METRIC
Corporation ENVIRONMENTAL ENGINEERING AND SCIENCE

8429 WASHINGTON PLACE NE, SUITE A
ALBUQUERQUE, NEW MEXICO 87113
Phone: (505) 828-2801
Fax: (505) 828-2803

February 15, 1995

HAND DELIVERED

Ms. Barbara Hoditchek
RCRA Permit Program Manager
New Mexico Environment Department
Hazardous and Radioactive Materials Bureau
525 Camino de Los Marquez
Post Office Box 26110
Santa Fe, New Mexico 87502

Re: Sparton Technology, Inc. ("Sparton") - Preliminary Application

Dear Ms. Hoditchek:

We enclose a preliminary post-closure care permit application for administrative review. We are filing this application pursuant to the letter from Richard L. C. Virtue to you dated January 30, 1995. Sparton has agreed that this application would be filed to allow your office to commence an administrative review of the application pending action by Region VI of the United States Environmental Protection Agency on Sparton's corrective measures study submitted to EPA in November, 1992. Sparton has not yet received the comments of EPA on the corrective measures study; consequently, Sparton is unable to give you a time deadline for completing its application. We will continue to keep you informed concerning the status of EPA action.

A disc containing the text of the application is also enclosed, as requested.

001149

We also enclose, as Attachment 15 to the preliminary application, a copy of Sparton's latest form 10K on file with the Securities and Exchange Commission, which constitutes proof of registration, as required in Section 74-4-4.7 F, NMSA 1978.

If you have any questions, please contact me.

METRIC Corporation

By

cc: Jan Appel, Esq.
Pierce Chandler
Richard Virtue, Esq.

PRELIMINARY
RCRA POST-CLOSURE PERMIT APPLICATION
FOR ADMINISTRATIVE REVIEW
FOR
SPARTON TECHNOLOGY, INC.,
COORS ROAD PLANT
ALBUQUERQUE, NEW MEXICO

PREPARED FOR
SPARTON TECHNOLOGY, INC.
RIO RANCHO, NEW MEXICO

PREPARED BY
METRIC CORPORATION
ALBUQUERQUE, NEW MEXICO

FEBRUARY 1995

001151

TABLE OF CONTENTS

CERTIFICATION 1

INTRODUCTION 2

1.0 PART A PERMIT APPLICATION (40 CFR 270.13) 2

2.0 PART B PERMIT APPLICATION 3

2.1 General Description of the Facility [40 CFR 270.14(b)(1)] 3

2.1.1 General Information 3

2.1.2 Site Description 3

2.1.3 Facility Process 4

2.2 Chemical and Physical Analysis of Waste [40 CFR 270.14(b)(2)] . . . 5

2.3 Waste Analysis Plan [40 CFR 270.14(b)(3)] 6

2.4 Security [40 CFR 270.14 (b)(4)] 6

2.5 General Inspection Schedule [40 CFR 270.14 (b)(5)] 7

2.6 Preparedness and Prevention [40 CFR 270.14(b)(6)] 8

2.7 Contingency Plan [40 CFR 270.14(b)(7)] 8

2.8 Prevention of Run-off and Contamination of Water Supplies [40 CFR 270.14(b)(8)] 8

2.9 Ignitable, Reactive, and Incompatible Waste Precautions [40 CFR 270.14(b)(9)] 9

2.10 Traffic Pattern [40 CFR 270.14(b)(10)] 9

2.11 Facility Location Information [40 CFR 270.14(b)(11)] 9

2.11.1 Seismic/Faults 9

2.11.2 Floodplain 9

2.12 Personnel Training [40 CFR 270.14(b)(12)] 10

2.13 Post-Closure Plan [40 CFR 270.14(b)(13)] 10

2.14 Notice in Deed [40 CFR 270.14(b)(14)] 10

2.15 Closure Cost Estimate [40 CFR 270.14(b)(15)] 11

2.16 Post-Closure Cost Estimate and Financial Assurance Demonstration [40 CFR 270.14(b)(16)] 11

2.16.1 Post-Closure Cost Estimate 11

2.16.2 Demonstration of Financial Assurance 11

2.17 Documentation of Insurance [40 CFR 270.14(b)(17)] 11

2.18 Proof of Coverage by a State Financial Mechanism [40 CFR 270.14(b)(18)]
2.19 Topographic Map [40 CFR 270.14(b)(19)] 12
2.20 Supplemental Information [40 CFR 270.14(b)(20)] 12
3.0 ADDITIONAL INFORMATION REQUIREMENTS [40 CFR 270.14(c)] 14
3.1 Summary of Groundwater Monitoring Data [40 CFR 270.14(c)(1)] . 14
3.2 Aquifer Identification [40 CFR 270.14(c)(2)] 14
3.3 Topographic Map Delineations [40 CFR 270.14(c)(3)] 16
3.4 Description of Plume of Contamination [40 CFR 270.14(c)(4)] 16
3.5 Groundwater Monitoring Program [40 CFR 270.14(c)(5)] 17
3.6 Detection Monitoring Program [40 CFR 270.14(c)(6)] 17
3.7 Compliance Monitoring Program and Corrective Action Program [40 CFR 270.14(c)(8)] 18
3.7.1 Waste Description [40 CFR 270.14(c)(7)(i)] 18
3.7.2 Groundwater Contamination Characterization [40 CFR 270.14(c)(7)(ii)] 18
3.7.3 Hazardous Constituents of Concern [40 CFR 270.14(c)(7)(iii)] 18
3.7.4 Proposed Concentration Limits [40 CFR 270.14(c)(7)(iv)] . . 18
3.7.5 Proposed Groundwater Monitoring System [40 CFR 270.14(c)(7)(v)] 19
3.7.6 Statistical Data Evaluation [40 CFR 270.14(c)(7)(vi)] 19
3.8 Corrective Action Program [40 CFR 270.14(c)(8)] 19
3.8.1 Characterization of the Contaminated Groundwater [40 CFR 270.14(c)(8)(i)] 19
3.8.2 Concentration Limits for Hazardous Constituents [40 CFR 270.14(c)(8)(ii)] 19
3.8.3 Recommended Corrective Action [40 CFR 270.14(c)(8)(iii)] . 20
3.8.4 Adequacy of the Corrective Measure [40 CFR 270.14(c)(8)(iv)] 20
4.0 SOLID WASTE MANAGEMENT UNIT CLOSURE [40 CFR 270.14(d)] . . . 20
5.0 REFERENCES 21

ATTACHMENTS

ATTACHMENT 1 . . . . . PART A APPLICATION

ATTACHMENT 2 . . . . . TOPOGRAPHIC MAPS 1, 2, AND 3

ATTACHMENT 3 . . . . . POND WASTE ANALYSIS

ATTACHMENT 4 . . . . . POST-CLOSURE QUARTERLY INSPECTION CHECKLIST

ATTACHMENT 5 . . . . . CLOSURE PLAN, POND AND DRUM STORAGE AREAS

ATTACHMENT 6 . . . . . POST-CLOSURE CARE PLAN, COORS ROAD PLANT

ATTACHMENT 7 . . . . . NOTICE OF RESTRICTION IN PROPERTY DEED

ATTACHMENT 8 . . . . . TRUST AGREEMENT

ATTACHMENT 9 . . . . . CURRENT LETTER OF CREDIT

ATTACHMENT 10 . . . . . CERTIFICATE OF INSURANCE

ATTACHMENT 11 . . . . . SUMMARY OF GROUNDWATER MONITORING DATA

ATTACHMENT 12 . . GROUNDWATER MONITORING SYSTEM WELL LOCATIONS (MAP 4)

ATTACHMENT 13 . . . . . GROUNDWATER SAMPLING AND ANALYSIS PLAN

ATTACHMENT 14 . . LETTERS OF TRANSMITTAL AND APPROVAL FOR RFI AND LETTERS OF TRANSMITTAL FOR CORRECTIVE MEASURES STUDY REPORT

ATTACNMENT 15 . SECURITIES AND EXCHANGE COMMISSION FORM 10K FOR FISCAL YEAR ENDING JUNE 30, 1994

PRELIMINARY
RCRA POST-CLOSURE PERMIT APPLICATION
FOR ADMINISTRATIVE REVIEW
FOR
SPARTON TECHNOLOGY, INC., COORS ROAD PLANT
ALBUQUERQUE, NEW MEXICO

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Richard D. Mico

Richard D. Mico, Vice President and General Manager
Sparton Technology, Inc.

Date: 2/14/95

PRELIMINARY

RCRA

POST-CLOSURE PERMIT APPLICATION

FOR ADMINISTRATIVE REVIEW

FOR

SPARTON TECHNOLOGY, INC., COORS ROAD PLANT

INTRODUCTION

This document constitutes a preliminary RCRA Post Closure Permit Application for administrative review addressing permitting requirements of Title 20, Chapter 4, Part 1 of the New Mexico Hazardous Waste Management Regulations adopted by the New Mexico Environment Improvement Board. Applicable subparts of these regulations directly incorporate regulations of the U.S. Environmental Protection Agency in 40 CFR Parts 260 through 266 and Parts 268 and 270. Sparton first submitted a post closure permit application in March 1986.

The application includes a Part A Hazardous Waste Permit Application Form, and Part B information required. Attachments of supporting data are provided at the end of the document.

1.0 PART A PERMIT APPLICATION (40 CFR 270.13)

A copy of the completed Part A application is provided as ATTACHMENT 1.

001156

2.0 PART B PERMIT APPLICATION (40 CFR 270.14)

2.1 General Description of the Facility [40 CFR 270.14(b)(1)]

2.1.1 General Information

Name of Facility:	Coors Road Plant
Owner and Operator:	Sparton Technology, Inc.
EPA I.D. Number:	NM083212332
Mailing Address:	4901 Rockaway Blvd., SE Rio Rancho, New Mexico 87124-4469
Facility Location:	9621 Coors Road, NW Albuquerque, New Mexico
Site Telephone No.:	(505) 892-5300
Type of Facility:	Manufacturing

2.1.2 Site Description

Sparton Technology, Inc., has operated an electronics manufacturing plant at its Coors Road facility since 1961. Since the plant was opened, manufactured products have been commercial, industrial, and military electronics which include circuit board assemblies, transducers, sensors, and pressure systems. The printed circuit manufacturing process employs the use of metal plating which generates an aqueous plating waste characterized as hazardous due to its heavy metals content and corrosivity. Electronics assembly employs the use of solvent cleaning which generates spent halogenated and non-halogenated solvents.

The site is located on a 12-acre tract about one half mile northwest of the Rio Grande and on the west side of Coors Road, NW in Bernalillo County, New Mexico. MAPS 1, 2, and 3 provided in ATTACHMENT 2 show the plant vicinity. Locally, the area is hilly and

001157

slopes in several wide terraces toward the Rio Grande. The site is approximately 60 feet above the river elevation, and about 60 feet lower than the lowest end of the Paradise Hills residential area, located about three quarters of a mile to the west of the site. Elevations within the property boundaries range from 5,040 to 5,055 feet above sea level. But the elevations within the hazardous waste storage facility do not vary more than one or two feet. Approximately 200 feet southeast of the site, across Coors Road, is the Corrales Canal, an irrigation waterway. The Calabacillas Arroyo is located about one quarter mile north of the site. The soil in the plant facility is fine sand. The groundwater table occurs approximately 65 feet below the ground surface at the property and is moving in a west southwesterly direction.

There are no existing or planned residential uses of land adjacent to the facility. Current zoning restricts development of residential land uses in proximity to the facility. Commercial land use is currently established on adjacent lands to the north and south of the plant site. Commercial land use is also planned to the west of the facility.

The Sparton facility is located both within Bernalillo County and City of Albuquerque zoning jurisdictions. Zoning designations are delineated on MAP 3, ATTACHMENT 1. The county M-1 zone and the city SU-1 for C-2 provide for light manufacturing and assembly. Adjacent land to the north is also zoned for manufacturing. To the west and south of the facility, zoning is for commercial development. Lands to the east of the facility are zoned for agriculture. These current zone designations for lands adjacent to the facility are supported and recommended to be maintained in the future by the Coors Corridor Plan (April 1984).

2.1.3 Facility Process

The Coors Road facility manufacturing process previously generated two waste streams which were managed as hazardous wastes: an aqueous metal plating waste, and a solvent waste stream. The plating wastes were stored in an in-ground concrete basin

001158

until approximately 1975. This basin was replaced by a lined surface impoundment in 1975, known as the West Pond. A second lined surface impoundment was installed in about 1977. This pond was known as the East Pond. Accumulated wastewater was periodically removed from the ponds by a hazardous waste contractor for off-site disposal at a permitted facility. MAP 1, ATTACHMENT 2, indicates the facility layout.

Following installation of the East Pond, the West Pond was not used again until January 1981. At that time, the West Pond was reconstructed. Between 1981 and August 1983, use of the two ponds was alternated in order to provide for periodic pond inspections. In August 1984, Sparton ceased discharging to the ponds, and had the plating waste contents removed and disposed of by a hazardous waste contractor. Subsequent plating waste generated has been stored in an on-site "less than 90 day" storage facility prior to shipment to a permitted off-site disposal facility.

Waste solvents were accumulated in an on-site concrete sump and allowed to evaporate. Use of this sump was discontinued in 1980, at which time Sparton initiated storage of the waste solvents in drums prior to off-site disposal at a permitted facility.

The East and West ponds and the concrete sump were capped under a state approved closure plan in December 1986. The fourth hazardous storage unit operated at the Coors Road facility since 1980 was the old drum storage area which was also capped and closed in January 1987 under the approved closure plan (MAP 1, ATTACHMENT 2).

2.2 Chemical and Physical Analysis of Waste [40 CFR 270.14(b)(2)]

The wastes which were stored in the East and West ponds and in the sump were typical of electronic manufacturing facilities. When active, the two ponds were used exclusively for the storage of wastewater from electroplating operations. The waste was a liquid at 70° F with a density of 8.8 pounds per gallon and a solids content of 9 percent. A waste material profile and analytical report are provided in ATTACHMENT 3.

001159

Wastes stored in the sump were a mixture of waste solvents from processing and degreasing operations. Predominant constituents of the waste mixture are inferred from groundwater analyses. Groundwater analyses were first conducted in 1983, and, in 1985, routine quarterly sample analyses were initiated under a State approved program for a number of on-site monitoring wells. Based on these historical groundwater analyses, the primary hazardous constituents of the sump appear to include trichloroethylene (TCE) and 1,1,1-trichloroethane (TCA), with lesser amounts of methylene chloride (MeCl), acetone, 1,1-dichloroethylene (DCE), and chromium. Groundwater analysis data is provided in ATTACHMENTS 1, 9, and 11 of the RCRA Facility Investigation for the site and in ATTACHMENT 11 of this application.

2.3 Waste Analysis Plan [40 CFR 270.14(b)(3)]

Sparton requests a waiver of the requirement for a waste analysis plan, as the sump and pond facilities have not received waste material since September, 1984. The facilities were certified closed in 1987.

2.4 Security [40 CFR 270.14 (b)(4)]

After closure, the area will be bounded by the operating facility on one side and an 8-foot-high chain link fence on the other three sides. Access to the area will be by a locking personnel gate in the fence on the northwest side and a locking vehicular gate on the southeast side. Signs will be posted at all gates reading "DANGER, Unauthorized Personnel Keep Out" in English and Spanish. The signs will have black letters on a yellow background, and will be visible from at least 25 feet in all approaching directions. Security inspections of the fences, gates, locks, and signs will take place on a quarterly basis to assure equipment integrity and to look for evidence of vandalism and/or tampering. Should any security problem be found during inspection, or by notification to the facility security office, appropriate personnel will be immediately informed and repairs and/or replacement will commence as soon as possible and be completed prior to the

001160

next quarterly inspection. A security checklist component is included in the overall post-closure care inspection checklist provided in ATTACHMENT 4. Future use of the property may require revisions to security provisions of the property.

2.5 General Inspection Schedule [40 CFR 270.14 (b)(5)]

After closure, and in addition to the security inspection, a general inspection of the condition of the surface of the area will be made on a semi-annual basis. To facilitate this inspection, vehicular access to the area will be restricted for a length of time sufficient to complete a thorough inspection. This inspection will include the drainage swale on the north and west sides of the area to assure that it is clear of debris and that the sides are physically intact. A visual inspection of the entire 3-inch-thick asphalt wearing surface will also be performed. The location of any gouges, cracks, surface movement, and/or pavement deterioration (chemical or natural) will be noted. Any such breaches of the wearing surface which expose (however slightly) the asphalt base will be repaired and will commence immediately. Undisturbed wearing surface material, for a distance of 6 inches in all directions around the breach, will be removed and this area resurfaced as specified for the initial paving in the Closure Plan (ATTACHMENT 5). If, at any time between inspections, any sort of breach of the wearing surface is reported, there will be an immediate inspection to determine if repair is necessary.

Inspection of the ground-water monitoring wells will include the working order of the security caps and physical damage to the protective casing or surface grouting. If, during the ground-water sampling, it is determined that a well has become inoperable, the well will be plugged and a replacement well drilled and developed (in accordance with the specifications in the Closure Plan) prior to the next sampling period. A recommended inspection checklist component for monitoring wells is included in ATTACHMENT 4.

001161

2.6 Preparedness and Prevention [40 CFR 270.14(b)(6)]

Sparton requests a waiver of the requirement for the preparedness and prevention requirements, as the sump and pond facilities have not received waste material since September, 1984. The facilities were certified closed in 1987.

2.7 Contingency Plan [40 CFR 270.14(b)(7)]

The hazardous waste facility at the Sparton Coors Road plant will not present a current or future threat to human health or the environment, due to the design of the closure caps. As the solvent contaminant leaked below ground, no hazard due to explosion or fire is present. Sparton is committed to an inspection program during the post-closure period. This program will be conducted by trained Sparton staff. In the event that deterioration of the closure cover, monitoring wells, or security fence is found by the personnel, repair of the damaged equipment or material will be initiated in a timely manner.

No emergency situations are anticipated to occur at the facility, as closure has removed the ponds and sump. The groundwater monitoring program that has been established for this site and that will continue as an integral part of the Post-Closure Plan for this facility is designed to detect any change in groundwater quality or extent of the plume.

2.8 Prevention of Run-off and Contamination of Water Supplies [40 CFR 270.14(b)(8)]

Closure caps were placed in December 1986 at the sump and pad area and in January, 1987 at the old drum storage area. The cap provides protection from runoff across the hazardous waste facility and infiltration to the ground.

001162

2.9 Ignitable, Reactive, and Incompatible Waste Precautions [40 CFR 270.14(b)(9)]

As Sparton has removed all waste from the sump, pond, and old drum storage area, no ignitable, reactive, or incompatible wastes will be stored at the facility. Small amounts of hazardous waste that have been generated in the manufacturing process since closure, is stored in drums at a "less than 90 day" new drum storage facility at the plant. Therefore, Sparton requests a waiver of this requirement, with respect to these small amounts of hazardous waste.

2.10 Traffic Pattern [40 CFR 270.14(b)(10)]

Traffic in proximity to the closed hazardous waste facility at Sparton will be limited to vehicles associated with performing maintenance and monitoring, and will be limited to probably a few vehicles per day. Due to this condition, Sparton requests a waiver of the traffic pattern requirement. Future use of the property may require revisions to the traffic pattern provisions of the permit.

2.11 Facility Location Information [40 CFR 270.14(b)(11)]

2.11.1 Seismic/Faults

As the facility is located in Bernalillo County, New Mexico, it is identified in APPENDIX VI of Part 264 as a political jurisdiction in which compliance with 264.18(a) must be demonstrated. According to Kelley (1977), the facility is not located within 3000 feet of a fault which has had displacement in Holocene time.

2.11.2 Floodplain

Flooding in the vicinity of the Sparton Coors Road Plant facility is covered by MAP 1, ATTACHMENT 2. As indicated on this map, the Coors Road Plant facility is located

001163

outside the 500-year floodplain. No designated 500-year floodplain boundary is within 500 feet of the plant facility.

2.12 Personnel Training [40 CFR 270.14(b)(12)]

Personnel training will be an integral part of Sparton's post-closure plan for this facility. The program will assure that the personnel involved in the post-closure activities will be properly trained to inspect the security measures, condition of the closure covers, and groundwater monitoring wells.

Staff responsible for performing groundwater monitoring, including well sampling, sample handling and data assessment, will be qualified professional personnel. Such personnel will have received substantial training in environmental field procedures through a combination of academic training and professional experience, and may be a combination of Sparton permanent staff and environmental consultant staff. Staff will have completed a 40-hour OSHA hazardous waste health and safety course. A fully qualified hydrologist or environmental scientist will always supervise field sampling efforts, will review results of sampling, and will assess the significance of monitoring data. As needed over the period of the monitoring program, these professional hydrologists and environmental scientists may train other staff to assist in field sampling efforts of groundwater monitoring.

2.13 Post-Closure Plan [40 CFR 270.14(b)(13)]

Copies of the Closure Plan and the Post-Closure Plan are included in the application as ATTACHMENTS 5 and 6, respectively.

2.14 Notice in Deed [40 CFR 270.14(b)(14)]

Sparton has filed with the Clerk of Bernalillo County a Notice of Restriction regarding the

001164

Coors Road facility property, in order to notify any potential purchaser of the property that the land has been used to manage hazardous waste, and that its use is, therefore, restricted. A copy of this Notice of Restriction is provided as ATTACHMENT 7. The notice will remain in place until Sparton is released from regulatory requirements.

2.15 Closure Cost Estimate [40 CFR 270.14(b)(15)]

The pond and sump area was closed in 1986, and the old drum storage area in 1987. Cost estimates for closure are provided in ATTACHMENT 5, Closure Plan for Pond and Drum Storage Areas, December 19, 1985.

2.16 Post-Closure Cost Estimate and Financial Assurance Demonstration [40 CFR 270.14(b)(16)]

2.16.1 Post-Closure Cost Estimate

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

2.16.2 Demonstration of Financial Assurance

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

2.17 Documentation of Insurance [40 CFR 270.14(b)(17)]

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

001165

2.18 Proof of Coverage by a State Financial Mechanism [40 CFR 270.14(b)(18)]

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

2.19 Topographic Map [40 CFR 270.14(b)(19)]

ATTACHMENT 2 provides necessary information on three topographic maps covering 1000 feet distance around the Sparton facility at a scale of 1 inch equals 200 feet and a contour interval of 5 feet. Information provided addresses 40 CFR 270.14(b)(19), and (c)(2), (c)(3), and (c)(4)(i).

MAP 1 delineates the 500-year floodplain in the map area. Surface water courses include intermittent arroyos and irrigation channel. Flood control structures are also shown.

MAP 2 indicates monitoring wells on and off site, hazardous waste management area, groundwater flow direction and rate, water table contours, and extent of plume of contamination.

Zoning designations and land use are delineated on MAP 3. Designations are principally commercial/light manufacturing, agriculture, and single family residential. Existing land use is indicated by shading on the map, as residential, commercial, agriculture, and undeveloped area. The agriculture designation is for irrigated agriculture only. Commercial land use includes office, retail sales, public utility structures/easement, light manufacturing and assembly, day care center, restaurant, and bank.

2.20 Supplemental Information [40 CFR 270.14(b)(20)]

Exposure information, as required in 40 CFR 270.10(j((1), is presented in this section.

001166

Potential receptors and exposure pathways have been addressed in the RCRA Facility Investigation, May, 1992, as approved by EPA July 1, 1992.

Groundwater

The plume of contamination, as delineated on MAP 2 of ATTACHMENT 2, follows a down gradient direction of groundwater flow to the west northwest. Due to the absence of significant development downgradient of the Sparton facility, the general location of the plume relative to surface features, and the static condition of the plume areal extent, there are few receptors to the contamination characterized in the plume.

The nearest downgradient municipal well is approximately 2.5 miles west northwest of the Sparton facility; 2.1 miles from the leading edge of the plume. The Sparton vicinity is currently, almost exclusively served by a municipal water supply system. Within the limit of the current municipal well planning horizon of the year 2000, no additional municipal wells are planned for this vicinity. There are no private production wells in the plume area. According to records of the New Mexico State Engineer Office, several private wells are located to the north, south, and east of the Sparton property. Considering the current level of development, and the availability of municipal water, installation of private wells in the plume area is not anticipated in the foreseeable future. Because of the absence of wells within the immediate plume area and the generally static nature of the plume, groundwater is not currently an exposure pathway.

Surface Waters

Local surface water sources are the Corrales Main Canal, the Corrales Riverside Drain, and the Rio Grande which provide water for irrigated agriculture to the east of the Sparton site. No expansion of this agricultural use is contemplated. These surface waters also support vegetative habitats and associated wildlife. No expansion of this function is

001167

planned. Some limited fishing is currently available in the Corrales Riverside Drain and Rio Grande east of the site. No expansion of fishing opportunities is expected in the future in this area, according to the New Mexico Game and Fish Department.

The Rio Grande and its associated canals and drains to the east of the Sparton property and the ephemeral Calabacillas Arroyo which drains from the northwest to the east of Sparton are sources of recharge to the local groundwater aquifer. The plume of contamination delineated at the Sparton facility is substantially distant horizontally, and well downgradient of these surface water courses.

No domestic or municipal surface water sources exist within a 1.5-mile radius of the Sparton facility. Irrigation at residential, commercial, and industrial establishments is principally derived from municipal water systems. To our knowledge, no future development of surface water for domestic or municipal uses is anticipated for the area. No current industrial uses of surface waters are known in the local area, and no future surface water use is anticipated.

3.0 ADDITIONAL INFORMATION REQUIREMENTS [40 CFR 270.14(c)]

3.1 Summary of Groundwater Monitoring Data [40 CFR 270.14(c)(1)]

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

3.2 Aquifer Identification [40 CFR 270.14(c)(2)]

The Sparton Technology facility is centrally situated in the Albuquerque Basin of New Mexico, as defined by Bryan, 1938. The facility is located about 3000 feet west of the Rio Grande in the Rio Grande Valley.

001168

The Albuquerque Basin is estimated to be approximately 10,000 feet thick along its axis, with sediment thickness varying throughout the basin boundaries. Geologic materials of the Albuquerque Basin are principally represented by the Santa Fe Group of Tertiary age overlain by Quaternary fill deposits. These deposits together comprise the local aquifer relevant to the Sparton facility.

Monitoring wells which defined the plume of contamination in the Sparton vicinity are estimated to be completed in the Quaternary Alluvium, above the Santa Fe Group. The water table at the facility is 65 to 75 feet deep, and extends to 200 feet in the upland area to the west. The quaternary section of the aquifer is a relatively thick sequence of clay, mud, sand, and gravel, designated by Lambert (1967) as the Los Duranes Formation, estimated to be 300 to 400 feet thick.

Three flow zones have been used to describe the site specific hydrogeology of concern. These flow zones were identified as the upper, lower, and third flow zones. The lower flow zone was divided into two members: the upper lower flow zone and the lower lower flow zone. The flow zones are distinguished on the basis of stratigraphic and potentiometric differences observed on site.

Investigative work to date, as outlined in the May 1992 RFI, indicates that all of the referenced flow zones are hydraulically connected and constitute a single groundwater unit. However, due to the saturated thickness and the heterogenous nature of this single groundwater unit, retention of this flow zone identification is useful for vertical location purposes and in three-dimensional descriptions of the hydrogeology.

Water table contours for the upper flow zone are delineated on MAP 2 in ATTACHMENT 7, and are based on December 1993 data. This data is representative of the highest groundwater conditions corresponding to the end of the irrigation (recharge) season. Gradients are generally to the southwest across the Sparton property, as indicated on MAP 2. Between the facility and Irving Boulevard, gradients are generally to the west and

001169

northwest. Beyond Irving Boulevard the gradients begin a gradual arc back to an established southwestward regional gradient. Calculation of groundwater velocity in the upper flow zone indicates a range between 5.88 feet per year and 83.04 feet per year. This range is indicative of the variable properties of the aquifer.

Supporting data regarding aquifer characteristics and groundwater movement in the Sparton Coors Road Plant vicinity is provided in the two-volume RCRA Facility Investigation, May 1992, and in the Draft Corrective Measure Study Report, November 1992.

3.3 Topographic Map Delineations [40 CFR 270.14(c)(3)]

MAP 2, included in ATTACHMENT 2, delineates, in addition to requirements of 270.14(b)(19), the waste management area, the property boundary, the proposed point of compliance, the location of monitoring wells, water table contours, and the groundwater flow direction and rate.

3.4 Description of Plume of Contamination [40 CFR 270.14(c)(4)]

The plume of contamination at the Sparton facility for the purpose of delineation is exemplified by data on the TCE concentration collected from twenty-two upper flow zone wells. The general configuration of the containment plume is illustrated on MAP 2 in ATTACHMENT 2. The TCE concentrations were obtained from sampling and analysis conducted during December, 1993. The less than 5mg/l isopleth or contour represents the detection limit of the perimeter of the plume. Based on this boundary, the length along the longitudinal axis of the plume is approximately 2600 feet northwest from the facility's western property line. The longitudinal axis of the plume closely parallels the implied direction of groundwater flow indicated in MAP 2, ATTACHMENT 7. Transverse width of the plume is approximately 1400 feet.

001170

Recent data indicates that the areal extent and concentration of the TCE plume may be increasing in the area of MW-61 (MAP 2, ATTACHMENT 2). The TCA plume has a similar alignment to the TCE plume with a slight inverse in width. However, off-site concentrations of TCA are generally over an order of magnitude less than the TCE plume. However, the average concentration of TCA has dropped. The data comparison also indicates no migration of the TCA plume over the last several years.

The predominant APPENDIX IX constituents found consistently throughout the study area are TCE and TCA. DCE and MeCl were detected on a less frequent or consistent basis, but still with some regularity. Chromium was detected with some regularity within the boundaries of the TCE plume in the upper and upper lower flow zones.

The presence of benzene, toluene, ethylbenzene, and xylene appear to be isolated to monitoring wells 32, 9, 14, and 16. Occurrences of other APPENDIX IX constituents were random and inconsistent. Concentrations of APPENDIX IX constituents in monitoring well locations is provided in ATTACHMENT 11.

3.5 Groundwater Monitoring Program [40 CFR 270.14(c)(5)]

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

3.6 Detection Monitoring Program [40 CFR 270.14(c)(6)]

Hazardous constituents have been identified in groundwater at the Sparton Coors Road Plant. Sparton requests a waiver of the requirement for submission of a detection monitoring program.

001171

3.7 Compliance Monitoring Program and Corrective Action Program [40 CFR 270.14(c)(8)]

The presence of certain hazardous constituents has been detected in the groundwater at the point of compliance. Also, the hazardous constituents have been measured in the groundwater and found to be in excess of background concentrations. A Corrective Action Program has been prepared for the Sparton facility and is provided in two parts, a RCRA Facility Investigation (RFI) and a Draft Corrective Measures Study Report. These documents have previously been submitted to the U.S. Environmental Protection Agency, as substantiated by transmittal letters provided in ATTACHMENT 14. Copies of the documents were provided to the New Mexico Environment Department.

3.7.1 Waste Description [40 CFR 270.14(c)(7)(i)]

A description of the hazardous waste previously handled at the Sparton facility has been provided under Section 2.2 of this application.

3.7.2 Groundwater Contamination Characterization [40 CFR 270.14(c)(7)(ii)]

Groundwater contamination characterization is provided in the RFI, Section III.B. Concentrations of hazardous constituents are summarized in ATTACHMENT 11.

3.7.3 Hazardous Constituents of Concern [40 CFR 270.14(c)(7)(iii)]

Compliance monitoring will be undertaken to determine the presence of chlorinated hydrocarbons (TCE, TCA, and DCE) and chromium.

3.7.4 Proposed Concentration Limits [40 CFR 270.14(c)(7)(iv)]

Proposed concentration limits are expressed as maximum concentration levels, in

001172

accordance with the Safe Drinking Water Act, and are outlined in FIGURE 17, page 50, of the draft Corrective Measures Study Report.

3.7.5 Proposed Groundwater Monitoring System [40 CFR 270.14(c)(7)(v)]

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

3.7.6 Statistical Data Evaluation [40 CFR 270.14(c)(7)(vi)]

Statistical analysis techniques are proposed for use in determining the adequacy of groundwater cleanup measures. The techniques will adhere to 40 CFR 264.97(h).

3.8 Corrective Action Program [40 CFR 270.14(c)(8)]

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988. The Corrective Action Program is currently being developed in conjunction with the USEPA, Region VI, under the consent order.

3.8.1 Characterization of the Contaminated Groundwater [40 CFR 270.14(c)(8)(i)]

Characterization of the contaminated groundwater has been previously summarized under Section 3.7.2 and is also presented in the Corrective Measures Study Report (Section III.B.).

3.8.2 Concentration Limits for Hazardous Constituents [40 CFR 270.14(c)(8)(ii)]

Concentration limits for hazardous constituents have been previously outlined under Section 3.7.4.

001173

3.8.3 Recommended Corrective Action [40 CFR 270.14(c)(8)(iii)]

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

3.8.4 Adequacy of the Corrective Measure [40 CFR 270.14(c)(8)(iv)]

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988. The Corrective Action Program is currently being developed in conjunction with the USEPA, Region VI, under the consent order.

4.0 SOLID WASTE MANAGEMENT UNIT CLOSURE [40 CFR 270.14(d)]

The Sparton Coors Road Plant facility operation produced two waste streams: an aqueous metal plating waste stream and a spent solvent waste stream. The aqueous plating wastes were stored on site in one of two adjacent lined ponds approximately nineteen feet by twenty-eight feet in surface dimension and approximately five to six feet deep. The spent solvent waste was stored in a sump approximately five feet by five feet and two feet deep. The ponds and sump were periodically emptied by vacuum truck for off-site disposal at a permitted facility.

The solvent sump was removed from service in October 1980 and the solvent waste stream diverted to drums stored in a "less-than-ninety-day" on-site storage area. All residues in the sump were removed and the sump was then backfilled to prevent water accumulation and/or continued use.

The metal plating waste ponds were removed from service in 1983 and all waste residues were removed. The metal plating waste stream was diverted to a "less-than-ninety-day" on-site drum storage area.

001174

Final pond and sump closure was completed in December 1986 under a state-approved closure plan, ATTACHMENT 5. Sparton had worked closely with the New Mexico Environmental Improvement Division (NMEID) since 1983 to investigate possible releases from the Solid Waste Management Units (SWMU's) and to develop a final closure plan for the units. The state-approved closure plan included removing the ponds and sump and capping the entire pond/sump area with an asphaltic concrete cap approximately seventy feet by ninety feet in areal extent to eliminate surface infiltration.

5.0 REFERENCES

Bernalillo County. 1988. Bernalillo County Zoning Atlas, Volume 1.

City of Albuquerque, 1994. Albuquerque Geographic Information System, Planning Department, Zoning Maps.

City of Albuquerque, Planning Department. April 1984. Coors Corridor Plan.

Bryan, Kirk. 1938. Geology and Groundwater Conditions of the Rio Grande Depression in Colorado and New Mexico. Regional Planning, Pt. 6, Rio Grande Joint Investigation Upper Rio Grande Basin, Natural Resources Commission, Vol. 1, Part 2, Section 1.

Environmental Protection Agency. July 1993. Code of Federal Regulations, 40 CFR Parts 260 to 299.

Federal Emergency Management Agency, National Flood Insurance Program. September 15, 1983. Flood Boundary and Floodway Maps, City of Albuquerque, New Mexico, Bernalillo County. Community-Panel Numbers 350002 0002 and 0008.

Harding Lawson Associates. October 19, 1987. Off-Site Investigation, Coors Road Plant,

001175

Sparton Technology, Inc., Albuquerque, New Mexico.

Kelley, V. C. 1977. Geology of Albuquerque Basin, New Mexico. New Mexico Bureau of Mines and Mineral Resources, Memoir 33.

Lambert, P. W. 1968. Quaternary Stratigraphy of the Albuquerque Area, New Mexico. Ph.D. Dissertation, University of New Mexico.

New Mexico Environmental Improvement. September 23, 1994. Environmental Protection Title 20, Hazardous Waste Chapter 4, Part 1, Hazardous Wste Management Regulations (EIB/HWMR-7).

U.S. Department of Agriculture, Soil Conservation Service. June 1977. Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico.

U.S. Department of Commerce, Weather Bureau. 1958. Wind Summary and Annual Wind Rose, 1949-1958.

