# ATTACHMENT 1

EPA CONSENT ORDER

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION VI

OCT 1 1990
RECEIVED

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| IN THE MATTER OF: | ) | |
| SPARTON TECHNOLOGY INCORPORATED | ) | ADMINISTRATIVE ORDER ON CONSENT |
| 9621 Coors Road NW<br>Albuquerque, NM 87114 | ) | U.S. EPA Docket No. VI-004(h)-87-H |
| EPA I.D. NO. NMD083212332 | ) | |
| RESPONDENTS | ) | |

## I. JURISDICTION

1. This Final Administrative Order on Consent ("Final Order") is issued pursuant to the authority vested in the Administrator of the United States Environmental Protection Agency (hereinafter "EPA") by Section 3008(h) of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, ("RCRA"), and further amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. §6928(h). The authority to issue this Final Order has been delegated to the Regional Administrators by EPA Delegation Nos. 8-31 and 8-32, and further delegated to the Region VI Director of the Hazardous Waste Management Division ("Director") by Delegation Nos. 6-8-31 and 6-8-32.

2. This Final Administrative Order is entered into by the EPA and by Sparton Technology, Incorporated, (Respondent) 9621 Coors Road, NW, Albuquerque, New Mexico, pursuant to Section 3008(h) of RCRA, 42 U.S.C. Section 6928(h).

3. Respondent agrees to undertake all actions required by the terms and conditions of this Final Order.

4. For purposes of this proceeding or proceedings to enforce this Final Order or impose sanctions for violations of this Final Order only, Respondent admits the jurisdictional allegations set forth below; however, Respondent neither admits nor denies the validity of any Finding of Fact or Conclusion of Law set forth in this Final Order. Any Finding of Fact or Conclusion of Law contained herein is made solely for the purpose of effecting a negotiated settlement of this proceeding and shall not be used for any other purpose or in any other proceeding, except by EPA for the purpose of computing penalties for alleged violations of this Final Order, or in proceedings to enforce this Final Order.

5. For purposes of this proceeding or proceedings to enforce this Final Order or impose sanctions for violations of this Final Order only, Respondent expressly waives its rights to request a hearing on any issue of law or fact set forth herein and consents to the entry of this Order as a Final Order.

## II. EPA's FINDINGS OF FACT

Without a hearing or presentation of testimony, the Director has found the following:

1. Respondent is Sparton Technology, Incorporated, 9621 Coors Road NW, Albuquerque, New Mexico. Sparton Technology, Incorporated ("Sparton") is a corporation incorporated under

the laws of the State of New Mexico and is authorized to do business in the State of New Mexico.

2. Respondent is the owner/operator of a hazardous waste management facility ("Facility") located at 9621 Coors Road NW, Albuquerque, Bernalillo County, New Mexico. Respondent is engaged in the generation and storage at the Facility of hazardous waste identified and listed at 40 CFR Part 261. Respondent has used surface impoundments, a below-grade sump, and drum storage areas for the treatment and storage of hazardous wastes at the Facility. Respondent is presently operating the Facility as a less-than-90-day storage facility.

3. Respondent has operated (and continues to operate) its Facility as a hazardous waste management facility after November 19, 1980, under RCRA interim status. Respondent has submitted a Part B post-closure care permit application to EPA for a post-closure care final permit to address wastes remaining in place.

4. Pursuant to Section 3010 of RCRA, 42 U.S.C. §6930, Respondent notified EPA of its hazardous waste activity. In its notification dated August 18, 1980, the Respondent identified itself as a generator and storer of hazardous waste at the Facility.

5. In its Part A permit application dated January 6, 1983, Respondent identified itself as a Facility generating and storing the following hazardous wastes:

a. Hazardous wastes from non-specific sources identified at 40 CFR Part 261.31, and including hazardous waste numbers F001, F002, F003, F005, and F006; and

b. Commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products identified at 40 CFR 261.33(f) and including U002, U122, U134, U159, U226, and U228.

6. The Facility consists of approximately 12 acres, portions of which have been used for two (2) surface impoundments, a sump, and two (2) drum storage areas. Hazardous waste management units and their disposition at the Facility include the following:

a. East Pond - concrete block walls and lined with 30-mil, two ply hypalon liner with a polyester scrim, used to store aqueous plating wastes, discontinued use in August 1983, and closed under a closure plan approved by New Mexico Environmental improvement Division (NMEID) on May 18, 1987;

b. West Pond - cast concrete walls with 30-mil, two ply hypalon liner with a polyester scrim, used to store aqueous plating wastes, discontinued use in August 1983, and closed under an NMEID-approved closure plan on May 18, 1987;

c. Sump - 5'X 5'X 2' deep below grade sump constructed of concrete blocks and used to store chlorinated and non-chlorinated solvents, non-RCRA closure in October 1980; re-excavated and closed under an NMEID-approved closure plan on May 18, 1987;

d. Old Drum Storage Area - unlined or secured area storing drummed hazardous waste, discontinued use in May 1981, and closed under an NMEID-approved closure plan on May 18, 1987; and

e. New Drum Storage Area - secure contained area used to store aqueous wastes and waste solvents as a 90-day storage facility.

7. Four groundwater monitoring wells and one piezometer (P-1) were installed in May 1983 to monitor the East and West Pond. According to the March 19, 1984, report (Investigation of Soil and Groundwater Contamination) from Harding Lawson Associates (HLA), consultant for Respondent, samples collected by HLA indicated groundwater contamination.

8. According to the July 23, 1987, report (Corrective Measure Study Report) by HLA to the Respondent, depth to groundwater at the Facility is approximately sixty-five (65) feet. A thin aquitard exists across a portion of the Facility at a depth of approximately seventy (70) to eighty (80) feet below ground level. The five (5) wells installed in May 1983 were screened across the aquitard.

9. During the period from October to November 1983, seven (7) additional wells (MW-5 through MW-11) were installed at the Facility. The log of monitoring well MW-5 does not indicate that an aquitard was encountered. Monitoring wells MW-6 and MW-8 are screened above the aquitard, but the gravel fill below screened intervals provides a conduit between the upper and lower flow zones. Monitoring wells MW-7 and MW-9 are completed in the upper flow zone. Monitoring wells MW-10 and MW-11 are screened in the lower flow zone, but borehole collapse during construction could provide a conduit between the upper and lower flow zones. Samples collected from these monitoring wells by HLA on December 1, 1983, and December 14, 1983, for the Respondent and reported in the March 19, 1984, report (Investigation of Soil and Groundwater Contamination) to the Respondent included the indicated presence of the following detectable hazardous waste or hazardous waste constituents at the following concentrations in the groundwater at these wells:

| Well No. | Parameter | Concentration (ug/l) |
|---|---|---|
| 5 | Acetone | 160 |
| | Ethanol | 1,900 |
| | 1,1-Dichloroethane | 7 |
| | 1,1-Dichloroethylene | 18 |

| Well No. | Parameter | Concentration (ug/l) |
|---|---|---|
| | Toluene | 45 |
| | 1,1,1-Trichloroethane | 79 |
| | Trichlorofluoro methane | 170 |
| 6 | Trichloroethylene | 560 |
| 7 | 1,1-Dichloroethyene | 17 |
| | Toluene | 5 |
| | 1,1,1-Trichloroethane | 14 |
| | Trichloroethylene | 83 |
| 8 | 1,1,1-Trichloroethane | 7 |
| | Trichloroethylene | 42 |
| 9 | Acetone | 2,300 |
| | 2-Hexanone | 170 |
| | o-Xylene | 31 |
| | Benzene | 20 |
| | 1,1-Dichloroethane | 130 |
| | 1,1-Dichloroethylene | 2,500 |
| | Ethylbenzene | 13 |
| | Methylene chloride | 9,100 |
| | Tetrachloroethylene | 54 |
| | Toluene | 1,200 |
| | 1,1,1-Trichloroethane | 15,000 |
| | Trichloroethylene | 21,000 |
| 10 | 1,1,1-Trichloroethane | 8 |
| | Trichloroethylene | 27 |
| 11 | Methylene chloride | 420 |
| | Toluene | 91 |
| | 1,1,1-Trichloroethane | 130 |
| | Trichloroethylene | 840 |

10. On June 20, 1984, EPA sampled Respondent's monitoring wells MW-1 through MW-4. Analytical results from these samples included the indicated presence of the following detectable hazardous wastes or hazardous waste constituents at the following concentrations:

| Well No. | Parameter | Concentration (ug/l) |
|---|---|---|
| 1 | Benzene | 122 |
| | 1,1,1-Trichloroethane | 4,370 |
| | Chloroform | 467 |
| | 1,1-Dichloroethene | 6,530 |
| | Ethylbenzene | 81 |
| | Methylene chloride | 78,400 |
| | Toluene | 1,900 |

| Well No. | Parameter | Concentration (ug/l) |
|---|---|---|
| | Tetrachloroethene | 214 |
| | 4-Methyl-2-Pentanone | 864 |
| | Chromium | 32,100 |
| 2 | 1,1,1-Trichloroethane | 1,930 |
| | 1,1-Dichloroethane | 2.8 |
| | 1,1-Dichloroethene | 1,050 |
| | Tetrachloroethene | 17 |
| | Trichloroethene | 3,990 |
| | Chromium | 22 |
| 3 | Benzene | 193 |
| | Chlorobenzene | 103 |
| | 1.2-Dichloroethane | 121 |
| | 1,1,1-Trichloroethane | 54,900 |
| | 1,1-Dichloroethane | 228 |
| | 1,1,2,2-Tetrachloroethane | 156 |
| | Chloroform | 348 |
| | 1,1-Dichloroethene | 31,600 |
| | Ethylbenzene | 124 |
| | Methylene chloride | 62,000 |
| | Tetrachloroethene | 953 |
| | Toluene | 4,720 |
| | Trichloroethene | 90,900 |
| | 4-Methyl-2-Pentanone | 10,200 |
| | Chromium | 1,300 |
| 4 | Benzene | 20 |
| | Chlorobenzene | 5.4 |
| | 1,2-Dichloroethane | 11 |
| | 1,1,1-Trichloroethane | 13,500 |
| | 1,1-Dichloroethane | 61 |
| | Chloroform | 52 |
| | 1,1-Dichloroethene | 9,320 |
| | Trans-1,2-Dichloroethene | 7.7 |
| | Methylene Chloride | 19,800 |
| | Tetrachloroethene | 155 |
| | Toluene | 246 |
| | Trichloroethene | 18,200 |

11. In August 1984, Respondent's consultant installed six (6) additional monitoring wells (MW-12 through MW-17) at the Facility. Monitoring wells MW-12, MW-13, MW-14 and MW-15 are located at or near the boundary of the Facility.

12. In October 1984, HLA sampled monitoring wells at the Facility for the Respondent. Analyses of the groundwater samples reported in the March 13, 1985, report and (Hydrogeologic Characterization Remedial Investigation) to the Respondent, shows the following volatile organic priority pollutant concentrations at the following wells located at or near the Facility boundary:

| Well | Date Sampled | Constituent (ug/l) | |
|---|---|---|---|
| MW-13 | 10/04/84 | Chloroform - | 15 ug/l |
| | | 1,1-Dichloroethane - | 13 ug/l |
| | | 1,1-Dichloroethylene - | 820 ug/l |
| | | Methylene chloride - | 1,700 ug/l |
| | | Tetrachloroethylene - | 17 ug/l |
| | | Toluene - | 45 ug/l |
| | | 1,1,1-Trichloroethane - | 4,600 ug/l |
| | | Trichloroethylene - | 6,900 ug/l |
| MW-14 | 10/04/84 | Benzene - | 9 ug/l |
| | | Chloroform - | 34 ug/l |
| | | 1,1-Dichloroethane - | 17 ug/l |
| | | 1,1-Dichloroethylene - | 1,000 ug/l |
| | | Methylene chloride - | 3,600 ug/l |
| | | Tetrachloroethylene - | 25 ug/l |
| | | Toluene - | 6 ug/l |
| | | 1,1,1-Trichloroethane - | 4,100 ug/l |
| | | Trichloroethylene - | 12,000 ug/l |
| MW-15 | 10/04/84 | 1,1-Dichloroethylene - | 85 ug/l |
| | | Methylene chloride - | 11 ug/l |
| | | Tetrachloroethylene - | 34 ug/l |
| | | 1,1,1-Trichloroethane - | 2,200 ug/l |
| | | Trichloroethylene - | 4,400 ug/l |

13. In the June 30, 1986, report (Soil Investigation of the Unsaturated and Upper Saturated Zones) and the July 23, 1987, report (Corrective Measures Study) from HLA to Respondent, the upper flow zone permeability was estimated at $5.0 \times 10^{-3}$ $cm^3/cm^2/sec$ in the pond and sump area, and $3.0 \times 10^{-4}$ $cm^3/cm^2/sec$ in the vicinity of the souhtwest corner of the building. The permeability of the aquitard was estimated at $5.0 \times 10^{-5}$ $cm^3/cm^2/sec$.

The permeability of the lower flow zone was not estimated.

14. Respondent has not determined the rate and extent of migration of the hazardous waste or hazardous waste constituents in the groundwater as required by 40 CFR §265.93(d)(3)(i).

15. The groundwater contaminated is a portion of the aquifer utilized by the City of Albuquerque as a public drinking water supply. The nearest public drinking water supply well is approximately two (2) miles up-gradient from the Facility. The nearest down-gradient public drinking water supply well is approximately four (4) miles to the south.

16. The constituents identified in paragraphs 8 through 11 include known and suspected carcinogens and mutagens. These constituents may constitute a threat to human health by inhalation, ingestion, and/or absorption of the contaminated groundwater where concentrations exist above a maximum contaminant level as established by the Safe Drinking Water Act, and may pose a threat to the environment.

17. Based on the release of hazardous waste and hazardous waste constituents into the environment from Respondent's facility, and the health and environmental concerns around and near said area, the Regional Administrator, EPA Region VI, deems that the actions ordered below are necessary to protect human health or the environment.

18. This Administrative Order is based upon the Administrative Record compiled by the Agency which is available for public examination at the EPA Region VI offices, 1445 Ross Avenue, First

Interstate Bank Tower, Dallas, Texas, during normal business hours, Monday through Friday.

## III. EPA's CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set out above, and the Administrative Record, the Regional Administrator, EPA Region VI, has determined that:

A. Respondent is a "person" within the meaning of RCRA Section 1004(15), 42 U.S.C. Section 6903(15);

B. Respondent is the owner/operator of the Facility;

C. The Facility is authorized to operate under interim status pursuant to RCRA Section 3005(e), 42 U.S.C. Section 6925(e);

D. Certain wastes and constituents thereof found at the Facility are "hazardous wastes" or "hazardous waste constituents" thereof as defined by RCRA Section 1004(5), 42 U.S.C. Section 6903(5). These are also "hazardous wastes" or "hazardous waste constituents" within the meaning of RCRA Section 3001, 42 U.S.C. Section 6921, and 40 CFR Part 261;

E. There is or has been a release of hazardous wastes and hazardous waste constitutents into the environment from the Facility;

F. The detected presence of constituents identified in Paragraphs 8 through 11 of the Findings of Fact confirm the release of hazardous waste or hazardous waste constituents to the environment from a facility subject to Title 40 Code of Federal Regulations, Part 265; and

G. The actions and response measures required by this Administrative Order are consistent with RCRA and are necessary to ascertain the nature and extent of the release at the Facility and to protect human health and the environment.

## IV. ORDER

Pursuant to Section 3008(h), 42 U.S.C. Section 6928(h), it is hereby ORDERED AND AGREED that Respondent shall perform the following actions in the manner and by the dates specified herein:

A. CORRECTIVE ACTIONS

Respondent shall undertake and complete each of the following actions to the satisfaction of the EPA and in accordance with the terms, procedures and schedules which are set forth in IV.A.1 (Interim Measures) and Exhibit I - Corrective Action Plan ("CAP"). The CAP is hereby incorporated in this Consent Order as if fully set forth within the body of this Order.

1. INTERIM MEASURES

No later than thirty (30) days after the effective date of this Order, Respondent shall prepare and submit to EPA for review and approval an Interim Measures Work Plan ("IM Work Plan") containing detailed engineering drawings, construction plans and schedules for implementation of the tasks described below. Upon issuance of such EPA approval, Respondent shall undertake the following interim measures concurrent with the RCRA Facility Investigation required under A.2 below and as detailed under the CAP. Status of each Interim Measure and copies of any data generated shall be included in the progress reports required by the CAP.

(a) Groundwater Recovery and Disposition

No later than one hundred twenty (120) days after the receipt of EPA approval of the IM Work Plan, Respondent shall have installed and initiated operation of a recovery well network in the upper flow zone at the Facility capable of mitigating further migration of off-site contaminants in the upper flow zone. This interim recovery well network shall:

i) include well locations at or near wells MW-18, MW-23, MW-14 and PW-1; two well locations in the vicinity of MW-16, MW-24 and MW-25, one well location near the middle point of the southern wall of the Sparton building, and one well location near the middle point of the west wall of the Sparton building. The recovery wells and site monitoring wells shall be monitored on a minimum bi-weekly basis for piezometric levels in order to provide data to detail the effectiveness of the recovery system; and

ii) be so designed and constructed as to allow sampling and flow measurement of each individual well.

No later than thirty (30) days after the effective date of this Order, Respondent shall, as documented by field notes and completion reports submitted with the report below, have conducted recovery well testing to determine bore hole damage where possible and characterize aquifer parameters to assure well construction or development is not inhibiting the recovery system. The methodology and results of this testing shall be submitted to EPA for review within one hundred twenty (120) days of the receipt of EPA approval of the IM Work Plan.

