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Mr. Richard D. Mico
Sparton Technology, Inc.
Vice President and General Manager
4901 Rockaway Blvd., SE
Rio Rancho, New Mexico 87124

EPA VOL 12
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Dear Mr. Mico:

As requested in Sparton Technology, Inc.'s (Sparton) letter dated August 22, 1995, the U. S. Environmental Protection Agency (EPA) met with representatives of Sparton on September 13, 1995. During this meeting, Sparton requested feedback from the EPA in three general areas. These areas were associated with 1) several technical issues raised during the meeting, 2) comments on Sparton's draft CMS Report, and 3) information regarding the remedy selection and implementation process.

In response to the first two requests, EPA has enclosed comments on the draft CMS Report. These comments address the technical issues raised by Sparton as well as several additional concerns. Pursuant to Task X of Exhibit I in the Administrative Order on Consent, Docket No. VI-004(h)-87-H, Sparton shall revise the draft CMS Report and provide a response to EPA within 30 days from receipt of this letter. EPA will evaluate all information received from Sparton when considering the proposed remedy for the contaminant release. EPA may have additional comments regarding the draft CMS Report following the public participation process.

Sparton's final request concerned the process for selecting and implementing a remedy at the Sparton facility. A general summary of this process is as follows:

- Transmit EPA comments on the draft CMS Report.
- Sparton submits a revised draft CMS Report.
- After an evaluation of all the information, EPA proposes a remedy through a Statement of Basis and initiates the 45 day public participation process.
- At least 30 days after the initiation of the public participation process, EPA will conduct a public hearing near the Sparton facility.
- After the public participation process, EPA may have additional comments regarding the draft CMS Report. The draft CMS Report will be finalized after public

participation to ensure that all concerns have been addressed in the final CMS Report.

- The CMS Report is finalized, EPA selects a final remedy, and EPA issues a response to comments which were raised during the public participation process.

- The current Administrative Order on Consent is terminated and the 60 day time frame for negotiating a new Administrative Order on Consent for the implementation of the selected remedy begins.

It is extremely important for Sparton to address the environmental problems caused by previous activities at its Albuquerque facility. Specifically, releases from the Sparton facility have contaminated the ground water to the extent that a contaminant plume has migrated approximately 1/2 mile off-site. In addition, the contaminant levels within this plume exceed the Maximum Contaminant Levels established under the Safe Drinking Water Act and/or State ground water standards. Ground water is a valuable resource and currently supplies the sole source of drinking water for the City of Albuquerque. EPA has worked with the City of Albuquerque and State of New Mexico in the past and will continue to do so in the future to ensure that this environmental problem is addressed appropriately. Prolonged delays in addressing these problems makes an effective remediation more difficult and expensive as the contamination continues to spread. Therefore, in light of the environmental situation at the Sparton facility, EPA is committed to taking the necessary steps to achieve an expiditious determination of the appropriate remedy.

If you have any questions, please contact Ronnie Crossland at (214) 665-6480 or Vincent Malott at (214) 665-8313.

Sincerely yours,

Desi A. Crouther, Chief
Hazardous Waste Enforcement Branch

Enclosures

cc (w/ enclosure):

Mr. John J. Smith, Sparton Corp.
Mr. Jan Appel, Sparton Corp.
Mr. Ron Kern, HRMB, NMED
Mr. Dennis McQuillan, GWPRB, NMED
Mr. Steve Cary, Office of Natural Resources Trustee
Mr. Norman Gaume, Albuquerque Public Works Dept.
Mr. Kurt Montman, Albuquerque Environmental Health Dept.

ENCLOSURE
EPA COMMENTS ON THE DRAFT CMS REPORT
SPARTON TECHNOLOGY, INC.

At the meeting between the U.S. Environmental Protection Agency (EPA) and Sparton Technology (Sparton) on September 13, 1995, Sparton raised seven issues concerning EPA's interpretation of existing data and the interpretations presented in the draft CMS Report. Because of similarities and overlap between issues, EPA has condensed the seven issues and prepared the following five responses. In addition, EPA has prepared a summary statement outlining EPA's proposed remedy for the contaminant release.

Sparton Issue No. 1

What is EPA's disagreement with Sparton's description of the objectives of the CMS, and in that regard whether EPA's view of the threat to human health and the environment presented at the site is different from Sparton's as presented in the draft CMS Report. What are the short comings, if any, EPA believes exist in Sparton's analysis. What would be required, in EPA's view, for Sparton's position to be accepted.

What statements in the draft CMS Report about how the area over the plume is currently used or will be used in the future does EPA disagree with and why, and what information would allow you to accept those conclusions?

