



D.M.D., Inc.

Environmental & Toxicological Services

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MEMORANDUM

TO: Andy Nicholls (Ridolfi Engineers, Inc.)
FROM: Raleigh Farlow
DATE: March 17, 2003
SUBJECT: Review of selected GC/MS files; Project 470E - Poplar Point

Per your request, a review of available GC/MS files was performed to identify organic chemical constituents in two samples - 470E-SB36-01 and 470E-SS-01S.

Sample 470E-SB36-01 consisted of principally a light weight lube-type oil of petroleum hydrocarbons with the following discrete chemicals:

- Ethylhexyl methoxycinnamate [CAS# 5466-77-3], a sunscreen (UV-B) blocker, also known as Parsol MOX.
- Dibutylphthalate
- Colloidal or elemental sulfur (a large amount)
- Coal tar derived PAH
- Tocopherols, probably from plant detritus.
- Pentacyclic triterpenes (plant derived)
- Friedelin, a triterpene found in cork (an unusually large amount).

Sample 470E-SS-01S consisted of a medium-weight lube-type oil of petroleum hydrocarbons with the following discrete chemicals:

- Vanillin
- Methyl coumarate
- Numerous fatty acids (from C₁₂ through C₂₄)
- Straight and branched chain aldehydes and alcohols
- Dehydroabietic acid (a resin acid)
- Coal tar derived PAH
- bis(2-Ethylhexyl)phthalate
- Tocopherols, probably from plant detritus
- Cholestanone, campesterol, ergosterol, stigmastadienone, stigmastenone, dimethyl cholestadienol, and other sterol derivatives.
- Numerous pentacyclic triterpenes
- Dilauryl β-thiodipropionate [CAS# 123-28-4], also known as Advastab 800, an antioxidant.

The soil sample showed an unusually large amount of polyatomic sulfur species, which may be colloidal sulfur used for premergent tree sprays. The cooccurrence of the light oil may be informative, since colloidal sulfur is sometimes applied in a light oil emulsion. The UV-B

blocker is a protectant against UV radiation from sunlight. The presence of a relatively large amount of friedelin may be useful information, since it is known to be a constituent extracted from cork. A search for its use in commercial/industrial formulations may be useful to identify its intended use and why it is present (determination of possible sources).

The sediment contains predominantly plant-derived organics, a medium-weight lubricant petroleum oil (motor oil range), coal tar derived PAH, and a sulfur-containing antioxidant (Advastab 800). The predominant "discrete peaks" in the sediment sample are associated with plant detritus, principally sterols, pentacyclic triterpenes, resin acids, and plant waxes.

It is unknown if the chemicals found in these two samples are representative of the groupings identified in the memo from me to you dated February 24, 2003. A few more or additional sample analyses (by GC/MS) taken from the representative sample groups may be advised if further characterizations and/or inferences are attempted.