Respondent shall, within two hundred forty (240) days after the receipt of EPA approval of the IM Work Plan, submit a report on the effectiveness of the recovery well system, detailing the present capture zone, projected capture zone, and what actions will be necessary to ensure efficient capture zone characteristics at the Facility. Raw data, maps, contours and graphs shall be included to graphically relate the data. Respondent shall be prepared to propose schedules of installation of additional wells to EPA for approval, should the report indicate expansion of the recovery system is necessary as referenced in Section IV.A.4.

Respondent shall maintain continuous operation of the recovery system at the Facility. The treatment and/or disposal

of recovered waters under this provision shall be performed in compliance with all Federal, State or local laws, regulations, permits or ordinances.

(b) Monitoring Well Installation and Abandonment

No later than ninety (90) days after the receipt of EPA approval of the IM Work Plan, Respondent shall have installed cluster monitoring wells capable of discretely monitoring the upper flow zone and the upper sections of the lower flow zone at the following locations:

i) at or near monitoring well MW-13;

ii) approximately midway between MW-13 and MW-14;

iii) at or near monitoring well location MW-14; and

iv) at or near monitoring well location MW-15.

Design and construction of these monitoring well installations shall be consistent with the RCRA Ground-Water Monitoring Technical Enforcement Guidance Document (EPA OSWER 9950-1, September 1986), and use state-of-the-art technology in completion. At a minimum, fifty (50) percent of the clusters shall be designed and constructed to a diameter capable of receiving, if necessary, a four-inch submersible pump or a pumping system capable of the equivalent withdrawal rates and withdrawal efficiency.

Within ten (10) days of completion of the above outlined well installation task or within ten (10) days of EPA approval of the IM Workplan, whichever is later, Respondent shall undertake sampling of these new wells. Respondent shall notify both EPA and New Mexico Environmental Improvement Division (NMEID) a minimum of seven (7) working days prior to conducting the sampling. Respondent shall have the samples analyzed for the volatile organic constituents of 40 CFR Part 264, Appendix IX, and for total metals, nitrate as nitrogen, ammonia as nitrogen, total kjeldahl nitrogen, total dissolved solids, chloride, sulfate, fluoride, boron and manganese.

Within sixty (60) days of this sampling event, Respondent shall resample the same set of wells, following the same above-listed guidelines. Upon review of the data by EPA, a subset of these parameters will be selected and used for quarterly monitoring. If volatile organic constituents are detected in any lower flow zone monitoring well, as determined by the above sampling, Respondent shall submit plans and schedules for review and approval by EPA to install lower section lower flow zone monitoring wells at locations IV.A.1.(b)(i-iv). Upon approval by EPA, Respondent shall initiate installation of the wells.

No later than ninety (90) days after the receipt of EPA approval of the IM Work Plan, Respondent shall have evaluated, through testing, the extent of inter-connection between the upper and lower flow zones contributed by the existing construction of monitoring wells MW-5, MW-6, MW-8, MW-10 and MW-11. The details of this testing and results shall be submitted to EPA for review with the well testing conducted under IV.A.1.(a). If the testing indicates the well construction provided conduit for cross-contamination of the zones, Respondent shall abandon those wells in the following manner:

1) drilling out the present well casing and screen, flushing the hole with clean drilling fluid, and pressure cementing from bottom hole to the surface; or

2) an equivalent EPA-approved method with the capability of sealing any inter-connection between zones caused by placement of the well, but not adversely affecting the flow zones.

At Respondent's option, any of these wells may be abandoned in lieu of the aforementioned evaluation.

(c) Implementation

Implementation of these interim corrective measures shall not affect the Respondent's performance on any other portion of this Order.

(d) Approval

EPA shall review any draft or final submittals, and notify Respondent in writing of EPA's approval or disapproval of the submittal or any part thereof. In the event of any disapproval, EPA shall specify in writing the deficiencies and reasons for such disapproval. Within thirty (30) days of the receipt of EPA's disapproval of any IM report, Respondent shall amend and submit a revised report. EPA approved reports shall be deemed incorporated into and part of this Consent Order.

2. CORRECTIVE ACTION PLAN

Not later than thirty (30) days after the effective date of this Order, Respondent shall undertake the Corrective Action Plan ("CAP"), as incorporated under IV.A. and reproduced as Exhibit 1 of this Order. Respondent shall carry out the RCRA Facility Investigation ("RFI") of the CAP concurrently with the IM Work Plan and in accordance with the schedule referenced under the CAP Task VI Facility Submission Summary. Upon EPA approval of Task VI of the RFI, Respondent shall undertake the Corrective Measures Study ("CMS") of the CAP in accordance with the associated schedule referenced under the CAP Task X Facility Submission Summary.

3. CORRECTIVE MEASURES IMPLEMENTATION

Upon EPA's review of the CMS and selection of a corrective measure, if the Respondent has complied with the terms of this Consent Order, EPA shall provide a sixty (60) day period for negotiation of a new administrative order on consent for implementation of the corrective measure.

4. ADDITIONAL WORK

The Director or the Respondent may determine that work in addition to that detailed in the Work Plan, including investigatory work and/or engineering evaluation, is necessary as part of Interim Measures, RCRA Facility Investigation or Corrective Measure Study. Subject to Section F (Dispute Resolution Clause) of this Final Order, and following EPA approval, the Respondent shall implement any additional RFI or CMS work which the Director or the Respondent determines to be necessary upon notification by the Director to the Respondent and according to the schedule set forth in such notification. The Respondent shall complete such additional IM, RFI or CMS work in accordance with the standards, specifications, and schedule determined or approved by the Director.

5. PROJECT COORDINATOR

a. Within seven (7) days of the effective date of this Final Order, EPA and Respondent shall each designate a Project Coordinator. Each Project Coordinator shall be responsible for overseeing the implementation of this Final Order. The EPA Project Coordinator will be EPA's designated representative at the Facility. To the maximum extent possible, all communications between Respondent and EPA, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Final Order, shall be directed to and through the Project Coordinators.

b. The parties shall provide at least ten (10) days written notice prior to changing Project Coordinators.

c. The absence of the EPA Project Coordinator from the Facility shall not be cause for the stoppage of work.

B. SAMPLING

The Respondent shall submit to EPA the results of all sampling, tests, modelling, pilot programs, surveys, or other investigatory data generated by its employees and/or consultants with respect to the implementation of this Final Order. Respondent shall submit these results in monthly progress reports as described in the CAP and paragraph C of this Final Order. EPA will make available to the Respondent the results of sampling and/or tests or other investigatory data similarly generated by EPA.

Respondent shall specify the name and address of the laboratory to be used for sample analysis. The U.S. EPA reserves the right to conduct a performance and QA/QC audit of the above specified laboratory before or during sample analysis. If the audit reveals deficiencies in lab performance or QA/QC, EPA will notify the Respondent that resampling and analysis shall be required.

At the request of EPA, the Respondent shall allow split or duplicate samples to be taken by EPA and/or its authorized representatives, of any samples collected by the Respondent pursuant to the implementation of this Final Order. The Respondent shall notify EPA and NMEID not less than 7 days in advance of any sample collection activity. If EPA or its authorized representatives collect any samples, they shall give to the owner, operator or agent in charge of the facility a receipt describing the sample obtained and if requested a portion of each such sample equal in volume or weight to the portion retained.

C. REPORTING AND PUBLIC ACCESS TO DOCUMENTS

The Respondent shall submit a report to EPA for each month, by the 15th day of the following month. The monthly report shall summarize all activities, compliance dates achieved or missed, and the reasons therefor, all results of the activities, as well as conclusions reached based upon such data regarding the need for modifications to any future tasks required by this Final Order.

All data, factual information, and documents submitted by the Respondent to EPA pursuant to this Final Order shall be copied in duplicate to NMEID at:

Groundwater and Hazardous Waste Bureau
New Mexico Environmental Improvement Division
New Mexico Health and Environment Department
1190 St. Francis Drive
P.O. Box 968
Santa Fe, New Mexico 87504-0968

All data, factual information, and documents submitted by the Respondent to EPA pursuant to this Final Order shall be available to the public except to the extent it is confidential business information. Respondent may assert a claim of confidentiality for information submitted concerning its production methods and processes if the information qualifies for exemption from the Freedom of Information Act, as provided by the exemption for trade secrets outlined in 5 U.S.C. §552(b)(4). Analytical data generated pursuant to the RFI shall not be claimed as confidential. Confidentiality claims shall be submitted to EPA in accordance with the procedures outlined in 40 CFR Part 2, in particular, 40 CFR §2.203(b), and must include a written statement explaining how the information claimed to be confidential meets

the substantive criteria for use in confidentiality determinations found in 40 CFR §2.208. If EPA approves the claim, the Agency will afford the information confidential status, as specified in Subpart B of 40 CFR Part 2. If Respondent makes no claim of confidentiality for information submitted pursuant to this Final Order, EPA will make the information available to the public without further notice to Respondent.

D. FACILITY ACCESS

Without limitation on any authority conferred on EPA or NMEID by statute or regulation, the EPA, NMEID, and their authorized representatives shall have authority to enter the site at all times that said Facility is operating and/or Respondent or its consultants are performing any activities as mandated by this Order for the purposes of, inter alia: interviewing site personnel and contractors; inspecting records, operating logs, and contracts related to the Facility; reviewing the progress of the Respondent in carrying out the terms of this Final Order; conducting such tests as EPA or its Project Coordinator deem necessary; using a camera, sound recording, or or other documentary type equipment; and verifying the reports and data submitted to EPA by the Respondent. Respondent shall honor all reasonable requests for such access by EPA and NMEID conditioned only upon presentation of proper credentials. Access to contract management and manufacturing process areas which may be restricted due to U.S. Department of Energy or Department of Defense contracts shall be obtained in conformance with the appropriate security regulations and in a manner

minimizing interference with any Armed Forces operations at the Facility. To the extent that Respondent is presently aware that access will be required for areas adjacent to the Facility which are presently owned by parties other than those bound by this Final Order, the Respondent has obtained or will use his best efforts to obtain site access agreements from the present owners within thirty (30) calendar days of the effective date of this Final Order. If it is determined after the effective date of this Final Order that access to additional property owned by parties other than those bound by this Final Order is required, the Respondent will use his best efforts to obtain site access agreements from the property owners within thirty (30) calendar days of the identification of the property. Best efforts as used in this paragraph shall include at a minimum, a certified letter, return receipt requested, from Respondents to the present owners of such property requesting access agreements to permit Respondents and EPA and its authorized representatives to access such property. Such agreements shall provide access to EPA or its authorized representatives equivalent to Facility access. Any such access agreements shall be incorporated by reference into this Final Order. In the event that site access agreements are not obtained within thirty (30) days the Respondent shall notify EPA within thirty-five (35) days of the effective date of this Order, regarding both the lack of, and efforts to obtain, such agreements. Nothing in this subsection is intended to limit, affect or otherwise constrain EPA's rights of access to property pursuant to applicable law.

E. FINANCIAL ASSURANCE

1. Within sixty (60) calendar days of the effective date of this Order, Respondent shall present to EPA for review and approval a summary and analysis of Respondent's existing instruments for financial assurance as provided under the financial assurance provisions of 40 CFR §§265.143 and 265.145, or any other instruments that have been provided previously by Respondent for any purpose related to liability coverage, closure, and post-closure care of its Facility. Respondent shall also provide a copy of each instrument for which a summary and analysis is being provided. The analysis shall describe clearly, but shall not be limited to, the following items:

a. The nature and extent to which these instruments are available for access by the Director for the purpose of ensuring the completion of all requirements established pursuant to this Order, including all Tasks described in the Attachments hereto; and

b. Precise dollar amounts that are available to the Director and schedules for their availability for the above-stated purposes. The amount of funds available through these instruments must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for the financial assurance of closure, post-closure care, liability coverage, and the actions required under this Order.

2. Within sixty (60) calendar days of the effective date of this Final Order, Respondent shall present to EPA for review and approval a summary and analysis of Respondent's existing instruments for financial assurance as provided under the financial assurance provisions of the NMEID regulations corresponding to 40 CFR §§265.145, or any other instruments

that have been provided previously by Respondent for any purpose related to liability coverage, closure, and post-closure care of its Facility. Respondent shall also provide a copy of each instrument for which a summary and analysis is being provided in accordance with this Section. The analysis shall describe clearly, but shall not be limited to, the following items:

a. The nature and extent to which these instruments are available for access by the Director for the purpose of ensuring the completion of all requirements established pursuant to this Final Order, including all Tasks described in the Attachments hereto; and

b. Precise dollar amounts that are available to the Director, and schedules for their availability, for the above-stated purposes. The amount of funds available through these instruments must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for the financial assurance of closure, post-closure care, liability coverage, and the actions required under this Final Order.

3. EPA and NMEID shall review the submittal described in paragraph 2 above and EPA shall provide notice to the Respondent as to the adequacy of its existing financial assurance measures for the above-stated purposes, and shall indicate therein what additional financial assurance, if any, must be provided by Respondent to ensure compliance with the terms of this Final Order.

4. Within thirty (30) days of Respondent's receipt of a notice from EPA that Respondent's financial assurance measures are inadequate, Respondent shall establish an irrevocable standby letter of credit or shall otherwise provide (per 40 CFR §265.143) additional financial assurances according to the

terms provided in said notice. Such additional financial assurance measures shall be available to the Director to perform such terms or conditions established pursuant to the Final Order, provided that prior to drawing upon any such assurance measure, EPA shall notify the Respondent, in writing, of its alleged failure to perform the requirements of this Final Order and provide Respondent with a reasonable time period of not less than fifteen (15) calendar days within which to remedy the alleged non-performance.

5. This Final Order in no way negates Respondent's obligations to establish or maintain financial assurances for closure and post-closure care under 40 CFR §§265.143 and 265.145.

F. DISPUTE RESOLUTION

1. The parties shall use their best efforts to informally and in good faith resolve all disputes or differences of opinion. If, however, disputes arise concerning this Final Order which parties are unable to resolve informally, including, but not limited to, disputes over implementation of the Work Plans, approval of documents, scheduling of any of the work, selection, performance or completion of any corrective action, or any other obligation assumed hereunder, the Respondent shall present a written notice of such dispute and the basis for the objections to EPA within ten (10) business days of the receipt of EPA's disapproval, decision or directive. Said notice shall set forth the specific points of the dispute, the position Respondent is maintaining should be adopted as consistent with the Order's requirements, the basis therefor, and any matters

which it considers necessary for the Agency's proper determination. Within ten (10) business days of receipt of such written notice, the Agency shall provide to Respondent a written statement of its decision on the pending dispute, which shall be incorporated into this Final Order unless Respondent requests an opportunity for a conference in accordance with paragraph 2 of this Section. Subject to paragraph 2 of this Section, the existence of a dispute as defined herein, and the consideration of such matters as placed into dispute shall not excuse, toll or suspend any compliance obligation or deadline during the pendency of the dispute resolution process.

2. If Respondent objects to any EPA determination regarding any requirements by EPA that Respondent perform work in addition to work provided for in this Final Order; the attachments hereto, the Interim Measures Workplan, as approved or modified by EPA; the RFI Workplan, as approved or modified by EPA; the CMS Report, as approved or modified by EPA, Respondent shall, within ten (10) days of its receipt of EPA's decision pursuant to paragraph 1 of this Section, notify EPA in writing of its objections and may request the Director to convene an informal conference for the purpose of discussing Respondent's objections and the reasons for EPA's determination. Stipulated peanlties authorized by this Final Order shall not be imposed under this forum until the Respondent has been offered this informal conference opportunity. After this conference, the Director shall state in writing his decision regarding the factual issues in dispute. Such decision shall be the final resolution of the

dispute and shall be implemented immediately by Respondent.

G. REIMBURSEMENT OF OVERSIGHT COSTS

Respondent agrees to pay EPA for oversight costs associated with the implementation and execution of this Order. Oversight costs are those costs incurred by the United States for EPA salary, travel, equipment, analysis, and contractor costs related to the Facility. Unless otherwise prohibited by law:

1. At the end of each six (6) month period beginning from the effective date of this Final Order, EPA shall submit a tabulation and an explanation of all oversight costs incurred with respect to this Final Order by EPA during the previous six (6) month period.

2. Payments to EPA for all oversight costs, up to a maximum of $50,000 per six (6) month period, shall be made by Respondent by certified or cashier's check in accordance with each tabulation discussed in the above paragraph. Such payments shall be made payable to the Treausurer of the United States of America and shall be forwarded to the Office of Regional Counsel, U.S. EPA-Region VI, 1445 Ross Avenue, Dallas, Texas, 75202-2733.

3. Payments made by Respondent pursuant to and in compliance with this Section G of the Final Order do not constitute penalties, fines, or other monetary sanctions.

H. RESERVATION OF RIGHTS

EPA hereby reserves all of its statutory and regulatory powers, authorities, rights, remedies, both legal and equitable, which may pertain to Respondent's failure to comply with any of the requirements of this Final Order, including without limitation the assessment of penalties under Section 3008(h)(2) of RCRA, 42 U.S.C. 6928(h)(2).

