
**WORK PLAN FOR THE
OFF-SITE CONTAINMENT SYSTEM**

Prepared By:



S. S. PAPADOPULOS & ASSOCIATES, INC.
Environmental & Water-Resource Consultants

October 23, 1998

7944 Wisconsin Avenue, Bethesda, Maryland 20814-3620 • (301) 718-8900

WORK PLAN FOR THE OFF-SITE CONTAINMENT SYSTEM

Prepared For:

**SPARTON TECHNOLOGY, INC.
Coors Road Facility
Albuquerque, New Mexico**

Prepared By:



**S. S. PAPADOPULOS & ASSOCIATES, INC.
Environmental & Water-Resource Consultants**

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REPORT

WORK PLAN FOR THE OFF-SITE CONTAINMENT SYSTEM

1.0 INTRODUCTION

Sparton Technology, Inc. (Sparton) has agreed to install, test and operate an off-site containment well near the leading edge of an off-site plume of solvents thought to be associated with past operations at its Coors Road Facility in Albuquerque, New Mexico. A monitoring well for confirming the vertical extent of the plume (MW-71), the containment well, and two observation wells that will provide data during the testing of the containment well have already been installed in compliance with the terms of the United States Department of Justice "Work Plan for the Installation of Additional Wells and Conducting a Pump Test in the Area of the Leading Edge of the Contaminant Plume Originating from the Sparton Technology, Inc. Coors Road Facility", effective July 7, 1998 (DOJ Work Plan). The testing of the well will also comply with the terms of the DOJ Work Plan. The tests will consist of a step-drawdown test, a two- to three-day constant rate pumping test, and a 30-day containment feasibility test. At the completion of the containment feasibility test, Sparton will continue operating the well at a rate that will contain the plume and prevent its further migration. The operating pumping rate for this off-site containment well will be determined from the results of the tests. If the well is not capable of producing the pumping rate required to achieve containment, additional extraction wells may be installed. The containment well, and any additional extraction wells that may be installed to achieve containment, will constitute the off-site containment system for the plume. Discharge from the containment system is addressed in a Ground Water

Discharge Plan approved by the New Mexico Environment Department, a copy of which is attached (See Appendix).

The purpose of this Work Plan is to describe the procedures that will be used to evaluate the performance of the off-site containment system, that is, to assess whether hydraulic capture of the off-site plume has been achieved. This evaluation will be first performed at the completion of the testing program based on data to be collected in compliance with the DOJ Work Plan for the installation and testing of the containment well. Additional evaluations will be performed during the operation of the system based on data collected in compliance with the Ground Water Monitoring Program Plan (Monitoring Plan), that should be finalized this month (October, 1998). Issues related to the installation of the air stripper and infiltration gallery components of the off-site containment system, and the development of an Operation and Maintenance Plan are also addressed in this Work Plan.

2.0 DATA AND MONITORING REQUIREMENTS

The information needed to select the operating pumping rate for the off-site containment system and to evaluate its performance, that is, to determine whether the system provides the desired hydraulic capture of the plume, is:

1. The transmissivity of the aquifer near the leading edge of the plume;
2. The prevailing natural hydraulic gradient in the off-site area;
3. The extent of the contaminant plume;
4. The pumping rate of the containment well(s); and

5. Water-levels in existing monitoring wells, the containment well, and the two observation wells during the operation of the containment system.
6. Water-quality data collected from monitoring wells during the operation of the system.

The objective of any data collection or monitoring activities associated with the containment system performance evaluation is to provide the above listed information.

The hydrogeologic tests that will be conducted as described in the DOJ Work Plan will provide data for determining the transmissivity of the aquifer near the leading edge of the plume.

The prevailing natural hydraulic gradient in the off-site area will be determined from water-level data collected from off-site wells during the last several years, as well as additional water-level data that will be collected, in compliance with the DOJ Work Plan and the Monitoring Plan, prior to the 30-day containment-feasibility test.

The extent of the plume will be confirmed from water quality data collected from existing monitoring wells. Data collected during the last several years under the ongoing monitoring program and those to be collected under the DOJ Work Plan and the Monitoring Plan, prior to the containment-feasibility test, will be used for this purpose. Water-quality data collected from the monitoring wells during the operation of the containment system will be used for the assessment of the performance of the containment system.

Pumping-rate and water-level data for the first evaluation of the containment system performance will be collected during the conduct of the 30-day containment-feasibility test in accordance with the DOJ Work Plan. Pumping-rate and water-level data for evaluations to be

performed after the beginning of the continuous operation of the containment system will be collected in accordance with the Monitoring Plan.

3.0 EVALUATION OF CONTAINMENT SYSTEM PERFORMANCE

. The tasks that will be performed to select the operating pumping rate for the off-site containment system and to evaluate the performance of the system will be:

- Task 1 - Determine transmissivity of the aquifer;
- Task 2 - Determine prevailing off-site hydraulic gradient;
- Task 3 - Confirm extent of the contaminant plume;
- Task 4 - Determine pumping rate needed to achieve containment;
- Task 5- Evaluate capture zone of the containment well using data from the containment-feasibility test;
- Task 5a - Adjust pumping rate, if necessary, and re-evaluate capture zone after six months of operation; prepare report on results of evaluation; and
- Task 6 - Evaluate capture zone after each year of continuous operation using data collected during that year, and present results in Annual Reports.