001176

ATTACHMENT 1

PART A APPLICATION

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

GSA No. 0248-EPA-01

For EPA Regional Use Only		

Date Received
Month Day Year

United States Environmental Protection Agency
Washington, DC 20460

Hazardous Waste Permit Application Part A

(Read the Instructions before starting)

I. Installation's EPA ID Number *(Mark 'X' in the appropriate box)*

[ ] A. First Part A Submission

[X] B. Part A Amendment # 1

C. Installation's EPA ID Number	D. Secondary ID Number *(If applicable)*
NMD083212332	

II. Name of Facility

SPARTON TECHNOLOGY INC

III. Facility Location *(Physical address not P.O. Box or Route Number)*

A. Street

9621 COORS ROAD NE

Street *(Continued)*

City or Town	State	Zip Code
ALBUQUERQUE	NM	87114 –

County Code (If known)	County Name
	BERNALILLO

B. Land Type	C. Geographic Location		D. Facility Existence Date
(Enter code)	LATITUDE (Degrees, Minutes, & Seconds)	LONGITUDE (Degrees, Minutes & Seconds)	Month Day Year
P	35 11 05	106 39 38	

IV. Facility Mailing Address

Street or P.O. Box

4901 ROCKAWAY BLVD SE

City or Town	State	Zip Code
RIO RANCHO	NM	87124 – 4469

V. Facility Contact *(Person to be contacted regarding waste activities at facility)*

Name *(Last)*	*(First)*
WAKEFIELD	JOHN

Job Title	Phone Number *(Area Code and Number)*
ENV SAFETY ENGR	505 – 892 – 5300

VI. Facility Contact Address *(See instructions)*

A. Contact Address Location	Mailing	Other	B. Street or P.O. Box
	X		4901 ROCKAWAY BLVD SE

City or Town	State	Zip Code
RIO RANCHO	NM	87124 – 4469

001178

Please print or type with ELITE type (12 characters per inch) in the unshaded areas only

GSA No. 0248-EPA-OT

EPA I.D. Number *(Enter from page 1)*: NMD083212332

Secondary ID Number *(Enter from page 1)*:

VII. Operator Information *(See instructions)*

Name of Operator: SPARTON TECHNOLOGY INC

Street or P.O. Box: 4901 ROCKAWAY BLVD SE

City or Town: RIO RANCHO

State: NM

ZIP Code: 87124-

Phone Number *(Area Code and Number)*: 505-892-5300

B. Operator Type: P

C. Change of Operator Indicator: Yes [ ] No [X]

Date Changed Month Day Year:

VIII. Facility Owner *(See Instructions)*

A. Name of Facility's Legal Owner: SPARTON CORPORATION

Street or P.O. Box: 2400 EAST GANSON STREET

City or Town: JACKSON

State: MI

ZIP Code: 49302-

Phone Number *(Area Code and Number)*: 800-248-9579

B. Owner Type: P

C. Change of Owner Indicator: Yes [ ] No [X]

Date Changed Month Day Year:

IX. SIC Codes *(4-digit, in order of significance)*

Primary	Secondary
3699 (Description) Machine Shop	(Description)
Secondary	**Secondary**
(Description)	(Description)

X. Other Environmental Permits *(See Instructions)*

A. Permit Type *(Enter code)*	B. Permit Number	C. Description
	NMR00A453	NPDES Storm Water Permit

001179

EPA I.D. Number *(Enter from page 1)*

N	M	D	0	8	3	2	1	2	3	3	2

Secondary ID Number *(Enter from page 1)*

XI. Nature of Business *(Provide a brief description)*

Sparton Technology, Inc. has operated an electronics manufacturing plant at its Coors Road facility since 1961. Since the plant was opened, manufactured products have been commercial, industrial, and military electronics which include circuit board assemblies, transducers, sensors, and pressure systems. The printed circuit manufacturing process employs the use of metal plating which generates an aqueous plating waste characterized as hazardous due to its heavy metals content and corrosivity. Electronics assembly employs the use of solvent cleaning which generates spent halogenated and non-halogenated solvents.

XII. Process Codes and Design Capacities

A. PROCESS CODE - *Enter the code from the list of process codes below that best describes each process to be used at the facility. Thirteen lines are provided for entering codes. If more lines are needed, attach a separate sheet of paper with the additional information. For "other" processes (i.e., D99, S99, T04 and X99), describe the process (including its design capacity) in the space provided in item XIII.*

B. PROCESS DESIGN CAPACITY - *For each code entered in column A, enter the capacity of the process.*

1. **AMOUNT** - *Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.*
2. **UNIT OF MEASURE** - *For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.*

C. PROCESS TOTAL NUMBER OF UNITS - *Enter the total number of units used with the corresponding process code.*

PROCESS CODE	PROCESS	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
	Disposal:	
D79	Underground Injection	Gallons; Liters; Gallons Per Day; or Liters Per Day
D80	Landfill	Acre-feet or Hectare-meter
D81	Land Treatment	Acres or Hectares
D82	Ocean Disposal	Gallons Per Day r Liters Per Day
D83	Surface Impoundment	Gallons or Liters
D99	Other Disposal	Any Unit of Measure Listed Below
	Storage:	
S01	Container (Barrel, Drum, Etc.)	Gallons or Liters
S02	Tank	Gallons or Liters
S03	Waste Pile	Cubic Yards or Cubic Meters
S04	Surface Impoundment	Gallons or Liters
S05	Drip Pad	Gallons or Liters
S06	Containment Building-Storage	Cubic Yards or Cubic Meters
S99	Other Storage	Any Unit of Measure Listed Below
	Treatment:	
T01	Tank	Gallons Per Day or Liters Per Day
T02	Surface Impoundment	Gallons Per Day or Liters Per Day
T03	Incinerator	Short Tons Per Hour; Metric Tons Per Hour; Gallons Per Hour; Liters Per Hour; or Btu's Per Hour
T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; or Btu's Per Hour
T80	Boiler	Gallons or Liters
T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; or Btu's Per Hour
T82	Lime Kiln	
T83	Aggregate Kiln	
T84	Phosphate Kiln	
T85	Coke Oven	
T86	Blast Furnace	
T87	Smelting, Melting, Or Refining Furnace	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; or Btu's Per Hour
T88	Titanium Dioxide Chloride Process Oxidation Reactor	
T89	Methane Reforming Furnace	
T90	Pulping Liquor Recovery Furnace	
T91	Combustion Device Used In The Recovery Of Sulfur Values From Spent Sulfuric Acid	
T92	Halogen Acid Furnaces	
T93	Other Industrial Furnaces Listed in 40 CFR §260.10	
T94	Containment Building-Treatment	Cubic Yards or Cubic Meters
	Miscellaneous (Subpart X):	
X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day; Pounds Per Hour; or Kilograms Per Hour
X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; or Btu's Per Hour
X04	Geologic Repository	Cubic Yards or Cubic Meters
X99	Other Subpart X	Any Unit of Measure Listed Below

UNIT OF MEASURE	UNIT OF MEASURE CODE
Gallons	G
Gallons Per Hour	E
Gallons Per Day	U
Liters	L
Liters Per Hour	H
Liters Per Day	V
Short Tons Per Hour	D
Metric Tons Per Hour	W
Short Tons Per Day	N
Metric Tons Per Day	S
Pounds Per Hour	J
Kilograms Per Hour	R
Cubic Yards	Y
Cubic Meters	C
Acres	B
Acre-feet	A
Hectares	Q
Hectare-meter	F
Btu's Per Hour	I

EPA I.D. Number *(Enter from page 1)*: N M D 0 8 3 2 1 2 3 3 2

Secondary ID Number *(Enter from page 1)*:

XII. Process Codes and Design Capabilities *(Continued)*

EXAMPLE FOR COMPLETING ITEM XII (Shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number		A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY 1. Amount (Specify)	B. 2. Unit Of Measure (Enter code)	C. Process Total Number Of Units	For Official Use Only
X	1	S 0 2	5 3 3 7 8 8	G	0 0 1	
	1	D 8 3	Refer to Part XIV			
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
1	0					
1	1					
1	2					
1	3					

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in item XIII.

XIII. Other Processes *(Follow instructions from item XII for D99, S99, T04 and X99 process codes)*

Line Number (Enter #s in seq w/XII)		A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY 1. Amount (Specify)	B. 2. Unit Of Measure (Enter code)	C. Process Total Number Of Units	D. Description Of Process
X	1	T 0 4				In-situ Vitrification
	1		NA			
	2					
	3					
	4					

001181

EPA I.D. Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*											
N	M	D	0	8	3	2	1	2	3	3	2												

XIV. Description of Hazardous Wastes

A. EPA HAZARDOUS WASTE NUMBER - *Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR, Part 261 Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.*

B. ESTIMATED ANNUAL QUANTITY - *For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.*

C UNIT OF MEASURE - *For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:*

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in item XII A. on page 3 to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in item XII A. on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. *Enter the first two as described above.*
2. *Enter "000" in the extreme right box of item XIV-D(1).*
3. *Enter in the space provided on page 7, Item XIV-E, the line number and the additional code(s).*

2. PROCESS DESCRIPTION: *If a code is not listed for a process that will be used, describe the process in the space provided on the form (D.(2)).*

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER - Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. *Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.*
2. *In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.*
3. *Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.*

EXAMPLE FOR COMPLETING ITEM XIV (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number	A. EPA HAZARD WASTE NO. (Enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (Enter code)	D. PROCESS (1) PROCESS CODES (Enter code)	D. PROCESS (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
X 1	K 0 5 4	900	P	T 0 3 D 8 0	
X 2	D 0 0 2	400	P	T 0 3 D 8 0	
X 3	D 0 0 1	100	P	T 0 3 D 8 0	
X 4	D 0 0 2				Included With Above

001182

EPA I.D. Number *(Enter from page 1)*: N M D 0 8 3 2 1 2 3 3 2

Secondary ID Number *(Enter from page 1)*:

XIV. Description of Hazardous Wastes *(Continued)*

Line Number	A. EPA HAZARDOUS WASTE NO. (Enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	D 0 0 2	110	G		Refer to Part XIV
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					

001183

EPA I.D. Number *(Enter from page 1)*	Secondary ID Number *(Enter from page 1)*
N M D 0 8 3 2 1 2 3 3 2	

XV. Map

Attach to this application a topographic map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in this map area. See instructions for precise requirements.

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (see instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

XVIII. Certification(s)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

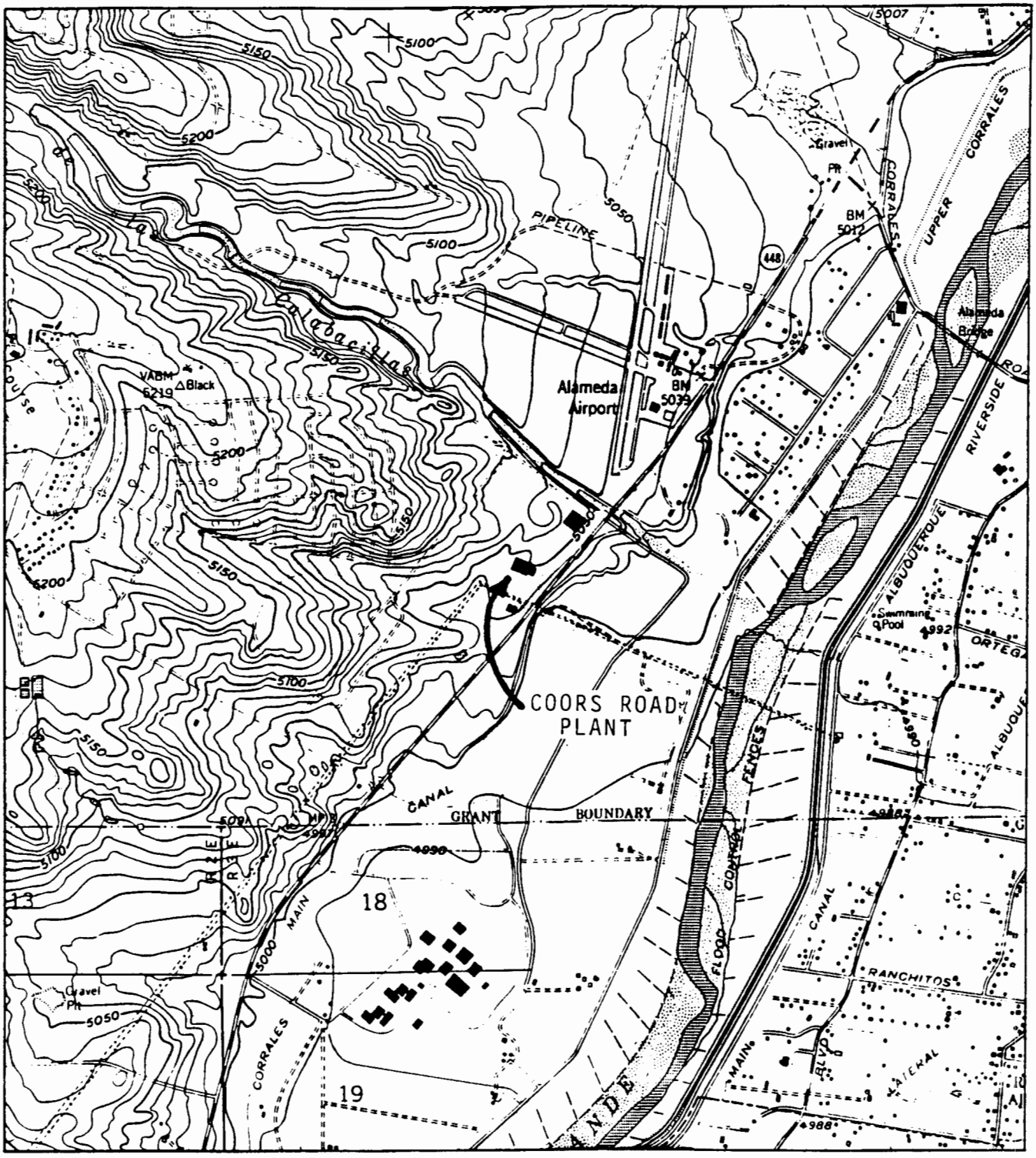
Owner Signature	Date Signed
Name and Official Title (Type or print)	
Owner Signature	Date Signed
Name and Official Title (Type or print)	
Operator Signature	Date Signed
Name and Official Title (Type or print)	
Operator Signature	Date Signed
Name and Official Title (Type or print)	

XIX. Comments

Section XII - D83, Surface Impoundment no longer in use. Surface Impoundment certified closed in May 18, 1987.

Section XIV - D002 wastes are hauled via a licensed hazardous waste transporter to a licensed TSD, as per RCRA regulations regarding conditionally exempt small quantity generators.

Note: Mail completed form to the appropriate EPA Regional or State Office. (Refer to instructions for more information)



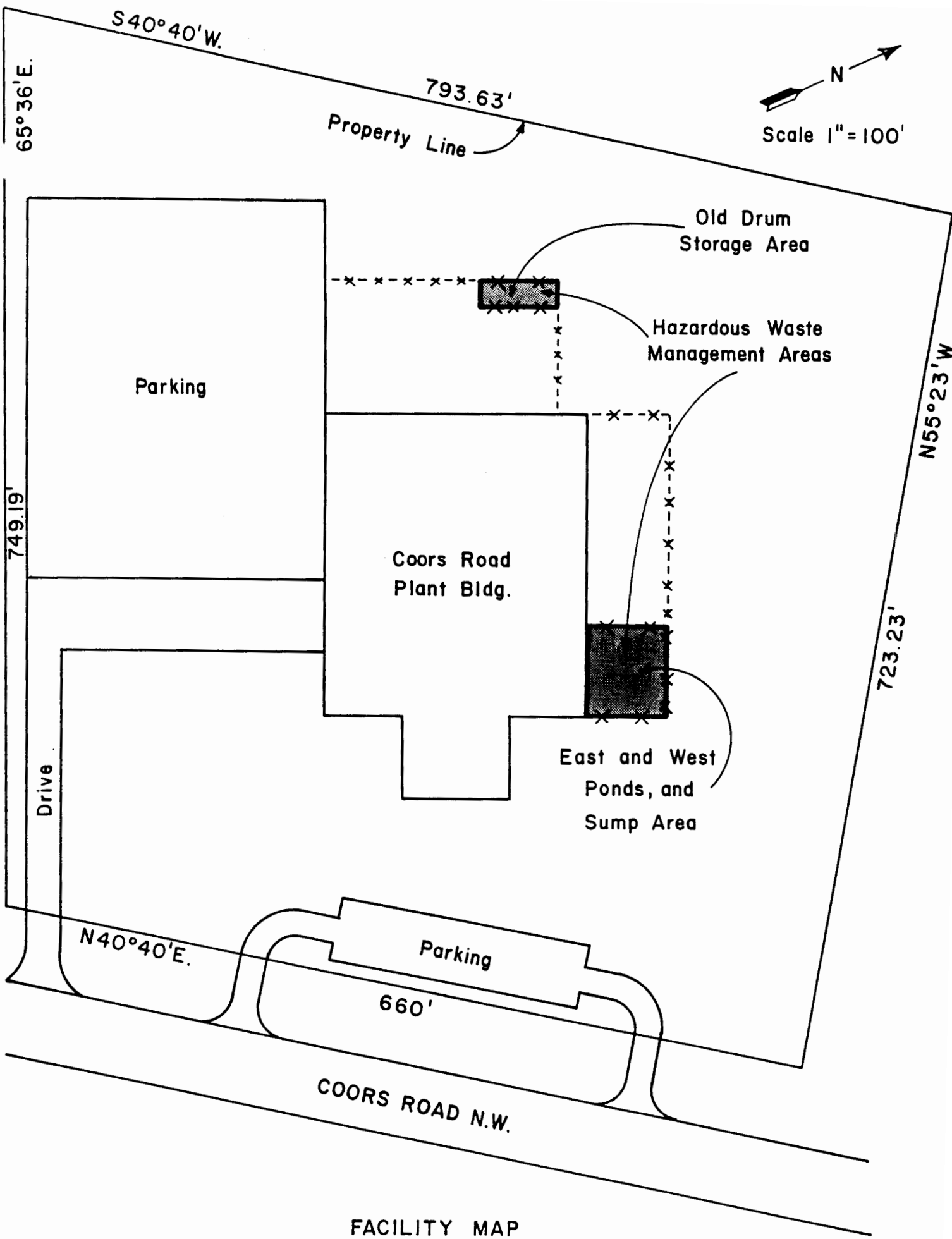
Scale: 1"=2000'
Contour Interval: 10 ft.

Ref.: USGS 7.5 min. Quadrangle Map, Los Griegos, New Mexico

N

SITE LOCATION
SPARTON TECHNOLOGY, INC.
COORS ROAD PLANT, ALBUQUERQUE, NEW MEXICO

001185



FACILITY MAP
SPARTON TECHNOLOGY, INC.
COORS ROAD PLANT

001186

PHOTOGRAPHS OF THE
HAZARDOUS WASTE MANAGEMENT FACILITIES
AT COORS ROAD PLANT

001187

Photograph 1. View of ponds and sump cap looking south.

Photograph 2. View of old drum storage area looking northwest.

TO VIEW THE MAP AND/OR MAPS WITH THIS DOCUMENT, PLEASE CALL THE HAZARDOUS WASTE BUREAU AT 505-476-6000 TO MAKE AN APPOINTMENT

ATTACHMENT 2

TOPOGRAPHIC MAPS 1, 2, AND 3

ATTACHMENT 3
POND WASTE ANALYSIS

Albuquerque Analytical, Inc.
4115 SILVER AVE S E.
ALBUQUERQUE NEW MEXICO 87108
Telephones (505) 266-9106, (505) 268-5776 — Night 294-6310

manifest # 80-1

ANALYTICAL REPORT

From Sparton Southwest

Address 9621 Coors Rd. N.W. Albuquerque, NM 87103

Work authorized by Reece Lebow Date Received September 4, 1980

Analyzed by J.M. Grover, M.S. Date September 15, 1980 AAI# 12596

SAMPLE ID	Over Flow Pond	Main Pond
Copper (ppm)	9687.5	295.5
[illegible] (ppm)	58.0	97.5
Palladium (ppm)	< 0.05	< 0.05
Lead (ppm)	13.7	6.52
pH	1.80	1.79

See cover letter

001184

F CHEMICAL WASTE MANAGEMENT, INC. AND OTHER
ASTE MANAGEMENT, INC. COMPANIES.

WASTE PROFILE SHEET CODE

GENERATOR'S WASTE MATERIAL PROFILE SHEET

GE[illegible]AL DIRECTIONS. In order for us to determine whether we can lawfully, safely and environmentally transport, store, treat or di[illegible]e of your waste stream, we must ask certain information about your waste. All of the information we seek is necessary, for our purposes and yours. Be complete in your answers: if your response is "none," so indicate. Answers must be in ink or typewritten. Information you provide will be maintained in strictest confidence. Please make a copy of this form for your records, returning the original to the location indicated below.

THIS FORM AND ANY SUPPLEMENTAL INFORMATION SHOULD BE RETURNED TO:

1. GENERATOR NAME. Sparton Southwest Inc.
2. GENERATING FACILITY NAME/ADDRESS/USEPA FACILITY I.D. NUMBER (IF ANY): Sparton Southwest Inc.
   9621 Coors Rd. N.W., Albuquerque, New Mexico 87105
   EPA No. NMD083212332
3. COMPANY CONTACTS.

GENERAL		TITLE		PHONE	
		TITLE		PHONE	
TECHNICAL	Cleoves Martinez	TITLE	Envr. Engineer	PHONE	(505)898-1150
		TITLE		PHONE	

4 WASTE NAME.
   PROCESS GENERATING WASTE: Printed circuit board manufacturing
5. WASTE CHARACTERISTICS:
   A. PHASES/LAYERS. BILAYERED ☐ MULTILAYERED ☐ NONE ☒
   B. PHYSICAL STATE AT 70°F: SOLID ☐ SEMI-SOLID ☐ LIQUID ☒
      POWDER ☐ OTHER:
   C. SOLIDS: TOTAL (%). 8.88% TOTAL DISSOLVED (ppm or %): 8.54%
   D. SPECIFIC WEIGHT (AS # PER UNIT): 8.829 #/gallon
   E. pH 8.48 (Show the following as range of %)

AS:	H_2SO_4	n/a %	H_3PO_4	–	%
	HCl	– %	NaOH	–	%
	HF	– %	NH_4OH	–	%
	HNO_3	– %	$Ca(OH)_2$	–	%
OTHER		– %		–	%
		– %		–	%

   F. FLASH POINT greater than 212 °F (CLOSED CUP TEST ONLY)
   G. VAPOR PRESSURE (in mm of Hg at 25°C) app. 23.8
   H. BTU PER #: n/a ASH CONTENT 7.27 %
   I. CHARACTERISTIC COLOR blue/gray DISTINCTIVE ODOR none
   J. HALOGENATED? no % SULFONATED? no %
   K. ALPHA RADIATION AS pCi/l N/A

A. ORGANIC COMPONENTS (WITH RANGES — INDICATE WHETHER % OR ppm)

n/a	—		—
	—		—
	—		—
	—		—

(ATTACH ADDITIONAL PAGES IF NECESSARY)

DOES THIS WASTE CONTAIN ENDRIN, LINDANE, METHOXYCHLOR, TOXAPHENE, 2,4-D, 2,4,5-TP SILVEX, OR ANY OTHER ORGANIC COMPOUNDS LISTED BY USEPA AT 40 CFR 261.24? No IF SO, PLEASE NOTE ABOVE.

B. HEAVY METALS (WITH ppm RANGES):

	TOTAL	TOTAL LEACHABLE		TOTAL	TOTAL LEACHABLE
Ag	25.1		Hg	less than 0.001	
As	less than 0.01		Ni	10.6	
Ba	less than 1.		Pb	7.04	
Cd	0.18		Se	0.28	
Cr	less than 0.05		Zn	6.21	
Cu	1730.		Other (ATTACH ADDITIONAL PAGES)		

(IF YOU HAVE DETERMINED TOTAL LEACHABLES USING USEPA'S "EP TOXICITY TEST PROCEDURE" — AT 40 CFR, PART 261, APPENDIX II — SO INDICATE BY MARKING "EP" AFTER THE RESULT SHOWN ABOVE.)

C. INORGANIC COMPONENTS (WITH % RANGES): OTHER

TOTAL CYANIDE	less than 0.05	ppm		—	%
FREE CYANIDE	less than 0.05	ppm		—	%
SULFIDE AS:	less than 0.05	ppm		—	%
BISULFITE AS:	less than 1.0	ppm		—	%
SULFITE AS:	less than 1.0	ppm		—	%

(ATTACH ADDITIONAL PAGES IF NECESSARY)

D. DOES THIS WASTE STREAM CONTAIN BIOLOGIC MATERIALS, PATHOGENS, OR ETIOLOGICAL AGENTS? No IF SO, ATTACH ADDITIONAL PAGES DESCRIBING SUCH MATERIALS.

E. IS THE WASTE A PESTICIDE OR PRODUCED BY A PESTICIDE MANUFACTURING PROCESS? No IF SO, INDICATE WHETHER IT CONTAINS:

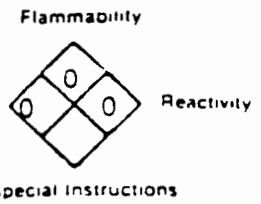
- ☐ ORGANOPHOSPHATES — CONTAINING SULFUR ☐ YES ☐ NO
- ☐ CARBAMATES
- ☐ CHLORINATED HYDROCARBONS

8. HAZARDOUS COMPONENTS AND CHARACTERISTICS

A. HAZARDOUS PROPERTIES (INSERT NUMBER CODES PER INSTRUCTIONS ON LAST PAGE)

(1) TOXICITY RATING. INHALATION 0 DERMAL 1 ORAL 2

(2) HAZARD IDENTIFICATION SYSTEM:



B. LIST ANY OTHER ACUTE OR CHRONIC HAZARDS ASSOCIATED WITH OR ALLEGED TO BE ASSOCIATED WITH HUMAN CONTACT WITH OR EXPOSURE TO THE WASTE:

Heavy metal poisoning might be anticipated with ingestion of substantial amounts.

A. IS THIS WASTE A "HAZARDOUS MATERIAL" AS DEFINED BY REGULATIONS OF THE U.S. DEPARTMENT OF TRANSPORTATION PURSUANT TO THE HAZARDOUS MATERIALS TRANSPORTATION ACT? Yes
(SEE 49 CFR 172.101 AND 173 FOR "HAZARDOUS MATERIALS" LIST AND CHARACTERISTICS.) IF SO, PLEASE ADVISE OF THE FOLLOWING:

(1) CORRECT SHIPPING DESCRIPTION: Hazardous Waste Liquid N.O.S.

(2) HAZARD CLASS(ES): ORM-E

(3) MATERIAL I.D. NO.(S) NA9189

B. DOES THIS WASTE CONTAIN ANY "HAZARDOUS SUBSTANCE" AS DEFINED BY REGULATIONS OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT? No
(SEE 40 CFR 117 FOR "HAZARDOUS SUBSTANCES" AND CATEGORIES.) IF SO, PLEASE ADVISE OF THE FOLLOWING:

(1) THE NAMES OF EACH HAZARDOUS SUBSTANCE PRESENT IN THE WASTE, THE HAZARD CATEGORY (X, A, B, C OR D) AND THE APPROXIMATE CONCENTRATION OF THE SUBSTANCE BY WEIGHT IN THE WASTE:

n/a

(ATTACH ADDITIONAL PAGES IF NECESSARY)

C. IS THIS WASTE A "HAZARDOUS WASTE" AS DEFINED BY REGULATIONS OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY PURSUANT TO SECTION 3001 OF THE RESOURCE CONSERVATION AND RECOVERY ACT? Yes (SEE 40 CFR, PART 261 FOR WHAT IS A "HAZARDOUS WASTE.") IF SO, STATE:

(1) THE USEPA HAZARDOUS WASTE NUMBER(S): F006, F007

(2) DO YOU CLAIM TO BE A SMALL QUANTITY GENERATOR? No (SEE 40 CFR 261.5.)

D. IS THIS WASTE A "HAZARDOUS WASTE" AS DEFINED BY THE ENVIRONMENTAL REGULATORY AGENCY IN YOUR STATE? Yes IF SO, STATE WHY IT IS SO DEFINED AND ANY STATE HAZARDOUS WASTE CODE NUMBERS ASSIGNED. Toxicity

S THE INFORMATION PROVIDED IN SECTIONS 6-9 BASED UPON LABORATORY ANALYSIS OF THE WASTE 'ATERIAL? Yes IF SO, PLEASE ADVISE OF THE DATE OF THE MOST RECENT ANALYSIS:

11. HAVE YOU OBTAINED TOXICITY STUDIES OF THIS WASTE STREAM? No IF SO, PLEASE ATTACH A COPY OF THE RESULTS.

12. QUANTITY/SHIPPING REQUIREMENTS.

ANTICIPATED VOLUME IS. 5000

GALLONS ☒ TONS ☐ CUBIC YARDS ☐ DRUMS ☐ OTHER ☐

PER DAY ☐ WEEK ☐ MONTH ☒ YEAR ☐ ONE TIME ☐

TRANSPORTATION EQUIPMENT REQUIRED. Vacuum tanker

SERVICE/SCHEDULING REQUIREMENTS. Contact Cleoves Martinez for scheduling

GENERATOR'S AUTHORIZED SIGNATORY [signature] TITLE Prod Mgr DATE 12/1/87

CONFIDENTIALITY AGREEMENT

as consideration for the Generator's release of the above information, and any other supplemental data provided, agrees to treat such information as confidential property and will not disclose such information to others except as is required by law, and in such circumstances only after first giving notice to the Generator

By _____
Name

_____
Title

001197

ATTACHMENT 4

POST-CLOSURE QUARTERLY INSPECTION CHECKLIST

POST-CLOSURE QUARTERLY INSPECTION CHECKLIST

Facility: Sparton Technology, Inc.
9621 Coors Road, N.W.
Albuquerque, New Mexico 87103

Date of Inspection: _____

Type of Inspection: Maintenance ___ Wells ___ Subsidence ___ Security ___

Name of Inspector: _____ Name of Surveyor: _____

ITEM	DESCRIPTION	PROBLEM Y/N	REMARKS	ACTION TAKEN	DATE
Maintenance:	1. Wearing surface				
	2. Gouges				
	3. Deterioration				
	4. Subsidence				
General:	1. Ponding on cap				
	2. Rainfall run-on				
	3. Condition of swale				
Subsidence:	1. Benchmark survey				
Monitor Well:	1. Surface leakage to wells				
	2. Rusting or broken well covers				
	3. Integrity of locks				
	4. Indication of well plugging				
Security:	1. Integrity of fences and gates				
	2. Integrity of locks				
	3. Integrity and status of signs				
	4. Evidence of vandalism				
	5. Integrity of benchmarks				

INSPECTOR'S SIGNATURE: _____ DATE: _____

OWNER/OPERATOR'S SIGNATURE: _____ DATE: _____

001139

ATTACHMENT 5

CLOSURE PLAN, POND AND DRUM STORAGE AREAS

A Report Prepared For

Sparton Corporation
2400 East Ganson Street
Jackson, Michigan 49402

POND AND DRUM STORAGE AREAS
CLOSURE PLAN
SPARTON TECHNOLOGY, INC.
COORS ROAD PLANT
ALBUQUERQUE, NEW MEXICO

HLA Job. No. 6310,012.12

Prepared by

Howard Gustafson, P.E.
Senior Engineer

Thomas S. Burger, R.P.S.
Associate Environmental Scientist

Harding Lawson Associates
6220 Westpark, Suite #100
Houston, Texas 77057
Telephone: (713) 789-8050

December 19, 1985

001201

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

I	GENERAL FACILITY INFORMATION	1
II	INTRODUCTION	1
III	BACKGROUND	4
	A. Drum Storage Area	4
	B. Pond and Sump Area	6
	C. Additional Background Information	7
	D. Asphaltic Concrete Cap	10
IV	GENERAL INFORMATION	11
	A. Facility Size and Type	11
	B. Hazardous Wastes	12
	C. Hazardous Waste Management Units	12
V	POND AND SUMP CLOSURE	14
	A. Closure Process	15
	B. Closure Standard	19
	C. Closure Certification	19
VI	CLOSURE OF DRUM STORAGE AREAS	20
	A. Old Drum Area	20
	B. New Drum Area	21
VII	GROUND-WATER MONITORING	21
VIII	SECURITY REQUIREMENTS	22
IX	CLOSURE CERTIFICATION	22
X	NOTICE OF CLOSURE	23
XI	FINAL CLOSURE SCHEDULE	23
XII	CLOSURE COST ESTIMATES	24

001202

LIST OF APPENDICES

A	Pond and Sump Area Closure
B	Material and Construction Specifications
C	Chain of Custody Procedures
D	Analytical Methods
E	Monitoring Well Plugging and Abandonment Procedures
F	Model Safety Plan Outline
G	Old Drum Area Soils Investigation
H	Final Closure Schedule
I	Closure Cost Estimates

LIST OF PLATES

Plate 1	Location Map	2
Plate 2	Plot Plan	3
Plate 3	Chemical Storage Facility	5
Plate A-1	Pond and Sump Area Existing Facilities - Base Map	
Plate A-2	Pond and Sump Area - Existing Cross Sections and Details	
Plate A-3	Pond and Sump Area - Final Plan and Cross Section	
Plate A-4	Fencing Details	

001203

I GENERAL FACILITY INFORMATION

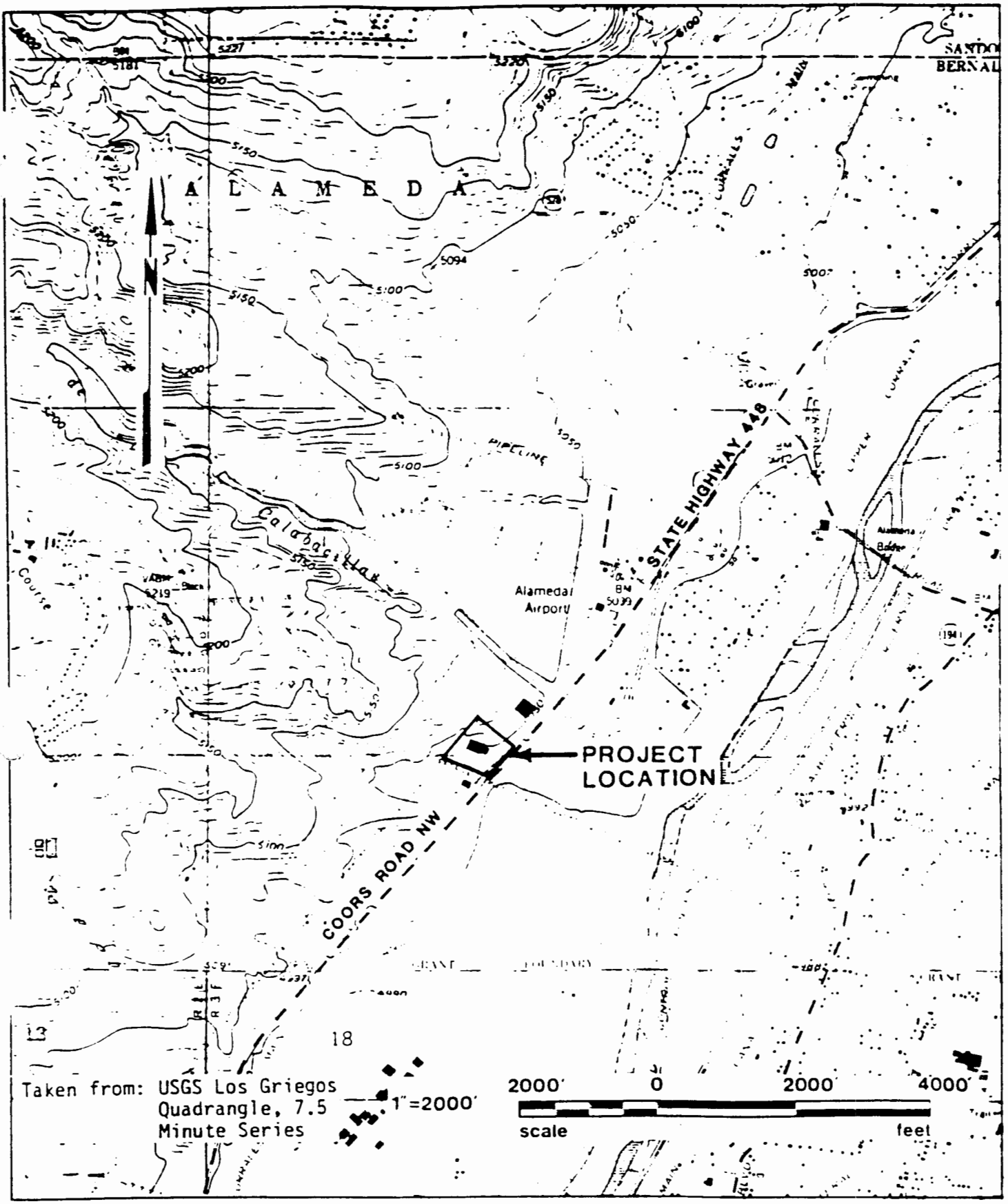
A.	Owner and Operator:	Sparton Technology, Inc.
B.	EPA ID No.:	NMD083212332
C.	Mailing Address:	Post Office Box 1784 Albuquerque, New Mexico 87103
D.	Facility Location:	9621 Coors Road, N.W. Albuquerque, New Mexico 87114
E.	Telephone:	(505) 892-5300
F.	Type of Facility:	Hazardous Waste Storage

II INTRODUCTION

Sparton Technology, Inc. (Sparton) has operated four hazardous waste storage units, at its Coors Road facility, which have received wastes since November 19, 1980. The facility location is shown in Plate 1. These units include two lined surface impoundments (ponds) and two drum storage areas, as shown in Plate 2. Sparton has submitted a Part A Application for a Hazardous Waste Permit to operate these units. The operation and subsequent closure of the ponds and the drum storage areas is subject to the New Mexico Hazardous Waste Management (HWM) Regulations.

Sparton also operated a waste solvent storage sump, which was closed in October 1980. Since this date is prior to the effective date of 40 CFR 265, Subtitle C, this sump is not regulated under New Mexico's HWM regulations.

