LANL Reference 2/14/97

FINDING OF IMMINENT AND SUBSTANTIAL ENDANGERMENT

FINDING: The New Mexico Office of the Natural Resources Trustee and the New Mexico Environment Department have determined that an imminent and substantial endangerment to health or the environment, within the meaning of section 7002(a)(1)(B) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6972(a)(1)(B), and the New Mexico Hazardous Waste Act, NMSA 74-4-13, may exist at or near the Sparton Technology, Inc. (Sparton) facility at 9621 Coors Road, NW, Albuquerque, New Mexico. The endangerment is the result of the past or present handling, storage, treatment, transportation, or disposal of solid or hazardous wastes at the facility.

This finding of endangerment is based solely on the administrative record that the U. S. Environmental Protection Agency (EPA) has compiled for its Final Decision on the RCRA Corrective Action for the Sparton facility, dated June 24, 1996, and the materials contained in that record.

This finding is based on the following facts:

1. The Sparton facility operated from 1961 through 1994. It manufactured electronic components including printed circuit boards. Operations at the 12-acre facility were scaled back at the end of 1994, when Sparton ceased manufacturing electronic components. Since that time Sparton has operated a machine shop at the facility to support manufacturing conducted at other locations (Ref. 4, pp. 2-5; Ref. 7, p. 5; Ref. 6, p. II-1; Ref. 8, pp. 3-5).

2. The manufacturing process at Sparton generated at least two waste streams that were typical of electronics manufacturing facilities: an aqueous metal-plating waste stream and a solvent waste stream (Ref. 4, pp. 2-5; Ref. 6, p. II-1). These waste streams are solid wastes and hazardous wastes under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act (Ref. 8, p. 3).

3. Beginning in 1961, metal-plating wastes were disposed of in a concrete basin. This basin was replaced by a lined pond in 1975, which continued in use until 1983. A second lined pond was constructed in 1977 and received metal-plating wastes until 1983. A sump made of concrete blocks was used from 1961 through 1980 to dispose of a mixture of waste solvents from process and degreasing operations (Ref. 4, pp. 2-5, 10; Ref. 6, pp. II-1 through 11-6; Ref. 8, pp. 3-5).

4. Constituents of the wastes are consistent with those listed in Sparton's RCRA Part A permit application dated November 17, 1980 and their Notice of Hazardous Waste Activities dated August 12, 1980. The primary constituents include: trichloroethylene (TCE); 1,1,1-trichloroethane (TCA); methylene chloride (MeCl); acetone; 1,1-dichloroethylene (DCE); and chromium (RFI, pp. 10-12).

5. Hazardous and solid wastes entered the environment from the sump and ponds at the Sparton facility (Ref. 4, p. 9). The contaminant release originated primarily from the solvent sump (Ref 4, p. 12; Ref 6, p. II-5).

6. There is a considerable amount of solvent contamination throughout the soil profile above the water table (Ref. 1, pp. 3, 10; Ref. 4, pp. 82-83; Ref. 8, p. 7). Sparton's soil gas testing confirmed high levels of soil vapor contamination; approximately 6000 parts per million, on a volume per volume basis (ppmv) or 22000 mg/M^3 of TCE in soil gas were found 40 feet below the ground surface (Lab Report for Soil Gas Samples Collected from Sparton Vapor Probe #1, Administrative Record pgs. 8912 - 8922). These soil vapor concentrations are 600 times the 10 ppmv action level used by the New Mexico Environment Department. Extraction of soil vapor was recommended for the Sparton site for "remediating the portion of the chlorinated solvent source that lies in the vadose zone and is contributing to the soil gas contamination" (Ref. 1, p. 27). Highly contaminated soils continue to act as a potential source of contamination to the underlying ground water (Ref. 8, p. 10).