These rights include the rights to disapprove of work performed by the Respondent and to request that the Respondent perform tasks in addition to those set out in the RFI, IM or CMS. EPA reserves the right to perform any portion of the work consented to herein or any additional site characterization, feasibility study or response/corrective actions as it deems necessary to protect public health and the environment. This Final Order shall not be construed as a waiver or limitation of any rights, remedies, powers and/or authorities which EPA has under RCRA, CERCLA, or any other statutory, regulatory or common law enforcement authority of EPA. The Respondent reserves the right to oppose and defend against such actions. This Final Order is intended to address only IM, RFI and CMS Tasks deemed necessary by EPA, to protect human health and the environment from releases of hazardous wastes or hazardous waste constituents from the facility as identified to date and summarized in the Findings of Fact set forth herein above.

This Final Order shall not be construed to affect or limit the rights or responsibilities of any Federal, state, or local agency or authority pursuant to any other statutory provision, nor shall the entry of this Final Order and Respondent's consent to comply herewith, limit or otherwise preclude the Agency from taking additional enforcement action pursuant to Section 3008(h), should the Agency determine that such actions are warranted. Nor shall this Final Order be construed to affect or limit in any way the obligation of the Respondent to comply with all Federal, state and local laws and regulations governing the activities required by this Final Order. This Final Order

shall not be construed as a ruling or determination of any issue related to any Federal, state, or local permit whether required in order to implement this Final Order or required in order to continue or alter operations of the Facility (including but not limited to construction, operation, closure or post-closure permits required under RCRA) and the Respondent shall remain subject to all such permitting requirements. Nothing in this Final Order is intended to release or waive any claim, cause of action, demand or defense in law or equity that any party to this Agreement may have against any person(s) or entity not a party to this Agreement.

Notwithstanding any other provision of this Final Order, the Respondent shall remain responsible for obtaining any Federal, state, or local permit for any activity at the Facility including those necessary for the performance of the work and for the operation or closure of the Facility.

## I. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION OF THE FINAL ORDER

1. The effective date of this Final Order shall be the date on which the Respondent receives notice that the Director, has signed the Final Order, as determined by the return receipt date of acceptance by the Respondent.

2. Except as expressly provided herein, this Final Order may only be amended by mutual agreement of the Director and the Respondent. Any such amendments shall be in writing and shall have as the effective date the date on which the Respondent receives notice that the amendments have been signed by the Director and shall be incorporated into the Final Order.

3. Any reports, plans, specifications, schedules, and attachments required by this Final Order are, upon written approval by EPA, incorporated into this Final Order.

J. PARTICIPATION IN COMMUNITY RELATIONS ACTIVITIES

Respondent shall be given notice of and shall participate in public meetings, as appropriate, which may be held or sponsored by EPA to explain activities at or concerning the facility, including the findings of the RCRA Facility Investigation or Corrective Measures Study. In addition, Respondent shall provide all support reasonably requested of them by EPA in carrying out the EPA approved Community Relations Plan.

K. PARTIES BOUND

1. This Final Order shall apply to and bind Respondent, its officers, agents, servants, employees, and all other persons in active concert or participation with them who have actual notice of this Final Order. Not later than five (5) days after the effective date of this Final Order, Respondent shall provide notice of this Final Order to its officers, agents, servants, employees, and all other persons in active concert or participation with them. Thereafter, notice of this Final Order shall be provided to all such persons before contracting or employment.

2. No change in ownership, corporate, or partnership status relating to the Facilty will in any way alter the status of the Respondent, or in any way alter the responsibility of the Respondent under this Final Order. The Respondent will

be liable for any failure to carry out all activities required of the Respondent by the express terms and conditions of this Final Order, irrespective of their use of employees, agent(s) or consultant(s) to perform any such task(s).

3. Each undersigned representative of the signatory to this Final Order certifies that he or she is fully authorized to enter into the terms and conditions of this Final Order and to legally bind the party to the Final Order.

4. Respondent shall give notice of this Final Order to any successor in interest prior to transfer of ownership of operation of the Facility.

L. RECORD PRESERVATION

Respondent agrees that it shall preserve during the pendency of this Final Order and for a minimum of (5) years after its termination, all records and documents in its possession or in the possession of its divisions, employees, agents or consultants or contractors which relate in any way to this Consent Order or to hazardous waste management and disposal at the Facility. At the conclusion of five (5) years Respondent shall then make such records available for a sixty (60) day period to EPA for inspection or EPA's retention or shall provide copies of any such records requested by EPA.

Respondent further agrees that within thirty (30) days of the effective date of this Final Order or of retaining or employing an agent, consultant or contractor, whichever comes first, Respondent will enter into an agreement, to be confirmed in writing to EPA within five (5) business days, with its agents,

consultants and/or contractors whereby its agents, consultants and/or contractors will be required to maintain and preserve during the pendency of this Final Order and for a minimum of five (5) years after its termination, all records and documents within their respective possession which relate in any way to this Order or to hazardous waste management and disposal at the facility. In addition, all data, information, and records created or maintained in connection with the implementation of work under this Final Order shall be made available to EPA upon request. All employees of Respondent and all persons, including contractors who engage in activity under this Final Order, shall be available to and shall cooperate with the United States and EPA.

M. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to this Final Order shall be undertaken in accordance with the substantive requirements of all applicable local, state, and Federal laws and regulations.

N. INDEMNIFICATION OF THE UNITED STATES GOVERNMENT

Respondent agrees to indemify and save and hold harmless the United States Government, its agencies, departments, agents, and employees, from any and all claims or causes of action arising from or on account of acts or omissions of Respondent or its officers, employees, agents, independent contractors, receivers, trustees, and assigns in carrying out activities required by this Final Order. This indemnification shall not be construed

in any way as affecting or limiting the rights or obligations of Respondent or the United States under their various contracts.

O. STIPULATED PENALTIES

1. For each day that some work product or task completion called for in the Work Plan Schedule is overdue, or for which Respondent fails to submit a report or document or otherwise fails to achieve the requirements of this Final Order as written or modified under Section IV.I, Respondent shall pay the sums set forth below as stipulated penalties. Stipulated penalties shall accrue in the following amounts:

a. Failure to commence work as prescribed in this Final Order and EPA approved plans and reports under this Order: five hundred dollars ($500) per day for one to seven days of delay, and one thousand dollars ($1,000) per day for each day of delay, or part thereof, thereafter;

b. For failure to submit any preliminary and final reports, at the time required pursuant to this Final Order: five hundred dollars ($500) per day for the first one to seven days of delay, and one thousand dollars ($1,000) for each day of delay thereafter;

c. For failure to submit other deliverables required by this Final Order: five hundred dollars ($500) per day for the first seven days, and one thousand dollars ($1,000) for each day of delay, or part thereafter;

d. For other failure to comply with provisions of this Final Order after notice by EPA of noncompliance: two thousand dollars ($2,000) for the first one to seven days, and five thousand dollars ($5,000) per day for each day of delay, or part thereof,

2. Any stipulated penalties paid pursuant to this Final Order shall be payable within (10) days after Respondent's

receipt of written demand by EPA, shall be paid by certified or cashier's check made payable to the United States Treasury, and shall be remitted to:

U.S. EPA, Region VI
(Regional Hearing Clerk)
P.O. Box 360582M
Pittsburgh, PA 15351

3. The stipulated penalties set forth in this Section do not preclude EPA from pursuing any other remedies or sanctions which may be available to EPA by reason of Respondent's failure to comply with any of the requirements of this Final Order, nor shall payment of said penalties relieve Respondent of the responsibility to comply with this Final Order.

4. Should Respondent fail to comply with a time requirement of any task required by this Final Order, the period of noncompliance shall terminate upon Respondent's performance of said requirement.

5. If Respondent disputes the basis for imposition of stipulated penalities, the issue shall be resolved under the Dispute Resolution procedures of Section (F) of this Final Order.

P. FORCE MAJEURE AND EXCUSABLE DELAY

1. Respondent shall perform the requirements of this Consent Order within the time limits set forth herein, unless the performance is prevented or delayed by events which constitute a force majeure. Respondent shall have the burden of proving such a force majeure. A force majeure is defined as any event arising from causes not foreseeable and beyond the

control of Respondent, its consultants or its contractors, which could not be overcome by due diligence and which delays or prevents performance by a date required by this Consent Order. Such events do not include increased costs of performance, changed economic circumstances, normal precipitation events, or failure to apply for any required approvals or to provide all required information therefor, in a timely manner.

2. Respondent shall notify EPA in writing within ten (10) days after it becomes aware of events which Respondent knows or should know constitute a force majeure. Such notice shall estimate the anticipated length of delay, including necessary demobilization and remobilization, its cause, measures taken or to be taken to minimize the delay, and an estimated time table for implementation of these measures. Failure to comply with the notice provision of this section shall constitute a waiver of Respondent's right to assert a force majeure.

3. If EPA determines that the delay has been or will be caused by circumstances not foreseeable and beyond Respondent's control, which could not have been overcome by due diligence, the time for performance for that element of the relevant Interim Measure or Correction Action Plan shall be extended, upon EPA approval, for a period equal to the delay resulting from such circumstances. This shall be accomplished through an amendment to this Consent Order pursuant to Section IV.I. Such an extension does not alter the schedule for performance or completion of other tasks required by this Consent Order unless these are also specifically altered by

amendment of the Consent Order. In the event that EPA and Respondent cannot agree that any delay or failure has been or will be caused by circumstances not reasonably foreseeable and beyond the control of Respondent, which could not have been overcome by due diligence, or if there is no agreement of the length of the extension, the dispute shall be resolved in accordance with the Dispute Resolution provisions of Section IV. F. of this Consent Order.

Q. NOTIFICATIONS OF PARTIES

Whenever, under the terms of this Final Order, a plan, report, notice, approval certification, or other document is required to be submitted by one party to another, such document shall be sent by the person(s) specified in accordance with Section IV.A.4.a., and shall be sent to the person(s) specified in accordance with Section IV.A.4.a., unless any such person or any such person's successor gives notice in writing to the other parties of another person designated to send or to receive such documents or of another address, or unless it is otherwise specifically provided in this Final Order.

R. EPA APPROVALS/DISAPPROVALS

1. All decisions, determinations and approvals required to be made by EPA under this Final Order must be in writing signed by the Director or the Chief of the Hazardous Waste Compliance Branch. If the Director does not approve any plan, report or other item required to be submitted to EPA for its approval pursuant to this Final Order, the Respondent shall

correct any deficiencies as directed by the Director and resubmit the plan, report or other item for the Director's approval within the time period specified in this Final Order.

2. Any reports, plans, specifications, schedules and attachments required by this Final Order shall be incorporated into this Final Order upon written approval by EPA. Any non-compliance with such EPA approved plans, reports, specifications, schedules, and attachments shall be construed as a violation of the terms of this Final Order. Oral advice or approvals given by EPA and NMEID representatives will not relieve Respondent of its obligation to obtain any formal, written approvals required by this Final Order.

S. QUALITY ASSURANCE

Throughout all sample collections and analysis activities, Respondent shall use EPA-approved quality assurance, quality control and chain-of-custody procedures, which shall be part of proposed and approved plans.

In addition, Respondent shall:

1. Follow all EPA guidance for sampling and analysis determined by EPA to be applicable;

2. consult with EPA in planning for, and prior to, field sampling and laboratory analysis;

3. inform the EPA Project Coordinator in advance which laboratories will be used by Respondent and ensure that EPA personnel and EPA-authorized representatives have reasonable access to the laboratories and personnel used for analysis;

4. ensure that laboratories used by Respondent for analysis perform such analyses according to EPA methods (SW-846) or other methods deemed satisfactory by EPA. If methods other than EPA methods are to be used, Respondent shall submit all protocols to be used for analyses to EPA for approval at least thirty (30) days prior to the commencement of analyses; and

5. Ensure that laboratories used by Respondent for analyses participate in a quality assurance/quality control program equivalent to that which is followed by EPA. As part of such a program, and upon request by EPA, such laboratories shall perform analyses of a reasonable number of known samples provided by EPA to demonstrate the quality of the analytical data.

## V. TERMINATION AND SATISFACTION

The provisions of this Final Order shall be deemed satisfied upon receipt by the Respondent of written notice from EPA that the Respondent has demonstrated that all of the terms of this Final Order, including any additional work which EPA may determine to be necessary pursuant to Section IV.A.3. of this Final Order, and any corrective measures which EPA may select have been completed to the satisfaction of EPA, but not including the record preservation provision of paragraph IV.L., or other such continuing requirements. Upon such demonstration by the Respondent, said written notice shall not be unreasonably withheld or delayed.

## VI. PENALTY PROVISIONS

Failure or refusal to carry out the terms of this Final Order in a manner deemed satisfactory to EPA subjects Respondent to a civil penalty in an amount not to excees $25,000 for each day of non-compliance with this Final Order in accordance with Section 3008(h) of RCRA, 42 U.S.C. §6928(h).

## VII. STATEMENT OF SEVERABILITY

All provisions of this Order are intended to stand independently. The nullification of any one provision, either by judicial decree or agreement of the parties will not affect the validity or effectiveness of the remaining provisions.

IT IS SO AGREED AND ORDERED:

Dated: Oct. 1, 1988

Allyn M. Davis

Allyn M. Davis, Director
Hazardous Waste Management Division
U.S. EPA, Region VI

Dated: SEPT. 28, 1988

Sparton Technology, Inc.
Respondent

NAME (please print): CLAIR H. THOMPSON

TITLE (please print): SECRETARY - TREASURER

## SCHEDULE III : FLOATING TRIGGER DATES

| ACTION ITEM | CONSENT ORDER REFERENCE | RESPONSIBLE PARTY |
|---|---|---|
| • Submit monthly progress report by 15th of each month starting November 15, 1988 | p.18 | MABREY/MICO |
| • Provide 10 days written notice prior to changing Project Coordinator | p.16 | MICO/THOMPSON |
| • Notify EPA & NMEID at least 7 days prior to sampling | p.17 | MABREY/RICHARDSON/MICO |
| • If EPA provides notice that Sparton's financial assurance measures are inadequate, establish an irrevocable standby letter or otherwise provide additional financial assurances according to terms provided in the notice, within 30 days | p.22 | DEWITT/THOMPSON/MICO |
| • Provide written notice of dispute within 10 days of EPA's disapproval, decision, or directive being disputed | p.23 | DEWITT/MICO/MABREY |
| • Provide written notice of objection to EPA's requirement for additional work within 10 days of receipt of EPA's decision | p.24 | DEWITT/MICO/MABREY |
| • Provide notice of final order to new contractors and employees before entering into new contracts or before hiring new employees | p.28 | DEWITT/MICO/MABREY |
| • Pay any stipulated penalties within 10 days of receipt of EPA's written demand | p.31 | THOMPSON/DEWITT |
| • Notify EPA in writing within 10 days of becoming aware of a force majeure event | p.33 | MABREY/RICHARDSON DEWITT/MICO |
| • Within 30 days of receipt of EPA's disapproval of any IM report, amend and submit revised report | p.15 | MABREY |
| • If it is determined that access is required to additional properties, obtain access agreements within 30 days, or notify EPA of failure to do so within 35 days | p.20 | DEWITT/MICO/MABREY/RICHARDSON |
| • Monitor levels in wells bi-weekly after startup | p.12 | MABREY/RICHARDSON/MICO |
| • 210 days after RFI Workplan approval, submit draft Task III & IV reports | EX. p.31 | MABREY |
| • 60 days after EPA comments on draft Task III & IV reports, submit final Task III & IV reports | EX. p.31 | MABREY |
| • 120 days after EPA approval of final RFI report, submit draft CMS report | EX. p.43 | MABREY |
| • 30 days after EPA comments on CMS draft report, submit final CMS report | EX. p.43 | MABREY |

EXHIBIT I

CORRECTIVE ACTION PLAN

("CAP")

RCRA FACILITY INVESTIGATION

CORRECTIVE MEASURES STUDY

# SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION (RFI)

# AT

# SPARTON TECHNOLOGY, INC.

# ("SPARTON")

# ALBUQUERQUE, NEW MEXICO

## PURPOSE

The purpose of this RCRA Facility Investigation (RFI) is to determine nature and extent of releases of hazardous waste or constituents from the regulated units, solid waste management units, and other source areas at the facility and to gather all necessary data to support the Corrective Measures Study. In order to define the scope of the RFI Workplan, the Description of Current Conditions (Task I), shall include under The Nature and Extent of Contamination Section (Task I.B.), summary and assessment of the investigative and remedial efforts conducted at the Facility to date. This summary shall follow the format of the Facility Investigation (Task III), incorporating the appropriate portions of the RFI Workplan requirements. The RFI Workplan proposed for further investigation under Task III shall then address those portions of the investigation not adequately defined by the Task I report, as determined by EPA. The Respondent shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RFI at Sparton.

## SCOPE

The RCRA Facility Investigation consists of six tasks:

Task I: Description of Current Conditions

A. Facility Background
B. Nature and Extent of Contamination
C. Implementation of Interim Measures

Task II: RFI Workplan Requirements

A. Project Management Plan
B. Data Collection Quality Assurance Plan
C. Data Management Plan
D. Health and Safety Plan
E. Community Relations Plan

Task III: Facility Investigation

A. Plume Delineation
B. Environmental Setting
C. Source Characterization
D. Contamination Characterization
E. Potential Receptor Identification

Task IV: Investigation Analysis

A. Data Analysis
B. Protection Standards

Task V: Laboratory and Bench-Scale Studies

Task VI: Reports

A. Preliminary and Workplan
B. Progress
C. Draft and Final

TASK I: DESCRIPTION OF CURRENT CONDITIONS

The Respondent shall submit for U.S. EPA approval a report providing the background information pertinent to the facility, contamination and interim measures as set forth below. The data gathered during any previous investigations or inspections and other relevant data shall be included.