001204



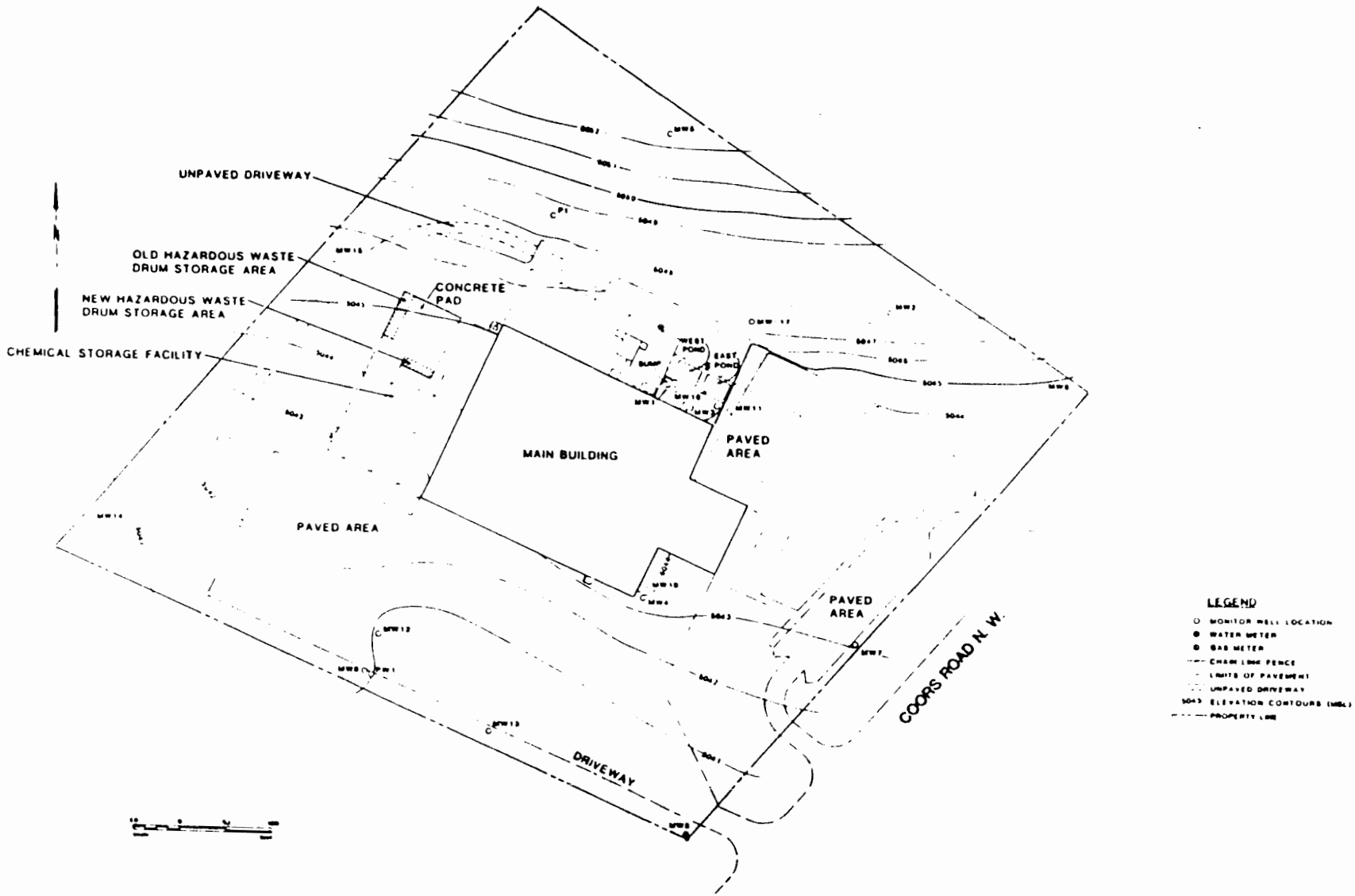
Harding Lawson Associates
Engineers, Geologists & Geophysicists

LOCATION MAP

Sparton Technology, Inc.
Albuquerque, New Mexico

1

SP 6310,012.12 JG 12-17-83



Harding Lawson Associates
Engineers, Geologists & Geophysicists

PLOT PLAN

SPARTON TECHNOLOGY INC
ALBUQUERQUE, NEW MEXICO

2

MK 0010.013.12

NG 12 17 85

001206

The planned closure of the ponds, the drum storage areas, and the sump are subject to the New Mexico Water Quality Control Commission Regulations.

This closure plan will describe how Sparton plans to close each unit at this facility in a manner which is environmentally sound and which meets the legal requirements of both sets of regulations.

III BACKGROUND

A. Drum Storage Area

The old hazardous waste drum storage area (old drum area) was used to store hazardous wastes prior to May 1981, when the present hazardous waste drum storage area (new drum area) became operational. The old drum area was located adjacent to the west edge of a concrete pad north of the new drum area.

The new drum area occupies the northern portion of a covered chemical storage facility which is fenced and completely underlain by a curbed concrete pad (see Plate 3). The concrete pad is sloped to drain any spills toward a concrete gutter which, in turn, leads to an open-top concrete sump. Segregation of incompatible materials is maintained by a series of spill containment curbs which control any drainage toward the gutter.

001007

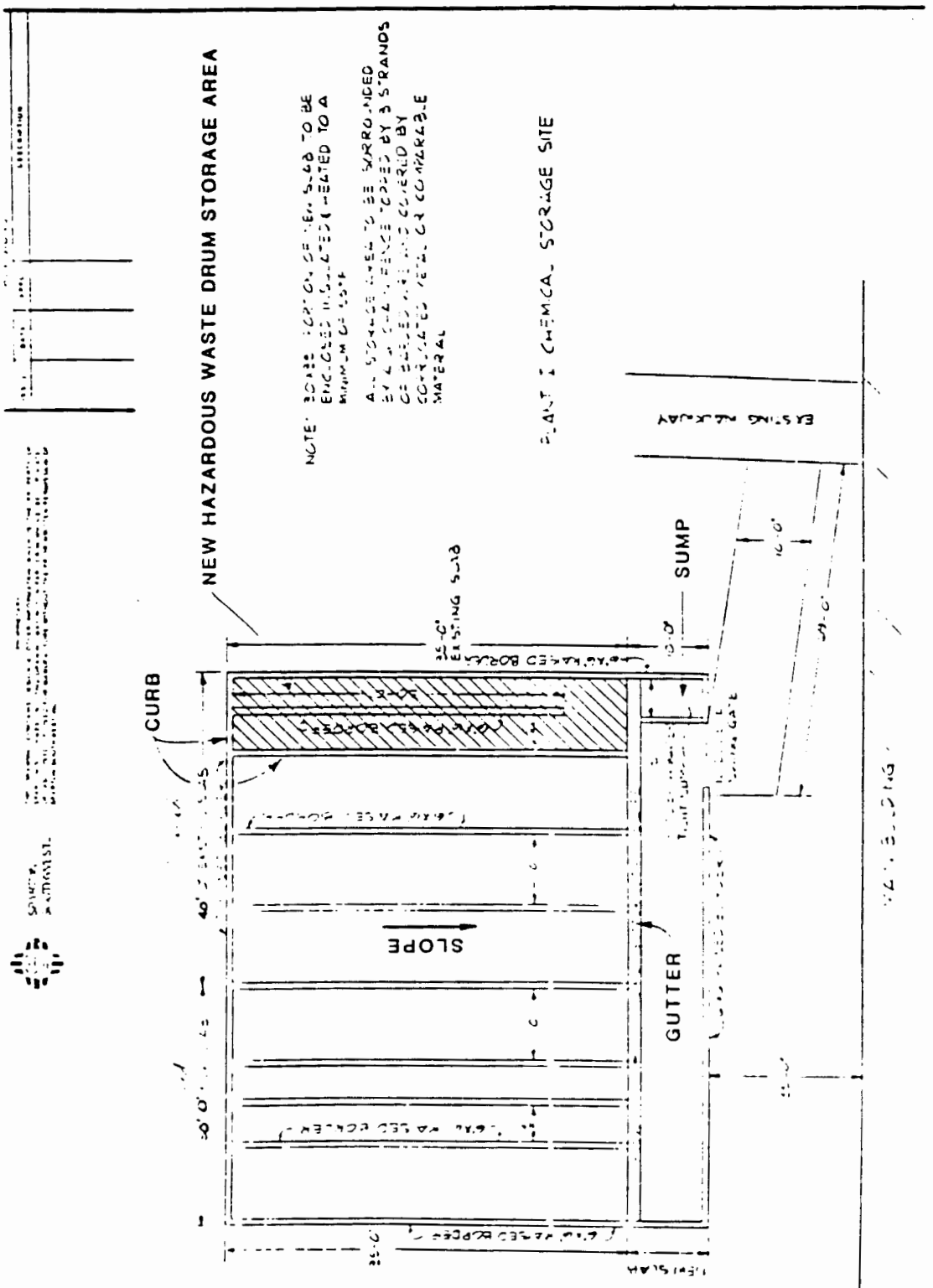
Sparton has notified the New Mexico Environmental Improvement Division (EID) of its intention to cease storage of containerized hazardous waste for periods of longer than 90 days and to withdraw its Part A Application. To convert to short term storage, the drum storage areas must be closed in accordance with the HWM regulations. Therefore, this closure plan presents the steps necessary to close the old and new drum areas in a manner which provides for their subsequent reuse.

B. Pond and Sump Area

The two ponds (East Pond and West Pond) and the closed sump are located on the north side of the manufacturing plant. The ponds were used exclusively for storage of aqueous plating wastes, on a regular basis, until August 1983, when Sparton ceased discharging to either pond and removed the remaining plating wastes. At that time, the liners were visually inspected and appeared to be intact.

The sump was used exclusively for the storage of waste solvents until its closure in October 1980. Sump closure consisted of removing residual wastes from the sump and filling the sump with sand. The removed wastes were containerized and disposed as a hazardous waste at an appropriate off-site disposal facility.

001009



Harding Lawson Associates

CHEMICAL STORAGE FACILITY

Sparton Technology, Inc.
Albuquerque, New Mexico

3

JD 6310,012.12 12-17-85

C. Additional Background Information

The site is located about 2,500 feet northwest of the Rio Grande River on the west side of Coors Road, NW. Locally, the area is hilly and slopes in several wide terraces toward the river. The site is approximately 60 feet above the Rio Grande River, and 40 to 60 feet lower than the Paradise Park residential area, which is located approximately 4,000 feet west of the site. Approximately 200 feet southeast of the site, and across Coors Road, is the Coralles Canal. The Calabacilla Arroyo is located about 1,000 feet north of the site.

The site is underlain by the massive sand and gravel aquifer of the Rio Grande River Valley Basin. Surface elevations are approximately 65 feet above the water table. This is a discharge region for the river, and regional ground-water flows in a southward direction consistent with the flow of the river and slightly divergent from the river. Soils in the area are generally sand and gravel with lenses of finer grained materials ranging from silty sands to clay. A locally extensive finer grained unit underneath the subject site separates a thin upper aquifer (0- to 10-feet thick) from a lower aquifer estimated to be 50- to 60-feet-thick. The finer-grained unit consists of silty sands to clay, is 5- to 10-feet thick, and has been characterized as a semi-confining unit.

001210

Ground-water monitoring has detected metallic hazardous waste constituents and a number of volatile organic constituents in ground water of the upper and lower aquifers. Although contamination is believed to be much higher in the upper aquifer, an investigation is underway to determine the vertical and lateral extent of the contamination. A vadose zone investigation is presently underway to evaluate the extent of contamination in the soils of the unsaturated zone. Previous studies and preliminary results from the present investigations indicate that extensive spreading of contaminants has occurred in the vadose zone. Soil moisture values are generally low and are believed to represent evaporation from the water table.

The Albuquerque climate is semi-arid, with annual rainfall measuring approximately 10 inches per year and annual evapotranspiration in excess of 60 inches per year. Record rainfalls are on the order of 1 inch in 24 hours. Rain at the facility generally enters the top layer of soil and is held by capillary action until removed by a wicking action caused by evaporation at the surface. This phenomenon results in practically no local recharge of the aquifer. Preliminary results from the vadose zone investigation indicate that, although metallic and organic constituents are detectable in soils at most depths, no concentrated reservoirs of contamination appear to exist above the water table. Some metals in soil samples are detected in the low parts per million range, and halogenated organic chemicals

001211

have been either not detected or have been in the low parts per billion.

In contrast to the above, HNU meter readings of soil samples at the time of collection indicated organic contaminants in the vapor phase, possibly resulting from vaporization of contaminants in the upper aquifer. This suggests that a useful remedial technology may involve air venting within the vadose zone to drive off volatile constituents. This alternative has not been fully evaluated as yet; however, we feel that any cap design must be compatible with this type of technology. Air venting would only be feasible if the cap were designed to a minimal size, leaving surrounding soils exposed to the atmosphere to provide for the escape of organic vapors.

Sparton has undertaken an extensive site investigation to characterize the site's geology and hydrogeology and to determine the extent of contamination and the dynamics of contaminant migration. Reports of the first three phases of investigation include the following:

- MONITORING WELL INSTALLATION REPORT, SPARTON SOUTHWEST, INC., COORS ROAD FACILITY, Harding Lawson Associates, June 29, 1983
- INVESTIGATION OF SOIL AND GROUND-WATER CONTAMINATION, SPARTON TECHNOLOGY, COORS ROAD FACILITY, ALBUQUERQUE, NEW MEXICO, Harding Lawson Associates, March 19, 1984

001212

- HYDROGEOLOGIC CHARACTERIZATION AND REMEDIAL INVESTIGATION, SPARTON TECHNOLOGY, INC., 9261 COORS ROAD, NORTHWEST, ALBUQUERQUE, NEW MEXICO, Harding Lawson Associates, March 13, 1985

A final phase of investigation is underway which includes studies of vadose zone contamination, ground-water mass transport modeling, and soil gas studies. These studies will be discussed in future reports.

D. Proposed Asphaltic Concrete Cap

As shown in this closure plan, the pond and sump area will be closed and subsequently covered with an asphaltic concrete cap to prevent surface water infiltration and subsequent leaching of contaminants from the vadose zone into the ground water. Asphaltic concrete has, according to EPA-600/Z-76-255, proven to be relatively impervious with coefficients of permeability of 1×10^{-3} cm/sec or less.

IV GENERAL INFORMATION

A. Facility Size and Type

The Coors Road facility is located on an approximately 12-acre parcel and consists of an approximately 64,000-square-foot building constructed in 1981. The company manufactures commercial, industrial, and military electronics which include circuit board

001213

assemblies, transducers, sensors, and pressure systems. Facility operations include machine and model shops, printed circuit board manufacturing facilities, assembly areas, testing laboratory, engineering, and drafting.

B. Hazardous Wastes

The printed circuit manufacturing process at the Coors Road plant employs the use of metal plating which generates an aqueous plating waste which is classified as hazardous due to heavy metals and low pH. Waste solvents (chlorinated and nonchlorinated) are generated primarily from cold solvent cleaning of electronic components. The waste solvents, which are listed hazardous wastes, have always been managed separately from the plating wastes.

C. Hazardous Waste Management Units

1. Surface Impoundments

The two ponds are located in a fenced area on the north side of the main building. They are each approximately 20 by 30 feet in plan dimension by 5 feet deep. The ponds and the area between the ponds are lined with a 30-mil, two-ply hypalon liner with a polyester scrim. The East pond has concrete block walls, and the West Pond has cast concrete walls. In each, the walls contain a sloped sand backfill to support the liner. The pond area is enclosed by a security fence.

001214

The surface impoundments were used for temporary storage of aqueous plating wastes. The ponds were alternately filled and emptied, providing regular opportunities to visually inspect for evidence of liner failure.

Any hazardous wastes or hazardous waste constituents which may have emanated from the ponds would have originated from aqueous plating wastes only. Waste solvents have never been stored in the ponds.

2. Old Solvent Sump

The sump is located in the same general area as the surface impoundments, constructed of concrete blocks, and measures approximately 5 feet by 5 feet in plan dimension by 2 feet deep. At one time, the sump was used for the storage of waste chlorinated and non-chlorinated solvents, which were emptied into the sump manually. Sparton closed the sump in October 1980 by removing the remaining waste and then filling the sump with sand. Since that time, no wastes have been managed in the sump. The sump is believed to be the source of organic contamination in the soils and ground water under the site.

a. Old Drum Area

The old drum area is an area where drums of hazardous waste were stored upon the ground surface prior to May 1981,

001215

when containerized hazardous waste storage was transferred to the new chemical storage facility. The old drum area is immediately west of a concrete pad. The old drum area was not lined or paved with an impervious surface and did not have spill containment structures.

b. New Drum Area

The present hazardous waste drum storage area is the northern portion of a chemical storage facility which was specifically designed for this purpose (see Plate 3). The chemical storage facility is constructed over a curbed concrete pad which slopes to a concrete gutter which, in turn, drains to a concrete spill collection sump. Storage areas are segregated by 6-inch high curbs which serve to direct any spills towards the gutter. The entire facility is covered and enclosed by a fence which is equipped with a windbreak. The chemical storage facility fully meets regulatory requirements and contemporary standards for a hazardous waste and hazardous chemical drum storage area.

V POND AND SUMP CLOSURE

Pond and sump closure will consist of some excavation of potentially contaminated surface soils prior to placement of a relatively impervious asphaltic concrete cap. The soils thus removed will be disposed as fill in the ponds. The cap will divert surface

water and rainfall from the pond and sump area, thus minimizing infiltration of surface water into the ground.

A. Basis of Cap Design

An asphaltic concrete cap is proposed in lieu of the standard 2-1-2 cap described in EPA's Draft RCRA Guidance Document, LANDFILL DESIGN LINER SYSTEMS AND FINAL COVER, July 1982. The basis of this choice is related to site-specific characteristics.

Additional borings may become necessary in the future to further evaluate contamination or to install additional monitoring wells. The cap design should provide for easy repair in the event of additional borings or excavations. It is also possible that the final site remedial design would call for an extension of the capped area. Therefore, any cap installed over the pond and sump area should be designed to provide for a technically feasible enlargement. An asphaltic concrete cap can be easily repaired or extended as needed. A 2-1-2 cap (which includes a membrane component) will be difficult or impossible to repair, should additional borings be required. In addition, a clay/membrane cap is not amenable to areal enlargement.

A 2-1-2 cap (which includes a recompacted clay layer) will be subject to dehydration damage (shrinkage) in the semi-arid climate of Albuquerque, New Mexico.

001217

We believe the most notable functions of a cap in this area will be to prevent surface water infiltration and to efficiently shed rainfall away from the closure area. HLA feels a properly engineered and constructed pavement-quality asphalt concrete cap will meet this requirement and, at the same time, avoid the disadvantages of a compacted clay membrane cap. Asphaltic concrete has, according to EPA-600/Z-76-255, proven to be relatively impervious with coefficients of permeability of 1×10^{-8} cm/sec or less.

The asphaltic concrete cap proposed in this plan has been designed using the AASHTO design method with a California Bearing Ratio of 10 for sandy soil, and a load bearing capacity of 100,000 pounds. The cap will consist of a six inch asphaltic base course overlain by a tack coat and a three inch asphaltic concrete surface course.

B. Closure Process

1. Site Preparation

Monitoring Wells MW1, MW3, and MW11, located in the vicinity of construction activity, will be abandoned and plugged prior to closure of the pond and sump area. The methods for plugging monitoring wells are included in Appendix E of this plan. The underground piping from the plant to the ponds has already been disconnected and plugged at the building. The abandoned piping will

be left in place except where encountered during excavation. Piping which is excavated will be placed in the ponds. ? Put in drum

Existing fencing and gates, as shown on Plate A-1 (see Appendix A), will be removed from the construction area, and temporary construction barricades will be set up around the perimeter.

2. Pond Alteration

The walls of the ponds presently extend above the proposed elevation of the asphaltic concrete cap. Therefore, removal of the upper portions of the walls will be required before installation of the asphaltic concrete cap.

A 30-mil-thick hypalon liner that extends over the walls of the ponds is anchored near the ground surface on all sides of the ponds (see Plate A-2). The soils around the upper portion of the walls will be excavated so that the liner may be temporarily folded inward, thus exposing the pond walls. Soils excavated during this process will be placed inside the ponds. ? (The West Pond is presently about 10 to 25 percent filled with drill cuttings from area borings.)

The upper portions of the pond walls will be removed to an elevation of approximately 5043.5 feet MSL or about one to one and one half feet below existing ground surface. The top edge of the

001319

walls will be capped with a sand mortar to provide a smooth surface, and the liner will be replaced over the walls and reanchored by burying the edges approximately one and one half feet below grade. Details on Plate A-2 in Appendix A illustrate this procedure.

Demolition wastes, including broken concrete, concrete blocks, and excess liner will be placed inside the lined ponds. Care will be taken to prevent demolition wastes from damaging the liner. Demolition materials will be placed on a bedding of drill cuttings or excavated soil.

3. Sump Removal

The old solvent sump, including concrete block walls and bottom slab and sand backfill, will be excavated and placed in the ponds. Again, care will be taken to prevent possible damage to the liner.

4. Subgrade Preparation

The surface soils in the cap area will be excavated to the bottom elevation of the asphaltic base course. These soils, consisting of sand and gravel, will be used for backfill in the ponds and sump. Backfill above the pond walls will consist of cement stabilized sand for a distance of approximately four feet on either

001220

side of the wall to minimize differential settling which could possibly damage the liner that is draped over the pond walls.

As the ponds are backfilled, material will generally be hand tamped or vibrated to provide the required degree of compaction and to eliminate large void spaces without damaging the liner.

5. Paved Cap

When the areas within the two ponds and sump have been brought to the proposed grade, a 6-inch-thick asphaltic base course will be placed over the area as shown on Plate A-3 in Appendix A. The area to be paved will extend from the plant to approximately 10 feet beyond the north wall of the ponds, and from the existing paved parking lot to approximately 10 feet beyond the former sump location.

After the asphalt base has been placed, an asphaltic tack coat will then be applied. A 3-inch-thick asphaltic concrete surface course will be placed above the asphaltic base course. The final paved surface will sloped at 1- to 1-1/2 percent to promote drainage into the swale located on the north side of the cap and onto the existing paved area east of the cap.

001221

6. Construction Specifications

Specifications for construction materials and procedures involved in the closure of the pond and sump area are included in Appendix C of this report.

7. Safety Plan

The proposed construction activities present some potential safety and health risks for construction workers and plant employees. Any construction activity creates potential safety hazards due to the movement and operation of machinery and from unnatural or unstable conditions due to excavation and other work. In addition, this construction site involves exposure of some potentially contaminated materials. Therefore, the construction area must be clearly posted and barricaded to prevent entry by unauthorized personnel.

The contractor will be responsible for the safety and health of his personnel. He will be required to develop and follow a written safety plan setting forth procedures and safeguards for all construction activities. A model safety plan is provided in Appendix F.

001322

B. Closure Standard

The method of closure will minimize the need for future maintenance. The asphalt surface should require very little repair since only light weight vehicles will be allowed to use it. Effects of freezing and thawing should be minimal since the sub-grade consists of a well-graded, granular soil.

The asphaltic concrete surface will prevent infiltration of surface water or rainfall so that leaching of any contaminated material existing in the vadose zone should be minimized, thus keeping it out of the upper ground water.

C. Closure Certification

Following the above procedures, Sparton will obtain certification of closure from a registered professional engineer and submit this to EID.

VI CLOSURE OF DRUM STORAGE AREAS

A. Old Drum Area

The old drum area is an earthen plot located to the west of a concrete pad at the west end of the building. This area is shown in Plate 2. Since the old drum area contained no barriers to prevent migration of any spilled hazardous waste, an assessment will be made to determine if any hazardous wastes or hazardous waste constituents

001223

have entered the soil. Sample collection methods for the assessment are discussed in Appendix G. Chain-of-custody procedures and analytical methods are described in Appendices C and D, respectively. If results of the assessment indicate that the soils are uncontaminated, no further closure activity will be required.

If it is determined that hazardous wastes or hazardous waste constituents have entered the soil, a more extensive investigation will be undertaken to determine the areal and vertical extent of vadose zone contamination. In this case, an amendment to this closure plan will be submitted to the EID.

A certificate of closure, indicating the results of the soil investigation, will be obtained from a registered professional engineer and submitted to the EID.

B. New Drum Area

Prior to closure of the New Drum Area, all hazardous waste currently in storage will be removed and disposed at an appropriate disposal facility. The concrete pad, curbs, drainage gutter, and collection sump will be visually inspected to determine that they are still intact, and that there is no evidence of past spills or leaks which may have escaped the storage facility. If any contamination is discovered within the storage facility, the facility will be

001224

thoroughly cleaned with a portable steam cleaner. Contaminated wash water will drain to the integral sump and then be removed for disposal as a hazardous waste.

Following the above procedures, Sparton will obtain certification of closure from a registered professional engineer and submit this to EID. Following closure of the drum storage facility, Sparton will utilize the area for temporary storage of hazardous waste for periods not to exceed 90 days.

VII GROUND-WATER MONITORING

A. Alternative Ground-Water Monitoring Program

Long-term site ground-water monitoring is provided in Sparton's Alternative Ground-Water Monitoring Program (AGMP). The AGMP also provides an assessment of the extent of contamination and rate and direction of contaminant migration. The AGMP is discussed more fully in Appendix C of the Post-Closure Care Plan.

VIII SECURITY REQUIREMENTS

The drum storage area and the pond and sump area are currently surrounded by barriers comprised of the plant building and chain-link fences. Warning signs have been posted at both HWM units. These measures will provide adequate security for all remedial site activities which do not require removal of any fence.

001225

During the planned pond and sump area closure, sections of the chain-link fence will be removed to provide access to work crews and equipment. If surface removal is required in the drum storage area, some of the adjacent fence may likewise have to be removed. During periods when the subject areas are not completely surrounded by the fence or building barriers, barricades will be erected which will clearly establish the work area. Warning signs will be posted indicating that the work site poses a danger due to the presence of hazardous substances, and that unauthorized entry is not allowed.

During periods when the work crews are not actively engaged in closure of the site, normal building security inspections will be modified to include the barricaded areas.

IX CLOSURE CERTIFICATION

Following each major element of the closure activities described herein, a statement will be provided by both Sparton and an independent registered professional engineer verifying that the closure activity has conformed to the closure plan. These individual closure elements include the following:

A. Closure of the old hazardous waste drum storage area;
B. Closure of the new hazardous waste drum storage area; and
C. Construction of impervious cap over the ponds and sump area.

001226

X NOTICE OF CLOSURE

Following the completion of closure of the drum storage area and the pond and sump area, Sparton will submit to the local land authority and to the EID Director a survey plat indicating the location of the closed hazardous waste management units.

Sparton will also record a notation on the deed to the Coors Road facility property that portions of the property have been used to manage hazardous waste.

XI FINAL CLOSURE SCHEDULE

A schedule of major closure activities is presented in Appendix H. This schedule may have to be amended periodically based upon new information. EID will be promptly notified upon any amendment to the schedule.

XII CLOSURE COST ESTIMATES

The closure cost estimates are presented in Appendix I. These cost estimates may have to be revised periodically. EID will be promptly notified of any revisions to the cost estimates.

001227

DISTRIBUTION

1 copy to:	Sparton Corporation 2400 East Ganson Street Jackson, Michigan 49202
Attention:	Mr. Blair Thompson
2 copies to:	Sparton Technology, Inc. 4901 Rockaway Boulevard, S.E. Rio Rancho, New Mexico 87124
Attention:	Mr. Richard Mico
2 copies to:	Varnum, Riddering, Schmidt & Howlett 171 Monroe Avenue, N.W. Grand Rapids, Michigan 49503
Attention:	Mr. Jon F. DeWitt
5 copies to:	Environmental Improvement Division Ground Water and Hazardous Waste Bureau Harold Reynolds Building 1190 St. Francis Drive Santa Fe, New Mexico 87504-0968
Attention:	Mr. Peter H. Pache

QUALITY CONTROL REVIEW:

Gary R. Horwitch, P.E.
Associate Engineer

APPENDIX A
to
ATTACHMENT 3

Pond and Sump Area Closure

APPENDIX B
to
ATTACHMENT 3

Material and Construction Specifications

Technical Specifications

For

Pond and Sump Closure

Sparton Technology, Inc.

Albuquerque, New Mexico

001231

SECTION 00010

TABLE OF CONTENTS

SECTION	TITLE	PAGE
00010	Table of Contents	i
01010	Summary of Work	1
01400	Standards	4
01450	Definitions	6
01460	Drawings	8
02200	Excavation of Soils	9
02300	Demolition	12
02400	Backfill and Compaction	14
02450	Proofrolling	19
02500	Asphaltic Pavement System	21
02600	Chain Link Fence Gates	25
03000	Decontamination	34
03010	Disposal of Potentially Contaminated Waste	37
04000	Inspection and Testing	39

001232

SECTION 01010

SUMMARY OF WORK

PART I - GENERAL

1.01 Scope

This specification provides general direction and technical requirements for closure of the two ponds and one sump at the Sparton Technology, Inc., Albuquerque, New Mexico facility.

The Contractor shall provide all labor, materials, products, accessories, tools, equipment, transportation, supervision, and other items which are necessary for completion of the work.

The work covered under this specification includes:

- Removal and replacement of fences.
- Demolition of portion of reinforced concrete walls in West pond.
- Demolition of portion of concrete block walls in East pond.
- Removal of sump.
- Construction of asphaltic concrete pavement system (cap).

001033

1.02 Additional Contractor Responsibilities

Contractor's additional responsibilities are, in general, those which are contained in these Contract Documents including, but not limited to, the following:

- Provide a Health and Safety Plan covering all aspects of health and safety for personnel as approved by the Owner.

- Furnish all required insurance for projects.

- Receive, unload, convey, store, and protect all materials, tools, and equipment at the job site.

- Clean and remove all surplus material and debris generated from the work.

- Furnish potable water, ice, and coolers necessary during the project.

- Furnish Owner-approved hard hats, safety glasses, safety shoes, and any other safety equipment. Comply with Owner's safety rules.

001324

- Provide the Owner at least 24 hour prior notice for construction inspection, field testing, engineering, or surveying, as required under this contract.

- Set up temporary barricades with warning signs restricting access to the site.

- Comply with all applicable OSHA regulations.

- Furnish sanitary facilities.

PART II - PRODUCTS

Not Applicable.

PART III - EXECUTION

Not Applicable.

END OF SECTION

001035

SECTION 01400

STANDARDS

PART I - GENERAL

The following standards are applicable to construction of the pond and sump area closure for Sparton Technology, Inc., Albuquerque, New Mexico. In cases where a referenced standard specification has been revised or replaced, the new version shall apply.

ASTM A-48	Grey Iron Castings
ASTM A-120	Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless, for Ordinary Uses
ASTM A-123	Zinc Coatings or Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip
ASTM A-153	Zinc Coating on Iron and Steel Hardware
ASTM A-392	Zinc Coated Steel Chain-Link Fence Fabric
ASTM A-491	Aluminum Coated Steel Chain-Link Fence Fabric
ASTM C-270	Mortar for Unit Masonry
ASTM D-422	Particle Size Analysis of Soils
ASTM D-698	Moisture-Density Relations of Soils and Soil Aggregate Mixtures, Using 5.5 lb. (2.5 kg) Rammer and 12-Inch (304.8 mm) Drop
ASTM D-1556	Density of Soil in Place by the Sand-Cone Method
ASTM D-1560	Resistance to Deformation and Cohesion of Bituminous Mixtures by Means of Hveem Apparatus

001336

ASTM D-977	Emulsified Asphalt
ASTM D-995	Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures
ASTM D-3381	Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D-3515	Hot-Mixed, Hot-Laid Bituminous Paving Mixtures
ASTM D-2922	Density of Soil and Soil Aggregate in Place by Nuclear Methods

AMERICAN ASSOCIATION OF STATE HIGHWAY TESTING OFFICIALS

AASHTO M-240	Type IS Portland Blast Furnace Cement

PART II - PRODUCTS

Not Applicable

PART III - EXECUTION

Specific items of the plans and specifications not referenced to applicable specifications shall be governed by applicable ASTM specifications.

END OF SECTION

001237

SECTION 01450

DEFINITIONS

PART I - GENERAL

The following definitions are applicable to the construction specifications:

Work: Performance of tasks necessary to complete each item described by the drawings in accordance with requirements of the specifications.

Engineer: The Registered Professional Engineer (Engineer), or designated firm employed by Owner, to undertake testing and inspection of the work.

Contractor: The person, partnership, or corporation which has entered into agreement with the Owner to perform all work included in these specifications.

Owner: Sparton Technology, Inc.

001238

Fill Material: Soils, aggregates, or other fill materials as approved by the Engineer for use as fill.

Approved or Permitted: Approved or Permitted by the Owner or Engineer.

Required: Required by Contract Documents.

Submitted: Submitted to the Owner or Engineer for review.

PART II - PRODUCTS

Not Applicable.

PART III - EXECUTION

Non Applicable.

END OF SECTION

SECTION 01460

DRAWINGS

PART I - GENERAL

1.01 Description of Drawings

The following drawings are applicable to the closure of the pond and sump area for Sparton Technology, Inc., Albuquerque, New Mexico:

Plate Number	Title
A-1	Pond and Sump Area Existing Facilities - Base Map
A-2	Pond and Sump Area Existing Cross-Sections and Details
A-3	Pond and Sump Area Final Plan and Cross-Sections
A-4	Fencing Details

PART II - PRODUCTS

Not Applicable.

PART III - EXECUTION

Not Applicable.

END OF SECTION

001340

SECTION 02200

EXCAVATION OF SOILS

PART I - GENERAL

1.01 Description of Work

The Contractor shall furnish all labor, materials, tools, and equipment to perform all work for excavating soil and extraneous material as shown on the drawings and as specified.

All work shall be observed by the Owner or Engineer for conformance with the plans and specifications.

PART II - PRODUCTS

2.01 Potentially Contaminated Soils

Soils excavated during removal of the upper section of pond walls and soils excavated from the old solvent sump (including contents of the sump and soil adjacent to the sump as defined on the plans) shall be considered potentially contaminated. All other excavated soil shall be considered uncontaminated.

2.02 Uncontaminated Soils

Uncontaminated soils are soils within the area to be capped which are not potentially contaminated as defined above.

001241

PART III - EXECUTION

3.01 Protection of Utilities

The Contractor shall identify and locate utility lines prior to construction work. Underground utilities shall be protected from damage during excavation. Any damage to known utility lines as a result of the work performed by the Contractor shall be repaired by the Contractor at no additional cost.

3.02 Protection of Liner

The Contractor shall exercise caution to prevent damage to the existing 30-mil Hypalon liners in the ponds. Any damage to the liner, as a result of the construction activities, will be repaired at the Contractor's expense.

3.03 Excavation of Potentially Contaminated Soil

Soils defined as potentially contaminated shall be excavated to the lines and grades shown on the plans. Excavated material shall be placed in the ponds in accordance with provisions of Section 02400 of this specification.

The contractor shall provide protective clothing and equipment as specified in the Health and Safety Plan required by Section 01010 of this specification.

001242

Equipment used for this excavation shall be decontaminated by the Contractor, in accordance with provisions of Section 03000 of this specification, before it is used for excavation of uncontaminated soil.

3.04 Other Excavation

The Contractor shall excavate all materials to the lines, grades, and elevations shown on the drawings or as specified. Excavated soils shall be used to backfill the sump excavation and the excavated area around and above the ponds. Backfill shall be in accordance with Section 02400 of this specification.

3.05 Drainage During Construction

All rainfall runoff, shallow ground water, water from rinsing or decontamination procedures, or any other water which is potentially contaminated on the site shall be retained and disposed of in accordance with Section 03010, "Disposal of Potentially Contaminated Waste."

3.06 Environmental Compliance

The Contractor is responsible for compliance with all environmental laws and regulations.

END OF SECTION

001243

SECTION 02300

DEMOLITION

PART I - GENERAL

1.01 Description of Work

The Contractor shall furnish all labor, materials, tools, and equipment necessary to perform all work and services for demolition of the upper portion of pond walls and the sump, as shown on the drawings and as specified.

PART II - PRODUCTS

2.01 Mortar

Sand mortar shall be in accordance with ASTM C-270.

PART III - EXECUTION

3.01 Procedure

The Contractor shall excavate soil around the outside of the walls as necessary to uncover the edges of the 30-mil Hypalon liner and to access the outside of the walls for demolition. Excavation shall be in accordance with Section 02200 of this specification.

The exposed edge of the liner shall be laid back over the interior of the pond to expose the pond wall as shown in the drawings. The upper portion of the walls shall be removed to

001244

the elevation shown on the plans. Use of a pneumatic hammer will be permitted. Use of explosives is NOT permitted.

The top of the remaining walls shall be capped using a sand mortar with smooth finish. The liner will then be returned to its original position and buried as shown. Excess liner may be trimmed to make it more manageable.

3.02 Disposal of Debris

Debris from the demolition of the walls, including concrete pieces, concrete block, and excess liner shall be placed into the ponds in accordance with Section 02400 of this specification. Pieces of concrete shall be reduced to a maximum of 3 feet in any dimension and shall not be placed within 3 feet of the asphaltic base course.

Ponds 4 5

Fluff

END OF SECTION

001245

SECTION 02400

BACKFILL AND COMPACTION

PART I - GENERAL

1.01 Description of Work

The Contractor shall furnish all labor, materials, tools, and equipment to perform all work and services for backfilling and compacting as shown on the drawings and as specified. All work shall be observed by the Engineer for conformance with the plans and specifications.

PART II - PRODUCTS

2.01 Soils

Soils used for backfilling shall be those excavated from the site.

2.02 Cement Stabilized Sand

a. Cement

Cement for stabilization of soil above pond walls shall meet the requirements of AASHTO Designation M-240, "Type IS Portland Blast Furnace Cement."

b. Sand

Sand shall be sandy soil from the site area.

001046

PART III - EXECUTION

3.01 Job Conditions

Earthwork shall not be performed during unfavorable weather conditions. When work is interrupted by rain, fill operations shall not be resumed until the field density tests performed by the Engineer indicate that the moisture-content and density of the fill are as specified. Proper drainage shall be maintained at all times.

3.02 Backfilling and Compacting in Ponds

Existing material in the ponds shall be compacted in place using manually operated tamping and compacting equipment. Potentially contaminated soil, as defined in Section 02200, shall be placed in 8-incn-loose lifts and compacted with hand operated equipment.

Demolition material shall be placed in the ponds with a minimum of 12 inches of soil material separating it from the pond liner, and at least 3 feet below the asphaltic base.

All materials shall be placed in the ponds and compacted in a manner which will not damage the pond liner. Material shall be allowed to free fall no more than 24 inches during placement.

001247

If damage of the liner occurs, the Contractor shall repair the liner in a manner satisfactory to the Owner and Engineer at the Contractor's sole expense.

Soils within the ponds shall be compacted using hand operated equipment. Soils 3 feet below the asphaltic base shall be compacted to at least 90 percent of the standard Proctor test method (ASTM D-698). Soils within 3 feet of the asphaltic base shall be compacted to at least 95 percent of ASTM D-698.

The Contractor shall provide protective equipment and clothing as specified in the Health and Safety Plan required by Section 01010 of this specification.