A brief description of each of these tasks is presented below; a schedule for their performance is given in Figure 1.

3.1 Task 1 - Transmissivity of the Aquifer

The transmissivity of the aquifer near the leading edge of the plume will be determined from the analysis of data from the two- to three-day constant rate pumping test that will be conducted

using the containment well. An Interim Report on Off-Site Containment Well Pumping Rate (Interim Report), presenting the results of this analysis, will be prepared within two weeks of the end of the test and prior to the beginning of the 30-day containment-feasibility test.

3.2 Task 2 - Off-Site Hydraulic Gradient

Available water-level data from off-site monitoring wells indicate that the prevailing off-site hydraulic gradient is 0.0025 foot per foot to the northwest. Additional evaluations will be made, including data to be collected prior and during the testing program, to determine the range of the magnitude and direction of the hydraulic gradient. Kriging of the water-level data and/or regression analyses will be used for these evaluations. The results of the evaluations will be included in the Interim Report that will be prepared prior to the beginning of the containment-feasibility test (see Task 1).

3.3 Task 3 - Extent of the Plume

The depth of the containment well needed to capture the vertical extent of the plume has been determined from water-quality data available from deep monitoring wells including monitoring well MW-71 which was recently installed by Sparton under the terms of the DOJ Work Plan.

The lateral extent of the plume to be captured by the off-site containment system will be confirmed prior to the containment-feasibility test using the most recent water-quality data available at that time. Concentrations of the contaminants detected in monitoring wells will be used to develop isoconcentration maps for each of the detected contaminants. Kriging of the logarithms of measured concentrations, and information on the rate and direction of ground water flow and on the

past history of contamination in the off-site area will be used in developing these maps. The extent of the plume to be captured will be defined by the envelop of the isoconcentration contours corresponding to the more stringent of the Maximum Contaminant Levels (MCLs) for drinking water established under the Safe Drinking Water Act or the maximum allowable contaminant concentrations in ground water set by the State of New Mexico Water Quality Control Commission. The results of this evaluation will also be included in the Interim Report that will be prepared prior to the beginning of the 30-day containment-feasibility test (see Task 1).

3.4 Task 4 - Required Pumping Rate

The transmissivity determined from the two- to three-day constant rate pumping test (Task 1) will be used in conjunction with the prevailing hydraulic gradient in the off-site areas (Task 2) and the lateral extent of the plume (Task 3) to calculate the pumping rate that should provide hydraulic containment of the plume. The results of this calculation will be included in the Interim Report that will be prepared prior to the beginning of the 30-day containment-feasibility test (see Task 1). The 30-day containment-feasibility test will be conducted at the calculated pumping rate. This pumping rate will also be used to operate the containment well on a continuous basis, unless otherwise indicated by the results of the containment-feasibility test, as evaluated in Task 5.

3.5 Task 5 - Capture Zone Evaluation

Confirmation of the performance of the containment well, that is, the determination of whether the well is indeed containing the plume, will be based on water-level data that will be collected from observation and monitoring wells during the conduct of the containment-feasibility

test. The first step in this evaluation would be an analysis of the data to determine whether the transmissivity from this longer test is consistent with that determined from the constant rate pumping test; any adjustments to the transmissivity that may result from this analysis will be considered in the evaluation of the system performance.

The next step of the evaluation would be to determine the capture zone of the well. Water-level data collected near or at the end of the feasibility test, that is, after the water levels have stabilized, will be contoured to prepare a water-level map which is consistent with the pumping rate of the well and the transmissivity of the aquifer. This water-level map will then be used to calculate groundwater flow paths and determine the capture zone of the well. A particle-tracking routine, such as PATH3D¹, or equivalent, will be used for this purpose. The capture zone determined by the approach described above will then be compared to the extent of the plume, as defined in Task 3, to evaluate whether the well provides containment of the plume. In addition, water-quality data from monitoring wells will be assessed to determine whether they provide useful information in evaluating the effectiveness of the containment system. If this evaluation indicates that the capture zone is too small or too large in comparison to the extent of the plume, adjustments will be made to the pumping rate of the well to achieve containment or to avoid excessive pumping of uncontaminated water. Similarly, if there are any questions as to the effectiveness of the containment system in providing full capture of the plume, an additional monitoring well may be installed downgradient of the leading edge of the plume and beyond the limit of the hydraulically determined capture zone of the containment system. The results of this evaluation, including any proposed adjustments to the

¹ Zheng, Chunmiao, 1992, *PATH3D 3.2, A Ground-Water Path and Travel-Time Simulator (Third Revision)*: S. S. Papadopoulos & Associates, Inc., Bethesda, Maryland.

pumping rate and/or the number of extraction wells, and recommendations pertaining to the installation of an additional monitoring well will be presented in the Groundwater Investigation and Off-Site Containment System Design Report (Groundwater Investigation Report) that will be prepared within four weeks after the completion of the containment-feasibility test, as required by the DOJ Work Plan.

3.5.1 Task 5a - Re-evaluation of the Capture Zone

If the evaluation of the capture zone performed in Task 5 indicates that an adjustment to the pumping rate of the containment well is necessary, this adjusted rate will be used for the continuous operation of the well and a re-evaluation of the performance of the containment system will be performed after the first six months of system operation. This re-evaluation will be based on water-level and pumping-rate data collected during these six months and will use the approach described in Task 5. The results of the re-evaluation will be reported in a report to be prepared within one month after the completion of the initial six-month operation period.

