underlaying this shallow zone acts as an aquiclude, completely isolating the surficial groundwater in and under the vicinity of the facility from the Memphis Sand. The aggregate thickness of the confining clays beneath the refinery is eighty-six (86) feet.

4. In any event, the reference on page 11 concerning the possible flow of groundwater is incorrect. ITs' studies show that the groundwater flow is away from, not towards, Memphis Light, Gas & Waters' wells located some two and a half miles to the east of the refinery. As the SIR itself reflects, "... cone of influence maps from the USGS indicate no affect (from pumping) on the area below the MAPCO Petroleum property ...." Additionally, Mapco has confirmed this by monitoring the water from the deep well for BTEX. Analytical results show no detection of these compounds.

5. On page 7 is a reference to creosote fuel tanks, there are no creosote fuel tanks, nor is there any evidence of either "Substandard construction on older tanks" or of "occasional unreported spills."
One important aspect of the SIR report is its present relevance. There currently is a comprehensive on-going groundwater remediation program at the Mapco property to remediate the petroleum hydrocarbons that exist in the subsurface. This program has been in operation since the problem was first identified at the Mapco site in 1984. The remediation program being operated by Mapco includes routine water level and product thickness measurements, water sampling, recovery system operations and sampling and quarterly reporting to the TDEC Division of Underground Storage Tanks (DUST) in Nashville, Tennessee. The quarterly reports are also sent to the local Memphis office of TDEC DUST. The sampling, analysis and other information developed by NUS during the site inspection has provided no new information about the site that hasn’t already been provided by the Mapco site petroleum remediation program. The site inspection by NUS was conducted in order to satisfy the TDD requirements of CERCLA as noted above, however, there is no reason to continue the CERCLA process since this site is being remediated as a petroleum hydrocarbon clean-up site with the full knowledge and approval of the State of Tennessee.

Mapco is currently in the process of voluntarily evaluating and upgrading the remediation program for the site. Mapco has contracted with IT to assist them in this process. The objective of this work will be to more efficiently remediate the petroleum hydrocarbons from the soil and groundwater at the Mapco site. The Mapco remediation program provides a continually updated assessment of site conditions and any new site investigation such as through the CERCLA program is unnecessary and inappropriate. IT therefore does not agree with the SIR recommendations (page ES-2 and page 23) that the facility be evaluated as a combined facility using the HRS. Further evaluation of the Mapco property through the CERCLA process is both unnecessary and inappropriate as the site is being properly evaluated as a petroleum hydrocarbon clean-up site under the State of Tennessee run program and because of the "Petroleum Exclusion" in CERCLA (40CFR 300.6). If USEPA wishes to be kept informed of the activities at the site, the petroleum hydrocarbon group within RCRA can be copied on all relevant correspondence between Mapco and TDEC DUST.

Based upon a detailed review of the Final Site Inspection Report dated 10/22/91 and upon IT’s knowledge as the experts involved with MAPCO’s refinery groundwater remediation program, it is IT’s opinion that CERCLA is inapplicable for the reasons discussed above and that there is nothing to indicate that the petroleum releases present an imminent and substantial danger to public health, welfare or environment.
IT appreciates the opportunity to assist Mapco with the review of the SIR. If you have any questions regarding this review please contact John Morse or Belinda Price at 615-690-3211.

Sincerely,

[Signature]

John G. Morse
Technical Director
Groundwater Field Services

[Signature]

Belinda Price
Belinda K. Price, R.P.G.
Project Coordinator

cc: James P. Niedermeyer - Mapco Petroleum, Inc., Tulsa, OK
June 10, 1992

Mr. Robert Morris
Environmental Engineer
Waste Management Division
U.S. EPA - Region IV
345 Courtland Street, N.E.
Atlanta, GA 30365

Re: Screening Site Inspection Reports
EPA ID Nos.: TND 04310476 and
TND 061655247 (collectively referred to as "TND 04310476")

Dear Mr. Morris:

This letter concerns the referenced October 21, 1991-dated site inspection reports prepared by Haliburton NUS Environmental Corporation under EPA Contract No. 68-01-7346. Both reports relate to MAPCO PETROLEUM Inc.'s Memphis, Tennessee petroleum refinery and recommend that the "facility be evaluated using the HRS (effective March 14, 1991)."