Equipment used for backfill and compaction in ponds shall be decontaminated by the Contractor in accordance with provisions of Section 03000 after pond backfilling is complete.

3.03 Backfilling and Compacting

The soils used for backfill within the upper 3 feet of the asphaltic base course shall be moisture-conditioned to within 3 percent of optimum moisture content (OMC) of the fill soils to facilitate compaction. If the moisture-content of the fill soil is

001348

less than 3 percent below OMC, water shall be added until the moisture content is raised as required. If the moisture content of the fill soils is greater than 3 percent above OMC, the fill soil shall be aerated by blading, discing or other satisfactory methods until the moisture content is lowered as required. The wet soils may be mixed with approved drier materials to achieve an acceptable moisture content.

All fill soils within the upper 3 feet at the ponds shall be spread and leveled in layers not to exceed 8 inches in thickness before compaction. Compaction shall be accomplished with appropriate equipment to at least 95 percent of the standard Proctor test method (ASTM D-698). All fill soils shall be compacted at a moisture content within 3 percent of the optimum moisture content as determined by ASTM D-698.

Soil required for fill or embankment in excess of that obtained by excavation within the grading limits shall be excavated from borrow areas as directed by the Engineer.

3.03 Cement Stabilization

Sandy soils shall be cement stabilized where shown on the plans. A mixture of 5 percent cement by dry weight of the soil shall

001049

be mixed in such a manner that all materials are thoroughly blended to a uniform gradation and color. Mixing water shall be added in a manner that will provide uniform blending with the materials being mixed. Cement stabilized sands shall be compacted to at least 95 percent of the standard Proctor test method (ASTM D-698).

END OF SECTION

001250

SECTION 02450

PROOFROLLING

PART I - GENERAL

1.01 Description of Work

Contractor shall furnish all labor, material, and equipment to perform all work and services in conjunction with proofrolling of areas outside the pond walls at the site. All work under this section shall be observed by the Engineer for conformance with the plans and specifications.

PART II - PRODUCTS

2.01 Proofrolling Equipment

Proofrolling shall be performed utilizing a 10-ton rubber-tired compactor, or similar construction vehicle, approved by the Owner or Engineer.

2.02 Soft, Organic, or Excessively Wet Soil (Unsuitable Material)

Soft, organic, or excessively wet soil (unsuitable material) encountered during the proofrolling operation shall be excavated and replaced with select fill, as specified in Sections 02200 and 02400 of this specification.

001251

PART III - EXECUTION

3.01 Proofrolling

a. The proofrolling equipment shall make at least four passes over each area, with the last two passes perpendicular to the first two passes.

b. Soft or unstable soils that fail to compact shall be cement stabilized or placed inside the ponds.

c. Proofrolling shall be performed just prior to placement of asphaltic base course.

3.02 Stabilization

Soft or unstable areas that fail to proofroll may be stabilized, as specified in Section 02400, to facilitate compaction. Use of cement stabilization to facilitate compaction must be approved by the Engineer prior to accomplishing the work. Stabilization to facilitate compaction shall be performed at the sole expense of the Contractor.

END OF SECTION

001252

SECTION 02500

ASPHALTIC PAVEMENT SYSTEM

PART I - GENERAL

1.01 Description of Work

The Contractor shall furnish all labor, materials, tools, and equipment necessary to install the asphaltic pavement system over the pond and sump area as shown on the drawings and as specified.

All work shall be observed by the Owner or Engineer for conformance to plans and specifications.

1.02 Primary Objectives

The primary objective of the asphalt pavement is to minimize passage of water to the subgrade. The Contractor shall construct the pavement in a manner that will provide a tightly sealed surface with no open joints or cracks.

PART II - PRODUCTS

2.01 Asphalt Base Course

The asphaltic base course shall be Composition 1A or 2A as specified in ASTM D-3515 using at least 3-1/2 percent asphaltic cement Grade AC-10 as specified in ASTM D-3381.

001253

2.02 Tack Coat

The tack coat shall be Emulsified Asphalt Grade SS-1 or SS-1h as specified in ASTM D-977.

2.03 Wearing Surface

The asphaltic concrete wearing surface shall be Composition 6A as specified in ASTM D-3515 using 8 percent asphaltic cement Grade AC-10 as specified in ASTM D-3381.

PART III - EXECUTION

3.01 Sub-Grade Preparation

Sub-grade shall be graded to proper lines and grades and compacted in accordance with Section 02400. Subgrade shall be proofrolled in accordance with Section 02450.

3.02 Asphalt Base Course Construction

Asphalt base course shall be placed and compacted to the lines and grades shown on the plans. The Contractor shall provide suitable equipment of sufficient size to allow continuous, uninterrupted movement of the spreader.

The mixing plant shall conform to ASTM Specification D-995.

001254

As soon as the mixture has been spread and has set sufficiently to prevent cracking, compaction shall begin. A delay in the initial rolling will not be allowed. Asphaltic base course shall be compacted to 95 percent ~~Hveem stability as specified in ASTM D-1560~~.

3.03 Tack Coat Application

Tack coat material shall be applied as directed by the Engineer up to a maximum of 0.1 gallon per square yard. It shall be spread in advance to permit construction to progress continuously after the curing period. As soon as the tack cast has become "tacky" or sticky, covering may proceed. If the tack coat has lost its viscous quality, it shall be reapplied before the surface course is placed.

3.04 Asphaltic Surface Course Application

The asphaltic concrete wearing surface shall be installed in accordance with Paragraph 3.02 of this section.

Placing of paving layers shall be continuous. All joints shall be made in a manner which will provide a smooth, well bonded and sealed joint. All joints between alternatively paved areas shall be feathered at a slope of 6 horizontal to 1 vertical. The intersection of alternatively paved areas shall be covered with a tack coat, as

001255

specified in Section 3.03 of this section, before additional asphaltic surface course is applied. Asphaltic concrete surface course shall be compacted to 95 percent Hveem stability as specified in ASTM D-1560.

3.05 Testing

Asphaltic concrete mixtures shall be sampled and tested in accordance with ASTM D-3515. The Contractor shall furnish certified test results to the Owner for each mixture used.

END OF SECTION

001256

SECTION 02600

CHAIN-LINK FENCE AND GATES

PART I - GENERAL

1.01 Description of Work

The Contractor shall furnish all labor, materials, tools, and equipment to remove the existing fence and to install and complete all chain-link fences and gates as shown on drawings and as specified. The Contractor shall furnish and install all fenceposts, supplementary or miscellaneous items, appurtenances and devices incidental to, or necessary for, a sound, secure, and complete installation. The Contractor shall salvage and re-install fence fabric and gates as shown on the drawings. New posts and materials shall be compatible with the existing fence.

All work shall be observed by the Engineer for conformance to plans and specifications.

1.02 Product, Storage, and Handling

Store fence fabric, posts, and other items off ground and protected from damage.

001257

PART II - PRODUCTS

2.01 Fencing Materials

a. General

Use only new materials. Pipe sizes indicated are commercial pipe sizes. Tube sizes are nominal flange dimensions. Rolled form section sizes are nominal outside dimensions.

Iron or steel components shall be hot-dip galvanized after fabrication. Use galvanized and aluminized finish complying with the following minimum requirements:

Pipe:	2.0 oz. zinc/square foot (s.f.)
Square Tubing:	ASTM A-123, 2.0 oz. zinc/s.f.
Roll Form:	ASTM A-120
Hardware and Accessories:	ASTM A-153
Fabric:	ASTM A-392, Class II, 1.4 oz. zinc/s.f. or ASTM A-491, Class II, .4 oz. aluminum/s.f.
Miscellaneous items:	ASTM-A-120, 1.0 oz. zinc/s.f.

b. Chain-Link Fabric

Chain-link fabric shall be woven 2-inch mesh of No. 9 galvanized copper-bearing steel wire, galvanized after fabrication in accordance with ASTM A-392 for zinc coating.

001258

c. Steel Line Posts

Line posts shall be 2-1/2 inch O.D. steel pipe weighing at least 3.65 pounds per lineal foot.

d. Steel Top and Bottom Rails

Rails shall be 1-5/8 inch O.D. steel pipe weighing at least 2.27 pounds per lineal foot or 1-5/8 inch rolled form section. Fit rails with expansion couplings of outside sleeve type. Rails shall be continuous for outside sleeve type for full length of fence.

e. Steel Terminal, End, Corner, and Pull Posts (Terminal Posts)

Terminal posts shall be 3-inch O.D. steel pipe weighing at least 5.79 pounds per lineal foot. Provide posts of sufficient length to permit 36 inches to be set in concrete footing.

f. Bracing for Use Between Terminal, End, Corner, Gate, Pull Posts, and First Adjacent Line Posts

Bracing shall be 1-5/8 inch O.D. steel pipe weighing at least 2.27 pounds per lineal foot. Space no lower than 1/2 of fabric width from top of posts and trussed

001259

back to base of terminal, end, corner, or pull post with 3/8-inch truss rod with turn-buckles.

g. Gate Posts

Gate posts shall be round steel pipe not less than size and weight given below:

- Double gate, total width 24 feet; 4-inch O.D. weighing not less than 9.11 pounds per lineal foot.
- Provide posts of sufficient length to permit bottom 26 inches to be set in concrete.

h. Tension Bars

Tension bars shall be 3/16 inch x 3/4 inch minimum steel, one piece for full height of fabric.

i. Stretcher Bars and Bands

Stretcher bars shall be 1/8 inch x 1 inch, threaded through fabric and secured to posts with metal bands spaced not greater than 14 inches O.D.

j. Wire Ties

Ties shall be No. 6 gauge steel wire for securing fabric to posts and rails. Space bands not greater than 14 inches O.C.

001060

k. Gate Frames

Gate frames shall be not less than 2 inch O.D. steel pipe weighing at least 2.72 pounds per lineal foot.

l. Gate Hardware

1. Hinges: Pressed or forged steel or malleable iron to suit gate size, of non-lift-off heavy duty type, offset to permit 180 degree gate opening. Provide 1-1/2 pair for each leaf over 6 feet nominal height.

2. Latches for Single and Double Gates: Heavy duty, automatically engaging, lockable latch. Furnish drop rod complete with suitable casting set in concrete to hold gate leaf in place when drop rod is engaged.

3. Keepers: Provide keepers for all gates to automatically engage gate leaf and hold it in open position until manually released.

m. Post Tops

Post tops shall be steel, wrought iron or malleable iron, designed as a weather-tight closure cap, one cap per post.

n. Barbed Wire

Barbed wire shall consist of two strands of No. 9 steel wire twisted with four point barbs of No. 9 wire at 15 inch O.C. maximum. Wire shall be galvanized after fabrication in accordance with ASTM A-392 for zinc coating.

001361

o. Miscellaneous Items and Materials

Provide as required to complete fence installation. Items and materials shall be consistent in quality with materials listed above.

2.02 Concrete

Concrete for embedment of terminal posts shall obtain a compressive strength of 2500 psi.

PART III - EXECUTION

3.01 General

The Contractor shall remove existing fence and gates, store materials to be reused, and dispose of other material off site.

The Contractor shall furnish and erect fence and gates, along the lines and grades and at locations specified on plans or established by the Engineer. Provide a rigid, taut fence. Install fence in true and correct alignment with vertical posts.

3.02 Installation

Drill holes in firm, undisturbed or compacted soil extending not less than six inches below bottom of posts (36 inches deep).

Set all posts in concrete footings as shown on the drawings. Fence post footings shall have the following minimum dimensions, be

001262

crowned one inch minimum and steel troweled, except as otherwise detailed:

Line Posts = 10 inch diameter and 3 feet deep.

Other Posts = 16 inch diameter and 3 feet deep.

Wait at least seven days after posts are set in concrete before placing fabric in tension. Install fence tight, free of sags and bulges. Construct fence such that bottom edge of fabric is about one inch above grade. Correct minor irregularities in ground surface so that maximum clearance beneath fabric does not exceed 2 inches.

Space line posts at equal intervals not exceeding 10 feet. Install terminal posts at gates, corners, and any other points of strain. Fit terminal posts with bracing assembled between terminal posts and brace posts (first line post adjacent to terminal posts).

Provide top rails with expansion couplings at not more than 20 foot intervals. Use couplings which provide rigid connection and allow for expansion and contraction. Anchor top rails to line posts with appropriate wrought or malleable fittings.

Install bracing assemblies at all line posts and at both sides of corner and pull posts. Locate compression members at mid-height of

001263

fabric. Extend diagonal tension members from compression members to bases of line posts. Use tension members not less than 3/8 inch diameter and fitted with tension take-up device. Install braces so that posts are plumb when diagonal rod is under correct tension.

Pull fabric taut and secure to posts and rails. Install fabric on security side of fence and secure to framework so that fabric remains in tension after pulling force is released. Secure fabric to line posts at not over 12 inches O.C. Use U-shaped wire conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least two full turns. Bend ends of wire to minimize hazards to persons or clothing.

Thread stretcher bars through fabric and secure to terminal posts with metal bands spaced not greater than 14 inches O.D. Pull each strand of barbed wire taut individually and secure to posts with wire ties. Space strands of barbed wire 4 inches apart with the bottom strand 4 inches above top rail.

Construct gate frames with malleable fittings at joints. Bracing and details of construction provide a rigid, non-sagging, non-twisting gate. Use fabric same as fence fabric and similarly attached. Do not weld fabric to frame. Furnish gate frames with three rows of barbed wire at top.

001264

3.03 Acceptance

Remove and replace all damaged or improperly installed fencing components to satisfaction of Engineer at no additional expense to Owner.

END OF SECTION

001065

SECTION 03000

DECONTAMINATION

PART I - GENERAL

1.01 Description of Work

The Contractor shall provide all labor, materials, tools, and equipment necessary for decontamination of equipment and personnel which have been directly involved in relocation and handling of potentially contaminated material.

PART II - PRODUCTS

2.01 Decontamination Facilities

Equipment capable of supplying high pressure spray of water and steam shall be provided by the Contractor for cleaning of excavation equipment. The Contractor shall provide all sheeting (polyethelene), tubs, buckets, brushes, hoses, and cleaning compounds necessary for decontamination of personnel and equipment. Throw-away garbage containers shall be provided for disposable protective clothing.

PART III - EXECUTION

3.01 Procedure

The decontamination area shall be adjacent to the area to be capped. Polyethylene or equivalent sheeting and sandbags or formwork

001266

shall be used to form a sump to contain any materials generated from the decontamination process.

All equipment used for relocation of potentially contaminated materials shall be thoroughly cleaned with the high pressure steam cleaner. Decontamination shall be accomplished after the contaminated material has been placed in the ponds and compacted, but before backfilling with uncontaminated soil.

Personnel who have worked within the potentially contaminated area shall decontaminate before leaving the site. Specific procedures are as follows:

Personnel

At the end of each work period (before eating, drinking, smoking, or leaving the site), each person will pass through the designated decontamination area. Each of the following stations will be used as appropriate:

- Equipment/tool drop station.
- Boot Wash - Soiled boots will be washed in a tub containing a low-sudsing detergent solution.
- Boot Rinse - Personnel will step into a tub containing rinse water after washing boots.

001267

- Glove Wash - Intact gloves will be wiped clean over a glove wash bucket containing low-sudsing detergent and water.
- Glove Rinse - Washed gloves will be rinsed with water or wiped with a water wetted towel.
- Contaminated Clothing - Used tyvek suits will be dropped into a bag lined garbage can for approved disposal.
- Showers - Personnel will shower as soon as possible at the end of the work day.

Equipment

1. Prior to equipment demobilization, loose mud will be removed using brushes and scrapers, as necessary, and equipment will be steam cleaned over polyethylene sheets. The perimeter of the sheeting will be bermed to prevent movement of liquids or solids away from the decontamination area.

END OF SECTION

001268

SECTION 03010

DISPOSAL OF POTENTIALLY CONTAMINATED WASTE

PART I - GENERAL

1.01 Description of Work

The Contractor shall furnish all labor, materials, tools, and equipment necessary to dispose of contaminated and potentially contaminated solid and liquid waste generated during the work.

PART II - PRODUCTS

2.01 Potentially Contaminated Waste

Potentially contaminated waste includes all disposable items which have been used within the area to be capped and those used in the decontamination process.

2.02 Potentially Contaminated Water

Potentially contaminated water is any rainfall runoff, washwater, or other water which may have had direct contact with potentially contaminated soil as defined in Section 02400 of this specification. This generally includes all rainfall runoff from the area to be capped and all water used for decontamination.

001289

PART III - EXECUTION

3.01 Disposal Method

Potentially contaminated waste shall be placed in polyethelene bags which shall be placed in approved lined steel drums for removal to an approved hazardous waste disposal site.

Potentially contaminated water shall be placed in approved lined steel drums (or polyethylene drums) for removal to an approved hazardous waste disposal site.

Drums shall be properly marked and labelled for hazardous waste disposal and shall conform to DOT 17-H for open top steel drums, or to DOT 34 for polyethylene drums (Exemption DOT-E6637).

Removal of drums for disposal shall be under the direction of the Owner or Engineer.

END OF SECTION

001270

SECTION 04000

INSPECTION AND TESTING

PART I - GENERAL

1.01 Description of Work

Furnish all labor, materials, tools, and equipment to perform all work and services in conjunction with the earthwork construction operations specified in other sections. Replace or rework items which are not approved by the Engineer based upon testing described in this section, at the sole expense of the Contractor. The sampling and testing described in this section will be performed by the Engineer in checking the Contractor's work, at no cost to the Contractor.

PART II - PRODUCTS

Not Applicable.

PART III - EXECUTION

3.01 General Backfilling and Compaction

All compacted fill must be tested and approved by the Engineer.

The Contractor shall notify the Engineer at least 48 hours before requiring testing services and shall cooperate with the Engineer to facilitate all sampling and testing.

001271

3.02 Replacement of Unapproved Work

Any earthwork which does not conform to the requirements of this section, as determined by the Engineer, shall be removed and replaced, or re-worked until approved by the Engineer. The Contractor shall replace or re-work unacceptable sections at no cost to the Owner.

3.03 Soil Compaction Testing

All fill shall be compacted according to the moisture and density requirements described in Section 02400.

In-place density tests shall be in accordance with ASTM D-1556 or ASTM D-2922, at the discretion of the Engineer.

At least one in-place field density test shall be performed for each lift placed.

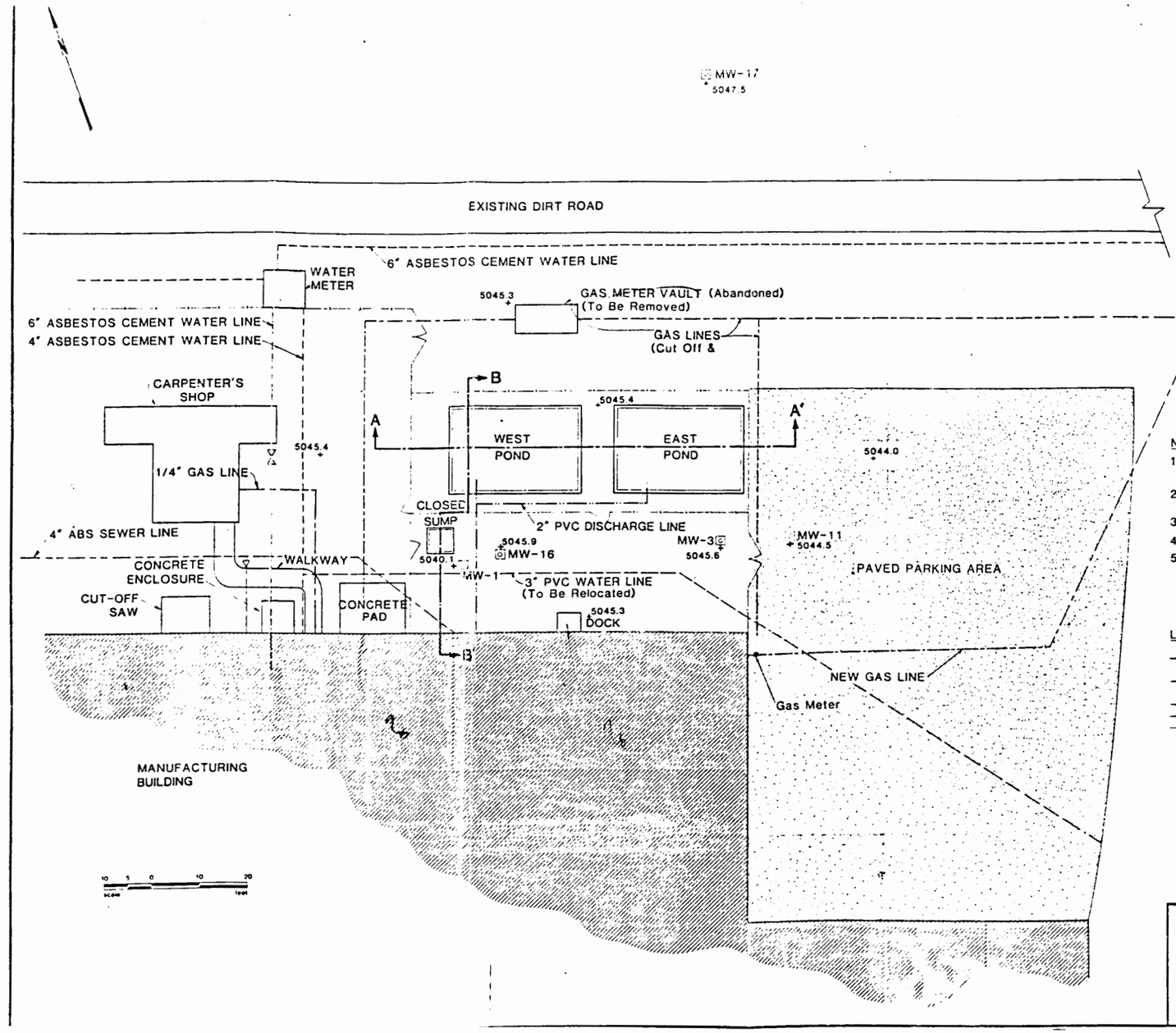
There shall be a minimum of one in-place density test on any day of compaction activity. Additional in-place field density tests may be performed at the discretion of the Engineer.

001272

Initially, one standard Proctor test shall be performed for each new fill material and for each 10 in-place field density tests performed. The frequency of standard Proctor tests may be increased or decreased at the discretion of the Engineer as the job progresses.

END OF SECTION

001273



NOTE:

1. All underground line locations are approximate. Field locate prior to excavation.
2. MW-1, MW-3, and MW-11 to be plugged and abandoned before closure.
3. For Cross Section A-A' See Plates A-2 and A-3.
4. For Cross Section B-B' See Plates A-2 and A-3.
5. Contractor shall remove existing gas meter vault and dispose off-site.

LEGEND:

- PVC Discharge Line
- Gas Line
- Water Line
- Sewer Line
- Chain Link Fencing (To be relocated in the area of the Ponds and
- Water Valve
- Monitor Well with 2-foot sq.concrete pad
- Sewer Clean-out
- 5045.4 Surface elevation, feet MSL

A-1

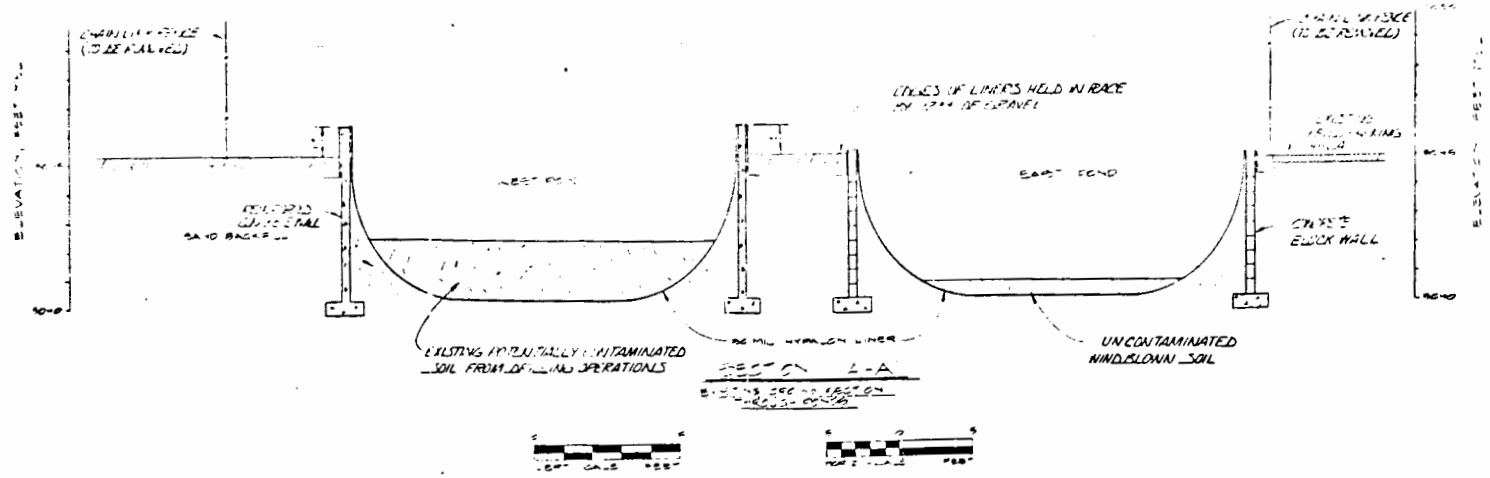
Harding Lawson Associates

POND AND SUMP AREA
EXISTING FACILITIES
BASE MAP

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

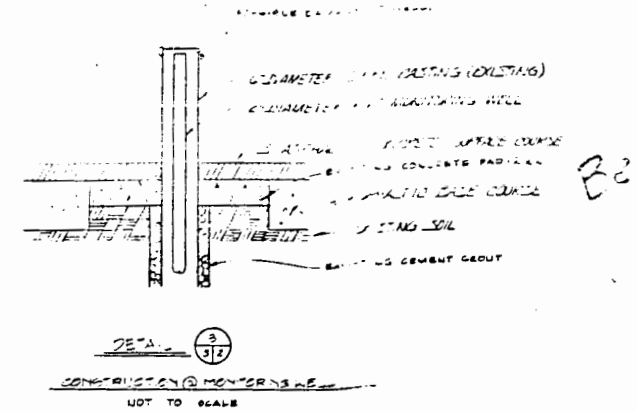
JD 6310.012.12

001274



NOTES

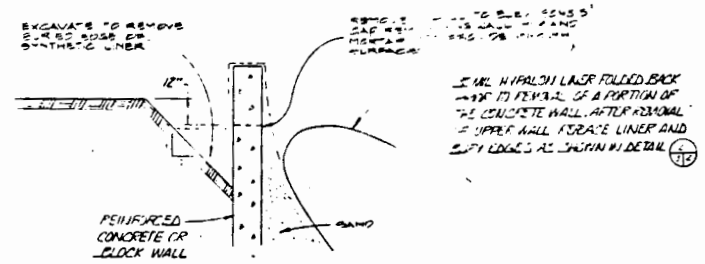
1. EXISTING WALLS AND LINER DIMENSIONS AND DEPTHS ARE APPROXIMATE.
2. ANY DAMAGE TO LINERS AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BEFORE BACKFILLING.
3. EXISTING WASTE MATERIAL PRESENTLY IN THE PONDS SHALL BE COMPACTED BY HAND BEFORE BACKFILLING. ANY FREE LIQUID SHALL BE SOLIDIFIED BEFORE BACKFILLING.



DETAIL 3/J12

CONSTRUCTION @ MONITORING WELL

NOT TO SCALE



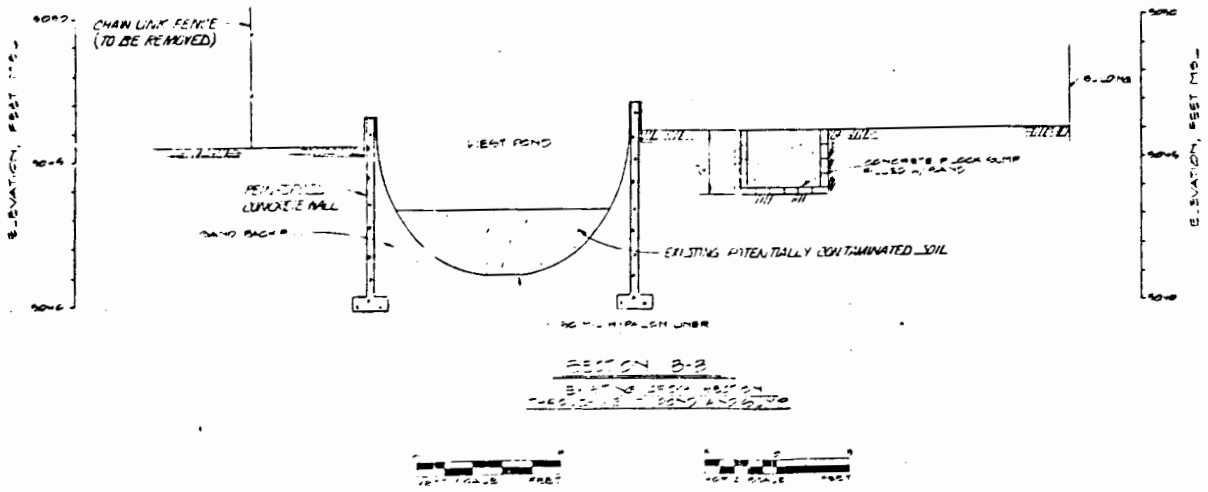
DETAIL 1/J12

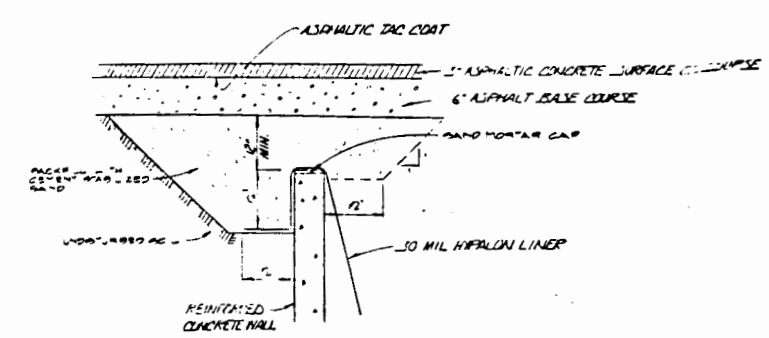
REMOVAL OF UPPER WALL SECTION

NOT TO SCALE

LEGEND

- CONCRETE
- SAND
- EXISTING SOIL
- ASPHALT BASE
- ASPHALTIC CONCRETE
- EXISTING WASTE
- CEMENT STABILIZED
- HORIZONTAL LAYER





DETAIL 2/J12

COMPLETED WALL / LINER

NOT TO SCALE

A-2

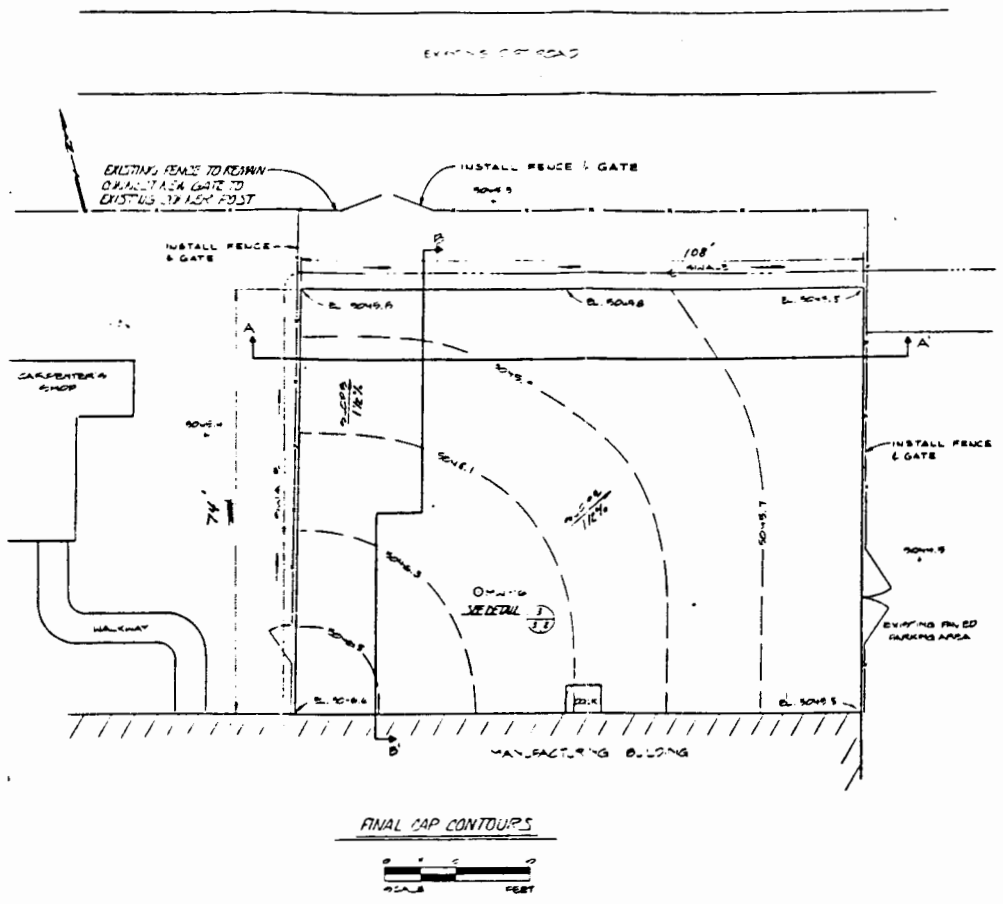
Harding Lawson Associates
Engineers, Geologists & Geophysicists

POND AND SUMP AR
EXISTING CROSS SE
AND DETAILS

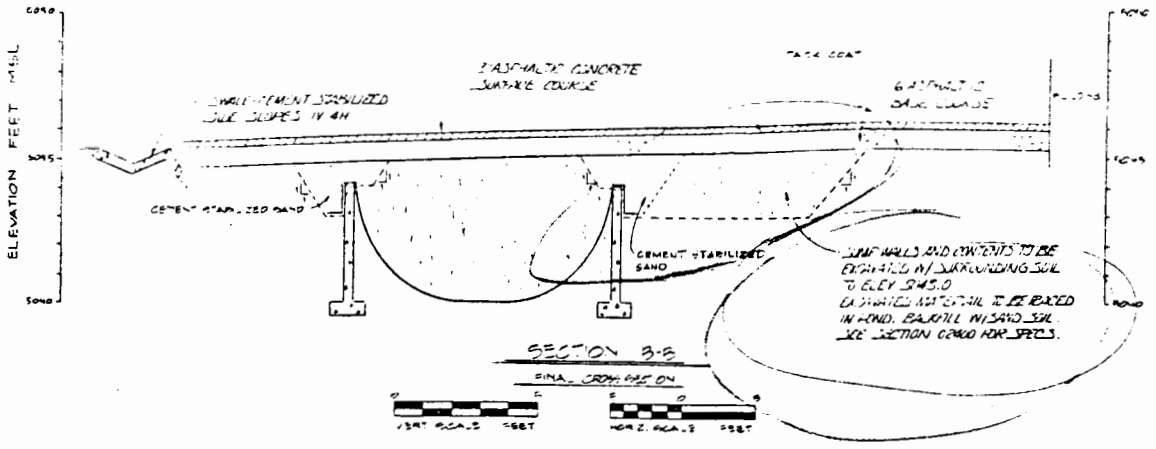
SPARTON TECHNOLOGY, IN
ALBUQUERQUE, NEW MEX

6310.012.12

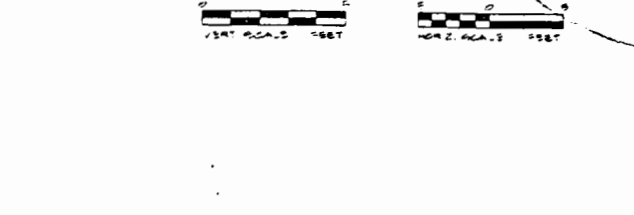
001275



FINAL CAP CONTOURS

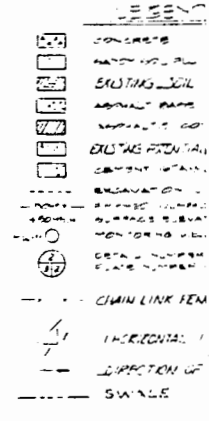


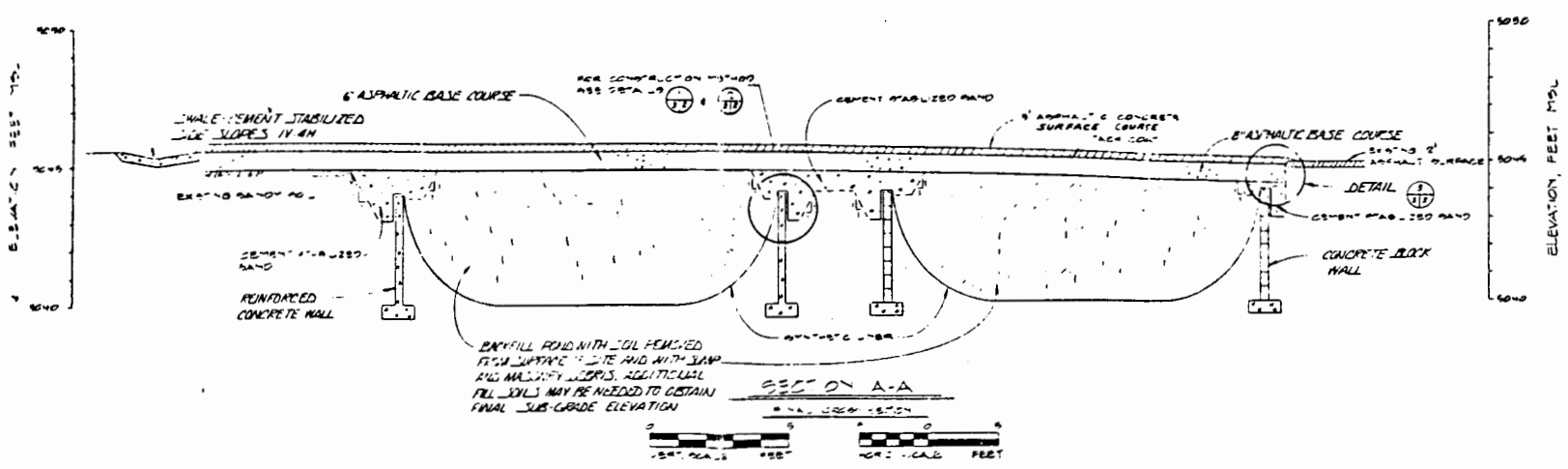
SECTION B-B



DETAIL 7/A-3

PAVEMENT JUNCTURE
NOT TO SCALE





SECTION A-A

A-3

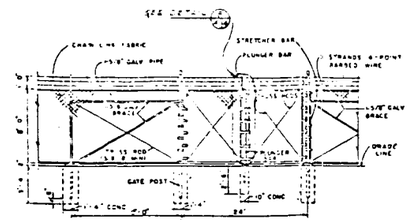
Harding Lawson Associates
Engineering Geology & Geophysics

POND AND SUMP AREA
FINAL PLAN & SECTION

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

6310.012.12

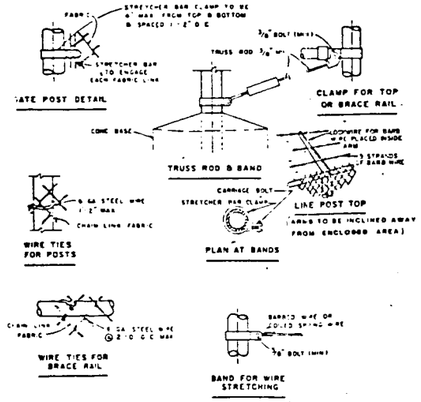
001276



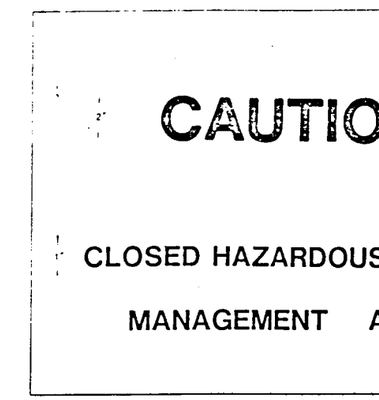
ELEVATION AT GATE

TYPICAL ELEVATION

CHAIN LINK FENCE

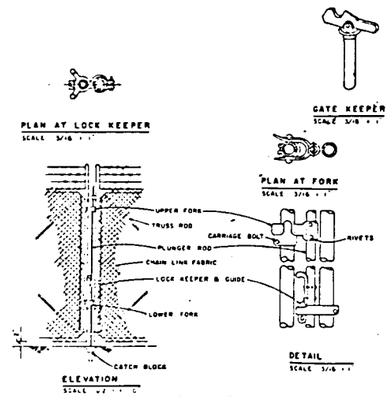


CHAIN LINK FENCE
FASTENING DETAILS



NOTE: PAINTED BLACK LETTERS ON YELLOW BACKGROUND 16 Ga. SHEET STEEL TO BE ATTACHED TO GATES (3 REQUIRED).