3.6 Task 6 - Annual Performance Evaluations

During the continuous operation of the containment well, annual evaluations of the capture zone will be made using an approach similar to that described in Task 5 and using water-level, pumping rate, and water-quality data collected during each year in compliance with the Monitoring Plan; adjustments to the pumping rate will be made, if necessary. The results of these evaluations will be presented in detailed Annual Reports prepared within four months after the anniversary date of the startup of the continuous system operation. In addition to the data and evaluations related to

the performance of the containment system, these Annual Reports will include all other site-related data collected during the year, including interpretations and evaluations of these data, and a discussion of site operations during the year.

4.0 INSTALLATION OF AIR STRIPPER AND INFILTRATION GALLERY

This section of the Work Plan summarizes documents that will be submitted by Sparton to install the air stripper and infiltration gallery for the off-site containment system.

4.1 Design Plans and Specifications

Site plans, architectural plans (where appropriate) for the air stripper and the infiltration gallery, and specifications for equipment and materials as needed for the construction of these facilities by licensed contractors, will be submitted for approval one week after the Interim Report. Appendices will include design data (tabulations of significant data used in the design effort), equations (sources for major equations used in the design process will be listed and described), sample calculations, and laboratory or field test results. The United States Environmental Protection Agency (USEPA) shall within seven days of submission of plans and specifications for an air stripper and an infiltration gallery, that have a capacity to handle the pumping rate identified in the Interim Report, approve such plans and specifications subject to issuance of all permits necessary for such work. Construction of the air stripper and the infiltration gallery will commence upon USEPA approval of the design plan and specifications.

4.2 Construction Work Plan

The Construction Work Plan will be submitted at the same time as the Design Plans and Specifications, that is, one week after the Interim Report. This Work Plan will identify the Project Manager, present the Project Schedule, and discuss construction contingency procedures. All construction work will be performed by licensed contractors.

4.3 Health and Safety Plan

Construction of the air stripper and infiltration gallery will not involve potential exposure to hazardous substances; therefore, a Health and Safety Plan is not required for this work.

4.4 Construction Completion Report

Upon completion of construction, Sparton will provide a certification from a registered professional engineer that the system has been constructed in substantial compliance with the design plans and specifications. This Construction Completion Report will be submitted three weeks after the completion of construction; it is anticipated that construction will be completed at the same time as the submission of the Groundwater Investigation Report.

5.0 OPERATION AND MAINTENANCE PLAN

Sparton will prepare an Operation and Maintenance Plan (O&M Plan) which will describe operation and maintenance management (including a thirty-day notice of any change by Sparton of personnel assigned to this matter), a complete set of "as built" drawings, normal operation and maintenance procedures, replacement schedules, waste management practices, and contingency plans

in the event of breakdowns or operational failures. A preliminary O&M Plan will be submitted within five weeks after the beginning of treated water discharge into the infiltration gallery. The final O&M Plan will be submitted one year later.

A revised Health and Safety Plan will also be submitted with the preliminary O&M Plan to address all activities involving potential exposure to hazardous substances during the operation of the systems, as required by OSHA 29CFR1910.120.

FIGURES

APPENDIX

APPENDIX
GROUND WATER DISCHARGE PLAN

METRIC
Corporation ENVIRONMENTAL ENGINEERING AND SCIENCE

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

January 22, 1998

Marcy Leavitt, Bureau Chief
Attn: Victoria Maranville
Groundwater Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Dear Ms. Leavitt:

On behalf of Sparton Technology, we wish to amend groundwater discharge permit application DP-1184, which was submitted on December 24, 1997, to include a third alternate discharge point location. The Alternate 3 location is a City of Albuquerque storm water detention pond site located south of the containment well site on the south side of Congress Ave. (see FIGURE 1). The proposed infiltration gallery would be constructed beneath the storm water pond.

Alternate 3 is located in T.11N., R.3E., Sec. 7, as are Alternates 1 and 2. The latitude and longitude to the nearest minute at Alternate 3 is Lat. 35" 12' / Long. 106" 40', as they are for Alternates 1 and 2.

The depth to groundwater at Alternate 3 location is estimated to be 107 ft. The TDS of the groundwater at Alternate 3 location is expected to be in the 400 to 500 mg/l range.

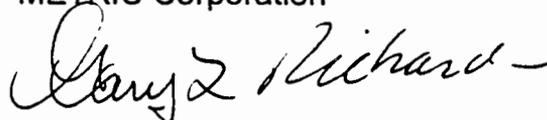
We will provide you with the following revised sections to the groundwater discharge permit application to reflect the addition of Alternate 3.

FIGURE 1	Site Location Map
ATTACHMENT B	Well Data in Discharge Site Vicinity
ATTACHMENT C	Discharge Site Soil Description
ATTACHMENT D	(Add Lithologic Sample Log for MW-62)
ATTACHMENT E	(Add Alternate 3 Infiltration Gallery Details)

If any additional information is needed or if you have any questions, please contact us.