A. Facility Background

The Respondent's report shall summarize the regional location, pertinent boundary features, general facility physiography, hydrogeology, and historical use of the facility for the treatment, storage or disposal of solid and hazardous waste. The Respondent's report shall include:

1. Separate maps depicting the following:

   a. General geographic location;

   b. Property lines, with the owners of all adjacent property clearly indicated;

   c. Surface drainage (with a contour interval of five (5) feet and a scale of 1 inch = 100 feet), depicting all wetlands, floodplains, water features, natural drainage patterns and respective drainage areas, manmade drainage pathways (berms, drains, etc.), NPDES outfalls, etc., and a description of all types of containment (natural and manmade).

   d. All tanks, buildings, utilities, paved areas, easements, rights-of-way, and other features;

   e. All solid or hazardous waste treatment, storage or disposal areas active after November 19, 1980;

   f. All known past solid or hazardous waste treatment, storage or disposal areas (e.g., tanks, impoundments, landfills, etc.) regardless of whether they were active on November 19, 1980;

   g. All known past and present product and waste underground tanks or piping;

   h. Surrounding land uses (residential, commercial, agricultural, recreational); and

   i. Surrounding water uses (recreational, agricultural, industrial, etc.)

   j. The location of all production wells, groundwater monitoring wells, and piezometers associated with the facility. These wells shall be clearly labeled and ground and top of casing elevations,

construction details, and techniques included (these elevations and details may be included as an attachment).

k. Location, date and type of material spilled at the facility site which will reflect the information submitted for number 3 below.

All maps shall be consistent with the requirements set forth in 40 CFR §270.14 and be of sufficient detail and accuracy to locate and report all current and future work performed at the site;

2. A history and description of ownership and operation, solid and hazardous waste generation, treatment, storage and disposal activities at the facility;

3. Approximate dates or periods of past product and waste spills, identification of the materials spilled, the amount spilled, the location where spilled, and a description of the response actions conducted (local, state, or federal response units or private parties), including any inspection reports or technical reports generated as a result of the response; and

4. A summary of past permits requested and/or received, any enforcement actions and their subsequent responses, including a list of documents and studies submitted.

B. Nature and Extent of Contamination

The Respondent's report shall include a description of the existing information on the nature and extent of contamination. The Respondent's report will include a description of the existing information.

1. The Respondent's report shall summarize all possible source areas of contamination. This, at a minimum, should include all regulated units, solid waste management units, spill areas, and other suspected source areas of contamination. For each area, the Respondent shall identify the following:

a. Location of unit/area (which shall be depicted on a facility map);

b. Quantities of solid and hazardous wastes;

c. Hazardous waste or constituents, to the extent known; and

d. Identification of areas where additional information is necessary.

2. The Respondent shall prepare an assessment and description of the existing degree and extent of contamination. This shall include:

   a. Available monitoring data and qualitative information on locations and levels of contamination at the facility;

   b. All potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, water quality, meterology, and air quality; and

   c. The potential impact(s) on human health and the environment, including demography, ground-water and surface-water use, and land use.

C. Implementation of Interim Measures

The Respondent's report shall document interim measures which were or are being undertaken at the facility other than those specified in the order. This shall include:

1. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long term solution at the facility;

2. Design, construction, operation, and maintenance requirements;

3. Schedules for design, construction and monitoring; and

4. Schedule for progress reports.

TASK II: RFI WORKPLAN REQUIREMENTS

The Respondent shall prepare a RCRA Facility Investigation (RFI) Workplan. This RFI Workplan shall include the development of several plans, which shall be prepared concurrently. During the RCRA Facility Investigation, it may be necessary to revise the RFI Workplan to increase or decrease the detail of information collected to accommodate the facility specific situation. The RFI Workplan shall include the following:

A. Project Management Plan

The Respondent shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.

B. Data Collection Quality Assurance Plan

The Respondent shall prepare a plan to document all monitoring procedures: sampling, field measurements and sample analysis performed during the investigation to characterize the environmental setting, source, and contamination, so as to ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented.

1. Data Collection Strategy

The strategy section of the Data Collection Quality Assurance Plan shall include but not be limited to the following:

a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

b. Description of methods and procedures to be used to assess the precision, minimum detection limits, units of measurement, calibration of instruments, accuracy and completeness of the measurement data;

c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition. Examples of factors which shall be considered and discussed include:

i) Environmental conditions at the time of sampling;

ii) Number of sampling points;

iii) Representativeness of selected media; and

iv) Representativeness of selected analytical parameters.

d. Description of the measures to be taken to assure that the following data sets can be compared to each other:

i) RFI data generated by the Respondent over time;

ii) RFI data generated by an outside laboratory or consultant versus data generated by the Respondent;

iii) Data generated by separate consultants or laboratories; and

iv) Data generated by an outside consultant or laboratory over some time period.

e. Details relating to the schedule and information to be provided in quality assurance reports. The reports should include but not be limited to:

i) Periodic assessment of measurement data accuracy, precision, and completeness;

ii) Results of performance audits;

iii) Results of system audits;

iv) Significant quality assurance problems and recommended solutions; and

v) Resolutions of previously stated problems.

2. Sampling

The Sampling section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate sampling locations, depths, sampling equipment, sample containers, etc.;

b. Providing a statistically sufficient number of sampling sites;

c. Measuring all necessary ancillary data;

d. Determining conditions under which sampling should be conducted;

e. Determining which media are to be sampled (e.g., groundwater, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of sampling and length of sampling period;

h. Selecting the types of sample (e.g., composites vs. grabs) and number of samples to be collected;

i. Measures to be taken to prevent contamination of sampling equipment and cross contamination between sampling points; and

j. Field blanks and trip blanks.

k. Documenting field sampling operations and procedures, including:

   i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters and adsorbing reagents);

   ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;

   iii) Documentation of specific sample preservation method;

   iv) Calibration of field devices;

   v) Collection of replicate samples;

   vi) Submission of field-biased blanks and trip blanks, where appropriate;

   vii) Potential interferences present at the facility;

   viii) Construction materials and techniques, associated with recovery wells, monitoring wells and piezometers;

   ix) Field equipment listing and sample containers;

   x) Sampling order; and

   xi) Decontamination procedures.

l. Selecting appropriate sample containers;

m. Sample preservation; and

n. Chain-of-custody, including:

i) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment;

ii) Pre-prepared sample labels containing all information necessary for effective sample tracking; and,

iii) Pre-prepared seals for sample containers cross-referenced to the tracking reports.

3. Field Measurements

The Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate field measurement devices, locations, depths, etc.;

b. Providing a statistically sufficient number of field measurements;

c. Measuring all necessary ancillary data;

d. Determining conditions under which field measurement should be conducted;

e. Determining which media are to be addresssed by appropriate field measurements (e.g., ground water, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of field measurement and length of field measurements period; and

h. Documenting field measurement operations and procedures, including:

i) Procedures and forms for recording raw data and the exact location, time, and facility-specific considerations associated with the data acquisition;

ii) Calibration of field devices;

iii) Potential interferences present at the facility;

iv) Field equipment listing;

v) Order in which field measurements were made; and

vi) Decontamination procedures.

4. Sample Analysis

The Sample Analysis section of the Data Collection Quality Assurance Plan shall specify the following:

a. Chain-of-custody procedures, including:

i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

iii) Specification of laboratory sample custody procedures for sample handling, storage, and dispersement for analysis.

b. Sample storage and holding times;

c. Sample preparation methods;

d. Analytical procedures, including:

i) Scope and application of the procedure;

ii) Sample matrix;

iii) Potential interferences;

iv) Precision and accuracy of the methodology; and

v) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation and reporting;

g. Internal quality control checks, laboratory performance and systems audits and frequency, including:

i) Method blank(s);

ii) Laboratory control sample(s);

iii) Calibration check sample(s);

iv) Replicate sample(s);

v) Matrix-spiked sample(s);

vi) "Blind" quality control sample(s);

vii) Control charts;

viii) Surrogate samples;

ix) Zero and span gases;

x) Reagent quality control checks; and

xi) Recommended vs actual holding times for samples.

xii) Name and address at laboratory to be used for sample analysis.

[Respondent will specify the name and address of the laboratory to be used for sample analysis. The U.S. EPA reserves the right to conduct a performance and QA/QC audit of the above specified laboratory before or during sample analysis. If the audit reveals deficiencies in lab performance or QA/QC, resampling and analysis will be required].

h. Preventive maintenance procedures and schedules;

i. Corrective action (for laboratory problems); and

j. Turnaround time.

C. Data Management Plan

The Respondent shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement code;

b. Sampling or field measurement location and sample or measurement type;

c. Sampling or field measurement raw data;

d. Laboratory analysis ID number;

e. Property or component measured;

f. Result of analysis (e.g., concentration); and

g. Actual holding time of all samples, making special note of those samples which exceeded recommended holding times.

2. Tabular Displays

The following data shall be presented in tabular displays:

a. Unsorted (raw) data;

b. Results for each medium, or for each constituent monitored;

c. Data reduction for statistical analysis;

d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

e. Summary data.

3. Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

a. Display sampling location and sampling grid;

b. Indicate boundaries of sampling area, and areas where more data are required;

c. Displays levels of contamination at each sampling location;

d. Display geographical extent of contamination;

e. Display contamination levels, averages, and maxima;

f. Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and

g. Indicate features affecting intramedia transport and show potential receptors,

D. Health and Safety Plan

The Respondents shall prepare a facility Health and Safety Plan.

1. Major elements of the Health and Safety Plan shall include:

   a. Facility description including availability of resources such as roads, water supply, electricity and telephone service;

   b. Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted;

   c. List key personnel and alternates responsible for site safety, responses operations, and for protection of public health;

   d. Delineate work area;

   e. Describe levels of protection to be worn by personnel in work area;

   f. Establish procedures to control site access;

   g. Describe decontamination procedures for personnel and equipment;

   h. Establish site emergency procedures;

   i. Address emergency medical care for injuries and toxicological problems;

   j. Describe requirements for an environmental surveillance program;

   k. Specify any routine and special training required for responders; and

   l. Establish procedures for protecting workers from weather-related problems.

2. The Facility Health and Safety Plan shall be consistent with:

   a. NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);

   b. EPA Order 1440.1 - Respiratory Protection;

   c. EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;

   d. Approved Facility Contingency Plan;

e. EPA Standard Operating Safety Guide (OERR/ERT, 1984);

f. OSHA regulations particularly in 29 CFR 1910 and 1926;

g. State and local regulations; and

h. Other EPA guidance as provided.

E. Community Relations Plan

The Respondent shall prepare a plan, for the dissemination of information to the public regarding investigation activities and results.

TASK III: FACILITY INVESTIGATION

The Respondent shall conduct those investigations necessary to: delineate the plume or plumes of contamination (Plume Delination); characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of contamination (Contamination Characterization); and identify actual or potential receptors.

The investigations should result in data of adequate technical quality to support the development and evaluation of the corrective measure alternative or alternatives during the Corrective Measures Study.

The site investigation activities shall follow the plans set forth in Task II. All sampling and analyses shall be conducted in accordance with the Data Collection Quality Assurance Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Plume Delineation

The Respondent shall complete the following tasks to determine the actual vertical and horizontal extent of contamination at the facility:

1. Define the complete horizontal extent of contamination in the upper flow zone using monitoring wells for confirmation. Verification of this determination shall be bracketing of the leading edge of the plume utilizing well spacings across the edge of no more than three hundred (300) feet. The portions of well below the water table should be constructed using AISI #304 stainless steel (ASTM A-312 or A-376) or its equivalent in its characteristics of durability and remaining inert. Screen slot size shall be determined from formation sieve size and gravel pack sieve size. When possible, gravel packs shall extend no more than two (2) feet above the top of the screen. In no case shall gravel packs extend across zones of lower permeability. If bentonite seals are used, they shall be allowed to fully hydrate prior to placement of the cement grout (12-24 hours). Screen length and placement shall be consistent with recent guidance from EPA, and be capable of detecting dense and light immiscible fluid phases as well as miscible phases. In no case should more than 10 percent of the well screen length be screened in clay or silty clay materials. Well locations shall be stepped out radially from the Facility until the leading edge of the plume in the upper flow zone is determined.

2. Define the complete horizontal extent of contamination in the pervious zone immediately underlying the upper flow zone using monitoring wells for confirmation. These monitoring wells should be completed with a surface casing set through the upper flow zone and pressure-cemented back to the surface. The portion of the production string

below the water table shall be of AISI #304 stainless steel (ASTM A-312 or A-376), with formation and screen sized gravel pack across the screened interval, bentonite seal, and pressure-cemented to surface. If used, bentonite seals shall be allowed to fully hydrate prior to placement of the cement grout (12-24 hours). Screen length and placement should be consistent with recent guidance from EPA and be capable of detecting dense and light immiscible fluid phases as well as miscible phases. In no case should more than 10 percent of the well screen length be screened in clay or silty clay materials. Well locations shall be stepped out radially from the Facility until the leading edge of the plume in this zone is defined.

3. Fully delineate any zones of interconnection between the upper flow zone and the underlying pervious zones in the area of the Facility and within a five hundred (500) foot radius of the recovery well system.

4. Determine the total vertical extent of contamination. Confirmation of the presence or absence of contamination shall be verified by monitoring wells constructed under the same quidelines set forth by III.A.2.

B. Environmental Setting

The Respondent shall collect information to supplement and verify existing information on the environmental setting at the facility. The Respondents shall characterize the following:

1. Hydrogeology

The Respondents shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting groundwater flow beneath the facility, including:

i) Regional and facility specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;

ii) Structural geology: description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);

iii) Depositional history;

iv) Regional and facility specific groundwater flow patterns, sufficient to reflect seasonal changes in flow patterns; and

v) Identification and characterization of areas and amounts of recharge and discharge, sufficient to reflect seasonal variations.

b. An analysis of any topographic features that might influence the groundwater flow system (e.g., area of swamps, seeps and creeks. (Note: Stereographic analysis of aerial photographs may aid in this analysis).

c. Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:

i) Hydraulic conductivity and porosity (total and effective);

ii) Lithology, grain size, sorting, degree of cementation;

iii) An interpretation of hydraulic interconnections between saturated zones; and

iv) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content etc.).

d. Based on field studies and cores, North-South and East-West oriented structural geology and hydrogeologic cross sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways identifying:

i) Zones of dessication, fracturing, slickensides or channeling in consolidated or unconsolidated deposits;

ii) Zones of higher permeability or lower permeability that might direct and restrict the flow of contaminants;

e. Based on data obtained from groundwater monitoring wells, recovery wells and piezometers installed in and around the facility, a representative description of water level or fluid pressure monitoring including:

i) Water-level contour and/or potentiometric maps for the upper flow zone and underlying pervious zones.

ii) The flow system, including the vertical and horizontal components of flow;

iii) Any temporal changes in hydraulic gradients, for example, due to seasonal influences or tidal influences; and

iv) The quantitative effectiveness of the recovery well system of preventing contaminant migration as developed under Section IV.A.1.a of the Consent Order.

f. A description of man-made influences that may affect the hydrogeology of the site, identifying:

i) Artificial penetrations within a one-mile radius of the site, including any available logs, construction details, and method of abandonment, if inactive, and

ii) Man-made hydraulic structures (pipelines, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention areas etc.).

2. Soils

The Respondent shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). Such characterization shall include but not be limited to, the following information:

a. USCS soil classification;
b. Surface soil distribution;
c. Soil profile, including ASTM classification of soils;
d. Transects of soil stratigraphy;
e. Hydraulic conductivity (saturated and unsaturated);
f. Relative permeability;
g. Bulk density;
h. Porosity;
i. Soil sorptive capacity;
j. Cation exchange capacity (CEC);
k. Soil organic content;
l. Soil pH;
m. Particle size distribution;
n. Depth of water table;
o. Moisture content;
p. Effect of stratification on unsaturated flow;
q. Infiltration
r. Evapotranspiration;
s. Storage capacity;
t. Vertical flow rate; and
u. Mineral and metal content.

3. Surface Water and Sediment

The Respondent shall conduct a program to characterize the surface water bodies within a one-mile radius of the facility. Such characterization shall include, but not be limited to, the following activities and information:

a. Description of the temporal and permanent surface water bodies including:

i) For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;

ii) For impoundments: location, elevation, surface area, depth, volume, freeboard, and purpose of impoundment;

iii) For rivers, streams, ditches, drains, swamps, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., 100 year event);

iv) Drainage patterns;

v) Evapotranspiration rates; and

vi) Interaction between surface water bodies and groundwater.

b. Description of the chemistry of the natural (i.e., background) surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biochemical oxygen demand ($BOD_5$ and $BOD_{20}$), alkalinity, conductivity, dissolved oxygen profiles, nutrients ($NH_3$, $NO_3^-/NO_2^-$, $PO_4^{-3}$), chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.

c. Description of sediment characteristics including:

i) Deposition area;

ii) Thickness profile; and

iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)

4. Air

The Respondent shall provide information characterizing the climate in the vicinity of the facility. Such information shall include, but not be limited to:

a. A description of the following parameters:

i) Annual and monthly rainfall averages;

ii) Monthly temperature averages and extremes;

iii) Wind speed and direction;

iv) Relative humidity/dew point;

v) Atmospheric pressure;

vi) Evaporation data;

vii) Development of inversions; and

viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.

b. A description of topographic and man-made features which affect air flow and emission patterns, including:

i) Ridges, hills or mountain areas;

ii) Wind breaks and forests; and

iii) Buildings.

c. A characterization of any fugitive air emissions from the site using high-volume flow samplers including:

i) Concentrations ($mg/m^3$) of heavy metals emanating from the facility as compared to background; and

ii) Concentrations ($mg/m^3$) of volatile organics emanating from the facility as compared to background.