TYPICAL WARNING SIGN
SCALE 3/8" = 1'



CHAIN LINK FENCE
SWING GATE DETAILS

NOTES

1 WARNING SIGNS TO BE POSTED ON EACH OF THE 3 GATES

2 FILL HOLES FROM REMOVAL OF EXISTING FENCE POSTS USING CLEAN SOIL

A-4

Harding Lawson Associates

FENCING DETAILS

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

6310.012.12

A

0012777

APPENDIX C
to
ATTACHMENT 3

Chain-of-Custody Procedures

APPENDIX C

CHAIN-OF-CUSTODY PROCEDURES

I Custodiansnip

A custodian will maintain custody and control of each sample under his care until it is relinquished, analyzed, or disposed. Normal security measures such as locked containers; evidence tape; or personal, physical possession will be utilized by the custodian.

The person actually collecting the sample becomes the first custodian. His duties include sealing the sample container with evidence tape, or locking the sample containers, if he does not maintain continuous personal, physical possession.

If the sample is to be split into subsamples, or if anyone else will have possession of the samples prior to laboratory delivery, the first custodian will also initiate Chain-of-Custody documentation. If the sample collector personally delivers the samples to the laboratory, he may obtain an itemized and dated receipt from an authorized laboratory representative in lieu of the Chain-of-Custody documents.

As the sample moves from the initial custodian through the Chain-of-Custody, subsequent custodians will sign when receiving the sample, and upon relinquishing same. (NOTE: Custodians will handle each sample in their possession in such a manner so as to be able to testify that it was continuously under their control and not subject to any tampering.)

II Documentation

A. Chain of Custody Document Contents

1. Facility name and location:

   Sparton Technology, Inc.
   9521 Coors Road, NW
   Albuquerque, New Mexico 87103

2. For each sample:

   a. Sample location and depth;
   b. Date and time of collection; and
   c. Number of sample containers.

3. Name of sample collector

4. Special security features used, such as locked containers or evidence tape.

B. Multiple Samples

A single Chain-of-Custody document may be used for more than one sample, provided that all requirements specified in Item B.1 are met. If multiple samples are identified in one document, they nor-

mally will be packaged together and the package sealed with evidence tape.

C. Acceptance/Release Format

Each transfer of possession of a sample will be recorded on the document with the following items:

1. Signature of person relinquishing sample control;
2. Signature of person receiving sample control;
3. Date and time of transfer; and
4. Stipulation that the sample has/has not been visibly tampered with.

Remarks should include any exceptions or deviations from normal routine involved with the sample.

If the samples are to be mailed, the Chain-of-Custody document is to be enclosed within the shipping container. In this case, the date and time will be recorded separately to indicate when the package was sealed and when it was opened at the receiving end.

APPENDIX D
to
ATTACHMENT 3

Analytical Methods

LABORATORY SUPPORT FOR
ALTERNATIVE GROUND WATER MONITORING PROGRAM
AT SPARTON TECHNOLOGY, INC.

Prepared For:

Harding Lawson Associates

Prepared By:

Rocky Mountain Analytical Laboratory
5530 Marshall Street
Arvada, Colorado 80002

May 6, 1985

001283

INTRODUCTION

Rocky Mountain Analytical Laboratory will continue to provide support for the Alternative Ground Water Monitoring Program at Sparton Technology, Inc. The analytical methodologies, sample containers, and preservation techniques used for this program are attached. They represent the current guidelines contained in Federal Register, 40 CFR Part 136, October 26, 1984.

ROCKY MOUNTAIN ANALYTICAL LABORATORY

Inorganic Analytical Methodology

Parameter	Units	Nominal Detection Limit[a]	Methodology	Reference	Preservation Bottle No.	Maximum Holding Time[b]
MAJOR IONS						
Sodium	mg/l	0.5	ICP Emission Spectroscopy	3	4	6 months
Potassium	mg/l	0.3	ICP Emission Spectroscopy	3	4	6 months
Calcium	mg/l	0.1	ICP Emission Spectroscopy	3	4	6 months
Magnesium	mg/l	0.1	ICP Emission Spectroscopy	3	4	6 months
Chloride	mg/l	3	Manual Titrimetric, $Hg(NO_3)_2$	1-325.3/2-407B	1	28 days
			Automated Colorimetric Ferricyanide	1-325.2	1	28 days
Fluoride	mg/l	0.1	Electrode	1-340.2/2-413B	1	28 days
Sulfate	mg/l	5	Manual Turbidimetric	1-375.4/2-426C	1	28 days
			Automated Colorimetric MTB	1-375.2	1	28 days
Total Alkalinity as $CaCO_3$ at pH 4.5	mg/l	5	Titrimetric	1-310.1/2-403	1	14 days
Carbonate Alkalinity as $CaCO_3$ at pH 8.3	mg/l	5	Titrimetric	1-310.1/2-403	1	14 days
Bicarbonate Alkalinity as $CaCO_3$ at pH 4.5	mg/l	5	Titrimetric	1-310.1/2-403	1	14 days
Hydroxide Alkalinity as $CaCO_3$	mg/l	5	Calculation	2-403	-	-
Nitrate+Nitrite as N	mg/l	0.1	Manual Cd Reduction - Colorimetric	1-353.3/2-418C	2	28 days
		0.1	Automated Cd Reduction - Colorimetric	1-353.2	2	28 days
Total Cations	meq/l	0.1	Calculation	2-104C	-	-
Total Anions	meq/l	0.1	Calculation	2-104C	-	-
Difference	%	0.1	Calculation	2-104C	-	-
RADIOCHEMISTRY						
Gross Alpha	pCi/l	0.1	Proportional Counter	2-703	5	6 months
Gross Beta	pCi/l	0.1	Proportional Counter	2-703	5	6 months
Radium 226	pCi/l	0.1	Separation - Counter	2-705	5	6 months
Radium 228	pCi/l	0.1	Separation - Counter	2-707	5	6 months
Uranium	mg/l	0.005	Fluorimetric	4-D2907-75	5	6 months

00133

ROCKY MOUNTAIN ANALYTICAL LABORATORY

Inorganic Analytical Methodology (Continued)

Parameter	Units	Nominal Detection Limit[a]	Methodology	Reference	Preservation Bottle No.	Maximum Holding Time[b]
TRACE METALS[c]						
Aluminum	mg/l	0.05	ICP Emission Spectroscopy	3	4	6 months
Antimony	mg/l	0.002	Furnace Atomic Absorption	1-204.2	4	6 months
Arsenic	mg/l	0.002	Furnace Atomic Absorption	1-206.2	4	6 months
Barium	mg/l	0.005	ICP Emission Spectroscopy	3	4	6 months
Beryllium	mg/l	0.001	ICP Emission Spectroscopy	3	4	6 months
Boron	mg/l	0.004	ICP Emission Spectroscopy	3	4	6 months
Cadmium	mg/l	0.002	ICP Emission Spectroscopy	3	4	6 months
Chromium	mg/l	0.005	ICP Emission Spectroscopy	3	4	6 months
Cobalt	mg/l	0.003	ICP Emission Spectroscopy	3	4	6 months
Copper	mg/l	0.002	ICP Emission Spectroscopy	3	4	6 months
Iron	mg/l	0.05	ICP Emission Spectroscopy	3	4	6 months
Lead	mg/l	0.025	ICP Emission Spectroscopy	3	4	6 months
		0.001	Furnace Atomic Absorption	1-239.2	4	6 months
Manganese	mg/l	0.005	ICP Emission Spectroscopy	3	4	6 months
Mercury	mg/l	0.0002	Cold Vapor Atomic Absorption	1-245.1	4	6 months
Molybdenum	mg/l	0.005	ICP Emission Spectroscopy	3	4	6 months
Nickel	mg/l	0.01	ICP Emission Spectroscopy	3	4	6 months
Selenium	mg/l	0.002	Furnace Atomic Absorption	1-270.2	4	6 months
Silver	mg/l	0.003	ICP Emission Spectroscopy	3	4	6 months
Strontium	mg/l	0.005	ICP Emission Spectroscopy	3	4	6 months
Thallium	mg/l	0.002	Furnace Atomic Absorption	1-279.2	4	6 months
Tin	mg/l	0.03	ICP Emission Spectroscopy	3	4	6 months
Titanium	mg/l	0.002	ICP Emission Spectroscopy	3	4	6 months
Vanadium	mg/l	0.002	ICP Emission Spectroscopy	3	4	6 months
Zinc	mg/l	0.004	ICP Emission Spectroscopy	3	4	6 months
INORGANIC PARAMETERS						
pH	units	0.01	Meter	1-150.1; 2-423	1	ASAP
Specific Conductance at 25°C	umhos/cm	1	Bridge	1-120.1; 2-205	1	28 days
Total Dissolved Solids	mg/l	10	Gravimetric, 180°C	1-160.1; 2-209B	1	7 days
Total Suspended Solids	mg/l	2	Gravimetric, 105°C	1-160.2	1	7 days
Total Solids	mg/l	10	Gravimetric, 105°C	1-160.3	1	7 days
Total Volatile Solids	mg/l	10	Gravimetric, 550°C	1-160.4	1	7 days
Ortho-Phosphate as P	mg/l	0.01	Single Reagent Colorimetric	1-365.2; 2-424F	1	48 hours

001286

ROCKY MOUNTAIN ... YTICAL LABORATORY

Inorganic Analytical Methodology (Continued)

Parameter	Units	Nominal Detection Limit[a]	Methodology	Reference	Preservation Bottle No.	Maximum Holding Time[b]
INORGANIC PARAMETERS (Continued)						
Total Phosphorus as P	mg/l	0.06	Digestion; ICP Emission Spectroscopy	1-4.1.4; 3	4	28 days
		0.01	Digestion - Colorimetric	1-365.2; 1-424C,F	2	28 days
Silica as SiO_2	mg/l	0.1	ICP Emission Spectroscopy	3	4	28 days
	mg/l	1	Colorimetric	1-370.1; 2-425C	1	28 days
Biological Oxygen Demand	mg/l	2	Dilution Bottle - D.O. Probe	1-405.1; 2-507	1	48 hours
Chemical Oxygen Demand	mg/l	5	Micro Colorimetric	1-410.4; 2-508A	2	28 days
Total Organic Carbon	mg/l	0.1	Oxidation-Infrared Absorption	1-415.1; 2-505	2	28 days
Ammonia as N	mg/l	0.1	Electrode	1-350.3; 2-417E	2	28 days
		0.1	Automated Colorimetric	1-350.1	2	28 days
Total Kjeldahl Nitrogen as N	mg/l	0.1	Digestion - Electrode	1-351.4; 2-420B	2	28 days
		0.1	Digestion - Colorimetric	1-351.2	2	28 days
Total Organic Nitrogen as N	mg/l	0.1	Calculation (TKN - NH_3)	-	-	-
Oil and Grease	mg/l	1	Freon Extraction-Gravimetric	1-413.1; 2-503A	3	28 days
Free Cyanide	mg/l	0.01	Chlorination-Distillation-Colorimetric	1-335.1; 2-412F,D	6	14 days
Total Cyanide	mg/l	0.01	Distillation - Colorimetric	1-335.2; 2-412B,D	6	14 days
Phenolics	mg/l	0.01	Distillation - Colorimetric	1-420.1; 2-510A,B	2	28 days
Fecal Coliform	Colonies/100 ml	1	Membrane Filter	2-909C	8	ASAP
Total Coliform	Colonies/100 ml	1	Membrane Filter	2-909A	8	ASAP
Bromide	mg/l	0.1	Colorimetric	2-405	1	28 days
Residual Chlorine	mg/l	0.05	Amperometric	1-330.2; 2-408C	1	ASAP
Hexavalent Chromium	mg/l	0.01	Colorimetric	1-218.4; 2-312B	1	24 hours
Color	units	5	Pt-Co Colorimetric	1-110.2; 2-204A	1	48 hours
Hardness as $CaCO_3$	mg/l	5	Calculation	2-314A	4	6 months
Nitrite as N	mg/l	0.01	Colorimetric	1-354.1; 2-419	1	48 hours
Sulfide	mg/l	0.05	Titrimetric - Electrode	1-376.1; 2-427B,D	7	7 days
Sulfite	mg/l	2	Titrimetric	1-377.1; 2-428	1	ASAP
MBAS (Surfactants)	mg/l	0.1	Colorimetric	1-425.1; 2-512A	1	48 hours
Turbidity	NTU	0.1	Turbidimeter	1-180.1; 2-214A	1	48 hours

001367

References

(1) "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, EMSL, Cincinnati, 1979.

(2) "Standard Methods for the Examination of Water and Wastewater", 15th Edition, APHA, 1980.

(3) Federal Register, 40 CFR 136, December 3, 1979; USEPA EMSL-Cincinnati, OH 45268.

(4) "Annual Book of ASTM Standards", Part 31, Water, 1980.

Notes

[a] Nominal values are the best achievable with the listed analytical method. Interferences in specific samples may result in a higher detection limit.

[b] Applicable to NPDES wastes as updated by Robert C. Booth, Director, EMSL-Cincinnati, September 22, 1981.

[c] Digestion procedure 1-4.1.4 used for elements determined by ICP Emission Spectroscopy when determining total metals. Digestion procedures for graphite furnace elements included with reference listed.

11/10/82

827700

GUIDELINES FOR SAMPL _ ?LES AND PRESERVATIVES[a]

Bottle No.	Parameters	Container	Preservative	Notes
1	Cl^-, F^-, $SO_4^=$, Tot. Alk., $CO_3^=$ Alk., HCO_3^- Alk., OH^- Alk., pH, spec. cond., TDS, TSS, TS, TVS, o-PO_4 SiO_2, BOD, Br^-, res. Cl_2, Cr^{+6}, color, NO_2^-, $SO_3^=$, MBAS, Turbidity.	1 liter poly	4° C	Provide unfiltered sample for solids and turbidity.
2	Tot. P, COD, TOC, NH_3, TKN, TON, Phenolics NO_3 + NO_2.	500 ml poly	2 ml 50% H_2SO_4, 4°C	
3	O & G	1 liter glass	4 ml 50% H_2SO_4, 4°C	Do not filter, collect directly in bottle.
4	Na, K, Ca, Mg, Al, Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, Sr, Tl, Sn, Ti, V, Zn, ICP, Hardness.	500 ml poly	5 ml 50% HNO_3	Provide separate samples for total and dissolved sample (filter before adding to bottle.)
5	Alpha, Beta, Ra^{226}, Ra^{228}, U	1 liter poly (no Ra^{228}) ½ gallon poly (with Ra^{228})	10 ml 50% HNO_3 20 ml 50% HNO_3	
6	Free CN, Tot. CN	500 ml poly	2 ml 50% NaOH, 4°C	
7	Sulfide	250 ml poly	1 ml 1 N Zn acetate, 1 ml 50% NaOH, 4°C	
8	Fecal coli., total coli.	8 oz. sterile	4° C	Collect directly in sterile bottle
11	VOA, purgeable organics, THM	2 - 40 ml glass vial	4° C	Completely fill bottle, leave no air bubbles.
12	B/NA	1 liter glass	4° C	
13	Pest./PCB	1 liter glass	4° C	
14	Herbicides	1 liter glass	4° C	
15	TOX	1 liter glass	4° C	

[a] Federal Register, 40 CFR 136, December 3, 1979, as updated by EPA, EMSL-Cincinnati, September 22, 1981.

11/5/82

ROCKY MOUNTAIN ANALYTICAL LABORATORY

Organic Analytical Methodology

Parameter	Units	Nominal Detection Limit[a]	Methodology	Reference[1]	Preservation Bottle No.	Maximum Holding Time[b]
Purgeables	ug/l	1	Purge & Trap GC/MS	624	11	14 days
Base/Neutrals	ug/l	10	Extraction/GC/MS	625	12	7 days/40 days
Acids	ug/l	10	Extraction/GC/MS	625	12	7 days/40 days
Organochlorine Pesticides/PCB's	ug/l	0.01	Extraction/GC/ECD	608	13	7 days/40 days
		10	Extraction/GC/MS	625	12	7 days/40 days
Phenoxy Herbicides	ug/l	0.01	Extraction/GC/ECD	(2)	14	7 days/40 days
Total Organic Halogen (TOX)	ug/l	5	Adsorbtion/Coulometric	450.1(3)	15	-
Trihalomethanes (THM)	ug/l	1	Extraction/GC/ECD	(4)	11	14 days
		1	Purge & Trap GC/MS	(4)	11	14 days
Dioxin	ug/l	0.005	Extraction/GC/MS/ECD	613	16	7 days/40 days
Purgeable Halocarbons	ug/l	0.01	Purge & Trap/GC/Hall	601	11	14 days
Purgeable Aromatics	ug/l	1	Purge & Trap/GC/PID	602	17	14 days
Acrolein & Acrylonitrile	ug/l	100	Purge & Trap/GC/FID	603	18	14 days
Phenols by GC	ug/l	10	Extraction/GC/FID	604	16	7 days/40 days
Benzidines	ug/l	0.1	Extraction/HPLC	605	19	7 days/40 days
Phthalate Esters	ug/l	10	Extraction/GC/FID	606	12	7 days/40 days
Nitrosamines	ug/l	1	Extraction/GC/NPD	607	20	7 days/40 days
Nitroaromatics/isophorone	ug/l	1	Extraction/GC/FID & GC/ECD	609	12	7 days/40 days
Polynuclear Aromatics	ug/l	0.5	Extraction/HPLC	610	20	7 days/40 days
Haloethers	ug/l	1	Extraction/GC/Hall	611	17	7 days/40 days
Chlorinated Hydrocarbons	ug/l	0.02	Extraction/GC/ECD	612	12	7 days/40 days
Organophosphorus Pesticides	ug/l	0.1	Extraction/GC/NPD	622(5)	12	7 days/40 days
Triazine Pesticides	ug/l	0.1	Extraction/GC/NPD	(6)	12	7 days/40 days

References

(1) Federal Register, Vol. 44, No. 233, Monday, December 3, 1979.
(2) "Method for Chlorinated Phenoxy Acid Herbicides in Industrial Effluents," Federal Register, Vol. 38, No. 75, Part II.
(3) "Total Organic Halide," US EPA-EMSL, Cincinnati, November, 1980.
(4) Federal Register, Vol. 44, No. 231, Thursday, November 29, 1979, Appendix, Part I.
(5) "Method 622- Organophosphorus Pesticides," Proposed EPA Method, 304 (h) Committee.
(6) Federal Register, Vol. 38, No. 75, 1973.

001290

Notes

[a] Nominal values are the best achievable with the listed analytical method for a typical component. Interferrences in specific samples may res in a higher detection limit.

[b] Applicable to NPDES Wastes as updated by Robert C. Booth, Director, EMSL-Cincinnati, September 22, 1981. Where two times are given, th first refers to the time to extraction, the second to the time of instrumental analysis.

ROCKY MOUNTAIN ANALYTICAL LABORATORY

Organic Analytical Methodology (continued)

Preservation Bottle No.	Parameter Group	Bottle	Preservation
11	Purgeables	40 ml glass with teflon lined silicone septum cap	4°C (thiosulfate if Cl_2 present)
17	Purgeables	40 ml glass with teflon lined silicone septum cap	4°C, HCl to pH less than 2 (thiosulfate if Cl_2 present)
18	Purgeables	40 ml glass with teflon lined silicone septum cap	4°C, adjust pH to 4 - 5 (thiosulfate if Cl_2 present)
16	Extractables	1 liter glass with teflon lined cap	4°C (thiosulfate if Cl_2 present)
19	Extractables	1 liter glass with teflon lined cap	4°C, adjust pH to 2 - 7 (thiosulfate if Cl_2 present)
12, 13, 14	Extractables	1 liter glass with teflon lined cap	4°C
20	Extractables	1 liter glass with teflon lined cap	4°C, store in dark (thiosulfate is Cl_2 present)
15	TOX	250 ml glass with teflon lined cap, single 1 liter glass with teflon lined cap, quad.	4°C, store in dark (thiosulfate if Cl_2 present)

001291

LABORATORY SUPPORT FOR VADOSE ZONE STUDIES AT SPARTON TECHNOLOGY, INC.

Prepared For:

Harding Lawson Associates

Prepared By:

Rocky Mountain Analytical Laboratory
5530 Marshall Street
Arvada, Colorado 80002

May 6, 1985

001232

INTRODUCTION

As part of a closure plan at Sparton Technologies' Albuquerque, New Mexico facility, an extensive analytical program will be conducted to accomplish the following:

- Task 1, provide detailed characterization of soil samples obtained from a series of soil borings for selected metal and volatile organic compounds, and

- Task 2, determine the amount of water required to remove the contaminants from the vadose zone by performing a column leaching study.

Characterization of the soil cores in Task 1 will be to analyze the samples for total metals, EP Toxicity metals, volatile organics, and total organic halogen (TOX). The total metals analyses will be for chromium, cadmium, lead, and nickel. The EP toxicity tests will be for metals detected as total metals. Analysis for EP chromium will always include trivalent chromium and hexavalent chromium. Samples with detectable TOX will be analyzed for the following four organic compounds: 1,1-Dichloroethylene, Methylene chloride, 1,1,1-Trichloroethane and Trichloroethylene. One sample per boring will be analyzed for the volatile priority pollutants plus acetone as shown in Table 1. The column leaching studies in Task 2 will be oriented to the same list of parameters in Task 1.

Subsequent sections of this document provide additional information concerning the analytical methods as well as supporting information.

001333

TABLE I - SOIL DETECTION LIMITS FOR VOLATILE ORGANICS GC/MS

Parameter		Units	Detection Limit
1V	Acrolein	ug/kg	100
2V	Acrylonitrile	ug/kg	100
3V	Benzene	ug/kg	5
5V	Bromoform	ug/kg	5
6V	Carbon tetrachloride	ug/kg	5
7V	Chlorobenzene	ug/kg	5
8V	Chlorodibromomethane	ug/kg	5
9V	Chloroethane	ug/kg	10
10V	2-Chloroethylvinyl ether	ug/kg	5
11V	Chloroform	ug/kg	5
12V	Dichlorobromomethane	ug/kg	5
14V	1,1-Dichloroethane	ug/kg	5
15V	1,2-Dichloroethane	ug/kg	5
16V	1,1-Dichloroethylene	ug/kg	5
17V	1,2-Dichloropropane	ug/kg	5
18V	1,3-Dichloropropylene(c&t)	ug/kg	5
19V	Ethylbenzene	ug/kg	5
20V	Methylbromide	ug/kg	10
21V	Methylchloride	ug/kg	10
22V	Methylene chloride	ug/kg	10
23V	1,1,2,2-Tetrachloroethane	ug/kg	5
24V	Tetrachloroethylene	ug/kg	5
25V	Toluene	ug/kg	5
26V	1,2-trans-Dichloroethylene	ug/kg	5
27V	1,1,1-Trichloroethane	ug/kg	5
28V	1,1,2-Trichloroethane	ug/kg	5
29V	Trichloroethylene	ug/kg	5
31V	Vinyl chloride	ug/kg	10
	Acetone	ug/kg	10

BDL = Below detection limit.

001294

TECHNICAL APPROACH

This section describes in detail the specific technical approach which will be utilized, especially for Tasks 2 and 3. Information about the analytical methodology will be presented in a subsequent section.

Task 1 - Soil Core Characterization

This task is to analyze soil cores for specific contaminants. All analyses will be in accordance with standard EPA Methodology referenced in SW-846 as shown below:

Total Metals	- EPA Method 6010
EP Toxicity Metals	- EPA Method 1310
Hexavalent Chromium	- EPA Method 7196
Volatile Organics	- EPA Method 8240
Total Organic Halogen	- EPA Method 9020
Volatile Halocarbons	- EPA Method 8010

Task 2 - Column Leaching Study

For this study, two 12" x 3" columns will be packed with contaminated soil. One column will be for inorganic constituents and one for organic constituents. Local source water will be used to leach the contaminants from the soil. Gravity head pressure will be used to elute each column. If required, the columns will be pressurized to generate a minimum column flow of 20 ml/hour. The column pore volume is estimated to be 500 ml. During the initial phase of the study, samples will be collected every 200-250 ml. Once breakthrough has occurred, the sampling frequency will decrease.

For the inorganic column study, 100 ml samples will be collected and analyzed for chromium, lead and hexavalent chromium.

The collection of column leachates for volatile organics represents a significant analytical challenge. RMAL proposes to collect the samples with in-line charcoal filters. Back up samples would be collected in collapsed Tedlar bags and then transferred to standard VOA glass vials for longer storage. The charcoal samples will be analyzed for TOX and/or specific chlorinated species.

001295

The TOX measurement would be according to standard practice with the charcoal analyzed directly. For the detailed organic speciation, a sample preparation step would be required prior to analysis. Specific organic compounds would be determined on a benzene extract of the charcoal using the GC/HECD conditions in EPA Method 601 as described previously.

Approximately 30-50 ml of sample will be be required for each analysis. Two charcoal tubes would be collected sequentially, one for the TOX analysis and one reserved for organic compound speciation.

The metals and TOX analyses will be performed on a daily basis to establish breakthrough curves. After breakthrough has been established for the organics, but prior to completion of the test, selected samples will be analyzed for specific organics to verify the TOX results.

001096

ANALYTICAL METHODOLOGY

All samples analyses will be in accordance with standard EPA Methodology as published in SW-846. The discussion below highlights the application of these methods.

Total Metals

The samples (soils and batch/column leachates) will be digested using SW-846 Method 3050. The digestate will then be analyzed by inductively coupled argon plasma spectrometry (ICP) using SW-846 Method 6010. A Jarrell-Ash Model 9000 ICP will be used for the determinations.

EP Toxicity Metals

SW-846 Method 1310 will be used to generate a leachate. The leachate will be analyzed for metals by SW-846 Method 6010 as described above and for hexavalent chromium using SW-846 Method 9030.

Total Organic Halogen

Total organic halogen (TOX) determinations of column leachate samples will be analyzed as specified in SW-846 Method 9020. This method does not address the analysis of soil samples for TOX. RMAL has developed a procedure in which an aliquot of the soil sample is extracted with methanol. The methanol extract is then injected into the TOX instrument. The detection limit for this procedure is 50 $mgCl^-/kg$.

An alternative approach involves extracting a 10 g aliquot of soil with 10 ml hexane. One milliliter of this extract is then combusted in an oxygen atmosphere in a combustion bomb. The combustion products are collected in a weak carbonate/bicarbonate trapping solution. This solution is then analyzed using ion chromatography as outlined in EPA Method 300.0.[1] The detection limit for this procedure after optimization will be 1 $mgCl^-/kg$.

Note: Since this printing, the methanol extract method has been demonstrated to be most reliable. Detection limit is 2 $mgCl^-/kg$.

[1]"Methods for Chemical Analysis of Water and Waste", EPA-600/4-79-020, EMSL, Cincinnati, 1979.

001297

Hexavalent Chromium

Hexavalent chromium in leachate samples will be measured by a colorimetric method in SW-846, Method 7196.

Volatile Organics Scan

Soil and selected batch leachate samples will be analyzed for the complete list of volatile priority pollutants and acetone using a purge and trap GC/MS method in SW-846, Method 8240. Aqueous samples can be purged directly as specified in SW-846 Method 5030. Soil samples will require a preliminary extraction with tetraglyme, as specified in Method 8240, prior to analysis.

Volatile Halocarbons

Batch and column leachate samples will be analyzed for selected chlorinated volatile species using SW-846 Method 8010. This method is a purge and trap GC method similar to Method 8240, but uses a chlorine specific detector, the Hall electroconductivity detector (HECD), rather than a mass spectrometer for identification and quantification of the organic species.

001298

SAMPLE COLLECTION AND PRESERVATION

The procedures for the collection, field preparation, containerization, preservation and shipment of samples will be discussed below. The sample collection procedures are as important as the analytical procedures in producing meaningful data.

For soil and sludges with no free water, a 1-quart glass bottle (Teflon-lined cap) is adequate for all organic and inorganic tests except VOA's. One separate VOA vial should be also collected per sample. These samples are best composited in a stainless steel bucket using a stainless trowel for mixing. Compositing should be done expeditiously to minimize loss of volatiles. After compositing samples with no free oil, the bucket is best wiped out between samples with clean paper towels. Samples with free oil may coat the bucket with oil. Hexane followed by methanol can remove oil. The use of solvents should be considered only as a last resort.

Two special samples will be required for the batch and column leaching studies. A one to two gallon sample of contaminated soil will be collected by compositing appropriate core samples in a stainless steel bucket as described previously. This composite will be stored in clean metal cans which will be sealed with a Teflon liner. The containers should be filled completely to minimize headspace and resulting loss of volatiles. In addition to this bulk soil sample, a large quantity (15 to 20 gallons) of uncontaminated groundwater will be needed. This water will be collected in one gallon bottles and stored in RMAL's 4°C storage area.

RMAL will provide all sample bottles packed in coolers with foam wrapping. A packing list and chain-of-custody form will accompany each cooler. The bottles will be shipped out by UPS in advance of the sampling start date. Extra bottles will be sent to cover breakage during shipping or handling in the field.

The coolers will be sealed with nylon filament tape. The coolers should be sealed with tape in the field after sample collection. All samples should be shipped by air express next day delivery to RMAL. The coolers will be opened, the custody verified and the samples logged into the RMAL computer for sample tracking. The RMAL facility is always locked and has a 24 hour-a-day monitored security system. All windows and doors have intrusion detection bugs.

In addition to the sample bottles for the field samples, some column leachate samples will be collected in Tedlar bags. Tedlar is a polyvinylfluoride film with very low permeability for organic species.

001299

APPENDIX E
to
ATTACHMENT 3

Monitoring Well Plugging
and Abandonment Procedures

APPENDIX E

MONITORING WELL PLUGGING AND ABANDONMENT PROCEDURES

I Introduction

Three monitoring wells (MW1, MW3, and MW11) will be plugged and abandoned prior to initiation of closure of the pond and sump area.

II Abandonment Methodology

Two well abandonment methodologies are being considered. The final choice will be based on the equipment and capabilities of the drilling contractor selected.

A. Method A

Prior to excavation of the surface impoundment, the steel protector pipes and concrete collars of the three monitoring wells will be removed and discarded. A drilling rig will be located over the existing monitoring well, and the casing and screen will be filled with a bentonite slurry. A mills knife, or a pneumatic or mechanical device, will be used to cut or fracture the casing so that the bentonite will invade the surrounding formation outside the casing.

The bentonite will be allowed to settle for at least 12 hours, and the remainder of the boring will be filled with a neat grout and bentonite mixture to the land surface.

B. Method B

Method B is similar to Method A except that the casing and well annulus will be drilled out using stringer to guide the drill bit down the well casing.

III Record Filing

A record of each well plugged and abandoned will be filed with the State Engineer.

Harding Lawson Associates

JOB SAFETY PLAN

Part 1 - Site Information

1. Site: Sparton Technology, Inc. 2. Job No.: 6310,023.12
3. Location: 9621 Coors Road N.W., Albuquerque, New Mexico 87103
4. Plan Prepared By: H. A. Wood Date: August 20, 1985
5. Plan Approved By: Thomas S. Burger Date: August 20, 1985
6. Plan Revised: February 18, 1986 7. Approved: February 18, 1986
8. Facility Description: Electronics manufacturing facility with lagoon and drum storage of hazardous wastes.
9. Status (active, inactive, unknown): Active electronics manufacturing
10. Unusual Features (dike integrity, powerlines, etc.): Waste discharge lines, fences, gas lines, outside fences.
11. History (injuries, exposures, complaints): Old drum area used 1981, sump closed 1980, two ponds and two drum storage areas used 1980 to present
12. Surroundings (location with respect to residences, businesses, natural features): Facility is on State Highway 448 about 0.5 mile south of Alameda Airport, 0.5 mile west of Rio Grande River. Commercial/unimproved land use, low density pop.
13. Site Sketch (attach sketch showing salient features) Plates 1, 2, 3, & 4
14. Climate: Strong daytime heating, cool nights, wide daily temperature range. Summers fair, dry, sunny, hot. Winters cold to warm, some snow.

a) average wind speed and direction: Prevailing winds are January N or SE; July mostly SE; Annual average SE and NW.

b)

	July	October	January	April
mean high temperature	90		45	
mean low temperature	60		20	

15. Hazardous Material Type: X Liquid X Solid X Sludge X Gas/Vapor __Other____
16. Hazardous Material Characteristics: __Corrosive *Ignitable *Toxic __Volatile __Reactive __Radioactive __Carcinogenic __Other____

* If in pure form. Hazardous materials expected to be encountered in the field will be unsaturated and saturated soils with trace (ppm) contamination.

APPENDIX F
to
ATTACHMENT 3

Model Safety Plan Outline

17. Chemical Information Summary

The chemicals listed below might be encountered at the site during field exploration. Appendix A presents detailed summary information for each chemical listed.

m-Xylene
o,p-Xylene
Boron
Chromium
Manganese
Nickel
Sodium
Ethyl Benzene
Methyl Chloride
Methylene Chloride
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Toluene
1,2-Dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Acetone
Benzene
Chlorobenzene
Chloroform
1,1-Dichloroethane
Trichlorotriflouroethane
1,1-Dichloroethylene

Task Description: FIELD EXPLORATION (TEST BORINGS)

Task Name:

18. ANALYSIS OF KNOWN OR SUSPECTED UNMITIGATED HAZARDS		19. RISK ANALYSIS		
Hazard Type	How Does Hazard Exist?	Expos	Prob	Conseq
Mechanical	Drill rig and associated equipment	Cont	Unu	Min to Fatal
Electrical	Active Plant Site	Occ	Unu	Chron to Fatal
Chemical	Ingestion Inhalation Skin Contact Eye Contact	Cont	Like	Mod to Fatal
Temperature	If personal protective equipment is worn, special consideration to heat stress	Cont	Like	Min to Fatal
Acoustical	N/A			
Radioactive	N/A			
02 Deficiency	N/A			
Biohazard	N/A			

Expos: Frequency of exposure to the hazard event
- cont - many times per day
- freq - once or twice per day
- occ - once a week or month
- seld - once a month or year

Prob: Liklihood that an injury will occur upon exposure
- cert - certain
- like - 50/50 chance
- unu - unusual
- imp - improbable

Conseq: Degree of injury if one occurs
- fatal - fatality
- ser - serious, requires hospitalization
- mod - moderate, requires out patient care
- min - requires on-site first aid
- chron - chronic, no acute affects

20. MITIGATION MEASURES	REQUIRED PERSONAL PROTECTIVE EQUIPMENT	
Define work areas Wear hard hat, steel toe and shank shoes	LEVEL _A _B XX C _D	
Have all lines identified and marked	Head: Hard Hat	Eye/Face: Safety Glasses
PPE in use or available	Hand: Neoprene Gloves	Body: Tyvek Impermeable (2)
Air monitoring during work (See Below)	Lung: (2) 1/2 Face Respirator OV cartridge with dust filter	Ear: Equipment operator use plugs if needed
Hard hat, gloves, eye protection and foot protection to be worn as necessary (i.e., equipment operators use all, soil handlers use gloves and glasses, observers use glasses). Tyvek suits and respirators to be work above action levels presented below.	Foot: Steel toe/Steel shank boots	
	Special Equipment Required:	

Special Procedures Required:

1.) Underground natural gas line to be removed by client prior to any drilling or excavation in pond and sump area.