Our purposes in writing are to point out the following matters with respect to those reports:

1. Numerous of the material facts and tests upon which the reports are based are erroneous;
2. there is nothing in the reports to indicate that the petroleum releases present an imminent and substantial danger to public health, welfare or environment;
3. the reports overlook the application of the "petroleum exclusion" from CERCLA in this case; and
4. the reports essentially ignore the fact that MAPCO PETROLEUM's refinery site is subject to a comprehensive, subsurface petroleum hydrocarbon remediation which has been in continuous operation since 1984 with the full knowledge and approval of the State of Tennessee.
MAPCO’s current groundwater remediation contractor at the site is IT Corporation. Because of its knowledge of and familiarity with this Memphis refinery site remediation, we asked IT Corp. to review TND 04310476. IT’s comments are attached for your review.

Our belief is that any further pursuit of TND 04310476 under CERCLA is unwarranted. We would like to meet with you and the Regional Administrator in Atlanta as soon as possible to discuss this matter in depth. I’ll phone to confirm a date in the near future.

Very truly yours,

Dale R. Morris
Environmental & Quality Control Manager

DRM/JPN/sms
Enclosure

C: Region IV Administrator
Mr. Dale R. Morris  
Environmental and Quality Control Manager  
Mapco Petroleum Inc.  
P.O. Box 2930  
543 West Mallory Street  
Memphis, Tennessee 38101-2930  

RE: Screening Site Inspection Reports  
Gulf Oil Co. U.S. TND061655247  
Mapco Petroleum Inc. TND043101476  

Dear Mr. Morris:

This is to acknowledge the receipt of your June 10, 1992, comments on the above referenced reports. As with your corporation’s previous comments, U.S. EPA does not necessarily agree or disagree with their validity. Both reports were reviewed and approved by U.S. EPA and have been recommended to receive re-evaluations under the revised HRS as resources permit.

In your letter concerning these reports, you stated your desire for a meeting between representatives of your corporation and U.S. EPA to further discuss this matter. It is the Agency’s position that a meeting at this time would not be constructive.

If you have any other questions concerning this matter, please telephone me at (404) 347-5065.

Sincerely,

Robert Morris  
Environmental Engineer  

RM:m:06/17/92x5065 Disk: Morris.wp Doc: mapco.wp  

MORRIS DEIHL HANKE
Potential Hazardous Waste Site

PRELIMINARY ASSESSMENT

MAPCO PETROLEUM

TND 04310176

MEMPHIS, SHELBY COUNTY, TENNESSEE
I. HISTORY OF SITE

MAPCO Petroleum Inc., located at 543 West Mallory Avenue, Memphis, Tennessee is an active petroleum refinery with many holding tanks and reactor vessels on site. The MAPCO site was owned by Delta Refining until 1981 when MAPCO bought the refinery. In the past tank bottoms from leaded gasoline storage have been placed in pits adjacent to the storage tanks. A landfill containing reactor catalysts and other wastes is also located at the site. The actual contents of the waste areas is unknown.

II. NATURE OF HAZARDOUS MATERIALS

MAPCO has disposed of tank bottoms, containing lead in gasoline, and reactor catalyst, which has a low pH, at the site by pit burial and landfill, respectfully.

III. DESCRIPTION OF HAZARDOUS CONDITIONS, INCIDENTS AND PERMIT VIOLATIONS

Tank bottoms containing lead have been disposed of in pits adjacent to the oil
holding tanks. A dump containing reactor catalyst and other wastes is located on site. If the containment of the wastes is inadequate, then there exists the potential for migration of the wastes. There have been no identified incidents or permit violations.

IV. ROUTES OF CONTAMINATION

The site lies within 3 miles of the Allen Wells Field of Memphis and any vertical migration has the potential to affect the Memphis Sands Aquifer which is the aquifer that supplies the Allen Wells Field. The site is bounded on the south in part by Nonconnah Creek and if any surface migration occurs there is a potential for contamination of surface water.

V. POSSIBLE AFFECTED POPULATION AND RESOURCES

There exists the potential for both groundwater and surface water contamination by migration of wastes from the site. The site lies in an industrial/urban area of Memphis, Tennessee and is a highly populated area. Memphis utilities draws water for domestic use from several well fields in Memphis and the fields are interconnected. The Allen Fields are part of this water system and are approximately 2.7 miles east northeast of the site. The population of Shelby County in 1980 was 777,113.