C. Source Characterization

The Respondent shall collect analytic data to completely characterize the wastes and the areas where wastes have been placed, collected, or removed (e.g., landfills, surface water retention areas, etc.) including: type; quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security, and engineered barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area characteristics:

   a. Location of unit/disposal area;
   b. Type of unit/disposal area;
   c. Design features;
   d. Operating practices (past and present);
   e. Period of operation;
   f. Age of unit/disposal area;
   g. General physical conditions; and
   h. Method used to close the unit/disposal area.

2. Waste Characteristics:

   a. Type of waste placed in the unit;

      i) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);
      ii) Quantity; and
      iii) Chemical composition.

   b. Physical and chemical characteristics;

      i) Physical form (solid, liquid, gas);
      ii) Physical description (e.g., powder, oily sludge);
      iii) Temperature;
      iv) pH;
      v) General chemical class (e.g., acid, base, solvent);
      vi) Molecular weight;
      vii) Density;
      viii) Flash point;
      ix) Viscosity;
      x) Solubility in water;
      xi) Cohesiveness of the waste; and
      xii) Vapor pressure.

   c. Migration and dispersal characteristics of the waste;

      i) Sorption;
      ii) Biodegradability, bioconcentration, biotransformation;
      iii) Photodegradation rates;
      iv) Hydrolysis rates; and
      v) Chemical transformations.

   The Respondent shall document the procedures used in making the above determinations.

D. Contamination Characterization

The Respondent shall collect analytical data on groundwater, soil, surface water, sediment, and subsurface gas contamination in the vicinity of the facility. This data shall be sufficient to define the vertical and horizontal extent, origin, direction, and rate of migration of contaminant plumes. Data shall include time and location of sampling, media sampled, concentrations detected, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Respondent shall address the following types of contamination at the facility:

1. Groundwater Contamination

The Respondent shall conduct a Groundwater Investigation to characterize any plumes of contamination at the facility, incorporating data developed under Tasks III.A. and III.B. This investigation shall at a minimum provide the following information:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;

b. The horizontal and vertical direction of contaminant movement;

c. The velocity of contaminant movement;

d. The horizontal and vertical concentration profiles of 40 CFR Part 264 Appendix IX volatile organic constituents, total metals, nitrate as nitrogen, ammonia as nitrogen, total kjeldahl nitrogen, total dissolved solids, chloride, sulfate, fluoride, boron and manganese;

e. An evaluation of factors influencing the plume movement; and

f. An extrapolation of future contaminant movement.

The Respondent shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

2. Soil Contamination

The Respondent shall conduct an investigation to characterize the contamination of the vadose zone at the facility site. The investigation shall include the following information:

a. A description of the vertical and horizontal extent of contamination. Description should be based on an extensive, facility-wide soil-gas analysis and soil sampling program. This soil-gas analysis should include, but not be limited to:

i) A description of the horizontal and vertical extent of subsurface gas migration;

ii) The chemical composition of the gases being emitted;

iii) The rate, amount, and density of the gases being emitted; and

iv) Horizontal and vertical concentration profiles of the subsurface gases emitted.

b. A description of contaminant and soil chemical properties within the contaminant source area and plume. This includes contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation.

c. Specific contaminant concentrations.

d. The velocity and direction of contaminant movement.

e. An extrapolation of future contaminant movement.

The Respondent shall document the procedures used in making the above determinations.

3. Surface Water and Sediment Contamination

The Respondent shall conduct a surface water investigation to characterize any contamination in surface water bodies resulting from contaminant releases at the facility.

The investigation shall include, but not be limited to, the following information:

a. A description of the horizontal and vertical extent of any immisicible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;

b. The horizontal and vertical direction of contaminant movement;

c. The contaminant velocity;

d. An evaluation of the physical, biological and chemical factors influencing contaminant movement which will include an analysis of the effects of the NPDES outfalls on the biota of the outfall areas.

e. An extrapolation of future contaminant movement; and

f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific Appendix IX parameter concentrations, etc.;

The Respondent shall document the procedures used in making the above determinations.

4. Air Contamination

The Respondent shall conduct an investigation to characterize any particulate and gaseous contaminants released into the atmosphere.

This investigation shall provide the following information:

a. A description of the horizontal and vertical direction and velocity of contaminant movement;

b. The rate and amount of the release; and

c. The chemical and physical composition of the contaminants(s) released, including horizontal and vertical concentration profiles.

The Respondent shall document the procedures used in making the above determinations.

E. Potential Receptors

The Respondent shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples may be needed. Data on observable effects in ecosystems (e.g., stressed vegetation) may also be obtained. The following characteristics shall be identified:

1. Local uses and possible future uses of groundwater:

a. Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and

b. Location of groundwater users within a three-mile radius, including wells and discharge areas.

2. Local uses and possible future uses of surface waters within a 1.5-mile radius of the facility:

a. Domestic and municipal (e.g. potable and lawn/gardening watering);

b. Recreational (e.g. swimming, fishing);

c. Agricultural;

d. Industrial; and

e. Environmental (e.g. fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including but not limited to:

   a. Recreation;

   b. Hunting;

   c. Residential;

   d. Commercial;

   e. Zoning; and

   f. Relationship between population locations and prevailing wind direction.

4. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A description of the ecology overlying and adjacent to the facility.

6. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.

7. A description of any endangered or threatened species near the facility.

## TASK IV: INVESTIGATION ANALYSIS

The Respondent shall prepare an analysis and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support the Corrective Measures Study.

### A. Data Analysis

The Respondent shall analyze all facility investigation data outlined in Task III and prepare a report on the type and extent of contamination at the facility including sources and migration pathways. The report shall describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative for the area.

### B. Protection Standards

1. Groundwater Protection Standards

For regulated units the Respondent shall provide information to support the Agency's selection/development of Groundwater Protection Standards for all of the Appendix IX constituents found in the groundwater during the Facility Investigation (Task III).

a. The Groundwater Protection Standards shall consist of:

i) for any constituents listed in Table 1 of 40 CFR §264.94, the respective value given in that table (MCL) if the background level of the constituent is below that given in Table 1; or

ii) the background level of that constituent in the groundwater; or

iii) The New Mexico Water Quality Control Commission Human Health Standards as defined in Part 3-103 of the WQCC Regulations.

iv) a U.S. EPA approved Alternate Concentration Limit (ACL).

b. Information to support the Agency's subsequent selection of Alternate Concentration Limits (ACL's) shall be developed by the Respondent in accordance with U.S. EPA guidance. For any proposed ACL's the Respondent shall include a justification based upon the criteria set forth in 40 CFR §264.94(b).

c. Within ninety (90) days of receipt of any proposed ACL's, the U.S. EPA shall notify the Respondent in writing of approval, disapproval or modifications, the U.S. EPA shall specify in writing the reason(s) for any disapproval or modification.

d. Within sixty (60) days of receipt of the U.S. EPA's notification or disapproval of any proposal ACL, the Respondent shall amend and submit revisions to the U.S. EPA.

2. Other Relevant Protection Standards

The Respondent shall identify all relevant and applicable standards for the protection of human health and the environment (e.g. National Ambient Air Quality Standards, Federally-approved state water quality standards, etc.).

TASK V: LABORATORY AND BENCH-SCALE STUDIES

The Respondent shall conduct laboratory or bench scale studies, or technological review studies to determine the applicability of a corrective measure technology or technologies to facility conditions including, but not limited to, in-situ treatments such as vapor stripping and biological seeding and physical/ chemical treatment of contaminated soil and ground water at the facility. The Respondents shall analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements.

The Respondent shall develop a testing plan identifying the types(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.

The bench and pilot plant study results (or equivalent data from other sites) shall be used to develop the specific process schematics, treatment flow trains, and design details required for finalization of the concept or process engineering designs.

Upon completion of the testing, the Respondent shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Respondent shall prepare a report summarizing the testing program or technology review and its (their) results, both positive and negative.

## TASK VI: REPORTS

### A. Preliminary and Workplan

The Respondent shall submit the Task I report to the EPA (60) days after the effective date of this Order. The Respondent shall submit the RCRA Facility Investigation Workplan (Task II) ninety (90) days after the effective date of this Order.

### B. Progress

The Respondent shall at a minimum provide the EPA with signed, monthly progress reports containing:

1. A description and estimate of the percentage of the RFI completed;

2. Summaries of all findings;

3. Summaries of all changes made in the RFI during the reporting period;

4. Summaries of all contacts with representative of the local community, public interest groups or State government during the reporting period;

5. Summaries of all problems or potential problems encountered during the reporting period;

6. Actions being taken to rectify problems;

7. Changes in personnel during the reporting period;

8. Projected work for the next reporting period; and

9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

10. Status of each interim measure required by Section IV.A.1. of the Final Order and copies of any data generated by the interim measures required by this Final Order.

### C. Draft and Final

Upon EPA approval of the RFI Workplan, the Respondent shall prepare a RCRA Facility Investigation Report to present Tasks III-IV. The RCRA Facility Investigation Report shall be developed in draft form for U.S. EPA review. The RCRA Facility Investigation Report shall be developed in final format incorporating comments received on the Draft RCRA Facility Investigation Report. Task V shall be submitted as a separate report when the Final RCRA Facility Investigation Report is submitted.

Six copies of all reports, including the Task I report, Task II workplan, Task V report and both the Draft and Final RCRA Facility Investigation Reports (Tasks III-IV) shall be submitted. Revised Draft RFI Report(s) may be required if EPA determines that the Draft RFI Report is significantly deficient. Revised Draft RFI Reports will be due within 30 days after receipt of EPA comments on the previous draft. If EPA determines that the Draft or Final RFI Report is grossly deficient, the Respondent will be so notified and deemed to be out of compliance with this Order.

Facility Submission Summary

A summary of the information reporting requirements contained in the RCRA Facility Investigation Scope of Work is presented below:

| Facility Submission | Due Date* |
|---|---|
| Description of Current Situation (Task I) | 60 days after effective date of Final Order |
| RFI Workplan (Task II) | 90 days after effective date of Final Order |
| Draft RFI Report (Tasks III and IV) | 210 days after RFI Workplan Approval |
| Final RFI Report (Tasks III and IV) | 60 days after EPA comment on Draft RFI Report |
| Laboratory and Bench-Scale Studies (Task V) | Concurrent with Final RFI Report |
| Progress Reports on Interim Measures and Tasks 1 through V | Monthly |

* All due dates are calculated from the effective date of this order unless otherwise specified.

# SCOPE OF WORK FOR A CORRECTIVE MEASURE STUDY

AT

SPARTON TECHNOLOGY, INC.
("SPARTON")
ALBUQUERQUE, NEW MEXICO

## PURPOSE

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken at Sparton. The Respondent will furnish the personnel, materials, and services necessary to prepare the corrective measure study, except as otherwise specified.

## SCOPE

The Corrective Measure Study consists of four tasks:

Task VII: Identification and Development of the Corrective Measure Alternatives

A. Description of Current Situation

B. Establishment of Corrective Action Objectives

C. Screening of Corrective Measures Technologies

D. Identification of the Corrective Measure Alternative or Alternatives

Task VIII: Evaluation of the Corrective Measure Alternatives

A. Technical/Environmental/Human Health/Institutional

B. Cost Estimate

Task IX: Justification and Recommendation of the Corrective Measure or Measures

A. Technical

B. Environmental

C. Human Health

Task X: Reports

A. Progress

B. Draft

C. Final

## TASK VII: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVES

Based on the results of the RCRA Facility Investigation, the Respondent shall identify, screen and develop the alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action. Alternatives shall address both source control measures and restoration of groundwater contamination beneath and emanating from the facility.

### A. Description of Current Situation

The Respondent shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation Report. The Respondent shall provide an update to information presented in Task I of the RFI to the Agency regarding previous response activities and any interim measures which have or are being implemented at the facility. The Respondent shall also make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

### B. Establishment of Corrective Action Objectives

The Respondent shall propose for EPA review and approval site-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RCRA Facility Investigation, EPA guidance, and the requirements of any applicable State or Federal statutes. At a minimum, all corrective actions concerning groundwater releases from regulated units must be consistent with, and as stringent as, those required under 40 CFR §264.100.

### C. Screening of Corrective Measure Technologies

The Respondent shall review the results of the RCRA Facility Investigation, and identify all technologies which are applicable at the facility. The Respondent shall screen the corrective measure technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also elimate technologies based on inherent technology limitations.

Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

   Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

   Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

   During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. Identification of the Corrective Measure Alternatives

The Respondent shall develop the Corrective Measure Alternatives based on the corrective action objectives and analysis of Corrective Measure Technologies, as presented in Task VII.C, following the preparation of the RFI Report. The Respondent shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternatives. The alternatives developed should represent a workable number of options that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Respondent shall document the reasons for excluding technologies identified in Task VII.C. The Respondent shall include construction of an infiltration gallery or injection wells as corrective action alterntives, and develop all necessary data as detailed under Task VIII to evaluate these alternatives.

## TASK VIII: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVES

The Respondent shall describe each corrective measure alternative that passes through the Initial Screening in Task VII and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Respondent shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Respondent shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Respondent shall evaluate each alternative in the four following areas:

1. Technical;

The Respondent shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

a. The Respondent shall evaluate performance based on the effectiveness and useful life of the corrective measure:

i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.

b. The Respondent shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:

i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Respondent should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

c. The Respondent shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

i) Constructability is determined by conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Respondent shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. The Respondent shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental;

The Respondent shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health; and

The Respondent shall assess each alternative in terms of the extent of which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. Institutional.

The Respondent shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. <u>Cost Estimate</u>

The Respondent shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

   a. Direct capital costs include:

      i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure.

      ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

      iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

      iv) Buildings and services costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.

   b. Indirect capital costs include:

      i) Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

      ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

      iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and

      iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Respondent shall consider the following operation and maintenance cost components:

a. Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

b. Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

c. Auxillary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

d. Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

e. Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;

f. Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

g. Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

i. Other costs: Items that do not fit any of the above categories.

## TASK IX: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES

The Respondent shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. The U.S. EPA will select the corrective measure alternative or alternatives to be implemented based on the results of Tasks III and IX. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will be given preference;

3. Implementability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing U.S. EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

TASK X: REPORTS

The Respondent shall prepare a Corrective Measure Study Report presenting the results of Task VII through IX and recommending a corrective measure alternative. Six copies of the preliminary report shall be provided by the Respondent.

A. Progress

The Respondent shall at a minimum provide the EPA with signed, monthly progress reports containing:

1. A description and estimate of the percentage of the CMS completed;

2. Summaries of all findings;

3. Summaries of all changes made in the CMS during the reporting period;

4. Summaries of all contacts with representative of the local community, public interest groups or State government during the reporting period;

5. Summaries of all problems or potential problems encountered during the reporting period;

6. Actions being taken to rectify problems;

7. Changes in personnel associated with corrective measures during reporting period;

8. Projected work for the next reporting period; and

9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

B. Draft

The Report shall at a minimum include:

1. A description of the facility;

   a. Site topographic map & preliminary layouts.

2. A summary of the corrective measure or measures;

   a. Description of the corrective measure or measures and rationale for selection;

   b. Performance expectations;

   c. Preliminary design criteria and rationale;

d. General operation and maintenance requirements; and

e. Long-term monitoring requirements.

3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;

   a. Field studies (groundwater, surface water, soil, air); and

   b. Laboratory studies (bench scale, pick scale).

4. Design and Implementation Precautions;

   a. Special technical problems;

   b. Additional engineering data required;

   c. Permits and regulatory requirements;

   d. Access, easements, right-of-way;

   e. Health and safety requirements; and

   f. Community relations activities.

5. Cost Estimates and Schedules;

   a. Capital cost estimate;

   b. Operation and maintenance cost estimate; and

   c. Project schedule (design, construction, operation).

Six copies of the draft shall be provided by the Respondent to U.S. EPA.

C. Final

The Respondent shall finalize the Corrective Measure Study Report incorporating comments received from EPA on the Draft Corrective Measure Study Report.

Revised Draft CMS Report(s) may be required if EPA determines that the Draft CMS Report is significantly deficient. Revised Draft CMS Reports will be due within 30 days after receipt of EPA comments on the previous draft. If EPA determines that the Draft or Final CMS Report is grossly deficient, the Respondent will be so notified and deemed to be out of compliance with this Order.