2.) Workplace to be monitored by HNU Meter Model II 101 with 11.7 or 10.2 ev probe.

- respirator action level = 5 ppm
- tyvek suit action level = 5 ppm
- evacuation action level = 50 ppm

001206

21. Required Personal Protective Equipment

Task: ~~Field Exploration~~ Closure of Ponded Surface Construction of C

Level: ___A ___B X C ___D

Head

X Hardhat

Eye/Face

X Safety Glasses ___ Face Shield
___ Goggles

Hand

X Neoprene ___ Nitrile X PVC
___ Viton ___ Underglove ___ Other: _____

Body

___ Full Encapsulating Suit: _____

___ Two Piece Rainsuit, Material = _____

___ One Piece Splash Suite, Material = _____

X Tyvek Suit* ___Tyvek/Saranax Suit ___ Tyvek/Polyethylene Suit

___ Cloth Coveralls X Other: Standard Work Clothes

Lung

___ SCBA (open circuit, pressure demand): _____

___ Full Face Respirator, cartridge = _____

X Half Mask Respirator, *cartridge = Organic Vapor (OV) or OV & Acid Gas; each with dust filter

___ Other: _____

Ear

X Earplug, type = discretionary

___ Earmuff, type = _____

Foot

X Boots, type = Steel toe and Shank

___ Disposable Overboots, type = _____

22. Special Equipment, Facilities, or Procedures: _____

Refer to Items 20, 23, and 28.

No smoking or eating within work areas.

All personnel working on site will be briefed on the safety procedures established by this plan.

* To be used if deemed appropriate by site safety officer in accordance with Item 20 of the Safety Plan.

23. Decontamination Procedures: ~~Seal all drill~~ holes with a cement/bentonite grout. Decon of personnel and equipment per Attachment 5.

24. Investigation-Derived Material Disposal: ~~Drill cuttings~~ to be stored in drums. ~~Disposal method to be determined based on analysis of soil.~~

25. Site Resources

Water Supply: Potable water on building wall
Telephone: Carpenters Shop
Radio: Not Required
Other:

26.

Team Member	Responsibility	Date of Safety Training	Date of Physical Exam
Bruce Stearns	Field Engineering Geologist and Safety Officer	May'85	May'85
Kevin Schneider	Geologist	Dec 85	Oct 86

27. Emergency Telephone Numbers

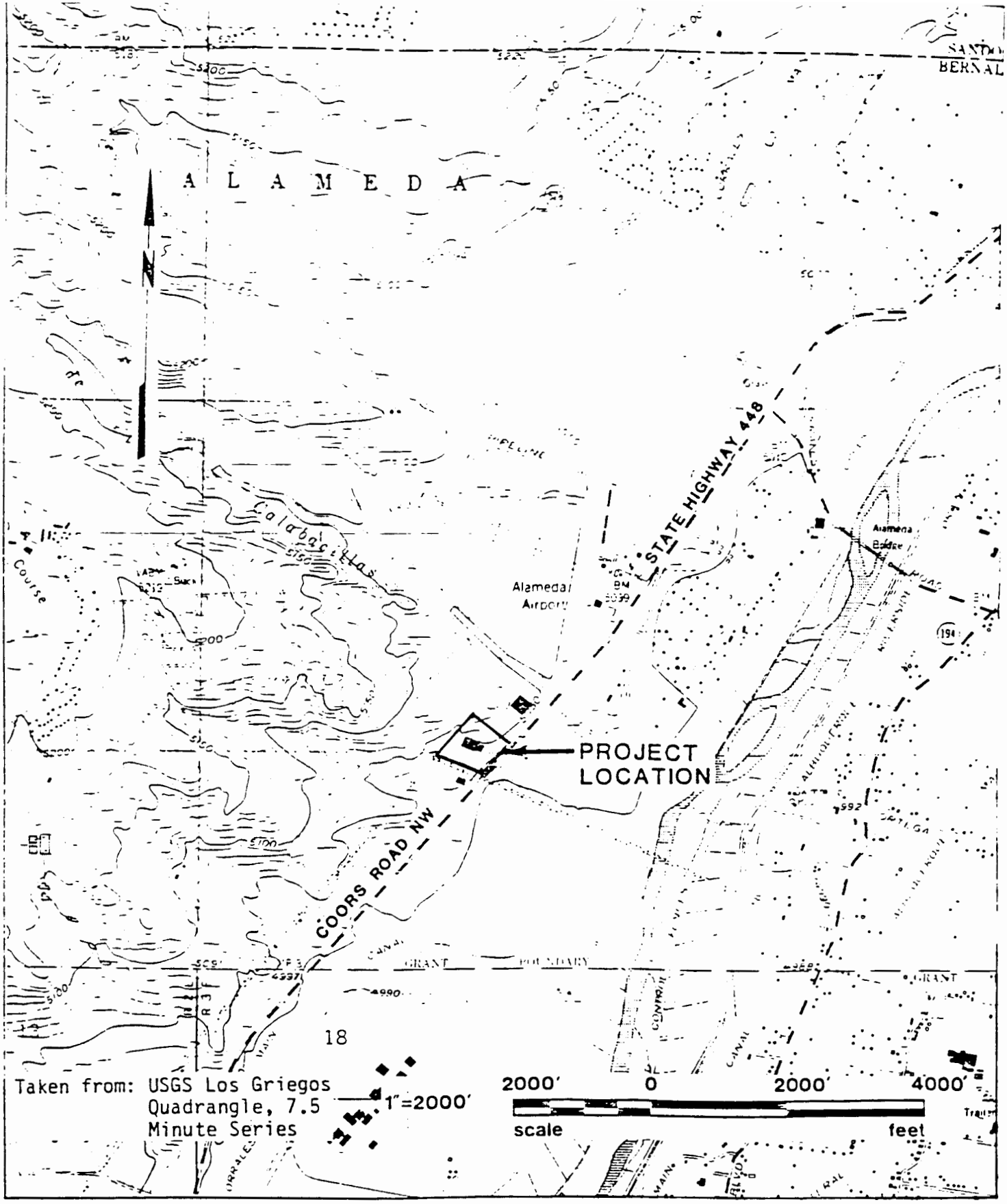
Phone/Radio Location:	Carpenter Shop Ext. # 174 & 172
Ambulance:	765-1100
Hospital Emergency Room:	841-1111
Poison Control Center:	843-2551
Police:	911
Fire Department:	911
Airport:	898-1313 7 Bar Airport 0.5 mile NE
Explosives Unit:	
EPA Contact:	
State Contact:	Ray Krehoff, New Mexico EID (505) 827-2275
Client:	Cleoves Martinez (505) 898-1150

28. Emergency Equipment Location

a. Safety Shower/Eyewash	Portable eyewash at Carpenter Shop, shower/eyewash in wetroom (Plate
b. First Aid Kit	Carpenter Shop
c. Fire Extinguishers	Carpenter Shop and on Drill Rig
d. Other	Fire Hydrant at Coors Road East of Ponds

29. Emergency Routes (give road or other directions; attach map)

Hospital Presbyterian Hospital - Go south on Coors Road, east on Interstate 40 and south on Interstate 25. Exit Grand/Central and turn east on Central Avenue. Immediately look to the south side of Central Avenue to see hospital and emergency ~~Other~~ entrance.



Harding Lawson Associates
Engineers Geologists & Geophysicists

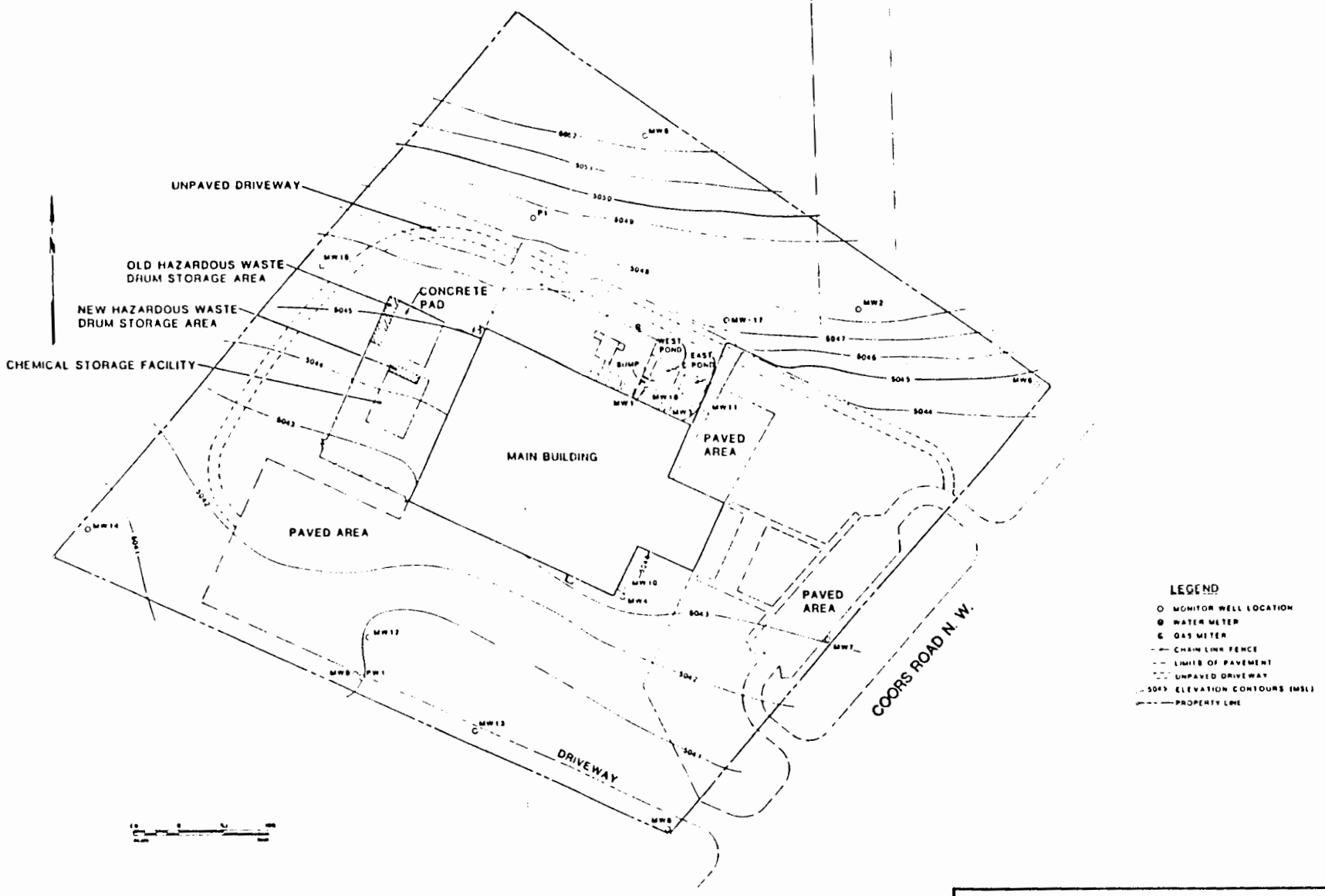
LOCATION MAP

Sparton Technology, Inc.
Albuquerque, New Mexico

1

DRAWN	JOB NUMBER	APPROVED	DATE
SP	6310,012.12		

001209



LEGEND

- MONITOR WELL LOCATION
- WATER METER
- GAS METER
- CHAIN LINK FENCE
- LIMITS OF PAVEMENT
- UNPAVED DRIVEWAY
- 5045 ELEVATION CONTOURS (MSL)
- PROPERTY LINE

Harding Lawson Associates
Engineers, Geologists & Geophysicists

PLOT PLAN

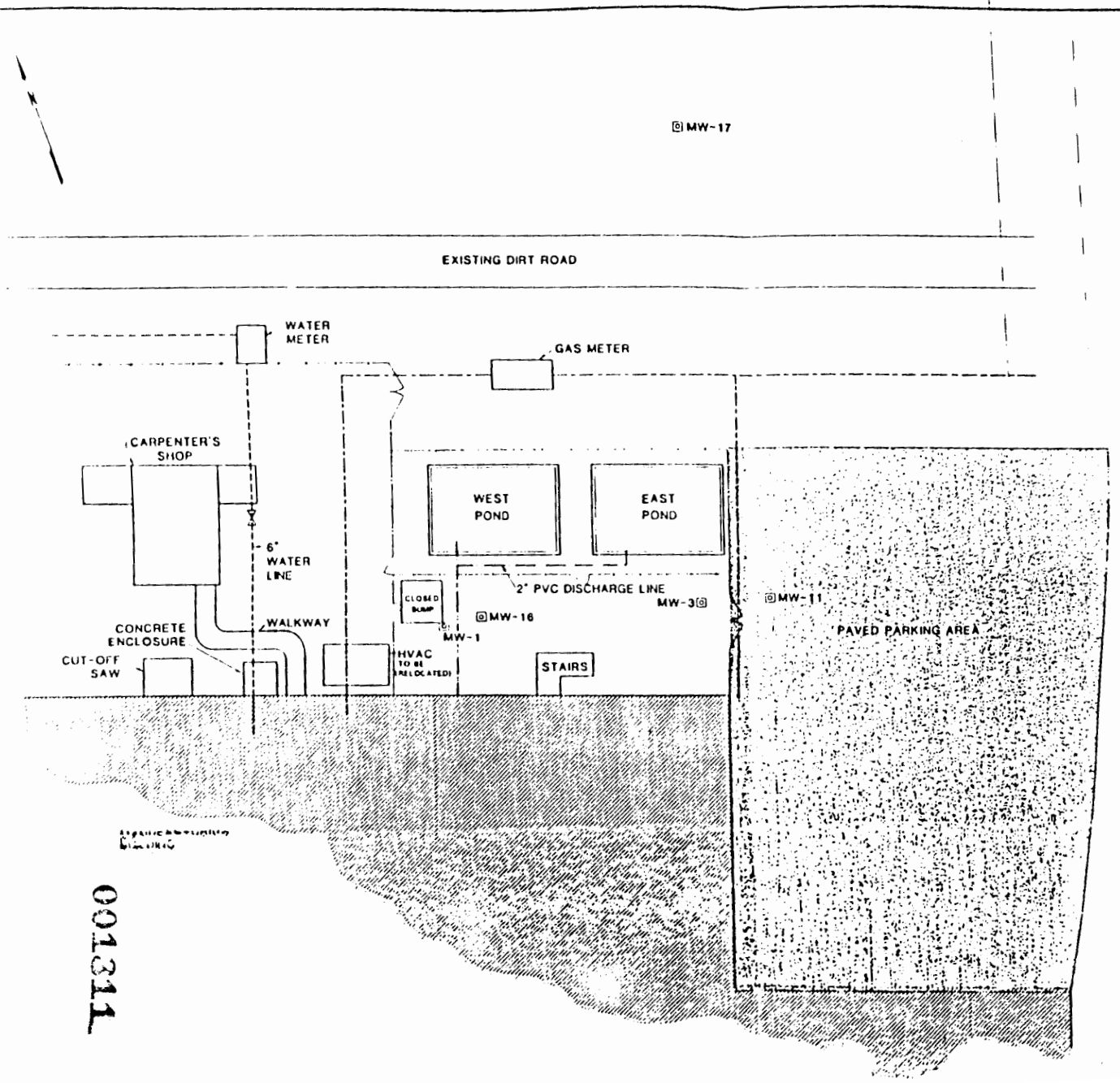
SPARTON TECHNOLOGY INC
ALBUQUERQUE, NEW MEXICO

2

MK 8310 012 17

001310

Replace w/ PLATE A-1
Of Closure Plan



NOTE

1. All underground line locations are approximate Field locate prior to excavation
2. Gas line and meter to be relocated
3. MW-1, MW-3, MW-11, and MW-16 to be plugged and removed

LEGEND

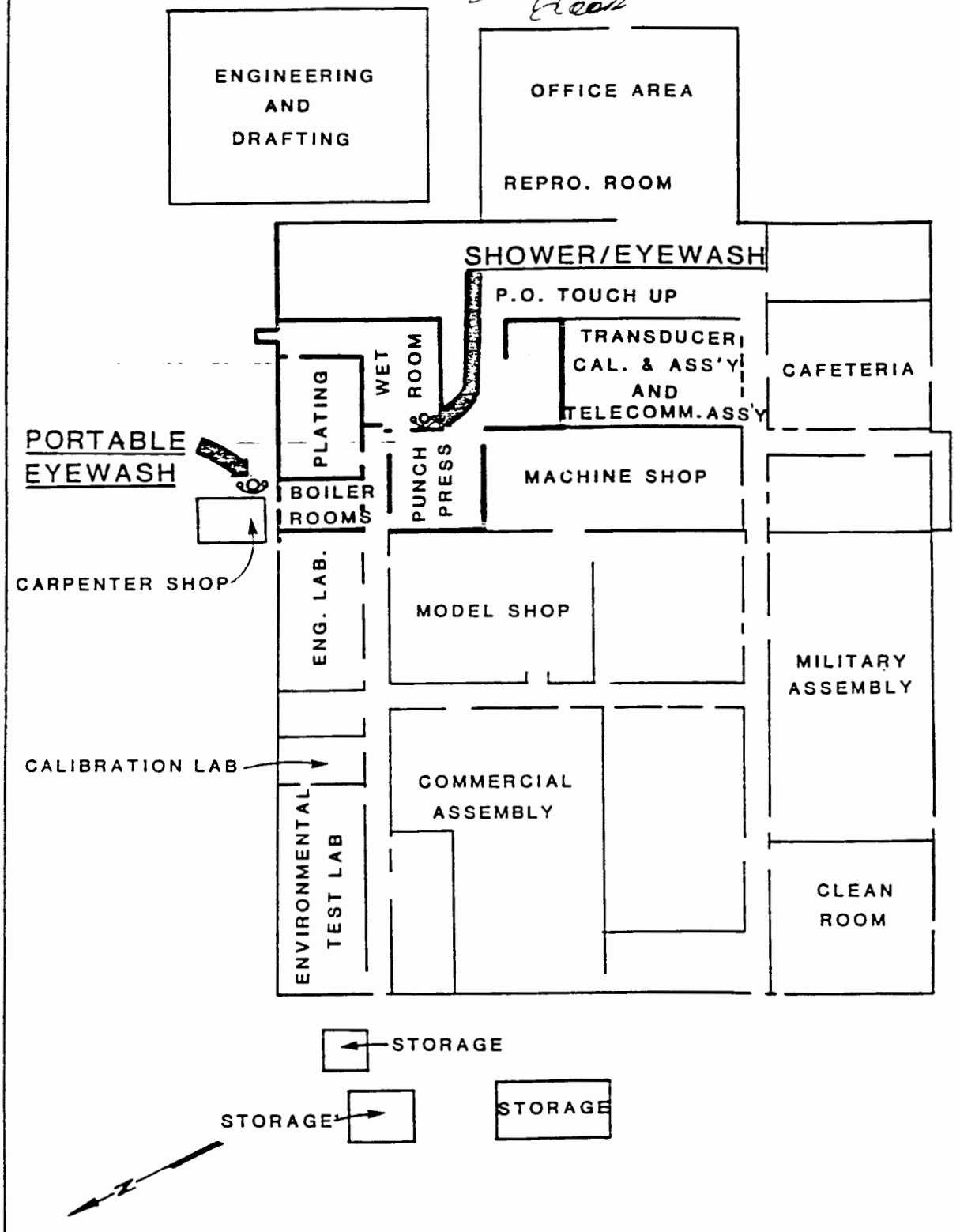
- PVC Discharge Line
- Gas Line
- Water Line
- Chain Link Fencing (To be relocated in the area of the Ponds and Sump)
- Water Valve
- Monitor Well with 2 foot concrete pad

BRUSH AND SHOP AREA
EXISTING FACILITIES
BASE MAP

3

001311

Modify to Show Emergency Egress from Bldg (w/ Plating Room) Sparton



Harding Lawson Associates
Engineers, Geologists & Geophysicists

EMERGENCY SHOWER/EYEWASH

Sparton Technology, Inc.
Albuquerque, New Mexico

PLATE 4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Ed.	6310,023.12				

001312

DECONTAMINATION PROCEDURES

Personnel

At the end of each work period (before eating, drinking, smoking, or leaving the site) each person will decontaminate by passing through the designated decontamination area. Each of the following stations will be used as appropriate.

- Equipment/Tool drop station
- Boot Wash - soiled boots will be washed in a tub containing a detergent solution
- Boot Rinse - personnel will step into a tub containing rinse water after washing boots
- Glove Wash - intact gloves will be wiped clean over a glove wash bucket containing detergent and water
- Glove Rinse - washed gloves will be rinsed with water or wiped with a water wet towel
- Used tyvek suits will be dropped into a bag lined garbage can for approved disposal
- Spent respirator cartridges will be dropped into a bag lined garbage can for approved disposal
- Personnel will shower as soon as possible at the end of the work day

Equipment

1. Prior to drilling equipment demobilization, loose mud will be removed using brushes and scrapers, as necessary, and equipment will be steam cleaned over polyethylene sheets. The perimeter of the sheeting will be elevated using formwork.

2. Polyethelene sheeting, mud, and wash water will be placed in drums for subsequent disposal.

ATTACHMENT 5

APPENDIX G
to
ATTACHMENT 3

Old Drum Area Soils Investigation

APPENDIX G

OLD DRUM AREA SOILS INVESTIGATION

Three soil samples will be collected from the ground surface in the old hazardous waste drum storage area. These samples will be collected from points near the north and south ends of the area, and midway between these areas. Each sample will consist of a composite of four samples collected at points equidistant on the circumference of an imaginary 3-foot-diameter circle. The composite soil samples will be sealed in storage containers provided by the analytical laboratory and submitted for analysis for the following parameters:

pH	chromium
lead	silver
nickel	Total Organic Halides

APPENDIX H
to
ATTACHMENT 3

Final Closure Schedule

APPENDIX H

FINAL CLOSURE SCHEDULE

I Introduction

This section has been prepared to demonstrate the time required for completion of major activities in the closure of the hazardous waste storage units at the Coors Road facility. All times are expressed in days after approval of the closure plan. Activities expected to be completed prior to final closure plan approval will be assigned a time of 0. Closure of both drum storage areas and the ponds is expected to commence in 1986.

II Hazardous Waste Areas

A. Old Drum Area

Activity	Time (days)
1. Collect soil samples	30
2. Submit closure certification	60

B. New Drum Area

Activity	Time (days)
1. Remove existing drums	30
2. Inspect facility	45
3. Decontaminate facility (if necessary)	60
4. Submit closure certification	90

C. Pond and Sump Area

Activity	Time (days)
1. Plug monitoring wells	0
2. Complete modifications to pond walls and remove sump	60
3. Complete final grading and fencing alterations	90
4. Complete asphaltic concrete cap	120
5. Submit certification of closure	180

III Extension of Closure Time

It is not anticipated that any extension of the closure time will be necessary.

APPENDIX I
to
ATTACHMENT 3

Closure Cost Estimates

APPENDIX I

CLOSURE COST ESTIMATES

I Introduction

This section contains cost estimates for closure of the two ponds and the drum storage areas at the Sparton Technology, Inc., Coors Road facility in Albuquerque, New Mexico. As described in the closure plan, closure certification will be provided for four discrete closure elements. Cost estimates for each of these four elements is provided in Tables N-1 through N-3.

II Maximum Waste Inventories

The maximum inventory of hazardous waste drums in the drum storage area is 480 drums. The West pond contains drill cuttings from area borings. The total volume of material in the ponds is estimated to be 30 cubic yards.

III Basis for Estimates

Costs related to engineering have been estimated by Sparton's consultant, Harding Lawson Associates (HLA). Laboratory costs are based on current prices charged by Rocky Mountain Analytical Laboratory. Costs related to earthwork and construction to support the pond and sump area modifications were obtained from Means' Site Work Cost Data, 1986 edition.

IV Cost Estimate Revisions

The date of this cost estimate is December 5, 1985. Annually, the closure cost estimate will be adjusted using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product, as published by the U.S. Department of Commerce Survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year. The adjustment will be made by multiplying the most recent closure cost estimate or adjusted closure cost estimate by the inflation factor.

The closure cost estimate will be revised whenever a change in the closure plan would cause a change in the anticipated cost of closure.

V Closure Costs

The cost to close the drum storage areas and the two ponds is estimated as follows:

• Old Drum Area Closure	$ 1,810.00
• New Drum Area Closure	61,875.00
• Pond and Sump Area Closure	40,750.00
Total Closure Costs	$104,435.00

TABLE I-1

OLD DRUM AREA CLOSURE COST ESTIMATE
(1986 Basis)

ITEM	UNITS	COST($)/UNIT	COST
Sample Collection	3 samples	70.00/ea	$ 210.00
Laboratory Analysis	1 ea	600.00/ea	600.00
Closure Certification	1 ea	1,000.00/ea	1,000.00
		TOTAL	$ 1,810.00

TABLE I-2

NEW DRUM AREA CLOSURE COST ESTIMATE
(1986 Basis)

ITEM	UNITS	COST($)/UNIT	COST
Remove Maximum Inventory for Disposal	430 drums	125.00/ea	$ 60,000.00
Equipment Rental	1 day	175.00/day	175.00
Materials	4 drums	25.00/ea	100.00
Remove Wash Water for Disposal	4 drums	125.00/ea	500.00
Labor	12 hours	50.00/hr	600.00
Closure Certification	1 ea	500.00/ea	500.00
	TOTAL		$ 61,875.00

TABLE I-3

POND AND SUMP AREA SURFACE REMOVAL COST ESTIMATE
(1986 Basis)

ITEM	UNITS	COST($)/UNIT	COST
Excavate soil to grade	150 c.y.	$9.90	$1,480.00
Demolition			
concrete	250 s.f.	20.00	5,000.00
masonry	200 s.f.	10.00	2,000.00
Backfill & compaction	150 c.y.	21.30	3,200.00
Soil stabilization	50 c.y.	20.00	1,000.00
Remove fence & gates	270 L.F.	1.84	500.00
Reinstall fence & gates	200 L.F.	9.00	1,800.00
Install asphalt base	525 s.y.	14.00	7,350.00
Install tack coat	525 s.y.	.38	200.00
Install asphaltic concrete	525 s.y.	6.70	3,520.00
Prepare bid documents	1 ea.	5,000	5,000.00
Closure certification	1 ea.	9,700	9,700.00
	TOTAL		$40,750.00

ATTACHMENT 6
POST-CLOSURE CARE PLAN
COORS ROAD PLANT

A Report Prepared for:

Sparton Corporation
2400 East Ganson Street
Jackson, Michigan 49402

HAZARDOUS WASTE FACILITY
POST CLOSURE CARE PLAN
COORS ROAD PLANT
ALBUQUERQUE, NEW MEXICO

HLA Job No. 6310,012.12

by

Richard Cunningham
Senior Geophysicist

Thomas S. Burger, R.P.S.
Associate Environmental Engineer

Harding Lawson Associates
6220 Westpark Drive, Suite 100
Houston, Texas 77057
Telephone: (713) 789-8050

December 17, 1985

TABLE OF CONTENTS

A.	INTRODUCTION	1
B.	GENERAL INFORMATION	2
	1. Facility Description	2
	2. Background Information	2
	3. Process Information	6
	a. Manufacturing	6
	b. Hazardous Waste Management Units	7
	c. Ground-Water Monitoring	7
	4. Review of Closure Plan	7
	a. Drum Storage Area	7
	b. Pond and Sump Area	8
	5. Remedial Action	9
C.	POST-CLOSURE PERIOD CONTACT	10
D.	SECURITY	10
E.	INSPECTION PLAN	11
F.	MONITORING PLAN	12
	1. Ground-Water Monitoring	12
	2. Facility Monitoring	12
G.	MAINTENANCE PLAN	13
H.	PERSONNEL TRAINING	14
I.	FINANCIAL ASSURANCE FOR POST-CLOSURE CARE	15
J.	NOTICE TO LOCAL LAND AUTHORITY	15
K.	NOTICE IN DEED TO PROPERTY	16
L.	AMENDMENTS TO THE PLAN	16
M.	ADMINISTRATION	16
N.	POST-CLOSURE CARE COSTS	17

APPENDIX A - POST-CLOSURE QUARTERLY INSPECTION CHECKLIST
APPENDIX B - POST-CLOSURE CARE COSTS
APPENDIX C - ALTERNATIVE GROUND-WATER MONITORING PROGRAM

001226

SPARTON POST-CLOSURE PLAN

A. Introduction

In accordance with New Mexico Hazardous Waste Management Regulations (Section 206.C.2), Sparton Technology, Inc. (Sparton) will follow the post-closure plan for a period of 30 years following closure to control, minimize, eliminate, or prevent, to the extent necessary, threats to human health and the environment, post-closure escape of hazardous wastes, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere.

This post-closure plan shall be followed after the facility closure plan has been implemented as outlined in Section B-5 of this document. As there is some subsurface water contamination, and wastes are to be left in place in the impoundments, this plan will cover the area which contained the two ponds and the sump.

Activities required by regulation, and included in this plan, are outlined as follows:

- General information (i.e., closure review, remedial actions, facility description, ground water and process information).
- Post-closure period contact;

001227

- Security plan;
- Inspection plan;
- Monitoring plan;
- Maintenance plan;
- Training of personnel;
- Official notice to local land authority;
- Notice in the deed of the property;
- Amendments; and
- Post-closure cost estimates.

B. General Information

1. Facility Description

a.	Owner and Operator:	Sparton Technology, Inc.
b.	EPA I.D. No.:	NMD083212332
c.	Mailing Address:	Post Office Box 1784
		Albuquerque, New Mexico 87103
d.	Facility Location:	9621 Coors Road, N.W.
		Albuquerque, New Mexico 87114
e.	Telephone:	(505) 892-5300
f.	Type of Facility:	Hazardous Waste Storage

2. Background Information

The Coors Road facility is located on an approximately 12-acre parcel and consists of an approximately 64,000-square-foot building constructed in 1961. The site is located about 2,500 feet northwest of the Rio Grande River on the west side of Coors Road, N.W. (see

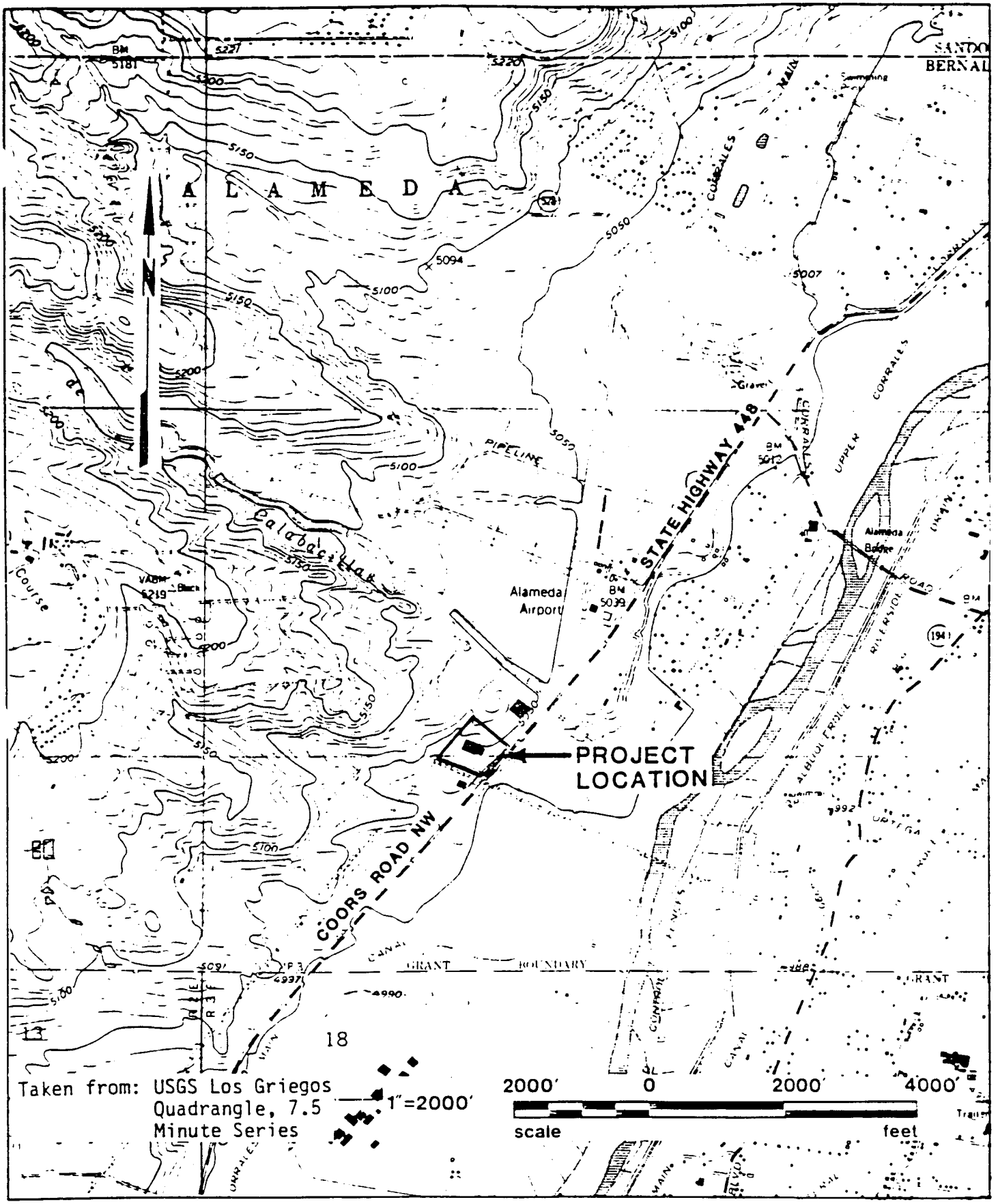
001228

Plate 1). Locally, the area is hilly and slopes in several wide terraces toward the river. The site is approximately 60 feet above the Rio Grande River, and 40 to 60 feet lower than the Paradise Park residential area, which is located approximately 4,000 feet west of the site. Approximately 200 feet southeast of the site, and across Coors Road, is the Coralles Canal. The Calabacilla Arroyo is located about 1,000 feet north of the site.

Ground surface elevations at the site vary from elevation 5052 feet Mean Sea Level (MSL) on the northern edge of the property to elevation 5041 feet MSL on the southern edge of the property (see Plate 2). An overall surface gradient from the northernmost portion of the site to the southernmost portion of the site is approximately 1.7 percent.

Buildings within 1/2 mile of the Coors Road plant are generally commercial and light industrial. The nearest residence is located across Coors Road, approximately 1,400 feet northeast of the site. The next nearest residences are located in the Paradise Park residential area. A horticultural nursery is located to the immediate south of the plant property. To the north is a commercial building which has been used in the past for electronics manufacturing. Land to the west is undeveloped in the area between the plant and Paradise Park. Land to the east, across Coors Road, includes undeveloped and agricultural land.

001329



Harding Lawson Associates
Engineers Geologists & Geophysicists

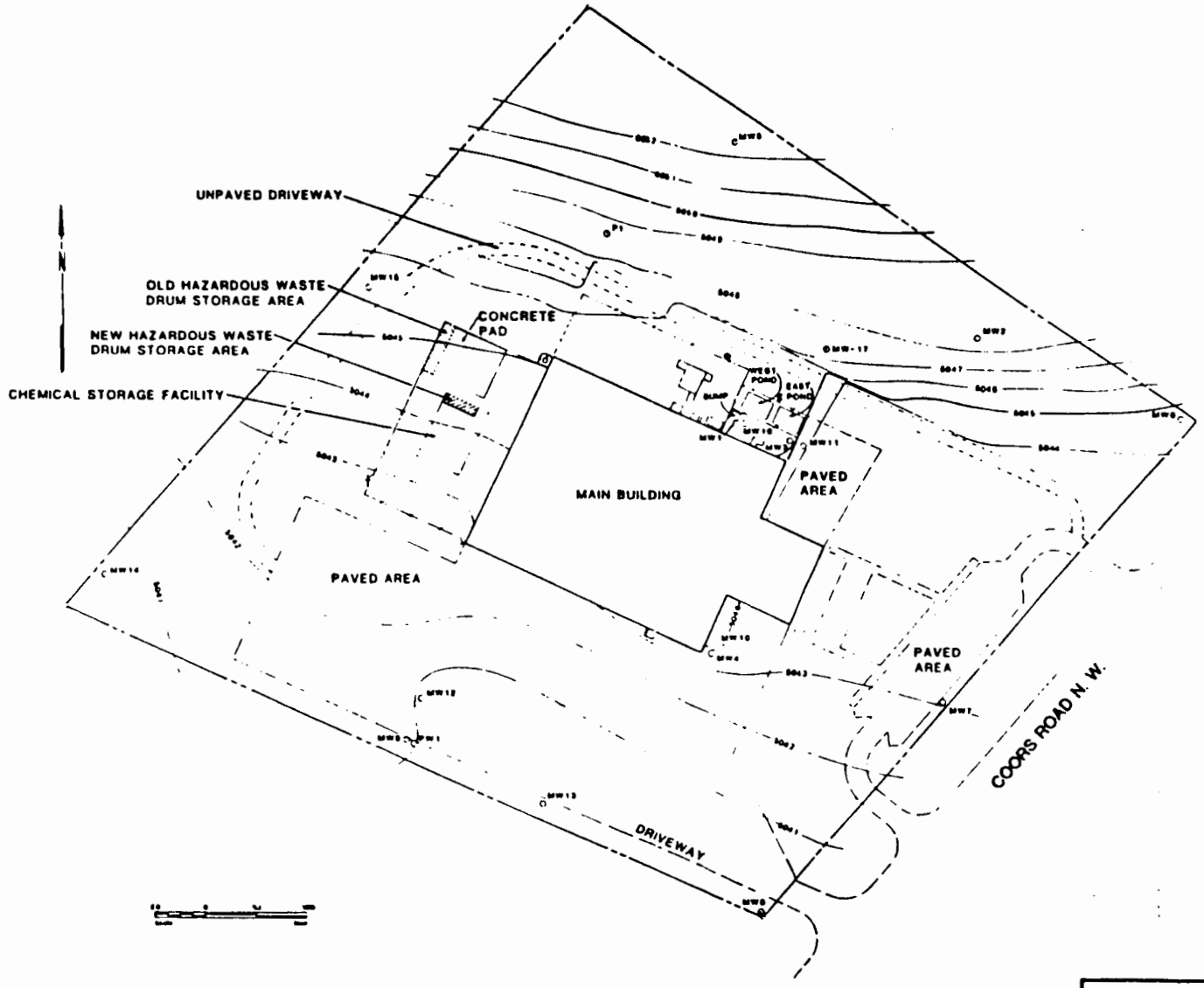
LOCATION MAP

Sparton Technology, Inc.
Albuquerque, New Mexico

1

DRAWN	PROJECT NUMBER	APPROVED		DATE
SP	6310,012.12		JG	12-17-85

001330



001231

HLA Harding Lawson Associates Engineers, Geologists & Geophysicists

PLOT PLAN

SPARTON TECHNOLOGY INC
ALBUQUERQUE NEW MEXICO

2

MK 8810.812.12

NC 12-17-86

Site geological conditions are based on previous field investigations by Harding Lawson Associates (HLA). In general, the plant is located on unconsolidated sand and gravel deposits with occasional fine-grained layers of silt and clay located at specific depths. The stratigraphy of these deposits is characteristic of valley fill alluvium and colluvium of the unconsolidated aquifer in the Rio Grande Valley. The flat, subrounded gravels are indicative of a meandering stream, which deposited sand and gravel in the main channel and fine-grained sediments on a relatively broad floodplain. Some of these fine-grained layers appear almost continuously beneath the site.