EPA Response

Development of the corrective action objectives is based on the imminent and long-term threats to human health and the environment. With regard to the threat to human health and the environment, Sparton contends that the ground water is not currently an exposure pathway because of: 1) there are no existing municipal water supply wells within the immediate plume area and there are no plans for any additional municipal wells in the general plume area; and 2) there are no private wells within the immediate plume area and future land development precludes the use of private wells (draft CMS Report, page 44-Groundwater).

Currently, there are no existing municipal water supply wells within the immediate area of the contaminant plume. However, the long-term health threat is related to both existing municipal wells and the future beneficial use of the contaminated aquifer. Ground water currently supplies the sole source of drinking water for the City of Albuquerque. As an example, the New Mexico Utilities Inc., water supply well No. 2 is approximately 2 miles downgradient (northwest) of the leading edge of the contaminant plume. Within the contaminant plume, the aquifer is potentially useable as a source of drinking water and the area has been designated as crucial for ground water quality protection in the water management plan presented in the Albuquerque Water Resources Management Strategy - San Juan-Chama Diversion Project Options (July 1995) and the Albuquerque/ Bernalillo

County Ground Water Protection Policy and Action Plan (1994). Therefore, the presence of a contaminant plume prevents future utilization of the aquifer within the general plume area as a drinking water supply. For ground waters that are current or potential sources of drinking water, the more stringent of the federal drinking water standards established under the Safe Drinking Water Act or the State of New Mexico Water Quality Control Commission (WQCC) standards are appropriate cleanup goals.

With regard to the second issue of potential exposure from contaminated private water supply wells in the draft CMS Report, currently there is no immediate health threat since there are no existing private wells in the immediate area of the contaminant plume. However, since Sparton does not have control over the off-site property there remains a possibility that a landowner may install a water supply well which would contact the contaminant plume. EPA also concurs that future development in the area will probably utilize a municipal water supply. However, continued development in the area will place a greater need for safe and dependable municipal supply wells. Therefore, greater importance is placed on the availability of the aquifer as a future source of drinking water.

With regard to the objectives of the CMS Report, Sparton proposes to provide corrective action alternative(s) addressing both source control measures and restoration of groundwater quality (draft CMS Report, page 57-Establishment of Corrective Action Objectives). EPA has further clarified this issue by proposing three specific corrective action objectives necessary for long-term protection of human health related to the ground water contaminant plume. These objectives are: 1) prevent further migration of the contaminant plume; 2) restore the contaminated aquifer to its beneficial use; and 3) reduce the quantity of source material (NAPL) present in the soil and ground water, to the extent practicable, to minimize further release of contaminants to the surrounding ground water. The objectives proposed by EPA are consistent with the long-term threat to human health posed by the contaminant plume.

With regard to what would be required by EPA to accept Sparton's position, EPA is evaluating the technical merits of each of the alternatives. EPA's purpose is not to choose a remedy and then justify the technical merits.

Sparton Issue No. 2

What statements about plume migration in the draft CMS Report does EPA disagree with and why?

What additional information, if any, would EPA require on how the plume is moving before it would find Sparton's identified alternative acceptable?

EPA Response

The draft CMS Report (page 40-Plume Movement) references an apparent migration rate of at least 50-60 feet per year over the last 25 years. Sparton apparently recognizes that the migration rate is significant and in fact is no less than 50 feet/year. However, if the distance of plume migration is 2,500 feet as measured from the former waste management area to the downgradient extent of the plume (as opposed from the property line), then the apparent rate of movement may be closer to 100 feet per year.

The draft CMS Report (page 40-Plume Movement) also references the reduction or loss of an advective component in the movement of the contaminant plume due to 1) significant decrease in hydraulic gradient to the west of the facility, 2) the Interim Measure pump and treat program, and 3) retardation factors which include sorption, dissolution, hydrolysis, and/or biodegradation.

The reference to a loss or reduction of an advective component due to the decrease in hydraulic gradient to the west of the facility is not supported by the existing data. The average ground water velocity in the upper flow zone at the facility has a possible range of 12-18 feet/year. These rates are based on an average K=2.1 ft/day, porosity=.25-.40, and a gradient of 0.006 over the Sparton property. This compares with average velocities of 39-134 feet/year calculated for the upper flow zone near the western perimeter of the contaminant plume. For example, the average ground water velocity in the area of the perimeter well Nos. 52, 53, 58, and 48 has a possible range of 39-94 feet/year. These rates are based on a K=21.44-32.16 ft/day, porosity=.25-.40, and a gradient of 1:500. The average ground water velocity in the area of perimeter well No. 61 has a possible range of 56- 134 feet/year. These rates are based on a K=21.44-32.16 ft/day, porosity=.25-.40, and a gradient of 1:350. Therefore, since the average ground water velocity appears to increase in the upper flow zone from east to west, there is no apparent loss or reduction of an advective component in the movement of the contaminant plume.

