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Via Electronic Mail and Certified Mail, Return Receipt Requested

Joseph Compton, Esq. Email: Compton.Joseph@epamail.epa.gov
United States Environmental Protection Agency, Region 6
Superfund Division (6SF-DL)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: United States Environmental Protection Agency; Palmer Barge Line Superfund Site

Dear Mr. Compton:

Subject to and without prejudice to any of its rights, remedies, claims and defenses, Higman Barge Lines, Inc. ("Higman") acknowledges receipt of the Unilateral Order for Remedial Design and Remedial Action.

I would like to thank you for discussing the basis of EPA's contention that Higman. is a PRP for this site in our May 16, 2007 telephone conversations. As you are aware, we have not yet received a response to our FOIA request for the information. I now understand from our telephone call that no new evidence has been developed against Higman and the sole basis for considering Higman a PRP arises out of barges containing vacuum gas oil ('VGO") and No. 6 oil. The EPA now contends that VGO and No. 6 oil do not qualify for the petroleum exclusion. I have spent the past day looking for such authority to no avail and I would appreciate a case site or other authority forming the basis of this contention.

My client and I assert and renew our contention that, regarding all barge transactions, both VGO and No. 6 oil are within the exclusion. Both VGO and No. 6 crude are distillation fractions of petroleum. as recognized by the authoritative treatise, Kirk-Othmer Concise Encyclopedia of Chemical Technology. I enclose a copy of page 1494 of Volume Two of the Fourth Edition. Table 1, Distillate Fractions of Petroleum explicitly lists VGO. No. 6 oil is a component of the heavy oil. I respectfully but strenuously insist that the EPA is wrong in reversing its earlier position on this point.

EXHIBIT 6

Moreover, four of the five VGO and No. 6 Fuel Oil transactions Higman had with Palmer Barge *did not* result in any materials being transferred to the facility. Those transactions occurred on March 14, 1993 and March 26, 1993 and involved the barges HTCO 2302 (VGO), HTCO 2301(VGO), GDM 264 (No. 5 Fuel Oil) and S 2512 (No. 6 Fuel Oil). On those days, Palmer steamed the heating coils of the barges to heat the cargo and make it less viscous. "Steaming" is simply the process of circulating steam through coils to improve the fluidity of the cargo. The purpose of this practice is to make the cargo more easily discharged using the barge's cargo pump and facilitate a quicker unloading to the refinery consignee. This unloading did not occur at the Palmer site. If required, I can provide documentation showing how this process works and conclusively prove that none of the cargo leaves the barge during this process.

Higman has cooperated with the EPA by providing a complete disclosure of documents in its possession concerning transactions it had with the site. Higman also provided affidavits of two of its employees demonstrating that all but six of the transactions involved crude oil. Higman's candor resulted in the EPA's July 25, 2002 letter confirming that it was no longer considered a PRP. The matter remained dormant for more than four years while the PRPs conducted the Remedial Investigation and Feasibility Study. A ROD was produced on September 25, 2005. On December 29, 2006, the EPA issued a Special Notice for the Remedial Design and Remedial Action, seeking good faith offers for the site, the first time that Higman learned that it was somehow again considered a PRP. Higman made a $1,000 offer, a fair offer given its limited involvement at the site and qualification for the petroleum exclusion. It was not until May 16, 2007 that Higman learned the basis upon which the EPA relied to administratively order Higman to clean up the site.

Using EPA's own contention that VGO and No. 6 oil are not within the petroleum exclusion, there are only two transactions upon which the EPA and the PRPs can rely to possibly implicate Higman. The first is the cleaning of the barge HTCO 2302 on March 6, 1994 when the cargo tanks were stripped of their No. 6 Fuel Oil cargo. The other transaction involved the stripping of the bilges of the towboat M/V JOE M. POWELL on December 1, 1993. My client and I believe that it is unjust for the EPA to order Higman to perform the RD/RA when there are numerous other potential PRPs not named in the order who have not cooperated to the same degree as Higman, have contributed more materials to the site, and contributed materials that are actually listed in 40 C.F.R. § 302.4.

Higman does not concede that it ever transferred any hazardous substance to the Palmer facility on either occasion referred to in the preceding paragraph. However, reference to the list of chemicals of concern in the Record of Decision (e.g., Table 9, page 27) strongly suggests that Higman could never have contributed any material to the Palmer site that cause the incurrence of response cost. On the contrary, presupposing Higman-related material was transferred to the Palmer facility through the cleaning process, Higman is entitled to demonstrate that it did not contribute to harm at the site and is entitled to an apportionment of zero response costs. *U.S. v. Alcan Aluminum Corp., 964 F.2d 252 (3rd Cir. 1992).*

*Additionally, Higman can produce affidavit evidence that it was Palmer's practice to separate oil recovered by it in the cleaning process and sell that oil. To that extent, oil recovered* *by Palmer from Higman vessels was not only unavailable to need remediation, but also was a useful product*

In light of the circumstances, I believe the EPA should reconsider Higman's inclusion in the Administrative Order to prevent this obvious injustice being worked by the EPA. I respectfully request a private session with you to discuss Higman's liability with you at the May 31, 2007 meeting. Please advise whether you are open to such a meeting.

Very Truly Yours,

David James

DJ:tl
Enclosure

Steam flooding can greatly increase the recovery of high viscosity crude oils by heat thinning. This increases oil mobility in the reservoir. The addition of urea and iron sulfate or nickel compounds is said to further lower the viscosity of the crude oil. Surfactant foaming agents can be used to reduce the mobility of the high temperature steam. Because some heavy crude oils have relatively high acid numbers, it is not surprising that addition of alkaline agents to high temperature steam can increase recovery of these oils.