The subsurface at the Sparton site can be divided into a series of sand and gravel units separated by fine-grained layers. The upper sand and gravel unit extends from the land surface to approximately 70 feet below grade, where an upper fine-grained layer appears to be present continuously, or almost continuously, underneath the site. The upper fine-grained layer is approximately 10 feet thick. Extending beneath it is a second sand and gravel unit which is approximately 60 feet thick. Underlying the second sand and gravel unit, at a total depth of about 140 feet, is a second fine-grained unit. The thickness and areal extent of this unit is presently unknown, but it was as thin as 1 foot in at least one boring.

001232

The site is underlain by at least two distinctly different aquifers. The upper aquifer (water table aquifer) is a relatively thin, unconfined system which is present above the upper fine-grained layer mentioned above. Another aquifer is present beneath this unit which exhibits semi-confined characteristics.

3. Process Information

a. Manufacturing

Sparton manufactures commercial, industrial, and military electronics, which include circuit board assemblies, transducers, sensors, and pressure systems. Facility operations include machine and model shops, printed circuit board manufacturing facilities, assembly areas, testing laboratory, engineering, and drafting.

The printed circuit manufacturing process at the Coors Road plant employs metal plating which generates an aqueous plating waste that is classified as hazardous due to heavy metals and low pH. Waste solvents (chlorinated and nonchlorinated) are generated primarily from cold solvent cleaning of electronic components. The waste solvents, which are listed hazardous wastes, have always been managed separately from the plating wastes.

001233

b. Hazardous Waste Management Units

Sparton has operated four hazardous waste storage units at its Coors Road facility which have received wastes since November 19, 1980. These units include two lined surface impoundments (ponds) and two drum storage areas, as shown in Plate 2. Sparton has submitted a Part A application for a hazardous waste permit to operate these units. The operation and subsequent closure/post-closure care of the ponds and of the drum storage area is subject to the New Mexico Hazardous Waste Management (HWM) Regulations.

Sparton also operated a waste solvent storage sump, which was closed in October 1980. Since this date is prior to the effective date of the hazardous waste regulations contained in 40 CFR 265, Subtitle C, this sump is not regulated under New Mexico's HWM regulations.

c. Ground-Water Monitoring

See Section E, Monitoring.

4. Review of Closure Plan

a. Drum Storage Area

Sparton has notified the New Mexico Environmental Improvement Division (EID) of its intention to cease storage of containerized hazardous waste for periods of longer than 90 days and to withdraw its Part A application. In order to convert to short term

storage, the drum storage areas are to be closed in accordance with the HWM regulations. Therefore, the closure plan presents the steps necessary to close the old and new drum areas in a manner which provides for their subsequent reuse.

b. Pond and Sump Area

The two ponds (East Pond and West Pond) are located in the same area as the closed sump. The ponds have been used exclusively for storage of aqueous plating wastes. The two ponds were in use on a regular basis until August 1983, when Sparton ceased discharging to either pond and removed the remaining plating wastes. At that time, the liners were visually inspected and appeared to be intact.

The sump was used exclusively for the storage of waste solvents until its closure in October 1980. Sump closure consisted of removing residual wastes and filling with sand. The removed wastes were containerized and disposed as a hazardous waste at an appropriate off-site disposal facility.

Pond and sump closure will consist of backfilling the ponds and construction of an asphaltic concrete cap. This cap will divert surface water and rainfall from the pond and sump area, thus minimizing infiltration of surface water into the ground.

001225

5. Remedial Action

Remedial investigations are underway to determine the extent and rate of migration of contaminants in the vadose zone and the ground water. The results of these investigations, together with the results of previous investigations, will be used to establish numerical flow models in the saturated and unsaturated zones. We will also undertake an Alternative Concentration Limits (ACL) demonstration.

Based on the results of the remedial investigations, numerical ground-water modeling, and ACL demonstration, a feasability study will be completed to select a site remedial program. It is anticipated that the remedial program will involve withdrawal of contaminated ground water. Ground water may be treated by one or more of the following technologies: air stripping, clarification, carbon polishing, and/or biological treatment. Treated water will likely be disposed through one or more infiltration galleries installed on site. Infiltration galleries may be located lateral to, or hydraulically upgradient from, the pond and sump area. Alternatively, Sparton may elect to demonstrate the feasibility of using an infiltration gallery to promote induced hydraulic flushing of contaminated soils of the vadose zone. Induced pneumatic flushing (air venting) of the vadose zone may also be considered.

001336

C. Post-Closure Period Contact

Office of the Vice President and General Manager
Sparton Technology, Inc.
Post Office Box 1784
Albuquerque, New Mexico 87103
(505) 892-5300

D. Security

After closure, the area will be bounded by the operating facility on one side and an 8-foot-high chain link fence on the other three sides. Access to the area will be by a locking personnel gate in the fence on the southwest side and two vehicular gates on the northwest side and the southeast side, respectively (Plate 3). Signs will be posted at all gates reading "Closed, Hazardous Waste Management Area, Unauthorized Personnel Keep Out" in English and Spanish. The signs will have black letters on a yellow background, and will be visible from at least 25 feet in all approaching directions. Security inspections of the fences, gates, locks, and signs will take place on a quarterly basis to assure equipment integrity and to look for evidence of vandalism and/or tampering. Should any security problem be found during inspection, or by notification to the facility security office, appropriate personnel will be immediately informed and repairs and/or replacement will commence as soon as possible and be completed prior to the next quarterly inspection. A security checklist component is included in the overall post-closure care inspection checklist provided in Appendix A.

001237

E. Inspection Plan

After closure, and in addition to the security inspection, a general inspection of the condition of the surface of the area will be made on a semi-annual basis. To facilitate this inspection, vehicular access to the area will be restricted for a length of time sufficient to complete a thorough inspection. This inspection will include the drainage swale on the north and west sides of the area to assure that it is clear of debris and that the sides are physically intact. A visual inspection of the entire 3-inch-thick asphalt wearing surface will also be performed. The location of any gouges, cracks, surface movement, and/or pavement deterioration (chemical or natural) will be noted. Any such breaches of the wearing surface which expose (however slightly) the asphalt base will be repaired and will commence immediately. Undisturbed wearing surface material, for a distance of 6 inches in all directions around the breach, will be removed and this area resurfaced as specified for the initial paving in the Closure Plan. If, at any time between inspections, any sort of breach of the wearing surface is reported, there will be an immediate inspection to determine if repair is necessary.

Inspection of the ground-water monitoring wells will include the working order of the security caps and physical damage to the protective casing or surface grouting. If, during the ground-water sampling, it is determined that a well has become inoperable, the well

001238

will be plugged and a replacement well drilled and developed (in accordance with the specifications in the Closure Plan) prior to the next sampling period. A recommended inspection checklist component for monitoring wells is included in Appendix A.

F. Monitoring Plan

The monitoring plan is comprised of two programs: (1) ground-water monitoring; and (2) facility monitoring.

1. Ground-Water Monitoring

An alternative ground-water monitoring program (AGMP) has already been implemented by Sparton. The AGMP, which is outlined in Appendix C, consists of quarterly ground-water monitoring for a number of indicator parameters and annual monitoring for a more expanded list of parameters. From time to time, the AGMP will be adjusted to reflect the results of the hydrogeological investigation or to serve special monitoring requirements of the site remedial program. All proposed adjustments to the AGMP will be submitted to the EID for prior approval.

2. Facility Monitoring

Facility monitoring will concentrate on the possibility for subsidence of the cap area. Six brass survey benchmarks will be placed in the wearing surface at positions approximately located on

001339

Plate 3. These benchmarks will be tied in horizontally and vertically to the plant grid. At least semi-annually, or after notice of suspected subsidence has been given, a registered state surveyor will verify the elevations of these benchmarks. Access to the cap by vehicles will be totally restricted while the survey is taking place.

Prior to the survey, water will be introduced, preferrably from a fire hose, on the up-slope sides of the cap and allowed to run down-slope. This will confirm that the grade is sufficient to allow drainage and may indicate areas of pavement subsidence, by the ponding of water, on what is supposed to be a slope. Any suspected areas of subsidence will be surveyed to determine the extent of the problem. If subsidence is indicated on the cap, the EID will be notified immediately, and a determination will be made as to the cause of subsidence and subsequent plan of action.

G. Maintenance Plan

The maintenance plan will take effect if and when inspection of the area covered by post-closure indicates the need. Maintenance may include the drainage swale southwest of the cap, the chain-link fence, gates, locks, signs, the asphalt wearing surface of the cap, and the ground-water monitoring wells. The drainage swale will be kept clear of debris and its structural integrity assured. All security devices will be maintained to a level which assures their integrity,

001240

visibility, and proper working order. The asphalt wearing surface will be maintained to a thickness of 3 inches, and any repair or repaving will be in accordance to the specifications in the Closure Plan. Should any of the ground-water monitoring wells become inoperable, a replacement well will be installed within a 25-foot radius of the plugged well. The replacement well will be of the same construction and screened interval as the plugged well.

All maintenance activities will be carried out by personnel familiar with the tasks at hand. Any repair and/or replacement of the wearing surface pavement will be contracted to professionals in that field. Repair or replacement of ground-water monitoring wells will also be contracted to experienced ground-water professionals.

H. Personnel Training

No special training of personnel will be necessary to carry out the security and general inspection requirements of the post-closure plan; however, individuals responsible for certain tasks must be proficient in their respective fields. Security inspections can be carried out by members of the facility's security force using the checklist included in Appendix A. General inspections can be carried out by members of the facility's engineering department using the same checklist.

001241

Ground-water sampling and measurements will normally be performed by site environmental personnel. The site environmental manager will be responsible for providing this training or obtaining such training from professionals in the field of ground-water investigations.

I. Financial Assurance for Post-Closure Care

As owner/operator of the facility, Sparton will establish and maintain a mechanism for financial assurance for the post-closure care of the facility.

J. Notice to Local Land Authority

Within 90 days after closure is complete, Sparton will submit to the County Clerk and to the EID a survey plat indicating the location and dimensions of disposal areas with respect to permanently surveyed benchmarks. This plat will be prepared and certified by a professional land surveyor. The plat filed with the County Clerk will contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the site. In addition, facility management will submit to EID and the County Clerk a record of the type, location, and quantity of hazardous wastes disposed of at the facility. Changes in type, location, and quantity of hazardous wastes disposed of at the facility, which occur after the survey plat and record of wastes have been filed, will be reported to EID and the County Clerk.

001242

K. Notice in Deed to Property

In accordance with state law, Sparton will record on the deed to the facility property, or on some other instrument which is normally examined during title search, a notation that will notify any potential purchaser of the property that the land has been used to manage hazardous waste, and that its use is, therefore, restricted.

If, at any time, Sparton or any subsequent owner removes the waste and waste residues, liners, construction debris, and all contaminated underlying and surrounding soil, the notation on the deed to the facility property, or other instrument normally examined during title search, will be deleted.

L. Amendments to the Plan

The Post-Closure Plan will be amended, as necessary, to reflect changes in operating plans or facility designs, or in closure or post-closure operations. The amended Post-Closure Plan will be submitted to the EID for approval.

M. Administration

All records from the post-closure period will be maintained for 5 years after the cecessation of the post-closure care period. These records will include, as a minimum, all inspection checklists,

001343

laboratory reports, survey reports, maintenance records, relevant invoices, and all post-closure related communications records.

N. Post-Closure Care Costs

The post-closure care cost estimates are presented in Appendix B. These cost estimates may require periodic revisions. EID will be promptly notified of any revisions to the cost estimates.

001344

DISTRIBUTION

1 copy to:	Sparton Corporation 2400 East Ganson Street Jackson, Michigan 49202
Attention:	Mr. Blair Thompson
2 copies to:	Sparton Technology, Inc. 4901 Rockaway Boulevard, S.E. Rio Rancho, New Mexico 87124
Attention:	Mr. Richard Mico
2 copies to:	Varnum, Riddering, Schmidt & Howlett 171 Monroe Avenue, N.W. Grand Rapids, Michigan 49503
Attention:	Mr. Jon F. DeWitt
5 copies to:	Environmental Improvement Division Ground Water and Hazardous Waste Bureau Harold Reynolds Building 1190 St. Francis Drive Santa Fe, New Mexico 87504-0968
Attention:	Mr. Peter H. Pache

QUALITY CONTROL REVIEW:

J. Michael Huls
Senior Environmental Scientist

APPENDIX A
to
ATTACHMENT 8

Post-Closure Quarterly Inspection Checklist

POST-CLOSURE QUARTERLY INSPECTION CHECKLIST

Facility: Sparton Technology, Inc.
9621 Coors Road, N.W.
Albuquerque, New Mexico 87103

Date of Inspection: _____

Type of Inspection: Maintenance ___ Wells ___ Subsidence ___ Security ___

Name of Inspector: _____ Name of Surveyor: _____

ITEM		DESCRIPTION	PROBLEM Y/N	REMARKS	ACTION TAKEN	DATE
Maintenance:	1.	Wearing surface				
	2.	Gouges				
	3.	Deterioration				
	4.	Subsidence				
General:	1.	Ponding on cap				
	2.	Rainfall run-on				
	3.	Condition of swale				
Subsidence:	1.	Benchmark survey				
Monitor Well:	1.	Surface leakage to wells				
	2.	Rusting or broken well covers				
	3.	Integrity of locks				
	4.	Indication of well plugging				
Security:	1.	Integrity of fences and gates				
	2.	Integrity of locks				
	3.	Integrity and status of signs				
	4.	Evidence of vandalism				
	5.	Integrity of benchmarks				

INSPECTOR'S SIGNATURE: _____ DATE: _____

OWNER/OPERATOR'S SIGNATURE: _____ DATE: _____

001247

APPENDIX B
to
ATTACHMENT 8

Post-Closure Care Costs

APPENDIX B

POST-CLOSURE CARE COSTS

Post-closure care costs have been estimated by Sparton's consultant, Harding Lawson Associates (HLA). Laboratory costs are based on current prices charged by NUS Corporation, Laboratory Services Division. Costs related to earthwork and construction were obtained from Means' Site Work Cost Data, 1986 edition. The date of this cost estimate is December 5, 1985. The post-closure care cost estimate will be adjusted annually using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product, as published by the U. S. Department of Commerce Survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year. The adjustment will be made by multiplying the most recent post-closure cost care estimate or adjusted cost estimate by the inflation factor.

The post-closure care cost, based on current 1985 costs, is estimated to be $338,248. A cost breakdown is presented in Table B-1.

001249

TABLE B-1
Pond and Sump Area Post-Closure Cost Estimate
(1985 Basis)

Item	Units	Cost/Unit	Cost
Security			
Install warning signs	3 signs	$25.00	$ 75.00
Install gate locks	3 locks	10.00	30.00
Subtotal			$ 105.00
Inspections			
1 man/1/2 day x 2/yr x 30 yrs	240 hrs	$10.00	$ 2,400.00
Subtotal			2,400.00
Ground-water Monitoring			
Sample Collection:			
32/yr x 30 yr	960 samples	$ 40	$ 38,400.00
Quarterly Analyses:			
24/yr x 30 yr	720 samples	$226	$162,720.00
Annual Analyses:			
8/yr x 30 yr	240 samples	$495	$118,800.00
Reporting:			
4/yr x 30 yr	120 reports	$ 80	$ 9,600.00
Subtotal			$329,520.00
Subsidence Surveys:			
Install benchmarks	6 benchmarks	$ 50	$ 300.00
Survey 2/yr x 30 yrs	60 surveys	250	15,000.00
Reporting 2/yr x 30 yrs	60 reports	100	6,000.00
Subtotal			$ 21,300.00
Maintenance:			
General	30 years	$150	$ 4,500.00
Repaving (square yards)	est. 511 s.y.	6.70	3,423.00
Monitor well plugging	est. 4 wells	1,000	4,000.00
Monitor well replacement	est. 4 wells	5,000	20,000.00
Subtotal			$ 31,923.00
Administration:			
General	30 years	$100	$ 3,000.00
Subtotal			$ 3,000.00
TOTAL			$338,248.00

001350

APPENDIX C

ALTERNATIVE GROUND-WATER MONITORING PROGRAM

Sparton Technology, Inc. (Sparton) has reason to believe ground-water contamination exists at its Coors Road facility in Albuquerque, New Mexico. Therefore, an Alternative Ground-Water Monitoring Program (AGMP) has been implemented as provided in the New Mexico Hazardous Waste Management Regulations 206.C.1.a(4).

The frequency of sample collection, analytical parameters, and monitoring wells to be sampled are consistent with Sparton's commitment to the EID, as expressed in Sparton's letter to Mr. Steven Asher on July 24, 1984. Two modifications have been made. Nickel has been added to the list of annual parameters. MW-5 has been substituted for MW6 as the upgradient well. The reason for this substitution is that MW5 has gone dry at least once in the past, and therefore may not provide a reliable continuous record of upgradient ground-water quality.

The AGMP consists of the following:

1. Monitoring Wells MW1, MW4, MW5, MW6, MW8, MW9, MW10, and MW11 will be sampled quarterly and annually. During closure of the pond and sump area, MW1, MW4, and MW11 will be removed. MW16, which is located adjacent to MW1, will be added to the AGMP at that time. No other replacement wells are planned.

001251

2. Quarterly parameters will include:

pH	specific conductance
total organic carbon	total organic halogen
trichloroethylene	1,1-dichloroethylene

3. In addition, annual parameters will include:

chloride	sodium
nitrate (as N)	boron
Kjeldahl nitrogen	manganese
sulfate	nickel
chromium (trivalent and hexavalent)	
volatile organic hydrocarbon scan	

4. The depths of the monitoring wells (together with other well construction details) have previously been supplied to EID in reports prepared by Harding Lawson Associates (HLA), Sparton's consultant:

a. MONITORING WELL INSTALLATION REPORT, SPARTON SOUTHWEST, INC., COORS ROAD FACILITY, Harding Lawson Associates, June 29, 1983

b. INVESTIGATION OF SOIL AND GROUND-WATER CONTAMINATION, SPARTON TECHNOLOGY, COORS ROAD FACILITY, ALBUQUERQUE, NEW MEXICO, Harding Lawson Associates, March 19, 1984

c. HYDROGEOLOGIC CHARACTERIZATION AND REMEDIAL INVESTIGATION, SPARTON TECHNOLOGY, INC., 9261 COORS ROAD, NORTHWEST, ALBUQUERQUE, NEW MEXICO, Harding Lawson Associates, March 13, 1985

Ground-water sampling and analytical methods are presented in Appendix C of the March 13, 1985 report.

001252

5. Previous investigations, and the reports thereof, are considered by Sparton to be an integral part of the AGMP. Evaluation procedures employed in those past investigations are contained within the respective reports. Sparton remains committed to any schedule of implementation contained in those reports.

6. Sparton has already implemented its long-term ground-water monitoring strategy. The concentrations of hazardous waste constituents in the ground water have already been determined.

7. An assessment is underway of the rate and extent of migration of hazardous waste constituents in the ground water. Historical data from on-site monitoring is being evaluated in an empirical approach. Numerical ground-water models are being established to evaluate the rate and extent of migration of hazardous waste constituents as well as other parameters of concern. The most notable other parameters of concern include a number of volatile organic constituents which are being evaluated by a combination of three techniques, including evaluation of historical on-site data, ground-water modeling, and soil-gas testing.

Additional site investigations are underway, including an assessment of the vertical distribution of contaminants in ground water and an assessment of vadose zone contamination.

8. Sparton will continue to make determinations of ground-water quality according to the schedule indicated above until final closure of the facility and until completion of the anticipated ground-water remedial program, or until completion of the 30 year post-closure care period, which ever occurs latest. Sparton will continue to comply with the recordkeeping and reporting requirements specified in the regulations.

9. Modifications of this plan may become necessary, based on the results of the additional site investigations and the ground-water modeling. Any such modifications will be submitted to the EID for prior approval.

APPENDIX C
to
ATTACHMENT 8

Alternative Ground-Water Monitoring Program

APPENDIX C

ALTERNATIVE GROUND-WATER MONITORING PROGRAM

Sparton Technology, Inc. (Sparton) has reason to believe ground-water contamination exists at its Coors Road facility in Albuquerque, New Mexico. Therefore, an Alternative Ground-Water Monitoring Program (AGMP) has been implemented as provided in the New Mexico Hazardous Waste Management Regulations 206.C.1.a(4).

The frequency of sample collection, analytical parameters, and monitoring wells to be sampled are consistent with Sparton's commitment to the EID, as expressed in Sparton's letter to Mr. Steven Asher on July 24, 1984. Two modifications have been made. Nickel has been added to the list of annual parameters. MW-5 has been substituted for MW6 as the upgradient well. The reason for this substitution is that MW5 has gone dry at least once in the past, and therefore may not provide a reliable continuous record of upgradient ground-water quality.

The AGMP consists of the following:

1. Monitoring Wells MW1, MW4, MW5, MW6, MW8, MW9, MW10, and MW11 will be sampled quarterly and annually. During closure of the pond and sump area, MW1, MW4, and MW11 will be removed. MW16, which is located adjacent to MW1, will be added to the AGMP at that time. No other replacement wells are planned.

001356

2. Quarterly parameters will include:

pH	specific conductance
total organic carbon	total organic halogen
trichloroethylene	1,1-dichloroethylene

3. In addition, annual parameters will include:

chloride	sodium
nitrate (as N)	boron
Kjeldahl nitrogen	manganese
sulfate	nickel
chromium (trivalent and hexavalent)	
volatile organic hydrocarbon scan	

4. The depths of the monitoring wells (together with other well construction details) have previously been supplied to EID in reports prepared by Harding Lawson Associates (HLA), Sparton's consultant:

a. MONITORING WELL INSTALLATION REPORT, SPARTON SOUTHWEST, INC., COORS ROAD FACILITY, Harding Lawson Associates, June 29, 1983

b. INVESTIGATION OF SOIL AND GROUND-WATER CONTAMINATION, SPARTON TECHNOLOGY, COORS ROAD FACILITY, ALBUQUERQUE, NEW MEXICO, Harding Lawson Associates, March 19, 1984

c. HYDROGEOLOGIC CHARACTERIZATION AND REMEDIAL INVESTIGATION, SPARTON TECHNOLOGY, INC., 9261 COORS ROAD, NORTHWEST, ALBUQUERQUE, NEW MEXICO, Harding Lawson Associates, March 13, 1985

Ground-water sampling and analytical methods are presented in Appendix C of the March 13, 1985 report.

8. Sparton will continue to make determinations of ground-water quality according to the schedule indicated above until final closure of the facility and until completion of the anticipated ground-water remedial program, or until completion of the 30 year post-closure care period, which ever occurs latest. Sparton will continue to comply with the recordkeeping and reporting requirements specified in the regulations.

9. Modifications of this plan may become necessary, based on the results of the additional site investigations and the ground-water modeling. Any such modifications will be submitted to the EID for prior approval.

001258

5. Previous investigations, and the reports thereof, are considered by Sparton to be an integral part of the AGMP. Evaluation procedures employed in those past investigations are contained within the respective reports. Sparton remains committed to any schedule of implementation contained in those reports.

6. Sparton has already implemented its long-term ground-water monitoring strategy. The concentrations of hazardous waste constituents in the ground water have already been determined.

7. An assessment is underway of the rate and extent of migration of hazardous waste constituents in the ground water. Historical data from on-site monitoring is being evaluated in an empirical approach. Numerical ground-water models are being established to evaluate the rate and extent of migration of hazardous waste constituents as well as other parameters of concern. The most notable other parameters of concern include a number of volatile organic constituents which are being evaluated by a combination of three techniques, including evaluation of historical on-site data, ground-water modeling, and soil-gas testing.

Additional site investigations are underway, including an assessment of the vertical distribution of contaminants in ground water and an assessment of vadose zone contamination.

001259

ATTACHMENT 7

NOTICE OF RESTRICTION

IN PROPERTY DEED

SPARTON
CORPORATION

2400 E. Ganson St.
Jackson, MI 49202
Telephone (517) 787-8600 FAX (517) 787-8046

10/20/94

THIS FAX CONSISTS OF THIS TRANSMITTAL FORM AND 3 PAGES

TO: Mr. Peter Metzner
Metric Corporation
Albuquerque, NM

We found the attached letter and Notice. Dick Langley is going to get a certificate of insurance and one re the bond from our broker.

FROM: Judy Camp

SPARTON
TECHNOLOGY, INC.

4901 Rockaway Blvd., SE
Rio Rancho, New Mexico 87124
P.O. Box 1784
Albuquerque, New Mexico 87103
Phone (505) 892-5300
TWX 910-989-1657

E

c.c. ~~original~~ transmittal letter only to EPA file
Original w. attachment filed in S+E permit file.

April 27, 1987

Mr. Ronald G. Olguin, County Manager
Bernalillo County
1 Civic Plaza, NW, 10th Floor
Albuquerque, NM 87102

- cc T.

Dear Sir:

We are filing the attached survey plat in accordance with the New Mexico Hazardous Waste Regulations, 206.G.2.(i). This regulation also requires that we submit the following record of the type, location, and quantity of hazardous wastes disposed within each area. The following information is submitted in fulfillment of this requirement.

Hazardous wastes have never been disposed within either of the subject closed hazardous waste storage units. For that matter, no hazardous wastes are known to have been disposed anywhere on the facility property. However, it is believed that some hazardous wastes have leaked from the two closed storage ponds, and the adjacent sumps, into the soil and groundwater beneath the site. These wastes fall into two general categories: aqueous plating wastes and spent solvent wastes. The quantity of material which escaped into the soils and groundwater is not known. However, extensive investigations of the soil and groundwater have been performed in order to evaluate the extent of contamination and to enable us to develop appropriate remedial measures. These investigations and the resulting remedial action programs have been and are continuing to be closely coordinated with the New Mexico Environmental Improvement Division.

Thank you for your attention to this matter.

Respectfully,

SPARTON TECHNOLOGY, INC.

Richard D. Mico
Vice President and General Manager

cc: Mr. Blair Thompson ✓
Mr. Jon DeWitt
Mr. Gary Richardson
Mr. Thomas Burger
Mr. Cleoves Martinez
Mr. Richard Mitzelfelt

Attach.

NOTICE OF RESTRICTION

This Notice relates to a portion of the property described in that certain plat recorded of even date herewith, with the Clerk of Bernalillo County, in Book 479-A; PAGE 445-454.

This property contains two areas which have been used to manage hazardous wastes, and the use of which is restricted under the New Mexico Hazardous Waste Regulations, 206.C.2.g(3). These units are known as the Old Drum Storage Area and the Hazardous Waste Surface Impoundment Area. These areas have been covered with a concrete cap and an asphaltic concrete cap, respectively. According to the above-cited regulatory restriction: Post-closure use of these areas must never be allowed to disturb the integrity of the final cover, or the function of the facility's monitoring systems, unless the owner or operator can demonstrate to the Director, as appropriate, that the disturbance: (a) is necessary to the proposed use of the property and will not increase the potential hazard to human health or the environment; or (b) is necessary to reduce a threat to human health or the environment.

SPARTON TECHNOLOGY, INC.

Richard D. Mico

Richard D. Mico
Vice President and General Manager

STATE OF NEW MEXICO)
) SS:
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 27th day of April, 1987, by Richard D. Mico, Vice President and General Manager of Sparton Technology, Inc., a New Mexico corporation, on behalf of said corporation.

Anne C. Sastofsky
Notary Public

My Commission Expires:
8/20/89

SF-1 SHORT FORM WARRANTY DEED—Rev. 11-59—New Mexico Statutory Form

NMTC

T1-38631 Cag

518

WARRANTY DEED

6482

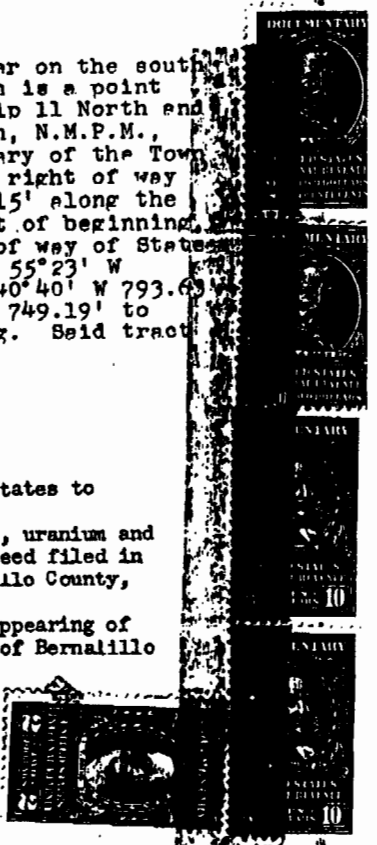
HORIZON-ALBUQUERQUE PROPERTIES CORP., a Delaware corporation, for consideration paid, grants to SPARTON CORPORATION, an Ohio corporation, the following described real estate in Bernalillo County, New Mexico:

Parcel 1

Beginning, for a tie, at the U.S.L.O. marker on the south boundary of the Town of Alameda Grant which is a point common to Section 13, Range 2 East, Township 11 North and Section 18, Range 3 East, Township 11 North, N.M.P.M., thence East 1522.50' along the south boundary of the Town of Alameda Grant to a point on the western right of way of State Road 448, thence N 40°40' E 3930.15' along the right of way of State Road 448 to the point of beginning, thence N 40°40' E 660.00' along the right of way of State Road 448 to the northeast corner, thence N 55°23' W 723.23' to the northwest corner, thence S 40°40' W 793.63' to the southwest corner, thence S 65°36' E 749.19' to the southeast corner and point of beginning. Said tract containing 12.0 acres, more or less.

SUBJECT TO:

1. Taxes for 1961
2. Reservations in patent from the United States to Alameda Grant
3. Reservations of one-half of all oil, gas, uranium and other minerals as reserved in warranty deed filed in Book D-513, page 189, records of Bernalillo County, New Mexico.
4. Covenants, conditions and restrictions appearing of record in Book D-513, Page 189, records of Bernalillo County, New Mexico
5. Easements of Record or on the ground.



8.
$26.40

with warranty covenants.

WITNESS hand and seal this 30th day of January, 1961

(Seal) HORIZON-ALBUQUERQUE PROPERTIES CORP. (Seal)

W. H. MacKinnon (Seal) By: Joseph Timan (Seal)

Asst. Secretary Joseph Timan, President

ACKNOWLEDGMENT FOR NATURAL PERSONS

STATE OF ~~NEW MEXICO~~ Arizona } ss.
COUNTY OF Pima

The foregoing instrument was acknowledged before me this 30th day of January, 1961, by Joseph Timan & W. H. MacKinnon (Name or Names of Person or Persons Acknowledging)

My commission expires: (Seal)

Notary Public

FOR RECORDER'S USE ONLY

State of New Mexico } SS
County of Bernalillo }
This instrument was filed for record on FEB 7 1961 1:42 P.M. Recorded in Vol. 581 of records of said County Folio 578

Clerk & Recorder
Deputy Clerk

Indexed 2-7-61

ACKNOWLEDGMENT FOR CORPORATION

STATE OF ~~NEW MEXICO~~ ARIZONA } ss.
COUNTY OF PIMA

The foregoing instrument was acknowledged before me this 30th day of January, 1961, by Joseph Timan (Name of Officer)

President (Title of Officer) of Horizon-Albuquerque Properties Corp. (Corporation Acknowledging) a corporation, on behalf of said corporation.

My commission expires: 10/29/61 (Seal)

Notary Public

001364

ATTACHMENT 8

TRUST AGREEMENT

SPARTON CORPORATION

10/20/94

2400 E. Ganson St.
Jackson, MI 49202
Telephone (517) 787-8600 FAX (517) 787-8046

THIS FAX CONSISTS OF THIS TRANSMITTAL FORM AND 12 PAGES

TO: Ms. Pete Metzgnes
Metric Corp.
Albuquerque, NM

This was shorter than Dick Langley thought, so he asked me to FAX it to you.

FROM: Judy Camp

TRUST AGREEMENT

Trust Agreement, the "Agreement," entered into as of November 1, 1982 by and between Sparton Technology, Inc., a New Mexico corporation, the "Grantor," and The First National Bank in Albuquerque, a national bank, the "Trustee."

Whereas, the New Mexico Environmental Improvement Division, "EID," an agency of the State of New Mexico, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a hazardous waste management facility shall provide assurance that funds will be available when needed for closure and/or post-closure care of the facility,

Whereas, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein,

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee,

Now, Therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A.

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of EID. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibilities for the amount of adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by EID.

Section 4. Payment for Closure and Post-Closure Care. The Trustee shall make payments from the Fund as the EID Director shall direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the EID Director from the Fund for closure and post-closure expenditures in such amounts as the EID Director shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the EID Director specified in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

001068

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(a) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(c) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the EID Director a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the EID Director shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder.

Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the EID Director, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by the Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instruments by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the EID Director to the Trustee shall be in writing, signed by the EID Director, or his designee, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or EID hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or EID, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the EID Director, by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the EID Director, or by the Trustee and the EID Director if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the EID DIrector, or by the Trustee and the EID Director, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the EID Director issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of New Mexico.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written: The parties below certify that the wording of this Agreement is identical to the wording specified in the New Mexico Hazardous Waste Management Regulations, Part II, 206.3.2.i(1)(a), as such regulations were constituted on the date first above written.

SPARTON TECHNOLOGY, INC.

R. D. Mico

Richard D. Mico
Vice-President and
General Manager

Attest:

Blair H. Thompson
Secretary-Treasurer

The First National Bank in Albuquerque

(Signature)

Executive Vice President & Cashier
(Title)

Attest:

(Signature)

Assistant Vice President
(Title)

State of New Mexico
County of Bernalillo

On this 20th day of June, 1984, before me personally came Richard D. Mico to me known, who, being by me duly sworn, did dispose and say that he resides at 9979 Radcliffe Road, N.W., Albuquerque, New Mexico 87114, that he is Vice-President and General Manager of Sparton Technology, Inc., the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal, that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

Anne L. Saslofsky
Notary Public

My Commission Expires 6-20-85

TRUST AGREEMENT

Schedule A

E.P.A. Number:	NMD083212332
Name:	Sparton Technology, Inc. 9621 Coors Road, N.W. Albuquerque, New Mexico 87114
Closure Cost Estimate:	$93,000.00
Designated Person Authorized to Sign Instructions For Grantor:	Richard D. Mico

TRUST AGREEMENT

Schedule B

E.P.A. Number:	NMD083212332
Name:	Sparton Technology, Inc. 9621 Coors Road, N.W. Albuquerque, New Mexico 87114
Property:	Such funds as may from time to time be deposited by Grantor or its Surety in compliance with applicable regulations on orders issued by the New Mexico Environmental Improvement Division.

ATTACHMENT 9

CURRENT LETTER OF CREDIT

Facsimile

From

SPARTON TECHNOLOGY, INC.

4901 Rockaway Blvd. SE
Rio Rancho, NM 87124

Phone: (505) 892-5300
FAX: (505) 892-5515

Sender: David Bagby Date: 10-20-94

Number of pages including this page: 2

To: Pete Metzner Of: Metric

Location: Area FAX: 828-2803

Message:

Dick Langley asked me to send this to you. If you need anything else, please let me know.

First Security Bank,

August 4, 1994

Sparton Technology, Inc.
Attn: David Bagby
4901 Rockaway Blvd. S. E.
Rio Rancho, NM 87124

Dear Mr. Bagby:

In connection with our examination as of 7/27/94, a number of Letters of Credit have been selected for confirmation. Please compare the information shown below with your records.

Please confirm this particular Letter of Credit only, even though you may have other Letters of Credit outstanding.

NUMBER	COLLATERAL	ISSUE DATE	EXPIRATION DATE
11113	Unsecured	5-6-90	5-6-95

UNUSED AMOUNT	CREDIT EXTENDED	BENEFICIARY
$556,354.00	-0-	Director, New Mexico Environmental Improvement Division

Please confirm the correctness of the above by signing below and returning in the enclosed self-addressed envelope.

