

PPC 9551.1991(12)

NO-MIGRATION PETITION FOR KOCH REFINING, TX

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DEC 10 1991

Mr. John R. Kampfhenkel
Chief Environmental Engineer
Koch Refining Company
P.O. Box 2608
Corpus Christi, Texas 78403

Re: No-Migration Petition submitted for Koch Refining's Corpus Christi,
Texas Land Treatment Unit (F-91-NKCP-FFFFF)

Dear Mr. Kampfhenkel:

We have reviewed the information Koch Refining Company (Koch) submitted on February 1, 1991 regarding the no-migration petition for the Corpus Christi Refinery land treatment unit (LTU), and found the additional information on unsaturated zone and ground-water monitoring useful in answering some of the earlier questions we had about the petition. However, the information from Koch did not resolve some of the critical deficiencies noted in the original petition submission. These include the presence of hazardous constituents in soil-pore liquids, below the treatment zone, and in the ground water.

PRESENCE OF HAZARDOUS CONSTITUENTS IN THE SOIL-PORE LIQUIDS

Your letter suggests that the detection of benzene in soil-pore liquids was most likely caused by using a pump contaminated with oil and grease. However, after our review of the type of lysimeter used by Koch, we do not consider this explanation to be convincing. Specifically, our examination of the mechanics of the pressure-vacuum type lysimeter indicates that the pressure-vacuum pump and the connecting tube do not come in contact with the liquid sample. Therefore, any contamination occurring from the pump would be limited to the air pumped into the lysimeter during the evacuation phase.

During the September 1988 sampling event, 2-butanone and ethyl benzene were detected at higher levels than was benzene. Since benzene is a relatively volatile constituent, and is expected to degrade at a faster rate than 2-butanone or ethyl benzene, the absence of these more persistent constituents during subsequent sampling events does not support pump lubricants as

the source of the lysimeter contamination. If the benzene detected during the November 1988 monitoring event was caused by residual contamination from the September 1988 sampling event, 2-butanone and ethyl benzene also should have continued to be present. Your letter also fails to provide any alternative source or explanation for the detection of 1,2-dichloroethane, toluene, and styrene in the soil-pore liquids at concentrations exceeding the health based levels.

In regard to the inorganic constituents, your letter concludes that "because there are no data available from LY-1 since September 1988, it cannot be determined whether the concentrations of heavy metals from the LTU soil-pore liquid samples are the result of a release from the LTU or due to other factors (e.g., varying background conditions, laboratory inaccuracies)." Koch's inability to collect background monitoring data after September 1988 is unfortunate for the showing you are attempting to make. However, for the purposes of EPA's data evaluation, a sample was successfully collected from the background lysimeter (LY-1) during the September 1988 monitoring event when the bulk of the data showing migration also were collected. Those data show that beryllium, chromium, lead, and nickel were detected in the active area lysimeters, at concentrations exceeding the HBLs, but not in the background sample. The lack of background data from other monitoring events does not affect the validity of the data obtained from the September 1988 sample. Without supportive comparative background data, we are obliged to discount other factors for the contamination. We, therefore, continue to conclude from Koch's petition data that hazardous constituents have already migrated beyond the unit boundary.

PRESENCE OF HAZARDOUS CONSTITUENTS BELOW THE TREATMENT ONE

Your letter claims that because background soil-core data have not been collected, EPA cannot assume that data showing antimony and beryllium below the treatment zone indicate migration. While it is unclear why Koch did not collect background soil cores (i.e., the permit stipulates that Koch must collect background soil-core samples within 30 days of permit issuance - August 31, 1988), in their absence it is impossible to make a conclusive showing that migration has not occurred. We also consider the detection of beryllium in soil-pore liquids in the active area lysimeters to strengthen our conclusion that beryllium detected in the soil-core sample is from the LTU.

In addition, Koch claims that the detection of organics and oil and grease below the treatment zone was caused by waste migrating from Carson's Pit and not the LTU. Koch supports their claim by stating that concentrations of the

organic constituents increased with depth below the lower treatment zone, and organic constituents were not detected in any of the soil-core samples collected from the three sampling intervals ranging from 1.5 to 5.5 feet.

Although it may be possible for organic constituents and oil and grease to have originated from Carson's Pit, due to either mounding or as a direct result of a portion of Carson's Pit extending beneath the LTU, we do not believe that Koch has clearly demonstrated that Carson's Pit accounts for the observed contamination levels and patterns. Your suggestion of Carson's Pit as the contamination source provides no explanation of the various data in the petition showing detection of the following constituents in the 1.5 to 3.25 foot interval in one or more locations and/or occasions:

benzene, ethyl benzene, xylenes, 1-methylnaphthalene, 3-methylphenol, 7,12-dimethylbenz(a)anthracene, chrysene, m ethyl chrysene, naphthalene, phenanthrene, benzo(a)pyrene, 2,4-dinitrophenol, fluoranthene, pyrene, and toluene.

Your claim that organic constituents were not detected in any of the soil-core samples collected from the three sampling intervals ranging from 1.5 to 5.5 feet is at odds with these petition data. We, therefore, continue to believe that wastes are moving through the unit, and that Koch has failed to demonstrate to a reasonable degree of certainty that there will be no migration of hazardous constituents from the disposal unit.

PRESENCE OF HAZARDOUS CONSTITUENTS IN THE GROUND WATER

Finally, the presence of vanadium above its health based level in the ground water, as detected in August 1988, remains a primary concern. Koch claims that the August 1988 monitoring data may be unreliable and nonrepresentative of the ground water because inorganic constituents were found in all of the monitoring wells, but were not found during subsequent events.

Koch's conclusion that the August 1988 monitoring data may be invalid is not supported by the fact that low levels of other inorganic constituents (beryllium, cadmium, nickel, arsenic, and mercury) were only found during the August event. Rather, the presence of the inorganic constituents could indicate that contamination plumes occur sporadically. We note that vanadium was detected in two of the four downgradient monitoring wells, but not in the upgradient monitoring wells during the August 1988 sampling event.

Furthermore, based on the petition, we disagree with Koch's assertion that

inorganic constituents were not detected during subsequent monitoring events. Although not found above its health-based level, vanadium was detected during the March 1989 monitoring event at concentrations ranging from 0.018 mg/l to 0.057 mg/l. In addition, nickel was detected during September 1988, January 1989, and December 1989 sampling events at concentrations ranging from 0.055 mg/l to 0.15 mg/l.

In order to help support a claim regarding unreliable ground-water data, analytical data (e.g., QC data) indicating field or laboratory contamination would be necessary. We, therefore, continue to believe that the petition data show that vanadium has already migrated beyond the unit boundary.

As a result of our review of your supplementary information, we have concluded that the technical basis still exists for proposing to deny your petition. After making our recommendation to EPA's Assistant Administrator for Solid Waste and Emergency Response, we will proceed to publish a proposed denial in the Federal Register. If you wish to avoid a negative publication, you may send a letter withdrawing your petition and acknowledging that Koch Refining Company considers the petitioned wastes to be restricted wastes subject to the Third Third Land Disposal prohibitions. You should forward this letter to:

James Michael, Acting chief
Assistance Branch (OS-343)
Office of Solid Waste
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Any questions regarding our findings may be submitted in writing to Mr. Chris Rhyne of my staff.

Sincerely,

Jeffery D. Denit, Deputy Director
Office of Solid Waste

cc: James Michael, PSPD, OSW
Chris Rhyne, PSPD, OSW
Bill Honker, Region VI
David Neleigh, Region VI
Minor Hibbs, Texas Water Commission