### Other Technologies

Microbial-enhanced oil recovery involves injection of carefully chosen microbes. Subsequent injection of a nutrient is sometimes employed to promote bacterial growth. Molasses is the nutrient of choice owing to its low (ca $100/t) cost. The main nutrient source for the microbes is often the crude oil in the reservoir. A rapidly growing microbe population can reduce the permeability of thief zones improving volumetric sweep efficiency. Microbes, particularly species of Clostridium and Bacillus, have also been used to produce surfactants, alcohols, solvents, and gases *in situ*. These chemicals improve waterflood oil displacement efficiency (see also BIOREMEDIATION).

The *in situ* combustion method of enhanced oil recovery through air injection is a chemically complex process. There are three types of *in situ* combustion: *dry*, reverse, and wet. In the first, air injection results in ignition of crude oil and continued air injection moves the combustion front toward production wells. Temperatures can reach 300–650°C. Ahead of the combustion front is a 90–180°C steam zone, the temperature of which depends on pressure in the oil reservoir. Zones of hot water, hydrocarbon gases, and finally oil propagate ahead of the steam zone to the production well.

The oil zone is fairly cool, and in a viscous oil reservoir this can result in little oil movement (liquid blocking). Reverse combustion, in which oil ignition occurs near the production well, can avoid this problem. The combustion zone moves countercurrent to the flow of air from the injection well. Oil flows through heated rock and remains mobile. Reverse combustion requires more air and consumes more oil than forward combustion.

In wet combustion, water is injected concurrently and alternately with air, extending the steam zone and aiding heat transfer to the crude oil reducing oil viscosity. This can decrease injected air:produced oil ratio and improve project economics.

JOHN K. BORCHARDT
Shell Chemical Company


- Moritis, *Oil Gas J.*, 51 (Sept. 26, 1994).
- H. Smith, *Surfactant-Based Mobility Control—Progress in Miscible-Flood Enhanced Oil Recovery*, ACS Symposium Series No 373, American Chemical Society, Washington, D.C., 1988.
- S. Sorbie, *Polymer-Improved Oil Recovery*, Blackie and Son, Ltd., London, 1991.
- L. Schramm, ed., *Foams: Fundamentals and Applications in the Oil Industry*, American Chemical Society, Washington, D.C., 1994.


## REFINERY PROCESSES, SURVEY

Petroleum refining, also called petroleum processing, is the recovery and/or generation of usable or salable fractions and products from crude oil, either by distillation or by chemical reaction of the crude oil constituents under the effects of heat and pressure. Crude petroleum is a mixture of compounds boiling at different temperatures that can be separated into a variety of different generic but often overlapping fractions (Table 1). The amounts of these fractions produced by distillation depend on the origin and properties of crude petroleum.

When petroleum occurs in a reservoir that allows the crude material to be recovered by pumping operations as a free-flowing dark-to-light colored liquid, it is often referred to as conventional petroleum.

**Table 1. Distillation Fractions of Petroleum**

| Fraction | Boiling, °C |
|---|---|
| light naphtha | −1 to 150 |
| gasoline | −1 to 180 |
| heavy naphtha | 150–205 |
| kerosene | 205–260 |
| stove oil | 205–290 |
| light gas oil | 260–315 |
| heavy gas oil | 315–425 |
| lubricating oil | >400 |
| vacuum gas oil | 425–600 |
| residuum | >600 |

Heavy oil differs from conventional petroleum in that its flow properties are reduced and it is much more difficult to recover from the subsurface reservoir. These materials have a much higher viscosity and lower API (American Petroleum Institute) gravity than conventional petroleum.

Heavy oil generally has an API gravity of less than 20 degrees and usually, but not always, a sulfur content of >2% by weight. Extra heavy oil occurs in the near-solid state and is virtually incapable of free flow under ambient conditions. Bitumen, often referred to as native asphalt, is a subclass of extra heavy oil and is frequently found as the organic filling in pores and crevices of sandstones, limestones, or argillaceous sediments.

A residuum, often shortened to resid, is the residue obtained from petroleum after nondestructive distillation has removed all the volatile materials. The temperature of the distillation is usually below 345°C because the rate of thermal decomposition of petroleum constituents is substantial above 350°C. Temperatures as high as 425°C can be employed in vacuum distillation. When such temperatures are employed and thermal decomposition occurs, the residuum is usually referred to as pitch.

Asphalt, prepared from petroleum, often resembles bitumen. When asphalt is produced by distillation, the product is called residual, or straight-run, asphalt. However, if the asphalt is prepared by solvent extraction of residua or by light hydrocarbon (propane) precipitation, or if it is blown or otherwise treated, the name should be modified accordingly to qualify the product, eg, propane asphalt.

Sour and sweet are terms referring to a crude oil's approximate sulfur content, which relates to odor. A crude oil that has a high sulfur content usually contains hydrogen sulfide, $H_2S$, and/or mercaptans, RSH; it is called sour. Without this disagreeable odor, the crude oil is judged sweet.

General refinery steps are given in Figure 1.

### Desalting and Dewatering

Crude oil is recovered from the reservoir mixed with a variety of substances: gases, water, and dirt (minerals). Refining actually commences with the production of fluids from the well or reservoir and is followed by pretreatment operations that are applied to the crude oil either at the refinery or prior to transportation.

Field separation, which occurs at a field site near the recovery operation, is the first attempt to remove the gases, water, and dirt that accompany crude oil coming from the ground.

Desalting is a water-washing operation performed at the production field and at the refinery site for additional crude oil cleanup.

The usual practice is to blend crude oils of similar characteristics, although fluctuations in the properties of the individual crude oils may cause significant variations in the properties of the blend over a period of time. Blending several crude oils prior to refining can eliminate the frequent need to change the processing conditions that may be required to process each of the crude oils individually.