Sincerely,

METRIC Corporation



Gary L. Richardson, P.E.
Executive Vice President

GLR/rkh

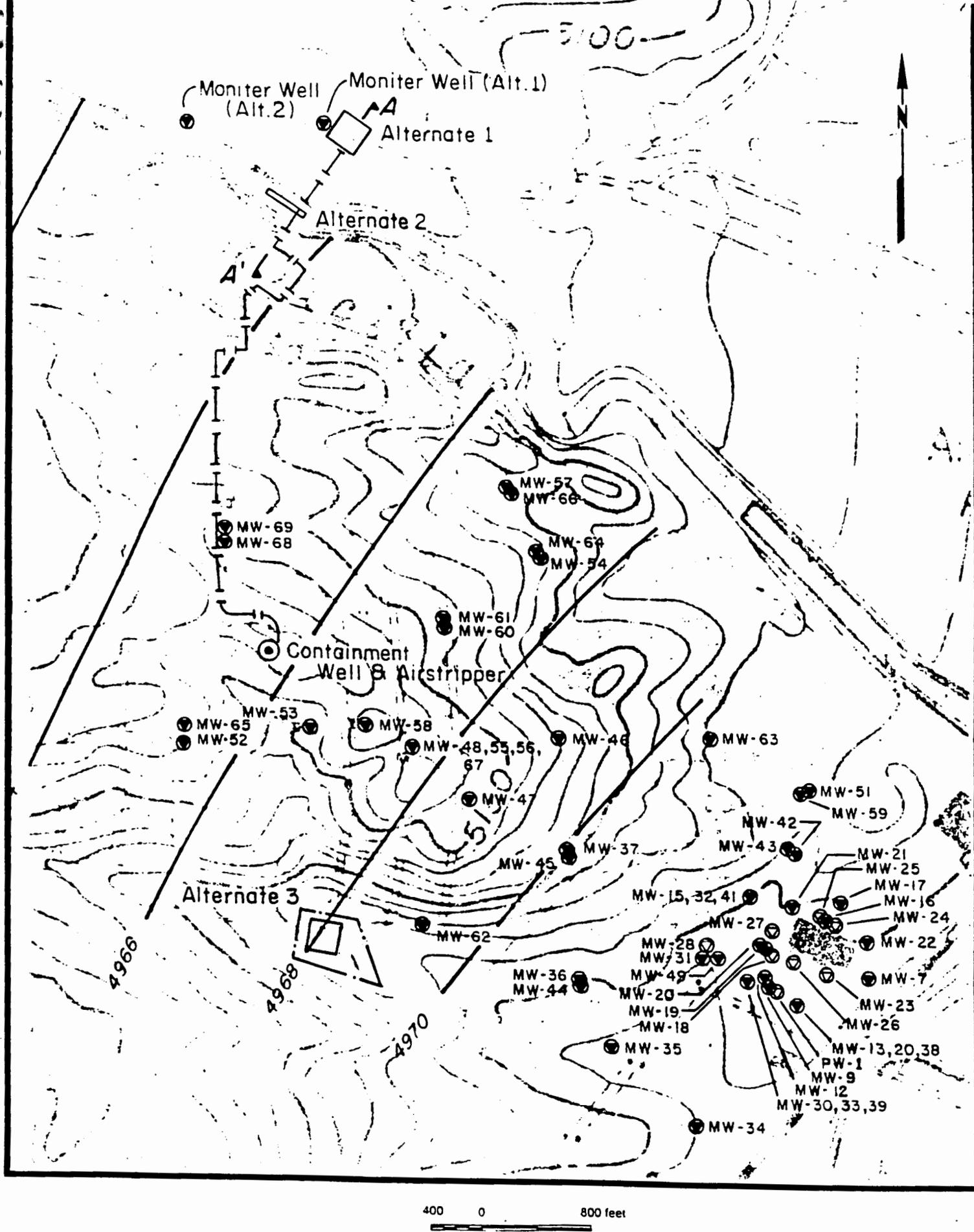


FIGURE 1

GROUNDWATER DISCHARGE LOCATION MAP

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 26, 1998

Ms. Marcy Leavitt, Bureau Chief
Attn: Victoria Maranville
Groundwater Quality Bureau
NM Environment Department
Runnels Building
1190 St. Francis Drive
Santa Fe, NM 87502

Re: DP-1184

Dear Ms. Leavitt:

On behalf of Sparton Technology, Inc., METRIC Corporation is submitting to you 3 original signed copies of the revised groundwater discharge permit application for the Coors Road Plant groundwater remediation facility, and one additional copy. Please accept the three originals for filing and return to me the additional copy, file marked, in the enclosed self-addressed and stamped envelope. The application has been revised to reflect the amendment requested January 22, 1998.

The amendment consists of the inclusion of a third alternate discharge point location beneath a stormwater detention pond site located on the south side of Congress Avenue.

If you have any questions, please contact us.

Sincerely,

METRIC Corporation



Gary L. Richardson, P.E.
Executive Vice President

GLR/rkh

METRIC
Corporation ENVIRONMENTAL ENGINEERING AND SCIENCE

February 27, 1998

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

Victoria Maranville
Groundwater Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Re: DP-1184 Status

Dear Ms. Maranville:

This memo is to confirm my understanding of the conversation we had on the telephone and in your office on February 26, 1998 and at the Sparton Coors Road facility on February 27, 1998 concerning the status of Sparton's Discharge Plan application (DP-1184).