Sincerely,

Gregory P. Dahl
Audit Manager

GPD/aaa
Enclosure

The above information agrees with our records. Exceptions, if any, are noted on the reverse side.

David S. Bagby
(Authorized Signature)

ATTACHMENT 10

CERTIFICATE OF INSURANCE

ACORD. CERTIFICATE OF INSURANCE

12320 AMB

ISSUE DATE (MM/DD/YY) 10/21/94

PRODUCER

Marsh & McLennan, Incorporated
One Woodward Avenue
Suite 1200
Detroit, MI 48226-3493

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

SPARTON CORPORATION AND
SPARTON TECHNOLOGY
2400 E. Ganson
Jackson, MI 49202

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A	TRANSPORTATION INSURANCE CO
COMPANY LETTER B	
COMPANY LETTER C	
COMPANY LETTER D	
COMPANY LETTER E	

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	GL802516462	10/01/94	10/01/95	GENERAL AGGREGATE	$ 2000000
	[X] COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG.	$ 1000000
	[ ] CLAIMS MADE [X] OCCUR.				PERSONAL & ADV. INJURY	$ 1000000
	OWNER'S & CONTRACTOR'S PROT.				EACH OCCURRENCE	$ 1000000
					FIRE DAMAGE (Any one fire)	$ 500000
					MED. EXPENSE (Any one person)	$ 10000
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$
	ANY AUTO				BODILY INJURY (Per person)	$
	ALL OWNED AUTOS				BODILY INJURY (Per accident)	$
	SCHEDULED AUTOS				PROPERTY DAMAGE	$
	HIRED AUTOS					
	NON-OWNED AUTOS					
	GARAGE LIABILITY					
	EXCESS LIABILITY				EACH OCCURRENCE	$
	UMBRELLA FORM				AGGREGATE	$
	OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY				[ ] STATUTORY LIMITS	
					EACH ACCIDENT	$
					DISEASE-POLICY LIMIT	$
					DISEASE-EACH EMPLOYEE	$
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER

Metric Corporation
Attn: Peter Metzner
8429 Washington Place NE
Suite A
Albuquerque, NM 87113

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE John C Hurley

001383

ACORD CORPORATION 1990

Marsh & McLennan, Incorporated
One Woodward Avenue, Suite 1200
Detroit, Michigan 48226-3493
Telephone: 313 965-5400
Facsimile: 313 965-0527

MARSH & McLENNAN

FAX TRANSMITTAL FORM
(If you do not receive all pages, please call as soon as possible)

TO: Peter Metzner Metric Corporation	FROM: Amy M. Bonner Risk Management Division
FAX: 505-828-2803	FAX: (313) 965-0527
PHONE:	PHONE: (313) 965-4735
DATE: 10/21/94 8:42 AM	PAGES: 4

SUBJECT: Sparton Technology - Certificates of Insurance

Peter:

Attached please find two certificates of insurance evidencing General Liability coverage and Owners & Contractors Protective coverage. A copy of the OCP policy also follows.

Please call if you have any questions regarding this.

ACORD. CERTIFICATE OF INSURANCE

12320 JMD

ISSUE DATE (MM/DD/YY) 10/21/94

PRODUCER
Marsh & McLennan, Incorporated
One Woodward Avenue
Suite 1200
Detroit, MI 48226-3493

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
SPARTON CORPORATION AND
SPARTON TECHNOLOGY
2400 E. Ganson
Jackson, MI 49202

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A: TRANSPORTATION INSURANCE CO
COMPANY LETTER B:
COMPANY LETTER C:
COMPANY LETTER D:
COMPANY LETTER E:

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	GL802516462	10/01/94	10/01/95	GENERAL AGGREGATE	$ 2000000
	[X] COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG.	$ 1000000
	[ ] CLAIMS MADE [X] OCCUR.				PERSONAL & ADV. INJURY	$ 1000000
	OWNER'S & CONTRACTOR'S PROT.				EACH OCCURRENCE	$ 1000000
					FIRE DAMAGE (Any one fire)	$ 500000
					MED. EXPENSE (Any one person)	$ 10000
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$
	ANY AUTO				BODILY INJURY (Per person)	$
	ALL OWNED AUTOS				BODILY INJURY (Per accident)	$
	SCHEDULED AUTOS				PROPERTY DAMAGE	$
	HIRED AUTOS					
	NON-OWNED AUTOS					
	GARAGE LIABILITY					
	EXCESS LIABILITY				EACH OCCURRENCE	$
	UMBRELLA FORM				AGGREGATE	$
	OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY LIMITS	
					EACH ACCIDENT	$
					DISEASE-POLICY LIMIT	$
					DISEASE-EACH EMPLOYEE	$
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER

Metric Corporation
Attn: Peter Metzner
8429 Washington Place NE
Suite A
Albuquerque, NM 87113

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE John C Hurley

001385

ACORD. CERTIFICATE OF INSURANCE

12581 AMB

ISSUE DATE (MM/DD/YY) 10/21/94

PRODUCER
Marsh & McLennan, Incorporated
One Woodward Avenue
Suite 1200
Detroit, MI 48226-3493

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A	TRANSPORTATION INSURANCE CO
COMPANY LETTER B	
COMPANY LETTER C	
COMPANY LETTER D	
COMPANY LETTER E	

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	GL202516465	10/01/94	10/01/95	GENERAL AGGREGATE	$1000000
	[X] COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG.	$
	[ ] CLAIMS MADE [X] OCCUR.				PERSONAL & ADV. INJURY	$
	OWNER'S & CONTRACTOR'S PROT.				EACH OCCURRENCE	$1000000
					FIRE DAMAGE (Any one fire)	$
					MED. EXPENSE (Any one person)	$
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$
	ANY AUTO				BODILY INJURY (Per person)	$
	ALL OWNED AUTOS				BODILY INJURY (Per accident)	$
	SCHEDULED AUTOS				PROPERTY DAMAGE	$
	HIRED AUTOS					
	NON-OWNED AUTOS					
	GARAGE LIABILITY					
	EXCESS LIABILITY				EACH OCCURRENCE	$
	UMBRELLA FORM				AGGREGATE	$
	OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY LIMITS	
					EACH ACCIDENT	$
					DISEASE-POLICY LIMIT	$
					DISEASE-EACH EMPLOYEE	$
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS
See attached copy of Owners and Contractors Protective

CERTIFICATE HOLDER

Metric Corporation
Attn: Peter Metzner
8429 Washington Place NE
Suite A
Albuquerque, NM 87113

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE John C Hurley 001386

ACORD CORPORATION 1990

AGENT	COMMISSION RATE(S)	DATE ISSUED	NEW	REPLACEMENT OF
→ MARSH & MCLENNAN, INC.	S) 5% NS)12.5%	11-5-93	☐	RENEWAL OF GL 7 02513473

OWNERS AND CONTRACTORS PROTECTIVE LIABILITY COVERAGE PART

DECLARATIONS

CNA
For All the Commitments You Make®

CNA Insurance Companies
CNA Plaza
Chicago, Illinois 60685

Item

PRODUCER NO.	BRANCH	PREFIX	POLICY NUMBER
089392	260	GL	2 02516465

NAMED INSURED & ADDRESS:
(Number & Street, Town, County, State & Zip Code)

CITY OF ALBUQUERQUE
P.O. BOX 1293
ALBUQUERQUE, NEW MEXICO 87103

NAMED INSURED IS:

☐ INDIVIDUAL ☐ PARTNERSHIP ☒ CORPORATION
☐ JOINT VENTURE ☐ OTHER _____

2. Policy Period: From: 10-1-93 To: 10-1-96
This Policy becomes effective and expires at 12:01 a.m. Standard Time at Your Mailing Address Shown Above.

INSURANCE IS PROVIDED BY THE COMPANY DESIGNATED BELOW (A stock insurance company, herein called the company)

- ☐ Continental Casualty Company
- ☐ National Fire Insurance Company of Hartford
- ☐ American Casualty Company of Reading, Pa.
- ☒ Transportation Insurance Company
- ☐ Transcontinental Insurance Company
- ☐ Valley Forge Insurance Company

IN RETURN FOR THE PAYMENT OF THE PREMIUM, AND SUBJECT TO ALL THE TERMS CONTAINED HEREIN WE AGREE WITH YOU TO PROVIDE THE INSURANCE AS STATED.

3. **AUDIT PERIOD IS ANNUAL UNLESS OTHERWISE STATED.**

4.
DESIGNATION OF CONTRACTOR SPARTON CORPORATION
MAILING ADDRESS 2400 E. GANSON STREET JACKSON, MICHIGAN 49202
LOCATION OF COVERED OPERATIONS CITY OF ALBUQUERQUE

5. **LIMITS OF INSURANCE**
AGGREGATE LIMIT $ 1,000,000.
EACH OCCURRENCE LIMIT $ 1,000,000.

6.

Classification	Code No.	Premium Base	Rate per $1,000 of cost	Advance Premium
OPERATIONS	93163	FLAT CHARGE		$250.

7. **PREMIUM FOR THIS COVERAGE PART** Premium payable at inception: $ 250.

8. **ENDORSEMENTS AND FORMS APPLICABLE AT TIME OF ISSUANCE:** PREMIUM:
IL 00 21 11 85—Broad Form Nuclear Energy Exclusion
CG 0009 (11-88), CG 2828

9. **THESE DECLARATIONS AND THE GENERAL DECLARATIONS, IF APPLICABLE, TOGETHER WITH THE COMMON POLICY CONDITIONS, COVERAGE FORM(S) AND FORMS AND ENDORSEMENTS, IF ANY, ISSUED TO FORM A PART THEREOF, COMPLETE THE ABOVE NUMBERED POLICY.**

001387

Countersigned: _____ By: _____
Date Authorized Agent

G-55176-A

ACORD. CERTIFICATE OF INSURANCE

12581 AMB

ISSUE DATE (MM/DD/YY) 10/21/94

PRODUCER
Marsh & McLennan, Incorporated
One Woodward Avenue
Suite 1200
Detroit, MI 48226-3493

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A TRANSPORTATION INSURANCE CO

COMPANY LETTER B

COMPANY LETTER C

COMPANY LETTER D

COMPANY LETTER E

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	GL202516465	10/01/94	10/01/95	GENERAL AGGREGATE	$1000000
	[X] COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG.	$
	[ ] CLAIMS MADE [X] OCCUR.				PERSONAL & ADV. INJURY	$
	[ ] OWNER'S & CONTRACTOR'S PROT.				EACH OCCURRENCE	$1000000
	[ ]				FIRE DAMAGE (Any one fire)	$
					MED. EXPENSE (Any one person)	$
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$
	[ ] ANY AUTO					
	[ ] ALL OWNED AUTOS				BODILY INJURY (Per person)	$
	[ ] SCHEDULED AUTOS					
	[ ] HIRED AUTOS				BODILY INJURY (Per accident)	$
	[ ] NON-OWNED AUTOS					
	[ ] GARAGE LIABILITY				PROPERTY DAMAGE	$
	[ ]					
	EXCESS LIABILITY				EACH OCCURRENCE	$
	[ ] UMBRELLA FORM				AGGREGATE	$
	[ ] OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY				[ ] STATUTORY LIMITS	
					EACH ACCIDENT	$
					DISEASE-POLICY LIMIT	$
					DISEASE-EACH EMPLOYEE	$
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS
See attached copy of Owners and Contractors Protective

CERTIFICATE HOLDER

Metric Corporation
Attn: Peter Metzner
8429 Washington Place NE
Suite A
Albuquerque, NM 87113

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE John C Hurley

001388

ACORD CORPORATION 1990

AGENT	COMMISSION RATE(S)	DATE ISSUED	NEW	REPLACEMENT OF
→ MARSH & MCLENNAN, INC.	S) 5% NS)12.5%	11-5-93	☐	RENEWAL OF GL 7 02513473

OWNERS AND CONTRACTORS PROTECTIVE LIABILITY COVERAGE PART

DECLARATIONS

CNA
For All the Commitments You Make®

CNA Insurance Companies
CNA Plaza
Chicago, Illinois 60685

Item

PRODUCER NO.	BRANCH	PREFIX	POLICY NUMBER
089392	260	GL	2 02516465

NAMED INSURED & ADDRESS:
(Number & Street, Town, County, State & Zip Code)

CITY OF ALBUQUERQUE
P.O. BOX 1293
ALBUQUERQUE, NEW MEXICO 87103

NAMED INSURED IS:

☐ INDIVIDUAL ☐ PARTNERSHIP ☒ CORPORATION
☐ JOINT VENTURE ☐ OTHER

2. Policy Period: From: 10-1-93 To: 10-1-96
This Policy becomes effective and expires at 12:01 a.m. Standard Time at Your Mailing Address Shown Above.

INSURANCE IS PROVIDED BY THE COMPANY DESIGNATED BELOW (A stock insurance company, herein called the company)

- ☐ Continental Casualty Company
- ☐ National Fire Insurance Company of Hartford
- ☐ American Casualty Company of Reading, Pa.
- ☒ Transportation Insurance Company
- ☐ Transcontinental Insurance Company
- ☐ Valley Forge Insurance Company

IN RETURN FOR THE PAYMENT OF THE PREMIUM, AND SUBJECT TO ALL THE TERMS CONTAINED HEREIN WE AGREE WITH YOU TO PROVIDE THE INSURANCE AS STATED.

3. **AUDIT PERIOD IS ANNUAL UNLESS OTHERWISE STATED.**

4.
DESIGNATION OF CONTRACTOR SPARTON CORPORATION
MAILING ADDRESS 2400 E. GANSON STREET JACKSON, MICHIGAN 49202
LOCATION OF COVERED OPERATIONS CITY OF ALBUQUERQUE

LIMITS OF INSURANCE

5.
AGGREGATE LIMIT $ 1,000,000.
EACH OCCURRENCE LIMIT $ 1,000,000.

6.

Classification	Code No.	Premium Base	Rate per $1,000 of cost	Advance Premium
OPERATIONS	93163	FLAT CHARGE		$250.

7. **PREMIUM FOR THIS COVERAGE PART** Premium payable at inception: $ 250.

8. **ENDORSEMENTS AND FORMS APPLICABLE AT TIME OF ISSUANCE:** PREMIUM:
IL 00 21 11 85—Broad Form Nuclear Energy Exclusion
CG 0009 (11-88), CG 2828

9. **THESE DECLARATIONS AND THE GENERAL DECLARATIONS, IF APPLICABLE, TOGETHER WITH THE COMMON POLICY CONDITIONS, COVERAGE FORM(S) AND FORMS AND ENDORSEMENTS, IF ANY, ISSUED TO FORM A PART THEREOF, COMPLETE THE ABOVE NUMBERED POLICY.**

001389

Countersigned: _____ By: _____
Date Authorized Agent

G-55176-A

ATTACHMENT 11
SUMMARY OF GROUNDWATER MONITORING DATA

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

ATTACHMENT 12
GROUNDWATER MONITORING SYSTEM
WELL LOCATIONS

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

ATTACHMENT 13
GROUNDWATER SAMPLING AND ANALYSIS PLAN

To be provided after determination of a corrective action program under the EPA consent order dated October 1, 1988.

ATTACHMENT 14
LETTERS OF TRANSMITTAL
FOR RFI AND CORRECTIVE
MEASURES STUDY REPORT

SPARTON

SPARTON TECHNOLOGY

May 14, 1992

Mr. Keith N.Phillips, Chief
Technical Section (6H-CX)
RCRA Enforcement Branch
U.S. EPA, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Final RFI Report —
Sparton Technology, Inc.
Coors Road Facility
Albuquerque, New Mexico

Dear Mr. Phillips:

In accordance with the provisions of the Consent Order, as amended, enclosed are six copies of the revised text and six copies of revised figures for the Final RFI report. Revisions and/or additions to the draft Final RFI report, dated December 1, 1991, are indicated by the revised date, May 1, 1992, at the bottom of each page. These revisions are in general conformance to EPA comments dated April 17, 1992. Our consultants have prepared an accompanying set of instructions for revising the RFI report into final form.

We trust that the Final RFI report submitted here will meet the approval of EPA. If you have any questions, please call.

Sincerely,

SPARTON TECHNOLOGY, INC.

Richard D. Mico
Vice President and General Manager

cc: Mr. Jan Appel
Mr. Jon DeWitt
Mr. Pierce Chandler
Mr. Gary Richardson
Mr. Benito Garcia _

001397

Enc.

SPARTON

SPARTON TECHNOLOGY

November 5, 1992

Environmental Protection Agency
Region VI
1445 Ross Ave.
Dallas, TX 75202

Attention: Mr. Keith Phillips

Dear Mr. Phillips:

Sparton Technology, Inc. is pleased to submit our "Draft Corrective Measures Study Report" for our Coors Road facility in Albuquerque, New Mexico.

We are available to review it with you at your convenience. Please call Mr. Jan Appel at (517) 787-8600 or myself at (505) 892-5300. Mr. Pierce Chandler at (214) 960-4000 is available to answer technical questions.

Sincerely,

SPARTON TECHNOLOGY, INC.

Richard D. Mico
Vice President and General Manager

Enc.

cc: Mr. J. Appel
Mr. P. Chandler

001398

Sparton Technology, Inc. □ 4901 Rockaway Blvd., SE □ Rio Rancho, NM 87124-4469 □ (505) 892-5300 □ FAX (505) 892-5515

ATTACHMENT 15

SECURITIES AND EXCHANGE COMMISSION FORM 10K

FOR FISCAL YEAR ENDING JUNE 30, 1994

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 (Fee Required)

For the fiscal year ended June 30, 1994

OR

[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934 (No Fee Required)

For the transition period from _____ to _____

Commission file number 1-1000

SPARTON CORPORATION
(Exact name of registrant as specified in its charter)

OHIO	38-1054690
(State of Incorporation)	(IRS Employer Identification No.)
2400 East Ganson St., Jackson, Michigan	49202
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (517) 787-8600

Securities registered pursuant to Section 12(b) of the Act:

(Title of each class)	(Name of each exchange on which registered)
COMMON STOCK, $1.25 PAR VALUE	NEW YORK STOCK EXCHANGE

Securities registered pursuant to Section 12(g) of the Act: NONE

Indicate by checkmark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes X No _____

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [ ]

The aggregate market value of voting stock held by non-affiliates of the registrant as of September 1, 1994 was $23,712,000.

The number of shares of common stock outstanding as of September 1, 1994 were 7,811,370.

Documents incorporated in part by reference:

1994 Annual Report to Shareowners - Parts I, II, IV
Proxy Statement for October 26, 1994 Meeting - Part III

PART I

Item 1. Business

Except as otherwise indicated, the term "Company" refers to Sparton Corporation, and the term "Sparton" refers to Sparton Corporation and its consolidated subsidiaries.

The Company has been in continuous existence since 1900. It was last reorganized in 1919 as an Ohio corporation. Sparton operates in two principal business segments. The major products of both industry segments and selected data are included in the Annual Report in Note 10, Segment Information, of the Notes to Consolidated Financial Statements on pages 17 and 18 and are incorporated herein by reference. Additional information about each segment is as follows.

Electronics

Historically, the electronics segment's principal product has been sonobuoys, which are anti-submarine warfare devices used by the U.S. Navy and other free world military organizations. According to publicly available government procurement data, Sparton has historically been one of two leading manufacturers of sonobuoys in the United States. It competes with a limited number of qualified manufacturers for sonobuoy procurements by the U.S. and selected foreign governments. Contracts are obtained through competitive bid or directed procurement. U.S. government contracts normally include termination provisions which allow the government to cancel contracts at its election. Termination clauses generally provide, however, a mechanism for the contractor to recoup some or all of the costs previously incurred. U.S. government contracts also generally include provisions for progress billings

based upon contract costs incurred, which reduce the amount of working capital otherwise required to perform such contracts.

The electronics segment also designs and/or manufactures a variety of electronic and electromechanical products for the telecommunications, electronics and other industries. Competitive factors in these markets include technical ability, customer service and price. A majority of the proprietary products, principally transducers and monitoring systems, are sold to the telecommunications industry. The primary industries of the Company's contract manufacturing business include telecommunications and health care. In the general contract manufacturing business, it must compete vigorously with a number of manufacturers. Commercial electronics products are distributed through a direct sales force and through a small group of distributors.

At June 30, 1994 and June 30, 1993, the aggregate backlog was approximately $90 million and $93 million, respectively. A majority of the 1994 backlog is expected to be realized in fiscal 1995.

The Company's sales of sonobuoys, principally to the U.S. Navy, have declined dramatically from $151,024,000 in 1992 to $47,645,000 in 1994, reflecting overall changes in the U.S. Navy's budget. Based on current information, it is expected that the U.S. Navy's budget for production sonobuoys for the foreseeable future will continue at reduced levels. The Navy is funding development efforts to improve the detection capability of current systems and to implement new detection systems for planned deliveries starting in 1996. The Company is currently developing certain of these new systems both individually and jointly with a major competitor. At the present time, the Company is uncertain as to the market potential of these new

systems, and if it would be the supplier of choice if these systems go to production. The international market for sonobuoys has also been adversely impacted by reduced budgets. As most foreign governments use sonobuoys for training and do not maintain the same high level of reserves of the U.S. Navy, the reductions in the international market presently experienced and expected in the future should be less severe. In response to this changing environment, the Company has previously consolidated certain of its manufacturing facilities, continues to reduce costs within the defense-oriented operations and is developing commercial opportunities which will utilize its existing technological and manufacturing capabilities. In addition, the Company is focusing on expanding sales in its automotive and other commercial electronics markets on a worldwide basis. Management, however, cannot predict the level of U.S. sonobuoy awards it will receive over the next several years, the growth in sales volume of new commercial business intended to replace these declining defense revenues, nor the resulting financial impact of these changes on the Company's operations. As with any change of this magnitude, unexpected delays in new program start-ups and their associated cost impacts frequently occur. Investors should be aware of this uncertainty and make their own independent evaluation.

Automotive and Industrial Products

The automotive and industrial products segment produces a variety of automatic floors shifters, horns, metal airbag components, spare tire carriers, and stampings and assemblies for manufacturers of automobiles, trucks and other industrial and marine equipment. Competition in these markets is generally based upon product quality, customer service and price. Based on information provided by automobile manufacturers, the Company is believed to be one of the largest independent

manufacturers of automatic floor shifters and horns in the United States. It is also one of numerous suppliers of automotive stampings. Sales are generally obtained on a competitive basis through either a direct sales force or manufacturers' representatives.

Other Information

Sparton's two principal business markets are dependent on a limited number of customers and the loss of any one of them could have a materially adverse financial effect. Materials for the manufacturing segments are obtained from a variety of sources. While Sparton holds a number of patents relating to its products and processes, none are considered of material importance to any of the individual business segments. Neither of the business segments have encountered or expect to encounter significant problems in obtaining sufficient raw materials. While sales fluctuate during the year, such fluctuations have not historically reflected a definitive seasonal pattern or tendency.

Research and development expenditures amounted to approximately $19,621,000 in 1994, $18,511,000 in 1993 and $24,556,000 in 1992 (approximately $16,197,000, $15,155,000 and $21,885,000 of these expenditures, respectively, were customer funded), primarily in the electronics segment. There are approximately 260 employees involved in research and development. Few, if any, devote all of their time to such efforts.

Sparton employed approximately 2,300 people at June 30, 1994. The Company has one operating division and eight wholly-owned subsidiaries.

Item 2. Properties

The table below lists the principal properties of Sparton, by segment. All are owned except as noted. There are manufacturing and/or office facilities at each location. Sparton believes these facilities are suitable for its operations, except as noted.

Electronics:
- Jackson, Michigan
- DeLeon Springs, Florida (2 plants)
- Brooksville, Florida
- London, Ontario
- Albuquerque, New Mexico
- Rio Rancho, New Mexico
- Deming, New Mexico (lease/purchase, see below)

Automotive and industrial products:
- Flora, Illinois
- Grayville, Illinois (2 plants, one of which is leased)
- Lake Odessa, Michigan
- Kentwood, Michigan (leased)
- Gladwin, Michigan
- Grand Haven, Michigan (in part leased)
- White Cloud, Michigan (in part leased)
- Spring Lake, Michigan
- Brownstown, Indiana
- Hartford City, Indiana

The Company leases the Deming, New Mexico facility under terms of a capital lease and has exercised an option to purchase the facility at the end of the lease term which expires on July 1, 1997. Future minimum payments under this capital lease at June 30, 1994 are as follows: 1995 - $89,000, 1996 - $85,000, 1997 - $80,000, and $75,000 in 1998. Interest of $29,000, payable over the remaining lease term at 6 1/8% per annum, was deducted in arriving at the obligation at June 30, 1994. In July 1991, the Company leased an additional production facility in Albuquerque, New Mexico under a four-year agreement. This facility is presently vacant and available for sublease.

Both the White Cloud, Michigan and Grand Haven, Michigan facilities are occupied under lease agreements that allow termination by either party upon ninety (90) day notice. These facilities are owned by John J. Smith and Lawson K. Smith, Chief Executive Officer, and Vice President-Secretary, respectively, of Sparton Corporation. The agreements, the result of arms-length type negotiations, grant the Company the option to acquire the properties during the lease term for $252,400 and $223,200, respectively.

The adminitrative facility in Kentwood, Michigan is presently leased under an agreement that expires in October, 1997. The Company officially closed the Gladwin plant of Sparton Engineered Products, Inc.-Lake Odessa Group in August 1990 with this property subsequently offered for sale. The Gladwin facility was placed back in service in October 1993 and is no longer actively offered for sale.

Item 3. Legal Proceedings

Various litigation is pending against the Company, in many cases involving ordinary and routine claims incidental to the business of the Company and in others presenting allegations that are non-routine. The Company and its subsidiaries are also involved in certain compliance issues with the United States Environmental Protection Agency and various state agencies, including being named as a potentially responsible party at several sites. Potentially responsible parties can be held jointly and severally liable for the cleanup costs at any specific site. The Company's past experience, however, has indicated that when it has contributed only deminimus amounts of material or waste to a specific site, its ultimate share of any cleanup costs has been very small. Based upon available information, the Company

believes it has contributed only deminimus amounts to those sites in which it is currently viewed a potentially responsible party.

One of the Company's facilities located in New Mexico has been the subject of ongoing investigations by the U.S. Environmental Protection Agency (EPA). To date, the work has involved remedial investigations, negotiation and execution of an administrative order on consent with the EPA, establishment of on-site and off-site monitoring systems, and the installation of some groundwater recovery and air stripping equipment. The remedial investigation has been completed and approved. The Company has prepared a corrective action plan based upon the results of its investigation. This action plan has not yet been approved. In addition, the Company is involved in related issues with State of New Mexico environmental agencies and a nearby landowner. The Company has charged to expense approximately $2,700,000, net of $3,000,000 of insurance recoveries received, since the contamination problem was first identified in the early 1980's. Efforts to resolve these matters will likely continue for a number of years.

The ultimate legal and financial liability of the Company in respect to the above matters cannot be estimated with any certainty. Management of the Company believes, however, based on its examination of such matters, experience to date and discussions with counsel and other consultants, that such ultimate liability (including insurance recoveries, where applicable) should not be material in relation to the Company's consolidated financial statements.

Item 4. Submission of Matters to a Vote of Security Holders

No matters were submitted to a vote of the security holders during the last quarter of the period covered by this report.

Executive Officers

Information with respect to executive officers of the Registrant is set forth below. The positions noted have been held for at least five years, except where noted.

	Age
John J. Smith, Chairman of the Board, Chief Executive Officer and Director.	82
David W. Hockenbrocht, President, Chief Operating Officer and Director.	59
Lawson K. Smith, Vice President, Secretary and Director; President of Sparton Engineered Products, Inc.-Lake Odessa Group.	79
Richard L. Langley, Vice President-Treasurer since May 1990. Prior to that date, Mr. Langley was employed by the Company as Assistant Treasurer.	49
Richard H. Nichols, Vice President and Assistant Secretary since July 1994. Prior to that date, Mr. Nichols was also Vice President and General Manager of Sparton Electronics.	64
Mark W. Pickard, Vice President and General Manager of Sparton of Canada, Ltd. since October 1992. Prior to that date, Mr. Pickard was employed by the Company in several capacities, principally within the financial management functions.	41

	Age
Douglas E. Johnson, Vice President and General Manager of Sparton Electronics since July 1994. Prior to that date, Mr. Johnson was the Assistant General Manager of Sparton Electronics and prior to August 1992, was employed by the Company in several capacities, principally within engineering and manufacturing management.	46
Gary A. White, Vice President and General Manager of Sparton Engineered Products, Inc.-Lake Odessa Group since August 1991. Prior to that date , Mr. White was employed by the Company as acting General Manager of Sparton Engineered Products, Inc.-KPI Group and prior to January 1991, as Director of Manufacturing.	43
Jerry R. Gause, Vice President and General Manager of Sparton Engineered Products, Inc.-KPI Group since July 1991. Employed as Vice President and General Manager of Sparton Engineered Products, Inc.-Lake Odessa Group since November 1989 and before that as Director of Marketing since April 1989.	53
William C. Mirgain, Vice President and General Manager of Sparton Engineered Products, Inc.-Flora Group since July 1994. Prior to that date, Mr. Mirgain was employed as Managing Director of DME Europe since August 1991 and prior to that date, was employed as Director of International Manufacturing for FMC Corporation.	51
Richard D. Mico, Vice President and General Manager of Sparton Technology, Inc.	64

R. Jan Appel, Vice President, General Counsel and Assistant Secretary. 48

Joseph S. Lerczak, Assistant Treasurer since June 1990 and Assistant to the Treasurer since January 1990. Prior to that date, he was employed as Controller of SMI PatientCare, Inc. 37

John J. Smith and Lawson K. Smith are brothers. There are no other family relationships between the persons named above. John J. Smith is employed as Chief Executive Officer under the terms of an employment agreement through June 30, 1994. All other officers are elected annually and serve at the discretion of the Board of Directors.

PART II

Item 5. Market for the Registrant's Common Stock and Related Security Holder Matters

Information with respect to the market for the Company's stock, including stock prices, stock exchange and number of shareowners, and quarterly dividends for the two year period ended June 30, 1994, is included under "Financial Highlights" on page 1 and "Management's Discussion and Analysis of Financial Condition and Results of Operations" on page 20 of the Annual Report and is incorporated herein by reference.

Item 6. Selected Financial Data

The "Selected Financial Data" on page 19 of the Annual Report is incorporated herein by reference.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

"Management's Discussion and Analysis of Financial Condition and Results of Operations" on pages 20-22 of the Annual Report is incorporated herein by reference.

Item 8. Financial Statements and Supplementary Data

The consolidated financial statements and "Report of Independent Auditors" are included in the Annual Report on pages 8-18 and 12, respectively, and are incorporated herein by reference.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

PART III

Item 10. Directors and Executive Officers of the Registrant

Information with respect to directors is included in the Proxy Statement under "Election of Directors" and is incorporated herein by reference. Information concerning the executive officers is included in Part I on pages 9-11.

Item 11. Executive Compensation

Information concerning executive compensation is included under "Compensation of Executive Officers and Directors" in the Proxy Statement and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management

Information on management and certain other beneficial ownership of the Company's common stock is included under "Outstanding Shares and Voting" in the Proxy Statement and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions

Information as to certain relationships and related transactions is included under "Certain Relationships and Transactions" in the Proxy Statement and is incorporated herein by reference.

PART IV

Item 14. Exhibits, Financial Statement Schedules, and Reports on Form 8-K

The following financial statements and schedules are filed as part of this report:

Index to Financial Statements and Schedules Covered by Report of Independent Auditors:

	Page Reference	
	Form 10-K	Annual Report to Shareowners
Data incorporated by reference from the 1994 Annual Report to Shareowners of Sparton Corporation:		
Consolidated balance sheets at June 30, 1994 and 1993		8 - 9
For the years ended June 30, 1994, 1993, and 1992:		
Consolidated statements of operations		10
Consolidated statements of cash flows		11
Consolidated statements of shareowners' equity		12
Notes to consolidated financial statements		13 - 18
Financial statement schedules for the years ended June 30, 1994, 1993 and 1992:		
VIII - Valuation and qualifying accounts	S-1	
IX - Short-term borrowings	S-2	
X - Supplementary income statement information	S-3	

All other prescribed schedules have been omitted since the required information is not present or is not present in amounts sufficient to require submission of the schedule, or because the information required is included in the consolidated financial statements or the notes thereto.

001414

Exhibit Index

3 and 4 Articles of Incorporation of the Registrant were filed with Form 10-K for the year ended June 30, 1981 and an amendment thereto was filed with Form 10-Q for the three-month period ended September 30, 1983, and are incorporated herein by reference.

By-laws of the Registrant were filed with Form 10-K for the year ended June 30, 1981, and are incorporated herein by reference.

Code of Regulations of the Registrant were filed with Form 10-K for the year ended June 30, 1981 and an amendment thereto was filed with Form 10-Q for the three-month period ended September 30, 1982, and are incorporated herein by reference.

10 The employment agreement with John J. Smith was filed with Form 10-K for the year ended June 30, 1981 and subsequent amendments thereto were filed with Form 10-K for the year ended June 30, 1985, with Form 10-Q for the three-month period ended September 30, 1988, and with Form 10-Q for the three month period ended September 30, 1991 and are incorporated herein by reference.

13 1994 Annual Report to Shareowners (filed herewith and attached). With the exception of the pages of the Annual Report specifically incorporated herein by reference, the Annual Report is not deemed to be filed as part of this report on Form 10-K.

22 Subsidiaries (filed herewith and attached).

23 Consent of independent auditors (filed herewith and attached).

27 Submitted to the Securities and Exchange Commission for its information.

Reports on Form 8-K Filed in the Fourth Quarter of Fiscal 1994

No reports on Form 8-K were required to be filed by the Registrant during the last quarter of the period covered by this report.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

SPARTON CORPORATION

Date: September 26, 1994

By /s/ Richard L. Langley
Richard L. Langley, Vice President-Treasurer (Principal Accounting and Financial Officer)

001417

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature and Title	Date
By /s/ John J. Smith John J. Smith, Chairman of the Board of Directors and Chief Executive Officer	August 26, 1994
By /s/ David W. Hockenbrocht David W. Hockenbrocht, President, Chief Operating Officer and Director	August 26, 1994
By /s/ Lawson K. Smith Lawson K. Smith, Vice President, Secretary and Director	August 26, 1994
By /s/ James N. DeBoer James N. DeBoer, Director	August 26, 1994
By /s/ Robert J. Kirk Robert J. Kirk, Director	August 26, 1994
By /s/ Marshall V. Noecker Marshall V. Noecker, Director	August 26, 1994
By /s/ Blair H. Thompson Blair H. Thompson, Director	August 26, 1994

SPARTON CORPORATION AND SUBSIDIARIES
SCHEDULE VIII - VALUATION AND QUALIFYING ACCOUNTS
Years Ended June 30, 1994, 1993, 1992

Description	Balance Beginning of Year	Additions Charged to Income	Additions Charged to Other Accounts	Deductions From (Recoveries to) Reserves	Balance at End of Year
Allowance for doubtful accounts:					
1994	$339,000	$607,000	$1,000	$ 844,000	$103,000
1993	397,000	70,000	--	128,000	339,000
1992	281,000	32,000	--	(84,000)	397,000

001419

SPARTON CORPORATION AND SUBSIDIARIES
SCHEDULE IX - SHORT-TERM BORROWINGS
Years Ended June 30, 1994, 1993 and 1992

	Balance at End of Year	Weighted Average Rate	Maximum Amount Outstanding at Any Month-end during the Year	Average Amount Outstanding during the Year	Weighted Average Interest Rate during the Year[1]
Notes payable to banks:					
1994	$20,615,000	5.5%	$21,748,000	$13,719,000	4.7%
1993	$ 3,880,000	4.6%	$15,620,000	$11,696,000	4.6%
1992	$ 8,959,000	5.3%	$21,471,000	$15,660,000	6.5%

[1]Actual interest expense divided by average short-term borrowings.

001420

SPARTON CORPORATION AND SUBSIDIARIES
SCHEDULE X - SUPPLEMENTARY INCOME STATEMENT INFORMATION
Years Ended June 30, 1994, 1993 and 1992

	Charged to Costs and Expenses		
	1994	1993	1992
Maintenance and repairs	$3,059,000	$3,443,000	$4,171,000

001421

EXHIBIT 22

SPARTON CORPORATION

The Registrant, Sparton Corporation, an Ohio Corporation, had the following subsidiaries at June 30, 1994:

Name	Incorporated In
Domestic:	
Sparton Engineered Products, Inc.-KPI Group	Michigan
Sparton Engineered Products, Inc.-KPI Group	Indiana
Sparton Engineered Products, Inc.-Lake Odessa Group	Michigan
Sparton Engineered Products, Inc.-Flora Group	Illinois
Sparton Electronics Florida, Inc.	Florida
Sparton Technology, Inc.	New Mexico
Foreign:	
Sparton of Canada, Limited	Ontario, Canada
Sparton Electronics International Sales, Ltd.	Barbados

EXHIBIT 23

SPARTON CORPORATION

CONSENT OF INDEPENDENT AUDITORS

We consent to the incorporation by reference in this Annual Report (Form 10-K) of Sparton Corporation of our report dated August 19, 1994, included in the 1994 Annual Report to Shareowners of Sparton Corporation and subsidiaries.

Our audits also included the financial statement schedules of Sparton Corporation and subsidiaries listed in item 14. These schedules are the responsibility of the Company's management. Our responsibility is to express an opinion based on our audits. In our opinion, the financial statement schedules referred to above, when considered in relation to the basic financial statements taken as a whole, present fairly in all material respects the information set forth therein.

We also consent to the incorporation by reference in the Registration Statement (Form S-8 No. 33-43703) pertaining to the Sparton Corporation 1989 Stock Option Plan of our report dated August 19, 1994, with respect to the consolidated financial statements and schedules of Sparton Corporation and subsidiaries included and/or incorporated by reference in this Annual Report (Form 10-K) for the year ended June 30, 1994.

/s/ ERNST & YOUNG LLP

Toledo, Ohio
September 26, 1994

001423