VI. RECOMMENDATIONS & JUSTIFICATIONS

Due to the unknown nature of containment of the waste an inspection is required to establish if migration of any waste from the site has occurred. For this reason a medium priority is recommended for this facility.
VII. REFERENCE TO SUPPORTING DATA SOURCES

1. Southwest Memphis, Tennessee-Arkansas 7½ minute Quadrangle Topographic Map (1965)

2. Census Tract Map and Population of Shelby County, Tennessee; 1980

3. Map of Water Pumping Stations with Interconnecting Mains and Feeder Mains, Water Engineering Department, Memphis Light, Gas & Water Division (1985)

4. New Site Discovery Information, 3012 Program, of MAPCO Landfill by Paul Patterson, DSWM.

CR/cw SWM D-4
POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

II. SITE NAME AND LOCATION
01. SITE NAME (a description of the site name, including state):
MAPCO PETROLEUM INC.

02. STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER:
503 WEST MALLORY AVE.

03. CITY:
MEMPHIS

04. STATE:
TN

05. ZIP CODE:
38111

06. COUNTY:
SHELBY

07. COUNTY CODE:
157

08. CONG DIST:
9

09. COORDINATES:

LATITUDE: 3.500.5' 0.6'.9

LONGITUDE: 9.00.5'0.0'.9

10. DIRECTIONS TO SITE (giving the nearest public road):
Site is located just off west Mallory exit of I-55 in Memphis

III. RESPONSIBLE PARTIES
01. OWNER (name):
MAPCO INCORPORATED

02. STREET (business mailing address):
1800 S. BALTIMORE AVE.

03. CITY:
TULSA

04. STATE:
OK

05. ZIP CODE:
79119

06. TELEPHONE NUMBER:

IV. CHARACTERIZATION OF POTENTIAL HAZARD

12. OWNER/OPERATOR NOTIFICATION ON FILE (check all that apply):

☑ YES
☐ NO

13. TYPE OF OWNERSHIP (check one):

☐ A. PRIVATE
☐ B. FEDERAL
☐ C. STATE
☐ D. COUNTY
☐ E. MUNICIPAL
☐ F. OTHER
☐ G. UNKNOWN

14. OWNER/OPERATOR NOTIFICATION DATE RECEIVED:

MONTH DAY YEAR

☑ A. RCRA 3001 DATE RECEIVED:

MONTH DAY YEAR

☐ B. UNCONTROLLED WASTE SITE (FACILITY 103 c) DATE RECEIVED:

MONTH DAY YEAR

☐ C. NONE

V. PRIORITY ASSESSMENT

01. PRIORITY FOR INSPECTION (check one):

☑ A. HIGH
☐ B. MEDIUM
☐ C. LOW

02. INSPECTION (check one):

☑ IN流域 (Inspection required)
☐ NONE (Inspection required)

VI. INFORMATION AVAILABLE FROM

01. CONTACT
Paul Upton

02. ORGANIZATION:
MAPCO

03. TELEPHONE NUMBER:
( 901 ) 774-3100

04. PERSON RESPONSIBLE FOR ASSESSMENT
Charles R. Rush

05. AGENCY:
Superfund

06. ORGANIZATION:
TOHE

07. TELEPHONE NUMBER:
1-615-741-6287

08. DATE:

MONTH DAY YEAR
## II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

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SITE SCREENING - PRELIMINARY SITE SCORING

FACILITY NAME
MAPCO Petroleum / Delta Refining
TND 043101042

LOCATION
W. Mallory Ave., Memphis, Shelby Co., TN

PERSON(S) IN CHARGE OF FACILITY
Paul Upton

NAME OF REVIEWER
Thomas A. Moss

DATE
7/30/87

COMMENTS
Tank bottom sludge disposal with lead, catalyst landfilled. Hydrocarbon pool underlying site. MAPCO is registered as a generator and for non-hazardous waste disposal only. Recommend site inspection possibly sampling monitoring wells. Hydrocarbons may migrate up-aquifer since specific gravity less than one.

PRELIMINARY SITE SCORING

SCORES: \( s_m = 25.3 \), \( s_{gw} = 43.2 \), \( s_{sw} = 6.9 \), \( s_a = NR \)

\( s_{dc} = NR \)

RCRA has taken up this site.
### SITE SCREENING - PRELIMINARY SITE SCORING

#### PRELIMINARY GROUNDWATER SCORE

1) **OBSERVED RELEASE**
   - 20 plus ppb of hydrocarbons in monitoring well on site. Window from shallow aquifer into Memphis Sand within 3 miles of site - *Graham and Parks (1986)*
   - Score: 45

2) **ROUTE CHARACTERISTICS**
   - **AQUIFER DEPTH**
     - 0 1 2 3
     - Score: 2
   - **NET PRECIPITATION**
     - 0 1 2 3
     - Score: 2
   - **PERMEABILITY**
     - 0 1 2 3
     - Score: 2
   - **PHYSICAL STATE**
     - 0 1 2 3
     - Score: 2
   - **TOTAL ROUTE SCORE**
     - 8