- No additional application fee is necessary when the revised plan was submitted to you on February 26, 1998.
- The revised plan was accepted and date stamped on February 26, 1998.
- You expect to call me within 1 or 2 weeks with any questions or deficiencies you find in the revised plan.
- I will call you about once each week to inquire about the status of the plan.
- You will call us if you receive any public comments.
- You expressed concern that the monitoring well associated with Alternate 2 is located more than 400 feet from the infiltration gallery. I indicated the proposed location is about as close as we can locate the well based on the availability of well sites.

Please contact me if your understanding of our conversations varies from mine.

Sincerely,

METRIC Corporation



Gary L. Richardson, P.E.
Executive Vice President

GLR/rkh
cc: Jim Harris

March 13, 1998

Victoria Maranville
Groundwater Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Re: DP-1184 Status

Dear Ms. Maranville:

This memo is to confirm my understanding of the telephone conversation we had on March 11, 1998 concerning the status of Sparton's Discharge Plan application (DP-1184).

- You have not received any public comments as of March 11, 1998.
- You have reviewed our revised plan dated February 1998, and you plan to talk to Dale Doremus about your concerns.
- You plan to get a letter to us by the end of this week (March 13, 1998) concerning any request for additional information.
- You may want more or different monitoring wells associated with some of the alternate discharge ponds.
- The Environment Department (ED) will need for Sparton to provide a lease agreement on one of the discharge point locations before the administrative record will be considered to be complete. When the administrative record is complete, the ED has 60 days to approve the discharge plan.
- The public notice expires on March 24, 1998. You will call us on March 25, 1998 to tell us if any public comments have been received.

Victoria Maranville
March 13, 1998
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Please contact me if your understanding of our conversation varies from mine.

Sincerely,

METRIC Corporation

A handwritten signature in black ink, appearing to read "Gary Richardson", written in a cursive style.

Gary L. Richardson, P.E.
Executive Vice President

GLR/rkh

cc: Jim Harris

H. V. Spanton



State of New Mexico
ENVIRONMENT DEPARTMENT
Ground Water Quality Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2918 phone
(505) 827-2965 fax



GARY E. JOHNSON
GOVERNOR

MARK E. WEIDLER
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

March 16, 1998

Mr. Richard D. Mico, V.P. & General Manager
Sparton Technology, Inc.
4901 Rockaway Boulevard SE
Rio Rancho, New Mexico 87124-4469

RE: Request for Additional Information, DP-1184, Sparton Technology, Inc. - Coors Road Facility.

Dear Mr. Mico:

This letter is in response to the discharge plan application received for the Sparton Technology, Inc. - Coors Road Facility ground water remediation system located northwest of Albuquerque, in projected Section 7, T11N, R3E, Bernalillo County. The discharge plan application was originally received by the New Mexico Environment Department (NMED) Ground Water Quality Bureau (GWQB), Pollution Prevention Section (PPS) on December 24, 1997. Additional information needed to make the application administratively complete was received on January 22, 1998. The application was subsequently amended by Sparton Technology, Inc. (Sparton) to include an additional alternate discharge location and re-submitted to NMED on February 26, 1998. In accordance with Water Quality Control Commission (WQCC) Regulation 3108.B and 3108.C, the required public notice for the discharge plan was published on February 25, 1998. The public comment period will end on March 25, 1998. Prior to making a decision on the discharge plan application, additional technical information is required. The following information is required in order to proceed with the discharge plan process:

1. Three alternate discharge sites are proposed in the discharge plan application. However, signed copies of lease agreements between land owners and Sparton were not included for any of the sites. NMED recognizes that Sparton is in the process of negotiating with land owners prior to choosing a discharge location or locations. In order for the administrative record to be complete, Sparton must submit signed lease

DP-1184
Mr. Mico
March 16, 1998
Page 2

agreements to NMED before the discharge plan can be approved in accordance with WQCC Regulation 3109.B.

Please submit the signed lease agreement(s) to NMED as soon as possible.

2. The containment well is estimated to produce up to approximately 600 gallons per minute (gpm). Sparton requested a permit to discharge up to 600 gpm, however the infiltration gallery is designed for 200 gpm. If in order to contain the contaminant plume, Sparton needs to discharge greater than 200 gpm to the infiltration gallery, the infiltration gallery will need to be expanded.

Sparton may submit a design for a phased construction to accommodate flows up to 600 gpm at this time or, prior to discharging greater than 200 gpm to the infiltration gallery, Sparton will need to submit revised plans and specifications for NMED approval for the expansion of the infiltration basin.

3. One monitor well per alternate discharge location is proposed by Sparton. NMED will require more than one monitor well per discharge location to monitor ground water quality and determine gradient in the vicinity of the proposed infiltration gallery. In addition, the proposed monitor well associated with alternate 2 discharge location is located approximately 500 feet down gradient of the proposed infiltration gallery within the Calabacillas arroyo. NMED believes the proposed alternate 2 monitor well is located too far from the infiltration gallery for timely detection of potential ground water contamination from the infiltration gallery. The down gradient monitor well must be located within 50 feet of the proposed infiltration gallery to detect potential ground water contamination as a result of your discharge. Where applicable, NMED will consider use of other properly completed wells in the near vicinity of the discharge locations for the determination of ground water gradient.