7. Contaminants have migrated downward from the ponds and sump through the soil and to the water table (Ref. 4, p. 82; Ref. 6, p. III-26). Contamination of ground water beneath the site was first discovered in 1983 (Ref. 4, p. 5). Laboratory analysis of ground water samples confirmed solvent and heavy metal contamination consistent with Spartons solvent and metal-plating waste streams (Ref. 6, pp. II-4 through II-5).

8. In 1988, Sparton began an interim ground water remedial system (Ref. 6, pp. III-61 through III-62). This interim system, which is still in operation, includes an on-site extraction system pumping at a rate of approximately one gallon per minute (Ref. 6, pp. 9-12). The interim system uses only shallow wells even though significant levels of contamination are known to exist at depth. The amount of contamination removed by this system is negligible, and the plume has not been contained vertically or horizontally by this system (Ref. 2, p. 2; Ref. 5, pp. 8-10).

9. Contamination now has been found in ground water monitor wells located off-site, some as far as one-half mile from the source (Ref. 1, pp. 2-3; Ref. 6, Figure 12A, p. III-29; Ref. 8, p. 10. The width of the contamination plume is not known exactly, but is at least 1000 feet (Ref. 4, p. 105). The plume is at least one-half mile in length (Ref. 6, p. III-37). The contaminant plume continues to migrate off-site (Ref. 1, p. 13; Ref. 8, p. 17).

10. Ground water on-site and off-site is contaminated with high levels of TCE. The on-site well with the highest TCE concentrations (MW-16) had 9700 micrograms per liter (μg/l) of TCE when sampled in April 1996, more than 1900 times greater than the maximum contaminant level (MCL) of 5 μg/l for drinking water as established by EPA under the Safe Drinking Water Act (Sparton-EPA Split Sampling Event, 2nd Quarter 1996). The highest level of TCE found off-site during the April 1996 sampling event was 2300 μg/l in MW-46 (located about 1100 feet from the facility boundary), 460 times the MCL. Other contaminants significantly exceeding standards include trichloroethane, dichloroethylene, and chromium (Ref. 8, pp. 17-18). These constituents are toxic to humans and several have been found to have carcinogenic effects (Ref. 7, pp.7-8).

11. The Sparton site poses a significant risk of contaminating deep portions of the aquifer because the plume is moving vertically downward (Ref. 7, p. 6). According to a 1992 document, "Historical maximum concentrations [of solvents] detected in groundwater on site ... are approximately four percent of the solubility limit. Groundwater concentrations of about one percent (1%) of the solubility limit may indicate the presence of free-phase compounds. All of the chlorinated organic compounds identified at this site are denser than water and, if present in free-phase, would sink to the bottom of the water column" (Ref. 4, p. 12). Existing concentrations of TCE in ground water indicate the possible presence of denser-than-water TCE beneath the facility (Ref. 8, p. 10). One monitor-well cluster shows increasing TCE with depth (Ref. 1, p. 10; Ref. 6, p. III-57). "Data from MW-16 and MW-21 are both indicative of a [free-phase] source" (Ref. 1, p. 3). Monitoring near the source suggests that the contaminant plume "is sinking (density effect)" or the free-phase solvent "has moved into the lower flow zones" (Ref. 1, p. 10).

12. Despite the evidence that denser-than-water contaminants are moving downward into the aquifer (Ref. 4, p. 12), the vertical extent of contamination remains poorly characterized overall and virtually unknown in the source area (Ref. 2, p. 2; Ref. 8, p. 17). It is not known how deep the contamination goes (Ref. 7, p.

25). "[I]t is not currently possible to gauge the full vertical extent of contamination at the site" (Ref. 9, p. 11). "It is considered quite likely that there has been considerable downward (vertical) movement of the observed contaminants and that this movement has gone undetected because of gaps in the monitoring well system" (Ref. 9, p. 12).