Facility Submission Summary

A summary of the information reporting requirements contained in the Corrective Measure Study Scope of Work is presented below:

| Facility Submission | Due Date |
|---|---|
| Draft CMS Report (Tasks VII, VIII, and IX) | 120 days after approval of the Final RFI |
| Final CMS Report (Tasks VII, VIII, and IX) | 30 days after EPA comments on the Draft CMS |
| Progress Reports on Tasks VII, VIII, and IX | Monthly |

# ATTACHMENT 2

## LIST OF TECHNICAL REPORTS RELATED TO GROUNDWATER CONTAMINATION

## SUMMARY OF PREVIOUSLY PUBLISHED REPORTS

| Date of Publication | Report Title |
|---|---|
| 6/29/83 | Groundwater Monitoring Program, Sparton Southwest, Inc., 9261 Coors Road, North-west, Albuquerque, New Mexico 87114; Harding Lawson Associates |
| 3/19/84 | Investigation of Soil and Groundwater Contamination, Sparton Technology, Inc., Coors Road Facility, Albuquerque, New Mexico; Harding Lawson Associates |
| 3/13/85 | Hydrogeologic Characterization and Remedial Investigation, Sparton Technology, Inc., 9621 Coors Road, Northwest, Albuquerque, New Mexico 87114; Harding Lawson Associates |
| 6/30/86 | Soil Investigation of the Unsaturated and Upper Saturated Zones, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico; Harding Lawson Associates |
| 7/15/86 (Rev. 9/22/86) (Rev. 10/3/86) | Vertical Profiling Program, Sparton Technology, Inc. Albuquerque, New Mexico; Harding Lawson Associates |
| 4/87 | Aquifer Testing, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico; Metric Corporation |
| 7/23/87 | Corrective Measures Study Report, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico; Harding Lawson Associates |
| 10/19/87 | Off-Site Investigation, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico; Harding Lawson Associates |
| 5/88 | Aquifer Testing, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico; Metric Corporation |

## SUMMARY OF PREVIOUSLY PUBLISHED REPORTS
## (Continued)

| Date of Publication | Report Title |
|---|---|
| 11/18/88 | Aquifer Testing, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico; Metric Corporation |
| 10/26/89 (Revised 2/23/90) | Effectiveness of the Groundwater Recovery Well System, Coors Road Facility, Albuquerque, New Mexico; Harding Lawson Associates |
| 12/27/89 | Preliminary Environmental Assessment-Properties Surrounding Sparton Technology, Inc., 9621 Coors Road, N.W., Albuquerque, New Mexico; Harding Lawson Associates |
| 7/6/90 | Areal Extent of the Zones of Relatively Lower Permeability; Sparton Technology, Inc., 9621 Coors Road, N.W., Albuquerque, New Mexico; Harding Lawson Associates |
| 12/1/91 | Bench-Scale Report, Available Corrective Measures Technologies; Sparton Technology, Inc., Coors Road Facility, Albuquerque, New Mexico; HDR Engineering, Inc. |
| 5/20/92 | RCRA Facility Investigation; Sparton Technology, Inc. Coors Road Facility, Albuquerque, New Mexico; HDR Engineering Inc., in conjunction with Metric Corporation |
| 8/1/92 | Report on the Effectiveness of the Groundwater Recovery Well System in the Upper Flow Zone; Sparton Technology, Inc., Coors Road Facility, Albuquerque, New Mexico; HDR Engineering, Inc. |

# ATTACHMENT 3

## AGREEMENT IN PRINCIPLE BETWEEN NMEID AND SPARTON

NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary

June 12, 1987

Richard D. Mico
Vice President and General Manager
Sparton Technology, Inc.
P.O. Box 1784
Albuquerque, New Mexico 87103

Re: Agreement In Principle

Dear Mr. Mico:

I enclose your copy of the Agreement in Principle executed by Michael Burkhart this date. Thank you for having forwarded your executed copies so promptly.

Sincerely,

Gini Nelson
Assistant General Counsel

cc: Jon F. DeWitt (w/encl)
Enc.

E.I.D.-Albuquerque

NEW MEXICO
HEALTH AND ENVIRONMENT
DEPARTMENT

Post Office Box 968
Santa Fe, New Mexico 87504-0968

GARREY CARRUTHERS
Governor

LARRY GORDON
Secretary

CARLA L. MUTH
Deputy Secretary

April 10, 1987

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

Dear Mr. Mico:

Enclosed please find a draft settlement agreement addressing the reclamation of ground water contaminated by Sparton Technology, Inc. ("Sparton"). As you are aware, Sparton has until April 22, 1987 to submit a ground water discharge plan for wastewater located in the soils and groundwater in the vicinity of Sparton's Coors Road facility. Under Section 3-106.A of the Water Quality Control Commission Regulations, additional time may be granted to submit a discharge plan, and to discharge without an approval discharge plan, if good cause is shown. Although EID has upon Sparton's request granted such extensions under § 3-106.A seven different times for six month intervals each, Sparton to date has failed to submit any plan addressing ground water contamination. EID does not intend to grant any further extensions.

Please be aware that if Sparton does not have an approved discharge plan by April 22, 1987, Sparton will be in violation of, and subject to substantial penalties under, the New Mexico Water Quality Act §§ 74-6-1 et seq. NMSA 1978 (1986 Repl.) ("WQA"). Section 74-6-5(P), provides for civil penalties of $5000 per day, for violation of the permit requirements of the New Mexico Water Quality Act, and Section 74-6-10 provides for injunctive relief, civil penalties of $1000 per day for violation of the WQA or regulations, and the assessment of contamination clean up costs. Further, EID may seek injunctive relief under New Mexico public nuisance law, to abate a public nuisance, and the public nuisance of polluting water, as those two nuisances are defined at §§ 30-8-1 and 30-8-2 NMSA 1978 (1984 Repl.).

EID appreciates Sparton's interest in discussing the reclamation requirement as shown by our meeting April 7, 1987, and acknowledges that Sparton has expended considerable effort and resources in studying the on-site contamination. Sparton has also indicated an eagerness to initiate reclamation. However, EID disagrees with Sparton's proposed scope of effort and timetable. EID, accordingly, requires that both on-site and off-site contamination be addressed in the settlement agreement. During our April 7th meeting, Sparton indicated a desire to begin reclamation of the ground water on-site, prior to defining the entire plume of contamination. EID has given this proposal due consideration. EID technical staff has concluded, however, that EID's primary concerns would not be adequately addressed if Sparton were to do this. The settlement agreement requires Sparton to define the full vertical and lateral extent of the plume of contamination, within a timetable EID technical staff has concluded Sparton reasonably can meet. Technical staff does not agree with Sparton's representation of the Coors Road site as being so geologically complex that a greater time-frame for compliance is required.

It may be possible for Sparton to begin reclamation of the ground water on-site prior to defining the entire plume, so long as Sparton otherwise complies with the settlement agreement, and otherwise complies with the law, i.e., by acquiring all necessary permits, but EID technical staff believes it would not be to Sparton's advantage to do this. Necessary permits may include water rights, a Hazardous Waste Act permit, an approved ground water discharge plan, and required permits for disposal of the effluent. Obtaining these permits may take six months.

Also, during the meeting, your counsel indicated his belief that the City of Albuquerque will be amenable to accepting contaminated ground water into the City's sewerage system. To our knowledge, the city has denied recent requests to accept contaminated ground water from other sites, which has resulted in considerable delays in implementing clean up efforts. Please be advised that Sparton's reclamation proposal must, therefore, include alternative methods.

EID hopes that Sparton will take the opportunity presented by the settlement agreement to resolve EID's and Sparton's differences in a voluntary and timely manner. EID believes that the advantages to a settlement agreement are significant. EID will agree not to seek penalties against Sparton on the facts in the Statement of Dispute. In turn, Sparton will simply agree to do what EID believes Sparton must in any event do, if not now, then later pursuant to a court-initiated enforcement action, and/or pursuant to the Hazardous Waste Program's post-closure care permit requirements, and/or pursuant to an EPA Corrective Action Order. The alternatives to Sparton's agreeing to initiate a reclamation program pursuant to a settlement agreement all provide for greater potential liability for Sparton.

If Sparton has any questions or concerns about technical details proposed in the settlement agreement, please call Amy Childers of my staff, at 827-2901. Otherwise, please contact Gini Nelson, Office of General Counsel, at 827-2990, with questions.

Sincerely,

Richard Mitzelfelt, Chief
Ground Water/Hazardous Waste Bureau

RM:GN/rc

xc: Jon F. Dewitt, Varnum, Riddering, Schmidt and Howlett
Harding, Lawson & Associates (Attn. Tom Berger)
Metric Corporation (Attn. Gary Richardson)
Tito Madrid, District I, EID
Ernest C. Rebuck, Ground Water/Hazardous Waste Bureau, EID
Amy Childers, Ground Water/Hazardous Waste Bureau, EID
Jack Ellvinger, Ground Water/Hazardous Waste Bureau, EID
C. Kelley Crossman, Ground Water/Hazardous Waste Bureau, EID
Gini Nelson, Office of General Counsel, HED

# AGREEMENT IN PRINCIPLE

I. Sparton will enter into a Consent Decree and Corrective Action Plan (CD/CAP) with the EPA for corrective action at the Site. This commitment means that Sparton will negotiate with the EPA in good faith and will use its best efforts to enter into a CD/CAP with the EPA.

A. After receipt of the EPA draft CD/CAP, Sparton shall have 60 calendar days to sign the CD/CAP, exclusive of time spent by EPA reviewing Sparton's comments, responses and proposals to be incorporated in the draft CD/CAP.

B. Sparton shall be entitled to an extension of the 60 calendar days equal to the number of days lost which were delays beyond Sparton's control.

1. "Beyond Sparton's Control" shall mean:

a) The event or delay was not reasonably foreseeable.

b) The delay could not have been overcome by due diligence.

c) The delay was beyond the reasonable control of Sparton, including Sparton's consultants or contractors.

d) "Beyond Sparton's control" shall include illness, accident, injury, resignation of key personnel, loss of documents by U.S. mails or commercial courier, and events which constitute a force majeure.

e) "Beyond Sparton's control" does not include unanticipated costs or unanticipated increases in cost of performance or changed economic circumstances.

C. When a delay has occurred which Sparton claims is beyond its control, Sparton shall notify the EID in writing within 48 hours of when Sparton knows of the delay or anticipated delay. The written notice shall fully describe the nature of the delay, the reasons therefor, the expected duration of the delay, and the actions which will be taken to mitigate further delay and their timetable.

D. Within 10 working days after receipt of Sparton's notice, the EID will advise Sparton in writing whether it accepts or rejects Sparton's claim that the delay was beyond Sparton's control, and its basis for such rejection.

E. If EID rejects the claim of Sparton that it was beyond Sparton's control, the parties shall have 15 days to attempt to informally resolve the dispute.

F. If at the end of 15 days the parties have not reached agreement, EID shall issue a written decision which would serve as final action and a basis for possible penalties and/or judicial remedies.

G. If Sparton fails to sign the EPA CD/CAP within 60 calendar days (as extended, if at all, for delays beyond Sparton's control) Sparton shall pay EID a stipulated penalty of $6,000. Additionally, EID reserves its right to go to court on underlying claims (see EID draft Settlement Agreement of April 10, 1987, paragraph 1) seeking penalities from June 10, 1987.

II. If Sparton fails to comply with the EPA CD/CAP once signed, the EID reserves its right to pursue any legal remedies it has, if any, including penalties against Sparton for such non-compliance.

III. Sparton shall request that EPA include in the EPA CD/CAP all of the New Mexico parameters/standards required by the EID (see EID draft

Settlement Agreement of April 10, 1987, paragraph 4.d.(1) and WQCC Reg. Section 3-103).

IV. In the event any EID-required New Mexico parameters/standards are not included in the final EPA CD/CAP, at that time EID and Sparton shall enter into a Settlement Agreement setting forth the rights, duties and obligations of Sparton and EID with respect to the omitted New Mexico parameters/standards. The Settlement Agreement issued April 10, 1987, shall form the basis for negotiation of a final Settlement Agreement and shall be signed within 20 business days of the issuance of the final EPA CD/CAP.

A. As a part of that Settlement Agreement, the parties agree to negotiate in good faith a schedule of stipulated penalties that would apply to the relevant procedures and time tables.

The parties recognize that there are a range of potential violations and a range of potential stipulated penalties to be negotiated.

V. If an EID required New Mexico parameter/standard is not included in the final EPA CD/CAP:

A. Sparton will comply with the relevant administrative review and approval of proposals and reports for the New Mexico parameters/standards not included in the EPA CD/CAP, to be based on the language in the EID draft Settlement Agreement of April 10, 1987.

B. Any substantial conflicts in procedures, technology or methodology between EPA and EID shall be resolved in favor of the EPA procedures, technology or methodology.

C. Sparton shall have the right and opportunity to demonstrate to EID the technical infeasibility of meeting a particular parameter/standard only as provided by the EID draft Settlement Agreement of April 10, 1987, paragraph 4.d.(4). In the event another procedure is or becomes

available to Sparton under law it shall have the right to utilize that procedure. EID reserves the right to challenge any other such procedure.

D. Sparton shall have the right and opportunity to seek a variance from any groundwater regulation pursuant to WQCC Regulation 1-210, or any other applicable regulation. EID reserves the right to challenge any such petition. Any petition Sparton makes will not relieve Sparton of its obligation to comply with the required parameters/standards during the pendency of any review procedures.

EDM 6/10/87

~~If EID knows that Sparton has failed to comply with a New Mexico parameter/standard, EID shall notify Sparton in writing of the noncompliance within 48 hours after EID learns of the noncompliance.~~

~~Within 48 hours after receipt of the EID notice by Sparton, either party may request that the parties meet on a date not later than 7 days after receipt of the EID notice by Sparton. If the parties are unable to resolve the dispute, Sparton shall come into compliance with the parameter/standard within 15 days of such meeting. If the parties do not meet, Sparton shall within 20 days of receipt of EID's notice, come into compliance.~~

EDM 6/10/87

G. If Sparton fails to enter into a Settlement Agreement with respect to any New Mexico EID-required parameter/standard, Sparton shall pay EID a stipulated penalty of $6,000. Additionally, EID reserves its right to go to court on underlying claims (see EID draft Settlement Agreement of April 10, 1987, paragraph 1) seeking penalties from June 10, 1987.

VI. Sparton agrees to concurrently provide the EID Groundwater/ Hazardous Waste Bureau with copies of all documents Sparton must provide EPA pursuant to the final EPA CD/CAP.

VII. Neither the EPA CD/CAP nor the EID Settlement Agreement, if any, shall be used as an admission of liability regarding any issue dealt with therein, or as an admission of any fact dealt with or assumed therein.

VIII. Upon execution of the final EPA CD/CAP and EID Settlement Agreement, if any, EID agrees that it will not pursue or collect and hereby waives the civil penalties described in its letter of April 10, 1987. By this recitation and agreement by EID, Sparton does not concede or admit the right or authority of EID to assess, pursue or collect any such penalties and Sparton expressly reserves the right to contest the assessment or collection of such penalties. Sparton will not challenge the validity of the Settlement Agreement, however, and the Stipulated Penalties provided for therein.

IX. Sparton may proceed with its planned implementation of corrective action and reclamation of groundwater at the site during the calendar of events set forth in this document. All actions so undertaken, and all actions required to be done pursuant to this Agreement in Principle shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations.

FOR SPARTON TECHNOLOGY, INC.

Richard D. Mico

RICHARD D. MICO
Vice President & General Manager

Sparton Technology, Inc.
4901 Rockaway Blvd., S.E.
Albuquerque, NM 87124

Date: June 10, 1987

FOR THE ENVIRONMENTAL IMPROVEMENT DIVISION

Michael J. Burkhart

MICHAEL J. BURKHART
Director, Environmental Improvement Division

Chairman, Water Quality Control Commission
Post Office Box 968
Santa Fe, NM 87504-0968

Date: June 12, 1987

JON F. DEWITT
Varnum, Riddering, Schmidt &
Howlett
Suite 800
171 Monroe Avenue, N.W.
Grand Rapids, Michigan 49503

DATE: June 10, 1987

GINI NELSON
Office of General Counsel
Health and Environment Department
Post Office Box 968
Santa Fe, NM 87504-0968

DATE: 6/12/87

# SETTLEMENT AGREEMENT

This Agreement is made between the Environmental Improvement Division ("EID") of the New Mexico Health and Environment Department and Sparton Technology, Inc., a New Mexico corporation ("Sparton").

## INDEX


| Paragraph | | Page |
|---|---|---|
| 1. | Statement of Dispute | 3 |
| 2. | Compromise and Settlement | 6 |
| 3. | Agreement Binding on Successors in Interest | 7 |
| 4. | Remedial Measures | 7 |
| a. | Hydrogeologic Investigation Report | 7 |
| b. | EID Review and Approval of Hydrogeologic Investigation Report | 8 |
| c. | Containment of Contaminated Ground Water | 8 |
| d. | Reclamation Proposal: Standards and Criteria | 9 |
| e. | EID Review and Approval of Reclamation Proposal | 12 |
| f. | Implementation of Reclamation Proposal and Quarterly Reports | 13 |
| g. | Review and Alternate Reclamation Proposal Plan | 13 |

h. Monitoring, Sampling and Analysis Procedure..... 14

i. Report Compliance and Noncompliance..... 15

j. EID to Assist in Gaining Access..... 15

k. Sparton to Provide Access to EID..... 16

l. EID to Assist Sparton in Obtaining Permits, Authorization..... 16

m. Split Samples..... 16

n. Notice..... 17

o. Exchange of Information..... 17

p. Amendments by Sparton..... 18

q. Compliance with Applicable Law..... 18

5. Resolution of Disputes Under the Agreement.... 18

6. Court Jurisdiction..... 19

7. Third Party Actions..... 19

8. Public Notice..... 20

9. Notice to Successors by Sparton..... 20

10. Stipulated Penalties for Noncompliance..... 20

11. Sparton to Provide Security for Performance..... 20

12. Termination..... 21

13. Merger..... 21

1. Statement of Dispute. EID is a duly created agency of the State of New Mexico charged by law to protect the environment. EID is authorized to seek injunctive relief and civil penalties for violations of the New Mexico Hazardous Waste Act, Sections 74-4-1 to 13 NMSA 1978 (1986 Repl.) and Hazardous Waste Management Regulations ("HWMR-3") promulgated under the Act. EID is also authorized to enforce the public nuisance statutes, and to seek injunctive relief to abate a public nuisance, and the public nuisance of polluting water, including ground water, as those two nuisances are defined at Sections 30-8-1 and 30-8-2 NMSA 1978 (1984 Repl.), pursuant to Section 30-8-8 NMSA 1978 (1984 Repl.). EID is also authorized to administer and enforce the Water Quality Control Commission ("WQCC") Regulations adopted under the New Mexico Water Quality Act, Sections 74-6-1 et seq. NMSA 1978 (1986 Repl.).