In comparison, the contaminant plume maps from 1991 and 1993 indicate an approximate migration of the contaminant plume perimeter of 120-380 feet/year. When compared with the average ground water velocity calculated for the western perimeter of the contaminant plume, these extrapolated rates of movement also indicate that the advective component remains the primary mechanism for migration within the aquifer in this area.

The reference to a loss or reduction of an advective component in plume movement due to the Interim Measure pump and treat system west of the facility is not supported by the existing data. The radius of influence calculations do not support the premise that these recovery wells influence the advective component over a significant portion of the contaminant plume.

The reference to a loss or reduction of an advective component in plume movement due to the retardation factors which include sorption, dissolution, hydrolysis, and/or biodegradation was not quantified in the draft CMS Report. There has been no data presented which would suggest that there is a natural mechanism for containment of the ground water contaminant plume at the Sparton site. In addition, there were no physical processes described which would achieve the objective for restoration of the ground water. Therefore, given the apparent rate of contaminant plume movement, these factors do not appear to have a significant influence on the advective component of the contaminant migration. Until such evidence is presented, EPA will continue to consider active measures (e.g., ground water extraction) as an alternative for achieving the corrective action objectives.

With regard to what additional information EPA would require on how the plume is moving before it would find Sparton's identified alternative acceptable, EPA contends that any alternative must meet the three corrective action objectives previously outlined.

Sparton Issue No. 3

What statements in the draft CMS Report about changes in the concentration of constituents of concern in the plume does EPA disagree with and why?

EPA Response

The contaminant concentrations detected in the monitoring wells have demonstrated significant changes since the completion of the RCRA Facility Investigation. In the draft CMS Report (page 34-Horizontal Extent of Contamination), Sparton contends that the TCE concentrations are decreasing. However, increasing trichloroethylene (TCE) concentrations have occurred in the following wells:

UPPER FLOW ZONE MONITORING DATA				
WELL	1989-1990 Data	1991 Data	1993 Data	1994 Data
53	ND	ND	32	43
58	28	29	74	---
61	ND	ND	610	730
UPPER LOWER FLOW ZONE DATA				
46	3250	1300	1800	---
56	63.5	200	410	400
60	ND	ND	7	26
64	ND	ND	ND	12
LOWER LOWER FLOW ZONE DATA				
55	10.6	45	380	580

In addition, TCE concentrations have shown fluctuation in the following wells:

UPPER FLOW ZONE MONITORING DATA				
WELL	1989-1990 Data	1991 Data	1993 Data	1994 Data
37	1450	2000	980	940
UPPER LOWER FLOW ZONE DATA				
46	3250	1300	1800	---

Increasing TCE concentrations with depth are also noted in well cluster 48/55/56. Therefore, changes in contaminant concentrations appear to reflect continued migration of the contaminant plume, both horizontally and vertically, and differential fate and transport processes within the aquifer.

Sparton Issue No. 4

What additional information, if any, would have to be supplied to EPA on changes in concentration of constituents of concern in the plume before you would agree with Sparton's identified preferred remedy?

EPA Response

With regard to what would be required by EPA to accept Sparton's position, EPA is evaluating the technical merits of each of the alternatives in meeting the proposed corrective action objectives. EPA has proposed three corrective action objectives necessary for long-term protection of human health related to the ground water contaminant plume. These objectives are: 1) prevent further migration of the contaminant plume; 2) restore the contaminated aquifer to its beneficial use; and 3) reduce the quantity of source material (NAPL) present in the soil and ground water, to the extent practicable, to minimize further release of contaminants to the surrounding ground water.

Sparton should provide information which would demonstrate that Sparton's preferred remedy is meeting these objectives. Based on the available data, Sparton has not demonstrated that: 1) the existing physical, chemical, or biological processes will prevent further migration of the contaminant plume; 2) restoration of the aquifer to its beneficial use is being accomplished through natural attenuation. Attempts to quantify the reduction in mass of TCE due to other physical and biological processes does not appear to be valid due to an unknown mass of contaminants outside of the existing monitoring well network (both horizontal and vertical), and continued migration of varying contaminant concentrations within the plume; and 3) additional technologies, such as soil vapor extraction, will not remove significant quantities of source material in the soil and ground water.

Sparton Issue No. 5

What are the deficiencies in the draft CMS Report that suggest additional work on plume delineation should be undertaken?

