9551.1990(10)

NO-MIGRATION PETITION FOR STAR ENTERPRISE, DE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

NOV 7 1990

Mr. R. G. Soehlke
Plant Manager
Star Enterprise
Delaware City Refinery
2000 Wrangle Hill Road 19706
Delaware City, Delaware

Re: No-Migration Petition submitted for Star Enterprises
Delaware city, Delaware Land Treatment Unit
(F-90-NSEP-FFFFF).

Dear Mr. Soehlke:

I am writing in regard to your December 26, 1989 "no-migration" petition, which requests a variance under 40 CFR §268.6 to allow Star Enterprise to continue the land treatment of restricted wastes (EPA Hazardous Waste Nos. K048 - K051) at Star's Delaware City, Delaware land treatment unit (LTU). After a careful review of your petition, we have concluded that your facility does not meet the standard for a no-migration finding. Therefore, we will recommend to the Assistant Administrator for Solid Waste and Emergency Response that the petition be denied.

Our decision to recommend denial of the petition is based on two main concerns:

- Unsaturated zone monitoring for lead and nickel indicate that hazardous constituents have already migrated beyond the unit boundary.

- Ground-water monitoring for arsenic, chromium, lead, selenium, and vanadium indicate that hazardous constituents have already migrated beyond the unit boundary.

The details of our concerns are described below.

Presence of Constituents Below the Treatment Zone (BTZ):

Analyses performed on the soil-pore liquids indicate that lead and nickel have migrated out of the treatment zone. Soil-pore samples taken during the first three quarters of the land treatment demonstration (12/88 - 5/89) show the exceedance of lead and nickel above their respective health-based levels. Lead showed concentrations in excess of the health-based level of 0.05 mg/l for 13 out of the 34 samples taken, while nickel showed concentrations in excess of the health-based level of 0.1 mg/l for 15 out of the 35 samples taken. These data demonstrate that both lead and nickel have migrated below the treatment unit at concentrations in excess of their respective health-based levels. (See Attachment, Table 1).

Presence of Constituents in the Ground Water

Results of ground-water monitoring analyses also indicate the presence above health-based levels of metals in the ground-water at the LTU boundaries. Specifically, arsenic (125 ppb), selenium (up to 50 ppb), lead (up to 208 ppb), chromium (up to 320 ppb), cadmium (up to 122 ppb), and vanadium (455 ppb) were shown to exceed their respective health-based levels. (The health-based level for arsenic, lead, and chromium is 50 ppb; for selenium and cadmium, the health-based level is 10 ppb; and for vanadium the health-based level is 240 ppb). While background may have contributed somewhat to the measured levels of the hazardous constituents, the differences between the upgradient monitoring well concentrations and the downgradient monitoring well concentrations exceeded the health-based levels. Therefore, these data demonstrate that arsenic, selenium, lead, chromium, cadmium, and vanadium have migrated to the ground-water above their respective health-based levels. (See Attachment, Table 2).

Incomplete Petition

Finally, our review indicates that the petition remains incomplete and that information and clarification in areas beyond those highlighted above would be needed to complete the petition. However, because of the problems above, we believe we have enough information at this time to move toward a denial of your petition.

It is our practice to give petitioners the option of withdrawing their petitions to avoid a negative publication in the Federal Register. If you prefer this option, you must send us a letter withdrawing your petition and acknowledging that the petitioned wastes are still considered to be restricted wastes subject to the Third Third Land Disposal prohibitions scheduled to be effective on November 8, 1990. This letter should be forwarded to the following address within two weeks of the date of receipt of today's correspondence:

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

If you choose not to withdraw your petition, we will recommend that a proposed denial decision be published in the Federal Register.

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

Sincerely,

Original Document Signed

Jeffery D. Denit, Deputy Director
Office of Solid Waste

Attachment

cc: John Humphries, EPA Region III
David Turner, EPA Region III
Guy Lee, DNREC
Patricia Cohn, PSPD, OSW
James Michael, PSPD, OSW

bcc: Terry Keidan, AB, PSPD, OSW
Allyson Ugarte, AB, PSPD, OSW
Dave Reeves, AB, PSPD, OSW
Richard Kinch, WMD, OSW

Kathy Stein, OE
Nikki Roy, WMD, OSW
Howard Finkel, ICF Incorporated

ATTACHMENT

TABLE 1

Summary of Soil-Pore Monitoring Data
For Lead and Nickel

	First Quarter (12/15/88-3/6/89)		Second Quarter (3/13/89-5/1/89)		Third Quarter (5/8/89-7/3/89)	
Cell No.	Lead	Nickel	Lead	Nickel	Lead	Nickel
1	<0.1	0.29	0.17	0.07	0.1	0.05
2	<0.1	0.18	0.1	0.04	0.1	0.16
3	<0.1	0.08	<0.1	0.06	0.1	0.11
4	<0.1	0.2	<0.1	0.09	<0.1	0.1
5	<0.1	0.15	0.12	0.18	0.14	0.12
6	<0.1	0.08	<0.1	<0.04	<0.1	<0.04
7	<0.1	0.12	<0.1	0.05	<0.1	0.05
8	<0.1	0.08	0.12	0.14	0.17	0.16
9	<0.1	0.12	<0.1	<0.04	NA	NA
10	<0.1	<0.04	<0.1	<0.04	<0.1	<0.04
11	NA	0.31	0.21	0.25	0.17	0.25
12	<0.1	0.06	0.11	<0.04	0.1	0.05
BL-1	NA	NA	<0.1	0.06	<0.1	<0.04
Triple Blank	<0.1	<0.04	<0.1	<0.04	<0.1	<0.04

- All units are in ppm.
- The health-based level for lead is 0.05 ppm, and for nickel it is 0.1 ppm.
- No-Migration Petition, Volume 1, Tables 4-1 to 4-3.

TABLE 2

GROUND-WATER MONITORING DATA

YEAR	Arsenic	Selenium	Lead	Chromium	Cadmium	Vanadium
BKG*	<50	<10	<50	<50	90	130
HBL	50	10	50	50	10	240
1980		50				
1981						
1982	125	15				
1983						
1984		173		73		
1985		96		55		
1986		136		104		
1987		208	230	122		
1988			320			
1989		60			455	

* Background values shown record the highest reported value. Background value for cadmium (well no. 26) was taken 9/86, and for vanadium (well no. 36D) was taken 6/89.

- Downgradient values are taken from well numbers 18, 19, and 41.
- All units are in ppb.
- Only the highest values detected are shown in this table.
- No-Migration Petition, Appendix B, Volume 3, Section E-2.