Sparton owns and operates an electroplating facility located at 9621 Coors Road, N.W., Albuquerque, New Mexico, 87114 ("Coors Road facility"). The facility was constructed in 1961. Approximately 43,000 pounds of solvent wastes were managed on-site annually until October 1980, and approximately 75,000 pounds of plating wastes were managed on-site annually until August 1983. EID contends that, in these time periods, an undetermined amount of the solvent and plating wastes was lost, released, or escaped from one or more waste storage units at the Coors Road facility. EID further contends that these losses have caused the soil and groundwater underlying the Coors Road facility, and in proximity thereto, to become contaminated. On or

about June 8, 1983 the presence of nitrates, chloride, sulfate, chromium, manganese, and 13 organic species were discovered in the ground water in monitor wells from samples taken by Sparton at levels exceeding the WQCC standards in the vicinity of the Sparton site. Additional studies have shown that total dissolved solids, boron, fluoride, and nickel are present in the ground water at levels exceeding the WQCC standards.

EID contends that discharges and losses of solvent and plating wastes are of such a kind and in such a quantity as may with reasonable probability injure or be detrimental to human health, animal or plant life, or property, or unreasonably interfere with the public welfare or the use of property. EID further contends that Sparton has failed to take sufficiently appropriate and necessary steps quickly enough to contain and remove or mitigate the damage caused by its discharge as required by Section 1-203.A.2 of the WQCC Regulations.

In addition, EID contends that Sparton knowingly and unlawfully introduced contaminants into a body of public water, i.e., ground water, causing it to be offensive or dangerous for human or animal consumption or use. EID contends that Sparton's conduct constitutes the public nuisance of polluting water, as defined by Section 30-8-2 NMSA 1978 (1984 Repl.).

Sparton is aware of the presence of solvent and plating wastes in the subsurface soil and ground water as described above. EID contends that Sparton has, accordingly, knowingly maintained and is maintaining a public nuisance within the meaning of Section 30-8-1 NMSA 1978 (1984 Repl.).

On May 20, 1983 EID notified Sparton pursuant to Section 3-106.A of the WQCC Regulations that Sparton was required to submit a discharge plan for the disposal of electroplating wastes, addressing all wastewater in the vadose zone and ground water, as well as addressing any current discharges. EID contends that, although required, no discharge plan addressing the wastewater in the soils and groundwater has yet been submitted. EID has granted Sparton seven extensions pursuant to Section 3-106.A of the WQCC Regulations in which to submit a discharge plan and to discharge without an approved discharge plan. The current extension expires April 22, 1987. It is EID's position that Sparton will be discharging without an approved discharge plan, in violation of Sections 3-104 and 3-106.A. of the WQCC Regulations, after April 22, 1987 if Sparton does not at that time have an approved discharge plan for the wastewater in the subsurface soil and groundwater of the Coors Road facility, or another extension pursuant to Section 3-106.A.

For the above reasons, EID contends that Sparton is obligated to mitigate damages and abate any contamination that it creates, has created, or is maintaining at or in proximity to the Coors Road facility site. EID has requested and Sparton has agreed to abate all contamination present at the site, pursuant to the terms of this Settlement Agreement.

Therefore, in an effort to avoid the uncertainties and potential costs of litigation, and in consideration of the mutual covenants set forth in this Settlement Agreement, the parties agree to be bound and obligated as follows:

2. Compromise and Settlement. This Agreement is executed by the parties for the sole purpose of compromising and settling all disputes concerning cleanup of all contamination caused by Sparton specified in the above Statement of Dispute. The terms, execution, and/or performance of this Settlement Agreement shall not constitute an admission of any fact or liability by Sparton.

In consideration of signing this Agreement, the parties will be obligated to and bound by all terms and conditions of this Agreement, including the assumption by Sparton of all costs for the implementation and execution of remedial proposals and actions required of Sparton by this Agreement. EID agrees not to pursue any other relief, civil, criminal or administrative, including EID's right to seek and recover penalties against Sparton, its successors, assigns and employees, that EID might have obtained against Sparton under the factual allegations set forth in the above Statement of Dispute; except that EID retains the right to seek enforcement of this Agreement pursuant to paragraph 6, and to seek and collect penalties as provided by paragraph 10. EID's agreement to not seek relief for future violations applies only with regard to not seeking relief against Sparton for violations of Sections 3-104 and 3-106.A. of the WQCC Regulations, the requirement of a discharge plan for the wastewater located in the soils and groundwater in the vicinity of the Coors Road facility site. EID retains the right to require and enforce HWMR-3 post-closure permit requirements. Additionally, both parties are cognizant at this time of a complaint filed by EID against Sparton and pending, Burkhart v. Sparton Technology, Inc., No. SF

87-662(c) (First Dist. Ct. filed Apr. 3, 1987). This Settlement Agreement does not address or settle any disputes under that lawsuit.

The parties agree that they will act reasonably and in good faith at all times to accomplish the purpose of this Agreement, and will perform all evaluations required by this Agreement using sound scientific judgment.

3. Agreement Binding on Successors in Interest. The provisions of this Agreement shall apply to and be binding upon EID, the New Mexico Water Quality Control Commission, their respective successor agencies of government, their employees, administrators, contractors, consultants and agents, and upon Sparton, its officers, directors, agents, employees, receivers, successors, trustees, assigns, heirs, executors and contractors.

4. Remedial Measures. Sparton will immediately upon signing this Agreement undertake the following remedial steps:

a. Hydrogeologic Investigation Report. On or before October 22, 1987 Sparton shall submit to EID three copies of a thorough hydrogeologic investigation report which defines the following: (1) the horizontal and vertical extent and magnitude of contamination both on and off the site, as defined by water quality analyses of all monitor wells for parameters listed in 4.d(1), (2) the rate and direction of contaminant migration, (3) transmissivity and storativity of the contaminated portion of the aquifer, (4) any threats of contamination to water supply wells in the vicinity (at least 5 miles down-gradient), (5) monitoring well data as described in paragraph 4.h below, (6) water-table elevation maps, (7) organic- and

inorganic-contaminant concentration maps, and (8) any other technical information requested by EID which is reasonably necessary to meet the requirements of this Agreement. Sparton shall further submit in the report proposed means of containment and proposed methods to verify containment. Sparton shall also submit in the report evidence of applications for all relevant permits including but not limited to any permits for pumping, treating or disposing of ground water.

b. EID Review and Approval of Hydrogeologic Investigation Report. Within sixty (60) days of EID's receipt of the report, EID will review the report described in paragraph 4.a above and will either approve the report or notify Sparton, in writing, of the report's inadequacies with respect to HWMR-3 and the WQCC Regulations. Sparton shall, within fifteen (15) days of such notice of inadequacy, modify the report to eliminate the deficiencies specified by EID and submit the revised report to EID for review and written approval or disapproval. Sparton shall be in violation of the Agreement if EID finds that the revised report is inadequate.

c. Containment of Contaminated Ground Water. Sparton shall initiate the containment of all contaminated ground water within thirty (30) days after approval of the hydrogeologic investigation report. Within thirty (30) days of initiating containment, Sparton shall submit to EID a containment verification report. If the containment device is inadequate as demonstrated by the containment verification report or any other information available to EID, Sparton shall, within ninety (90) days after installation of the containment devices, complete whatever further action may be necessary to contain

the plume of contaminated ground water. Sparton shall inform EID promptly, and in any case within seven (7) days, of all samples, analyses, and all containment modifications done pursuant to this paragraph, and of any further containment action proposed. If EID finds that the proposed further containment action is inadequate, Sparton shall be in violation of the Agreement.

d. Reclamation Proposal: Standards and Criteria. Within sixty (60) days of approval of the hydrogeologic investigation report, Sparton shall submit a reclamation proposal which shall include a work plan and implementation schedule for achieving aquifer reclamation by the most suitable means within the shortest reasonable time. The reclamation proposal shall have calculations showing plume capture area, and the proposed technology or technologies must be capable of removing contaminants from within the aquifer such that the following reclamation criteria are met:

(1) Ground water within the area of contamination must, when analyzed, show conformance to the standards in the WQCC regulations, the EPA maximum concentration limits (MCLs) based on EPA defined reference doses, or any other health-based standards agreed upon by the parties to the Agreement. The following standards, as a minimum, shall be met:

| Parameter | Standard (mg/l) |
|---|---|
| Nitrate, as Nitrogen | 10. |
| Ammonia, as Nitrogen | 10. |
| Total Kjaldhal Nitrogen | 10. |
| Total Dissolved Solids | 1000. |

| | |
|---|---|
| Chloride | 250. |
| Sulfate | 600. |
| Fluoride | 1.6 |
| Chromium | 0.05 |
| Cadmium | 0.01 |
| Boron | 0.75 |
| Manganese | 0.2 |
| Nickel | 0.2 |
| Methylene Chloride | 0.1 |
| 1, 1 Dichloroethane | 0.025 |
| 1, 1 Dichloroethene | 0.005 |
| 1, 1, 1 Trichloroethane | 0.06 |
| Trichloroethene (TCE) | 0.1 |
| Tetrachloroethene (PCE) | 0.02 |
| Toluene | 0.75 |
| Benzene | 0.01 |
| Carbon Tetrachloride | 0.01 |
| Chloroform | 0.1 |
| 1, 2 Dichloroethane (EDC) | 0.01 |
| 1, 1, 2, 2 Tetrachloroethane | 0.01 |
| 1, 1, 2 Trichloroethane | 0.01 |

(2) The unsaturated zone in the vicinity of the contamination shall not contain mobile contaminants in quantities sufficient to recontaminate the ground water in excess of the above standards during seasonal rises in the water table, by drainage, during recharge events, or in any other way.

Whether the standards listed in paragraph 4.d(1) are met shall be determined by the following sampling program: samples must be from at least eight (8) compliance wells, seven of which will be located within the plume, and one of which will be upgradient and unaffected by the plume. Remediation will be complete when quarterly samples from each compliance well show conformance to the above reclamation criteria for each of eight consecutive quarters, and two consecutive annual samples for all monitoring wells, both on- and off-site, show compliance to the above reclamation criteria. All sample analyses upon which conformance to the above criteria is to be determined shall be performed by a laboratory (or laboratories) proposed by Sparton and approved by EID.

(3) If, during the term of this Agreement, any public or private water supply well is contaminated as a result of the contamination described in paragraph 1 above, then Sparton shall reclaim the water to drinking water standards in force at the time of the discovery of the contamination of the public or private water supply well.

(4) Notwithstanding any of the obligations of Sparton in this Section 4.d, if Sparton is unable to meet the restoration criteria set forth in paragraph 4.d(1), it may demonstrate to EID the technical infeasibility of meeting such criteria. Technical infeasibility may be demonstrated by extrapolation of a statistically valid decrease in concentration (of any constituent listed in paragraph 4.d(1)) over twenty (20) years, such that projected future reductions during that time would be less than 20% of

the value listed in paragraph 4.d(1). All sample analyses upon which technical infeasibility is to be determined will be performed by a laboratory (or laboratories) proposed by Sparton and approved by EID. Sample conformance to those criteria Sparton is able to meet must be demonstrated using the median sample result for each constituent. If Sparton demonstrates to EID technical infeasibility, Sparton shall meet those criteria which it demonstrates to EID are technically feasible. Sparton's obligation shall be terminated pursuant to paragraph 12 when it has met those criteria which are technically feasible.

(5) In the event Sparton encounters contamination it believes is not attributable to Sparton, the burden shall be upon Sparton to demonstrate to EID with scientific accuracy that the contamination encountered is not attributable to any losses from the site. In the event Sparton demonstrates to EID that any contamination should not be attributed to Sparton, Sparton will not be obligated under this Settlement Agreement to reclaim that portion of contamination attributable to off-site contributors.

e. <u>EID Review and Approval of Reclamation Proposal</u>. Within thirty (30) days, EID will review the reclamation proposal described in paragraph 4.d above and will either approve the proposal or will notify Sparton of the proposal's inadequacies. If both parties agree, they will meet within seven (7) days of the notification of inadequacies to discuss the proposal. Sparton shall, within fifteen (15) days of such meeting, modify the proposal to eliminate the deficiencies specified by EID and submit the revised

proposal to EID for review and written approval or disapproval. If the parties do not meet, Sparton shall, within twenty (20) days of EID's notice of inadequacies, submit the revised proposal to EID for review and written approval or disapproval. Sparton shall be in violation of the Agreement if EID finds that the revised proposal is inadequate.

f. Implementation of Reclamation Proposal and Quarterly Reports. Within thirty (30) days of EID approval of the final reclamation proposal, or within thirty (30) days of obtaining all necessary permits, whichever occurs later, Sparton shall implement the reclamation program. Sparton shall submit quarterly reports to EID until this Agreement is terminated. The first quarterly report is due ninety (90) days after the implementation of the reclamation program. These reports shall document any and all work performed during the previous quarter. Information supplied in these quarterly reports shall include but not be limited to the following: (1) actual pumping rates of contaminated wells, (2) results of water-quality analyses from compliance wells, and (3) water level measurements of all existing monitor wells documenting plume capture.

g. Review and Alternate Reclamation Proposals. Sparton and EID shall review the progress of aquifer reclamation through study of technical information or performance assessment provided in the quarterly reports. The review shall include the prospects of meeting the reclamation criteria in paragraph 4.d within ten years from the start of reclamation. If EID determines upon review that the reclamation criteria cannot be met within ten years, Sparton shall

submit, within thirty (30) days of that review decision, a proposal for an alternative reclamation plan. This proposal shall be reviewed, and approved or disapproved in writing by EID. If EID disapproves of the proposal, Sparton will be in violation of this Agreement.

h. Monitoring, Sampling and Analysis Procedure. All sampling and analysis performed pursuant to this Agreement shall be in accordance with EPA approved procedures as listed in the current edition of EPA document SW 846, Test Methods for Evaluating Solid Waste, or other EPA approval documents. All monitor wells shall be designed and installed in conformance with EPA guidelines. The following information shall be submitted prior to construction for all wells installed under this Agreement:

(1) type of drilling, drilling procedure and well-construction methods;

(2) dimensions and types of well casing and screen material;

(3) backfill material and procedures;

(4) sampling procedures, including collection, preservation, shipment and storage;

(5) water level measuring equipment and practice;

(6) analytical instruments, methods and laboratories;

The following information shall be submitted immediately after construction of all wells installed under this Agreement:

(7) all fluid-level, water-quality and stratigraphic data, including depths to water encountered both during

drilling and after well construction;

(8) all raw data from pumping or injection tests in the aquifer;

(9) all field observations of odors;

(10) results of all chemical, physical or biological analyses of water, or soils;

(11) type of earth material encountered during drilling.

i. Report Compliance and Noncompliance. All studies, reports, schedules, and attachments required by the terms of this Agreement are, upon approval by EID, deemed to have met this Agreement. Any noncompliance with such approved studies, reports, schedules, or attachments shall be deemed noncompliance with this Agreement.

j. EID to Assist in Gaining Access. To the extent that it is necessary for Sparton to gain access to any areas controlled by third parties, Sparton shall attempt to make all such agreements with third parties as are necessary. In the event Sparton is unable to gain access to selected sites and no other suitable substitute sites are available, EID shall assist Sparton in gaining access to sites controlled by third parties provided such assistance is consistent with EID's statutory authority. EID will assist Sparton in obtaining municipal, county, or other administrative approval for access when so requested by Sparton provided such assistance is consistent with EID's statutory authority. Further, EID will encourage off-site land owners to grant access to Sparton to accomplish the purposes of this

Agreement.

k. Sparton to Provide Access to EID. Sparton shall provide access to the site and any other areas upon which reclamation occurs to EID employees and to EID's contractors and consultants at all reasonable times. EID shall give twenty-four (24) hours' written or oral notice prior to entering the site for sampling monitoring wells. Sparton shall permit such persons to be present and move freely in the area at all times during which work is being conducted pursuant to this Agreement. Upon twenty-four (24) hours' written or oral notice by EID, an authorized representative of Sparton will be available to accompany EID's employees, contractors, and consultants while on site. EID's employees, contractors, and consultants will abide by Sparton's safety requirements and procedures while on site.

l. EID to Assist Sparton in Obtaining Permits, Authorization. Assistance by EID in obtaining permits, releases, or other types of permission or authorization from governmental agencies and political subdivisions, shall be limited to a formal statement of its approval of Sparton's discharge plan and a statement that such discharge plan is required by or is consistent with the terms and obligations of this Agreement. EID agrees not to hinder, or interfere with, any negotiations by or between Sparton and the State Engineer, the County of Bernalillo, or any federal, state, local or private entity or agency, which are consistent with the object and terms of this Agreement.

m. Split Samples. Upon request, prior to the taking of samples, Sparton shall give EID forty-eight (48) hours notice of

sampling and thus provide EID the opportunity to split samples.

n. Notice. Whenever under the terms of this Agreement, notice or information is required to be forwarded by one party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice in writing to the other parties of another individual designated to receive such communications. Notice or the supplying of information required under this Agreement shall be perfected upon the mailing of such documentation or notice.