In accordance with WQCC Regulation 3107.A, please submit a revised monitoring plan which includes the following: installation of three monitor wells for each discharge location, two monitor wells must be located down gradient of the proposed infiltration gallery, and one up gradient to monitor ground water quality in the vicinity of the proposed infiltration gallery. All monitor wells must be triangulated and surveyed to common permanent bench mark to the nearest one-hundredth of a foot; located within 50 feet of the proposed infiltration gallery; and installed in accordance with NMED Guidelines for Monitor Well Construction and Abandonment (copy enclosed). In addition, please include in your amended submittal a commitment and procedure for plugging, abandoning, and replacing the

monitor wells in the event that they are damaged by flooding in the arroyo.

4. The monitoring plan submitted to NMED proposes quarterly ground water monitoring for two years and semi-annually thereafter. Quarterly ground water monitoring for all monitor wells surrounding the infiltration basin will be required. Ground water monitor wells shall be sampled and analyzed prior to discharge and on a quarterly basis for the duration of the discharge permit for chlorinated solvents, and iron and manganese using EPA approved methods. NMED will consider a request for a reduction in monitoring after two (2) years for the following: 1) a reduction in monitoring frequency for up gradient wells, and 2) a reduction in monitoring frequency if no iron and manganese is detected above WQCC standards. A minimum of one down gradient well will need to be continued to be monitored quarterly for the duration of the discharge.

The monitoring plan proposes effluent monitoring from the air stripper on a daily basis for the first week following start-up, weekly for the first month, and monthly thereafter for chlorinated solvents. In addition to the chlorinated solvents, iron and manganese will be required to be monitored on a weekly basis for the first month of operation and a monthly basis thereafter.

In accordance with WQCC Regulation 3107.A, please incorporate the above-referenced changes into your revised monitoring plan.

5. Aqua-Mag is proposed to be added to the treated effluent prior to discharge to the infiltration gallery to prevent clogging and scale due to mineralization. Product information and concentrations of constituents to be injected are required for Aqua-Mag.

In accordance with 3106.B, please submit detailed product information for Aqua-Mag to NMED.

6. The contingency plan submitted for the alternate discharge locations does not address measures to be taken in the event that ground water is contaminated, the infiltration gallery fails, or there is surfacing of treated effluent in the vicinity of the proposed infiltration gallery as a result of Sparton's discharge.

In accordance with WQCC Regulation 3107.A, please submit a revised contingency plan to NMED outlining measures to be taken in the event that ground water in the vicinity of the infiltration gallery is contaminated as a result of your discharge and measures to be taken in the event there is surfacing effluent.

DP-1184
Mr. Mico
March 16, 1998
Page 4

7. The closure plan for the proposed infiltration gallery allows for the plugging and abandonment of the infiltration gallery in place. NMED believes that it is acceptable to plug and abandon Alternate 1 site in place (dedicated park site) and Alternate 3 (City of Albuquerque storm water site). However, NMED does not believe plugging and abandoning in place to be an appropriate method of closure for the arroyo site (Alternate 2). Equipment in the arroyo must be removed following post closure monitoring in order to prevent the disposal of refuse in a watercourse as required by WQCC Regulation 2201.

In accordance with WQCC Regulation 3107.A, please submit a revised closure plan for the Alternate 2 discharge location to include removal of the infiltration gallery equipment following the period of post closure monitoring and prior to final termination of the discharge plan.

The requested information is needed in order to complete the administrative record and proceed with the discharge plan process. Please respond to this request by April 13, 1998.

If you have any questions pertaining to the requested information, please feel free to contact me at (505) 827-0652. Please be advised that additional information may be needed in order for NMED to complete the technical review of the discharge plan application and prior to issuing approval of the proposed discharge plan.

Sincerely,



Victoria Maranville
Geologist
Ground Water Pollution Prevention Section

Enclosure: Discharge Plan Review Process Flow Chart, NMED Guidelines for Monitor Well Construction and Abandonment

xc: Dennis McQuillian, NMED/GWQB
Ana Marie Ortiz, Assistant General Council, NMED Office of General Council
Gary Richardson, P.E., METRIC Corporation, 8429 Washington Place NE.,
Albuquerque, New Mexico.

SPARTON

SPARTON TECHNOLOGY

March 20, 1998

Ms. Victoria Maranville
Groundwater Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

RECEIVED

MAR 20 1998

GROUND WATER BUREAU

Re: DP-1184 Status

Dear Ms. Maranville:

Sparton Technology, Inc. (Sparton) is providing the following responses to your request for additional information dated March 16, 1998. As you suggested, we are providing the information in the form of this letter rather than revising the discharge plan. It is our understanding that you will incorporate this letter into the discharge plan approval.

Each of the seven items requested in your letter of March 16, 1998 are repeated in italics, and Sparton's response is presented below the request.

NMED Comment

1. *Three alternate discharge sites are proposed in the discharge plan application. However, signed copies of lease agreements between land owners and Sparton were not included for any of the sites. NMED recognizes that Sparton is in the process of negotiating with land owners prior to choosing a discharge location or locations. In order for the administrative record to be complete, Sparton must submit signed lease agreements to NMED before the discharge plan can be approved in accordance with WQCC Regulation 3109.B.*

Please submit the signed lease agreement(s) to NMED as soon as possible.