3) **CONTAINMENT**
   - 0 1 2 3
   - Score: 2

4) **WASTE CHARACTERISTICS**
   - **TOXICITY/PERSISTENCE**
     - 0 3 6 9 12 15 (18)
   - Lead from leaded gas tank bottoms
   - Score: 18
   - **WASTE QUANTITY**
     - 0 1 2 3 4 5 6 7 8
   - Unknown quantity landfilled/placed in pits, assume 1 drum
   - Score: 19
   - **TOTAL WASTE SCORE**
     - 37

5) **TARGETS**
   - **GROUNDWATER USE**
     - 0 1 2 3
     - MLGW Allen Well Field
   - **WELL DISTANCE**
     - 0 4 6 8 10 12 16 18
   - **POPULATION SERVED**
     - 20 24 30 32 35 40
   - Allen Field wells 2-3 miles from site
   - MLGW serves > 600,000
   - **TOTAL TARGETS SCORE**
     - 29

**OBSERVED RELEASE**: MULTIPLY (1) X (4) X (5)  
**NO OBSERVED RELEASE**: MULTIPLY (2) X (3) X (4) X (5)  
**DIVIDE BY 57330 AND MULTIPLY BY 100**

\[ S_{gw} = \frac{24795}{432} \]
## SITE SCREENING - PRELIMINARY SITE SCORING

### PRELIMINARY SURFACE WATER SCORE

1) **OBSERVED RELEASE**  
   - Score: 0  

2) **ROUTE CHARACTERISTICS**  
   - **TERRAIN/FACILITY SLOPE**:  
     - 0 1 2 3  
     - 6% terrain slope, 3% facility slope  
   - **1yr. 24 hr. RAINFALL**:  
     - 0 1 2 3  
     - 3"  
   - **SURFACE WATER DISTANCE**:  
     - 0 1 2 3  
     - McKellar Lake < 200 ft from site  
   - **PHYSICAL STATE**:  
     - 0 1 2 3  
     - Leaded gasoline tank bottoms / sludge  
   - **TOTAL ROUTE SCORE**: 13

3) **CONTAINMENT**  
   - **No documentation showing adequate caps, landfill disposal of reportedly non-EP toxic waste**:  
     - Score: 3

4) **WASTE CHARACTERISTICS**  
   - **TOXICITY/ PERSISTENCE**: 0 3 6 9 12 15 18  
     - Lead from leaded gasoline tank bottoms  
   - **WASTE QUANTITY**: 0 1 2 3 4 5 6 7 8  
     - Unknown quantity placed in pits/landfilled, assume 1 drum  
   - **TOTAL WASTE SCORE**: 19

5) **TARGETS**  
   - **SURFACE WATER USE**:  
     - McKellar Lake used for fishing  
   - **SENSITIVE ENVIRONMENT DISTANCE**:  
     - 0 1 2 3  
   - **POPULATION SERVED/WATER INTAKE DISTANCE**:  
     - 0 4 6 8 10 12 16 18  
     - 20 24 30 32 35 40  
   - **TOTAL TARGETS SCORE**: 6

**OBSERVED RELEASE**: MULTIPLY (1) X (4) X (5)  
**NO OBSERVED RELEASE**: MULTIPLY (2) X (3) X (4) X (5)  
**DIVIDE BY 64350 AND MULTIPLY BY 100**

4448  

6.9
**SITE SCREENING - PRELIMINARY SITE SCORING**

**PRELIMINARY DIRECT CONTACT SCORE**

1) OBSERVED INCIDENT | 0 | 45 |

2) ACCESSIBILITY | 0 | 1 | 2 | 3 |

3) CONTAINMENT | 0 | 15 |

4) WASTE CHARACTERISTICS
   TOXICITY | 0 | 1 | 2 | 3 |

5) TARGETS
   POPULATION WITHIN 1 mi. RADIUS | 0 | 1 | 2 | 3 | 4 | 5 |

   DISTANCE TO CRITICAL HABITAT | 0 | 1 | 2 | 3 |

**TOTAL TARGETS SCORE**

OBSERVED INCIDENT: MULTIPLY (1) X (4) X (5)
NO OBSERVED INCIDENT: MULTIPLY (2) X (3) X (4) X (5)

DIVIDE BY 21600 AND MULTIPLY BY 100 $S_{dc}$
## SITE SCREENING - PRELIMINARY SITE SCORING

<table>
<thead>
<tr>
<th></th>
<th>( s )</th>
<th>( s^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater Route Score (( s_{gw} ))</td>
<td>43.2</td>
<td>1866.24</td>
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<tr>
<td>Surface Water Route Score (( s_{sw} ))</td>
<td>6.9</td>
<td>47.61</td>
</tr>
<tr>
<td>Air Route Score (( s_a ))</td>
<td></td>
<td></td>
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</table>

\[
\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2 / 1.73} = s_M = 25.3
\]