13. Ground water recharge enhancement and management opportunities that would increase sustainable ground water production are endangered by the spreading Sparton plume. These opportunities are the focus of a major planning effort being conducted by the U. S. Bureau of Reclamation and the City of Albuquerque in which areas having maximum recharge potential are identified. These recharge areas contain highly conductive materials from the land surface to the top of the regional aquifer (Ref. 7, p. 42). According to the Bureau of Reclamation, "Calabacias Arroyo from Paradise Hills to its mouth is another area offering high [enhanced recharge] potential". This recharge window is located adjacent to the Sparton contamination and the Sparton plume is moving toward it (Ref. 10, p. 4; Ref. 7, pp. 41-45).

14. A private water utility is currently providing its public customers with water obtained from supply wells located approximately two miles downgradient of the Sparton contamination (Ref. 7, p. 8). These wells are located directly in the path of the ground water contaminants emanating from the Site (Ref. 6, p. III-63; Ref. 8, p. 17). Because the horizontal extent of ground water contamination is not well defined, it is not known precisely how close the Sparton contamination is to these public supply wells (Ref. 8, p. 17).

15. Ground water is one of New Mexico's most valuable natural resources. It provides drinking water to 100% of Albuquerque residents and nearly 100% of Bernalillo County residents (Ref. 7, p. 27; Ref. 3, p. 1). "Ground water is currently the sole source of drinking water in the Albuquerque area, and ground water will remain an integral part of the drinking water supply even if other sources of drinking water are obtained" (Ref. 9, p. 11). Ground water will continue to be an important part of the water supply because it is the largest, least expensive and most flexible resource available to Albuquerque (Ref. 3, p. 2-5). Not only will ground water continue to be a major source of drinking water in Albuquerque and Bernalillo County, but additional well fields will be required to meet future needs (Ref. 3, p. 2-11).

We further find that the following steps should be implemented to abate the endangerment: 1) construction and operation of a soil vapor extraction system; 2) conduct of a comprehensive ground water investigation; and 3) design, construction and operation of a ground water extraction and treatment system.

New Mexico Environment Department

By: _____ for
Mark E. Weidler
Secretary

Dated: 2/14/97

New Mexico Natural Resources Trustee

By: _____
William M. Turner
Trustee

Dated: 2/13/97

REFERENCES

1) Battelle, Evaluation of Remedial Options for Spartons Coors Road Site, prepared for Sparton Corporation, May 22, 1996.

2) City of Albuquerque Public Works Department, Water Resources Program, Review of Ground-Water Contamination at Sparton Technology Inc.s Coors Road Facility, prepared by CH $_2$M-Hill, January 1996.

3) City of Albuquerque, Albuquerque Water Resources Management Strategy, San Juan-Chama Diversion Project Options, Summary Report, prepared by CH_2M-Hill, July 1995.

4) HDR Engineering, Inc., RCRA Facility Investigation-Sparton Technology, Inc. Coors Road Facility, Albuquerque, New Mexico, May 1992.

5) HDR Engineering, Inc., Draft Report of the Effectiveness of the Groundwater Recovery Well System in the Upper Flow Zone, Sparton Technology, Inc., Coors Road Facility, Albuquerque, New Mexico, August 1992.

6) HDR Engineering, Inc., Draft Final Corrective Measures Study, Sparton Technology, Inc. Coors Road Facility, Albuquerque, New Mexico, May 6, 1996.

7) U.S. Environmental Protection Agency, Public Hearing in the matter of Sparton Technology Inc., Coors Road Facility, Albuquerque, New Mexico, February 1, 1996.

8) U.S. Environmental Protection Agency, Final Decision and Response to Comments, RCRA Corrective Action, Sparton Technology Inc., Coors Road Facility, Albuquerque, New Mexico, June 24, 1996.

9) U.S. Environmental Protection Agency, Technical Review, Final Corrective Measures Study Report, RCRA Corrective Action, Sparton Technology Inc., Coors Road Facility, Albuquerque, New Mexico, June 20, 1996.

10) Letter from Norm Gaume, City of Albuquerque, Public Works Department, to Desi Crouther, Chief-Hazardous Waste Enforcement Branch, U.S. Environmental Protection Agency, December 5, 1995.