EPA Response

Sparton does not provide for the installation of additional wells necessary to monitor future plume movement beyond the current system. This appears to be based on Sparton's contention that there is a lack of significant forward movement in the ground water contaminant plume. Based on the available data, the contaminant plume is not static and any proposed remedy will need to include additional well installation to monitor the continued plume movement. A component of EPA's proposed remedy includes additional characterization of the ground water. The necessity for ground water characterization is to assist in the design of the initial ground water containment system and monitoring of the design and performance of the installed system in meeting the corrective action objectives.

Additional Issues

As discussed during the meeting between EPA and Sparton on September 13, 1995, EPA is providing additional technical comments on the draft CMS Report. These comments are in addition to the previous discussion items. Sparton will need to provide the following information for the revised CMS Report:

1. References for the technical information presented in the CMS Report.

2. An evaluation of the use of injection wells or surficial reuse of treated ground water as alternate methods for disposal of treated ground water. The current system of discharging to the Albuquerque wastewater system or the option of discharging to the Rio Grande does not appear to be a long-term option for disposal of the treated ground water.

3. Include a discussion addressing ground water extraction wells as a hydraulic containment system to prevent further plume migration. The use of ground water extraction wells was discussed in detail in the section Remediation of the Dissolved Groundwater Phase on page 81 of the draft CMS Report.

4. Specific criteria for evaluating changes in land use/development and ground water monitoring when determining the need for further corrective measure studies in Sparton's preferred remedy.

EPA Summary of Proposed Remedy

EPA is proposing a remedy which addresses the corrective action objectives previously outlined. The proposed remedy would be implemented in two phases. In phase one, remedial measures to address the ground water contamination include:

1. Further characterization of the ground water contamination to define the horizontal and vertical extent of the contaminant plume. It is currently estimated that up to 20 additional monitoring wells may be needed to monitor the contaminant plume. These monitoring wells will be used to design the ground water containment system to prevent further migration of the contaminant plume.

2. Installation of a sufficient number of ground water extraction wells to prevent further migration of the contaminant plume. It is currently estimated that two to three extractions wells may be required for phase one. The location and number of extraction wells will be determined during the remedial design phase. Installation of extraction wells will follow the additional characterization of the contaminant plume. After construction of the phase one extraction system is completed, the extraction system will be carefully monitored on a regular basis and its performance evaluated. Further refinement of the extraction system may be necessary during the monitoring

phase to prevent further migration of the contaminant plume.

3. Installation of a soil vapor extraction system to enhance the removal of volatile organic contaminants from the soil and ground water to levels which would allow attainment of the chemical-specific interim ground water cleanup goals. Further characterization of the vapor phase organic contaminants in the soil above the water table may be necessary to evaluate the design and performance of the soil vapor extraction system. Remediation goals for the subsurface soil and soil gas will be determined following additional characterization and performance testing of the soil vapor extraction system.

4. Implementation of quarterly sampling and analyses of selected monitoring wells to evaluate the design and monitor the performance of the proposed remedy. Performance data from the first phase can be used to asses the restoration potential, and may indicate that additional site characterization is needed.

In phase two, remedial actions will include:

5. Installation of additional extraction wells as necessary to restore the aquifer for use as a source of drinking water, in addition to controlling further plume migration. Restoration is defined as attainment of the chemical-specific interim ground water cleanup goals in the aquifer, over the entire contaminant plume.

Restoration of ground water to cleanup levels defined by drinking water may not be possible over all or part of the contaminant plume using currently available technologies. This uncertainty can be reduced by using remedy performance in combination with site characterization data to assess the restoration potential. By implementing the proposed remedy in multiple phases, performance data from the first phase can be used to asses the restoration potential, and may indicate that additional site characterization is needed. Thus, phased implementation of the proposed remedy allows realistic long-term remedial objectives to be established prior to installation of later remedy phases. In addition to providing valuable data, the initial remedy phase can be used to prevent further plume migration.

EPA is proposing to treat the extracted ground water through an air stripper to remove volatile organic contaminants. Treatment of the air emissions from the air stripper and soil vapor extraction system will utilize a carbon adsorption system to remove vapor phase organic contaminants prior to release into the atmosphere.

Additional treatment of the recovered ground water may be necessary to remove metals and any additional organic contaminants prior to disposal or reuse of the treated ground water. Any additional technologies and sequence of technologies used for the ground water treatment train will be determined during the remedial design. The treatment train shall be designed to:

- Attain the chemical-specific discharge requirements; and

- Easily modified to treat increased flow from an expanded extraction system.

During the remedial design, options for disposal of the treated ground water will include reinjection back into the aquifer or reuse as irrigation water. These two options are consistent with the water management plan presented in the Albuquerque Water Resources Management Strategy - San Juan-Chama Diversion Project Options (July 1995) and the Albuquerque/ Bernalillo County Ground Water Protection Policy and Action Plan (1994).