Sparton Response

1. Sparton is presently negotiating with the fee owner of the land (Ron Brown) at the Alternate 2 discharge point which is located in the Calabacillas Arroyo. We will transmit the Access Agreement to you at the earliest possible date.

NMED Comment

2. *The containment well is estimated to produce up to approximately 600 gallons per minute (gpm). Sparton requested a permit to discharge up to 600 gpm,*

Ms. Victoria Maranville
March 20, 1998
Page 2

however the infiltration gallery is designed for 200 gpm. If in order to contain the contaminant plume, Sparton needs to discharge greater than 200 gpm to the infiltration gallery, the infiltration gallery will need to be expanded.

Sparton may submit a design for a phased construction to accommodate flows up to 600 gpm at this time or, prior to discharging greater than 200 gpm to the infiltration gallery, Sparton will need to submit revised plans and specifications for NMED approval for the expansion of the infiltration basin.

Sparton Response

2. As stated in the last paragraph of Item 16. of the Discharge Plan Application Form, "If the actual system capacity is more or less than 200 gpm, the gallery size will be increased or decreased proportionally." If the infiltration gallery must be sized for more than 200 gpm, Sparton will submit revised plans and specifications for NMED approval prior to discharging more than 200 gpm.

NMED Comment

3. *One monitor well per alternate discharge location is proposed by Sparton. NMED will require more than one monitor well per discharge location to monitor groundwater quality and determine gradient in the vicinity of the proposed infiltration gallery. In addition, the proposed monitor well associated with Alternate 2 discharge location is located approximately 500 feet down gradient of the proposed infiltration gallery within the Calabacillas Arroyo. NMED believes the proposed Alternate 2 monitor well is located too far from the infiltration gallery for timely detection of potential groundwater contamination from the infiltration gallery. The down gradient monitor well must be located within 50 feet of the proposed infiltration gallery to detect potential groundwater contamination as a result of your discharge. Where applicable, NMED will consider use of other properly completed wells in the near vicinity of the discharge locations for the determination of groundwater gradient.*

In accordance with WQCC Regulation 3107.A., please submit a revised monitoring plan which includes the following: installation of three monitor wells for each discharge location, two monitor wells must be located down gradient of the proposed infiltration gallery, and one up gradient to monitor groundwater quality in the vicinity of the proposed infiltration gallery. All monitor wells must be triangulated and surveyed to common permanent bench mark to the nearest one-hundredth of a foot; located within 50 feet of the proposed infiltration gallery; and installed in accordance with NMED Guidelines for Monitor Well Construction and Abandonment (copy enclosed). In addition, please include in your amended submittal a commitment and procedure for plugging, abandoning, and replacing the monitor wells in the event that they are damaged by flooding in the arroyo.

Sparton Response

3. With respect to Alternate 2, and based on the site visit yesterday involving Gary Richardson and yourself, Sparton will construct three new monitoring wells near the infiltration gallery as follows:

- One down gradient monitoring well located within 50 feet of the infiltration gallery.
- One down gradient monitoring well located within 150 feet of the infiltration gallery.
- One up gradient monitoring well located within 250 feet of the infiltration gallery.

Sparton will survey the locations of the three new monitoring wells, and Sparton will survey the measuring point elevations of the new monitoring wells to the nearest one-hundredth of a foot as related to a common permanent bench mark.

Sparton will construct and abandon the proposed monitoring wells in accordance with "NMED Guidelines for Monitor Well Construction and Abandonment". As indicated in the second paragraph of Item 9. of the Discharge Permit Application Form, the monitoring wells will be screened from about 10 feet above the water table to about 20 feet below the water table.

If any of the proposed monitoring wells are damaged by the flooding arroyo, Sparton will repair or rebuild the wells as necessary.

NMED Comment

4. *The monitoring plan submitted to NMED proposes quarterly groundwater monitoring for two years and semi-annually thereafter. Quarterly groundwater monitoring for all monitor wells surrounding the infiltration basin will be required. Groundwater monitor wells shall be sampled and analyzed prior to discharge and on a quarterly basis for the duration of the discharge permit for chlorinated solvents, and iron and manganese using EPA approved methods. NMED will consider a request for a reduction in monitoring after two (2) years for the following: 1) a reduction in monitoring frequency for up gradient wells, and 2) a reduction in monitoring frequency if no iron and manganese is detected above WQCC standards. A minimum of one down gradient well will need to be continued to be monitored quarterly for the duration of the discharge.*

The monitoring plan proposes effluent monitoring from the air stripper on a daily basis for the first week following start-up, weekly for the first month, and monthly thereafter for chlorinated solvents. In addition to the chlorinated solvents, iron and manganese will be required to be monitored on a weekly basis for the first month of operation and a monthly basis thereafter.

Ms. Victoria Maranville
March 20, 1998
Page 4

In accordance with WQCC Regulation 3107.A., please incorporate the above-referenced changes into your revised monitoring plan.

Sparton Response

4. Sparton will monitor the monitoring wells associated with the infiltration gallery on a quarterly basis for two years. The samples will be analyzed for chlorinated solvents (TCE, 1,1,1-TCA, 1,1-DCE, and methylene chloride) using EPA Method 8021 HALO (formerly EPA Method 8010), and for chromium, iron and manganese using EPA Method 6010.