FOR EID

AMY CHILDERS
Ground Water/Hazardous Waste Bureau
Environmental Improvement Div.
Post Office Box 968
Santa Fe, NM 87504-0968

and

C. KELLEY CROSSMAN
Ground Water/Hazardous Waste Bureau
Environmental Improvement Div.
Post Office Box 968
Santa Fe, NM 87504-0968

and

GINI NELSON
Office of General Counsel
Health & Environment Dept.
Post Office Box 968
Santa Fe, NM 87504-0968

FOR SPARTON

RICHARD D. MICO
Vice President & General Manager
Sparton Technology, Inc.
4901 Rockaway Blvd., S.E.
Rio Rancho, NM 87124

GARY RICHARDSON
Metric Corporation
2025 San Pedro, N.E.
Albuquerque, NM 87110

JON F. DeWITT
Varnum, Riddering, Schmidt & Howlett
Suite 800
171 Monroe Avenue, N.W.
Grand Rapids, MI 49503

o. Exchange of Information. Routine communications may

be exchanged between the parties and their consultants to facilitate the orderly conduct of work contemplated by this Agreement, but no such communication shall alter or waive any rights and/or obligations of the parties under this Agreement. The parties agree to routinely exchange technical data developed pursuant to this Agreement, or which is in possession of the parties upon execution of this Agreement, upon request by one party to the other, unless such data is privileged from disclosure. Sparton may confer with EID at any time prior to the submittal of any proposals, reports or other documents required by this Agreement.

p. Amendments by Sparton. At the request of Sparton, any approved proposal may be amended according to the following procedure. Within thirty (30) days of the presentation by Sparton of its amended proposal, EID shall review the amended proposal and notify Sparton in writing of its approval or disapproval, specifying the proposal's inadequacies if it is disapproved. Sparton shall modify the proposal to eliminate the deficiencies specified by EID and submit the revised, amended proposal to EID for review and written approval or disapproval.

q. Compliance with Applicable Law. All actions required by this Agreement shall be undertaken in compliance with the requirements of all applicable federal, state, and local laws and regulations.

5. Resolution of Disputes Under the Agreement. If Sparton has any objections to any decisions by EID regarding approvals or disapprovals required by this Agreement and made pursuant to this

Agreement, Sparton shall notify EID in writing of its objections within fifteen (15) days of such decision. The parties shall then have an additional fifteen (15) days from the receipt by EID of the notification of objection to reach agreement. If agreement cannot be reached within this period of time, EID will issue its final decision, including a statement of the reasons for its approval or disapproval. This final decision is considered "final action" for purposes of this Agreement. Final action by EID shall be binding upon the parties unless Sparton files an action for the modification or setting aside of such final action of EID.

6. Court Jurisdiction. The parties agree that Sparton may only seek judicial review of EID final action by filing an action in the district court for Bernalillo County, New Mexico, within thirty (30) days of the date of the EID final action, to modify or set aside the action. Judicial review of EID final actions shall be in accord with applicable standards for judicial review of administrative decisions. Additionally, the parties agree that this Agreement shall be enforceable by either party by the filing of a civil action in the district court for Bernalillo County. In the event of such civil action, the parties agree that such court has jurisdiction over the subject matter of this Agreement and the parties hereto waive their right to challenge such jurisdiction either in the district court for Bernalillo County or any other forum. Any penalties which accrue pursuant to paragraph 10 herein shall be tolled during the time Sparton is appealing the final action.

7. Third Party Actions. Nothing contained in this agreement

shall affect any right, claim, cause of action or defense of any party hereto with respect to third parties.

8. Public Notice. Within five (5) days of signing this Agreement, Sparton shall record a notice in the appropriate registry of deeds for Bernalillo County that Sparton and subsequent property owners are subject to continuing obligations under this Agreement and that the Agreement is on file at EID. Sparton shall promptly provide EID with a copy of the notice so recorded. Sparton may file a second notice signed by EID in the appropriate registry of deeds for Bernalillo County showing Sparton's satisfaction of the terms of this Agreement upon termination pursuant to paragraph 12 below.

9. Notice to Successors by Sparton. Sparton shall give notice of this Agreement to any successor in interest prior to transfer of any rights held by Sparton in the site, and shall simultaneously verify to EID that such notice has been given. Sparton shall be relieved of its obligation to give notice to successors in interest upon termination of this Agreement pursuant to paragraph 12.

10. Stipulated Penalties for Noncompliance. If Sparton fails to substantially comply with any of the requirements of this Agreement, Sparton shall pay a penalty of six thousand dollars ($6,000.00) for each day of each violation of such requirements. Payment for such violations shall be made by certified check payable to the State of New Mexico, c/o EID, and shall be mailed to the New Mexico Health and Environment Department, Office of General Counsel, at the address in paragraph 4.n above.

11. Sparton to Provide Security for Performance. Sparton

shall, upon the signing of this Agreement, provide security in the amount of one million five hundred thousand dollars ($1,500,000.00) to guarantee performance of the tasks under this Agreement. A bond or other security approved by EID, will satisfy this requirement.

12. Termination. This Settlement Agreement shall terminate upon EID's certification to Sparton in writing that all programs required in paragraph 4 have been completed by Sparton and that the standards and criteria of paragraph 4.d have been met, or after twenty (20) years, whichever occurs first. Termination of this Settlement Agreement shall have no effect on the validity of any post-closure permit issued under HWMR-3.

Upon termination of this Settlement Agreement, EID shall provide Sparton with a release of liability. EID shall, upon termination, be forever barred from pursuing any judicial, administrative, or other action against Sparton arising out of or relating in any way to the subject matter of this Settlement Agreement.

13. Merger. This Settlement Agreement contains all the terms of the settlement agreement between the parties, there being no oral agreements not contained herein.

This Agreement is effective when signed by all parties to this Agreement.

| FOR SPARTON TECHNOLOGY, INC. | FOR THE ENVIRONMENTAL IMPROVEMENT DIVISION |
|---|---|
| RICHARD D. MICO<br>Vice President & General Manager | MICHAEL J. BURKHART<br>Director<br>Environmental Improvement Division |

Sparton Technology, Inc.
4901 Rockaway Blvd., S.E.
Albuquerque, NM 87124

DATE:_____

Chairman, Water Quality Control Commission
Post Office Box 968
Santa Fe, NM 87504-0968

DATE:_____

_____
JON F. DEWITT
Varnum, Riddering, Schmidt & Howlett
Suite 800
171 Monroe Avenue, N.W.
Grand Rapids, MI 49503

DATE:_____

_____
GINI NELSON
Office of General Counsel
Health and Environment Department
Post Office Box 968
Santa Fe, NM 87504-0968

DATE:_____

# NOTICE

Notice is hereby given that Sparton Technology, Inc. ("Sparton") and the Environmental Improvement Division ("EID") of the Health and Environment Department of the State of New Mexico have entered into a Settlement Agreement for remediation of contamination on land presently owned by Sparton in Bernalillo County, New Mexico, more specifically described as:

[Legal Description]

The Settlement Agreement requires continuing obligations from Sparton, its successors, personal representatives, administrators and assigns. The continuing obligations include treatment of contaminated ground water. The treatment operations are located on the above-described property, and may only be terminated in accordance with the provisions of the Settlement Agreement. The Settlement Agreement resolved disputed claims of the parties, none of which involved any questions of Sparton's title to the above-described property.

This Notice is filed, as required by the Settlement Agreement, to give notice to subsequent purchasers or grantees of the existence and location of the Agreement. A copy of the Agreement is attached hereto.

ATTACHMENT 4

TECHNICAL RESPONSE OF BLACK AND VEATCH

BLACK & VEATCH

5728 LBJ Freeway, Suite 300, Dallas, Texas 75240, (214) 770-1500, Fax: (214) 770-1549

MAY 4 1995

Sparton Corporation
Coors Road Facility
NMED-GWPRB
March 31, 1995 Letter

B&V Project 26602.100
B&V File A
May 3, 1995

Mr. Richard L.C. Virtue
Taichert, Wiggins, Virtue & Najjar
119 East Marcy Street
Suite 100
Santa Fe, New Mexico 87502-4265

Re: Sparton Technology Coors Road Facility
Albuquerque, New Mexico

Dear Mr. Virtue:

We have reviewed the March 31, 1995, letter from the Ground Water Protection and Remediation Bureau (GWPRB) of the New Mexico Environment Department (NMED). The letter was signed by Ms. Marcy Leavitt, Chief of the GWPRB. In accordance with your request, we are responding to various technical issues raised in the GWPRB letter. For reference, our responses will be numbered to correspond to the GWPRB issues.

1. Plume limits are defined within both the context of the Administrative Order on Consent between USEPA and Sparton and generally accepted RCRA Facility Investigation Guidance (RFIG) and Groundwater Monitoring Technical Enforcement Guidance (TEGD) documents. The GWPRB also asserts facts that are not accurate. Specific responses to each point will be given in the following subparagraphs a through j.

a. Upper flow zone (UFZ) monitor well MW-61 is not the "most downgradient" well within the Trichloroethylene (TCE) plume as asserted by GWPRB. UFZ well MW-53 is the most down-gradient well within the TCE plume based on all water level information collected to date. It should also be noted that the use of the word "downgradient" also implies movement when, in fact, the gradients west of the Sparton property are very flat -- in the order of 0.002 to .003 -- indicating low velocity. This gradient information was discussed in detail in the RCRA Facility Investigation (RFI) Report approved by USEPA.

b. There are several downgradient UFZ wells outside the TCE plume - MW-50, MW-52, MW-57, and PZ-1. MW-52 is immediately down-gradient of the plume.

c. MW-55 is the most downgradient lower lower flow zone (LLFZ) by design and also the only offsite LLFZ well. In the 1980's, a conscious decision was made, with EPA input and concurrence, to look at the UFZ as being most definitive for the plume and to minimize the number of wells in the upper lower flow zone (ULFZ) and LLFZ.

d. The GWPRB letter focuses on the results of two individual wells, MW-61 and MW-55, which are contained in two well clusters. However, it should be noted that the companion wells don't show the same trends/changes. MW-60 is the ULFZ companion to UFZ well MW-61, yet MW-60 has not shown significant increases. MW-48, UFZ companion to MW-55, has shown a steady decrease in TCE concentration since 1990. MW-56, the ULFZ companion to MW-55, has shown only slight increases in TCE concentration. Combining companion well (and other well) results shows that there is not a general significant increase in concentration at the leading edge of the plume.

e. It should be noted that, based on extended investigation through 1991, the TCE plume orientation generally followed presumed groundwater flow direction based on hydraulic gradient. However, with the 1993 sampling, the UFZ plume apparently has turned to the north or a second plume is showing up from a different source.

f. High TCE concentrations in individual wells do not necessarily imply more extensive distribution of the plume. The historical database at this site shows that large differences in TCE concen-tration over short vertical and/or horizontal distances are typical of the plume behavior and would generally be expected because of the very low advective velocities resulting in diffusion dominant transport (reference RFI Report, page 125). The length to width ratio of the plume and the upgradient movement further confirms the dominance of diffusion mechanics.

g. It appears that most of the GWPRB argument over plume definition is based on plume interpretative contouring (based on fourth quarter 1993 data) furnished to USEPA, and does not take into account the overall reduction in plume concentration in the rest of the plume.

h. MW-49 was located in an area that was believed to be immediately downgradient of the source area based on water level data available at the time of installation. With

respect to the UFZ and zone of relatively lower permeability (ZORLP), MW-49 would be downgradient. However, with respect to water level readings subsequently obtained in lower wells, MW-49 may be off gradient.

Note that the central "axis" of the plume varies with flow zone due to the location-specific variability between discrete wells. Part of the so-called lack of definition is an artifact of this variability. However, the northwest side cluster of MW-42 (ULFZ) and MW-43 (LLFZ) show a distinct decrease in concentration with depth and time. Both of these wells have been in essentially the center of the plume based on vertical cross-sections included in the RFI and subsequent submittals. MW-32 (LLFZ) has been demonstrated to be extremely erratic with TCE concentration varying over an order of magnitude and other non-representative constituents, including BTEX, showing up from time to time. Considering the vertical cross-section interpretation, MW-49 does add to the definition of the lower part of the plume.

i. TCE in the non-aqueous phase is denser than water (specific gravity = 1.4649). However, in the dissolved, aqueous phase, at the concentrations present at the site, TCE distribution will not be controlled by density. Historical data from the numerous wells at this site demonstrate that TCE spreads generally by diffusion processes and that advective and particularly density processes are not as significant. This lack of significance is probably the result of the low hydraulic gradients (i.e., low velocity) and the heterogeneous, anisotropic nature of the subsurface materials which retards and/or restricts any vertical movement of constituents.

j. The GWPRB analysis isolates MW-61 and MW-55 from the remainder of the data base. However, to do so invalidates the data and the general observations of the plume detailed to the present time (reference revised Effectiveness Report and RFI Report plume conclusions).

2. TCE mass in ground water has decreased significantly. TCE mass calculations were summarized in the revised Effectiveness Report submitted to USEPA on February 28, 1995. Supporting data and calculations were subsequently submitted informally to USEPA. These calculations show a decrease in TCE mass of over 50 percent since the original RFI sampling in 1989-1990.

a. Constituent mass (TCE) was determined for each flow zone using contoured approximations of the plume geometry and concentrations. The calculation method was adjusted for individual highs at discrete well locations. The results were totalled for all three flow zones to provide an estimate of TCE mass in the plume. Although the methodology may be a point of discussion with respect to absolute values, the chosen methodology was utilized in a consistent manner to evaluate the historical data so that relative changes in the TCE plume could be determined from year-to-year. In addition, the chosen methodology was based on published information previously submitted to USEPA and NMED rather than new analysis.

b. Extensive, quarterly monitoring of onsite wells for almost eight years has not shown any seasonal effects on concentration nor effects of irrigation of adjacent farmlands. In addition, limited off-site sampling on a quarterly basis has not shown any seasonal effects.

3. In our opinion, Sparton has taken such actions as are necessary or appropriate to contain and remove within the context of 40 CFR 264.100 and 264.101and NMWCC Regulation 1-203A5. It should be noted that GWPRB does not assert that there is a threat to human health and/or to the environment in their letter.

a. The GWPRB letter tries to argue that the plume is not contained; however, containment of the plume has never been sought nor has it been a requirement. From a factual standpoint, a very slow-moving plume posing no threat is typically not contained.

b. Under certain conditions, use of unconfined aquifer equations for calculation of capture zones would result in a smaller capture zone. However, for purposes of the revised Effectiveness Report, capture zone methodology was based on conversation with USEPA and reflects common practice. Confined condition equations were used because aquifer parameters at the site indicate that the aquifer behaves under confined conditions - probably due to the horizontally stratified subsurface materials (Reference RFI Report, page 63). Further, it has been shown in a number of common hydrogeologic references that there is little difference between confined and unconfined analyses when the studied aquifer is relatively thick and/or drawdowns are relatively small. Both these conditions are present at the Sparton site. In addition, the use of unconfined equations would

require more assumptions than for confined analysis. In any case, use of confined equations at the Sparton Facility would not result in the calculation of "a much smaller capture zone".

c. The GWPRB letter appears to confuse minimum observed radius of influence values given in the Effectiveness Report with predicted capture zones. Numerically and methodologically speaking, there is little relationship between the two. However, the observed radius of influence for a given well can be used to demonstrate minimum capture zone -- particularly in the direction transverse to the flow direction. Due to the parabolic nature of the capture zone, radius of influence may not be comparable in the flow direction. Further, measurable drawdown is not a requirement to define capture zone.

d. Characterization of the nature and extent of contamination was fully described in the RFI Report and approved by USEPA under the provisions of the Administrative Order on Consent. The mechanics and method of movement were described in that Report. Subsequent post-RFI monitoring may have resulted in a slight increase in plume dimensions (up to 10 percent total for all three flow zones) based on more conservative contouring (flatter concentration gradients in the leading edge of the plume as compared to the historical database). However, conclusions as to the mechanics of the plume remain unchanged -- a slow-moving plume dominated by chemical diffusion processes.

e. The GWPRB letter also fails to recognize that any characterization of a dynamic system must be for a fixed point in time or for a given time interval. Otherwise, no dynamic system can ever be characterized.

4. Regulatory basis -- no technical response.

5. For all of these reasons, the investigation has focused on the UFZ as being the most definitive location for describing the plume and its migration pattern. Questioning the investigative plan after the fact can always show that something else could have been done; however, the results obtained to-date indicate that the investigative plan is valid.

Although an argument can always be made for more data and more study, it is technically questionable whether significant additional data/study will materially add to the understanding of the site -- particularly with reference to the long-term database already generated at this site. Further, it is also technically questionable whether the GWPRB requests would modify the currently ongoing corrective measures study.

We trust that this review of the GWPRB letter is responsive to your request. If you have any questions, or need further information, please contact us.

Very truly yours,

BLACK & VEATCH

Pierce L. Chandler, Jr., P.E.
Project Manager

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