Sparton may request a reduction in monitoring frequency in the up gradient well and one down gradient well after two years.

Sparton will continue to monitor one down gradient monitoring well on a quarterly basis.

In addition to the airstripper effluent monitoring proposed in the Discharge Permit Application Form Item 18., Sparton will analyze for iron and manganese on a weekly basis for the first month.

NMED Comment

5. *Aqua Mag is proposed to be added to the treated effluent prior to discharge to the infiltration gallery to prevent clogging and scale due to mineralization. Product information and concentrations of constituents to be injected are required for Aqua Mag.*

In accordance with 3106.B., please submit detailed product information for Aqua Mag to NMED.

Sparton Response

5. As discussed in the third paragraph of Attachment E (Operation Plan) to our Groundwater Discharge Permit Application, Aqua Mag consists of 30% ortho phosphate and 70% poly phosphate. Additional Aqua mag product information is attached to this letter. We anticipate adding Aqua mag to the pumped water at a rate of about 4 ppm.

NMED Comment

6. *The contingency plan submitted for the alternate discharge locations does not address measures to be taken in the event that groundwater is contaminated, the infiltration gallery fails, or there is surfacing of treated effluent in the vicinity of the proposed infiltration gallery as a result of Sparton's discharge.*

Ms. Victoria Maranville
March 20, 1998
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In accordance with WQCC Regulation 3107.A., please submit a revised contingency plan to NMED outlining measures to be taken in the event that groundwater in the vicinity of the infiltration gallery is contaminated as a result of your discharge and measures to be taken in the event there is surfacing effluent.

Sparton Response

6. If discharge to the proposed infiltration gallery contaminates the groundwater at the discharge point, Sparton will abate any pollution of the subsurface water in accordance with Subpart IV of the New Mexico Water Quality Control Commission Regulations.

As discussed in the second paragraph of Item 17. of the Discharge Permit Application Form, the piezometer in the infiltration gallery will be equipped with a high level shut down which will turn off the containment well pump if the water level in the infiltration gallery rises to the top of the gravel in the gallery. At this point the water level in the gallery is seven feet below the arroyo bed. This will prevent surface discharge of treated groundwater.

Sparton will either have the containment well system checked by an operator twice per week or install an automatic alarm to notify a responsible party, to assure that the system is not shut down for an extended period of time.

If the infiltration gallery clogs, based on an estimate from a local contractor, Sparton believes that the gallery can be replaced at the same location within 6 weeks.

NMED Comment

7. *The closure plan for the proposed infiltration gallery allows for the plugging and abandonment of the infiltration gallery in place. NMED believes that it is acceptable to plug and abandon Alternate 1 site in place (dedicated park site) and Alternate 3 (City of Albuquerque storm water site). However, NMED does not believe plugging and abandoning in place to be an appropriate method of closure for the arroyo site (Alternate 2). Equipment in the arroyo must be removed following post closure monitoring in order to prevent the disposal of refuse in a watercourse as required by WQCC Regulation 2201.*

In accordance with WQCC Regulation 3107.A., please submit a revised closure plan for the Alternate 2 discharge location to include removal of the infiltration gallery equipment following the period of post closure monitoring and prior to final termination of the discharge plan.

Ms. Victoria Maranville
March 20, 1998
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Sparton Response

7. For Alternate 2, Sparton will remove the perforated pipe from the infiltration gallery as part of the closure activities.

If you have any additional questions or comments, please contact us as soon as possible.

Sincerely,



Richard D. Mico
Vice President and General Manager

RDM/rkh

The Kjell Corporation
P.O. Box 834
Beloit, WI 53512
Phone: 800-356-0422
Fax: 608-755-0538



Kjell Laboratories
5043 Hwy 51 South
Janesville, WI 53546
Phone: 608-755-0422
Fax: 608-755-1339

SEQUESTERANT, SCALE, AND CORROSION INHIBITOR

Aqua Mag is a water treatment additive for potable and industrial water treatment. It is produced by thermal reaction of food-grade phosphates into a liquid concentrate of exceptional purity, clarity, and stability. Aqua Mag contains all available species of phosphate compounds, for better sequestration and corrosion control.

SEQUESTRATION

Reduction of:

- Iron and Manganese stains
- Calcium deposits
- Chlorine demand

CORROSION CONTROL

Reduction of:

- Lead and Copper leaching
- Iron tuberculation in distribution pipes
- Microbial Influenced Corrosion (MIC)

CERTIFICATIONS

USEPA, USDA, NSF International, UL, ANSI/NSF Std. 60
and Kosher approved

PROPERTIES

- Clear homogeneous liquid
- Viscosity 1.008 cps at 70° F.
- Ratio ortho/complex polyphosphate 30/70
- No heavy metals available
- Freezing point <38° F
- Shelf life (neat) >2 years
- Spec. Gravity 1.367 +/- 0.01
- % Total Phosphate 34.5 +/- 1.0
- pH neat 5.2 +/- 0.5
- Totally soluble and freeze/thaw stable
- 11.4 lbs. per gallon

SHIPPING & HANDLING

Aqua Mag is packaged in 1-5-15-30 & 55 gallon containers and bulk quantities from the manufacturing facility, local warehouses, and bulk terminals. The product is shipped in safety-sealed, food-grade, labeled containers or food-grade certified tankers. Each container is identified by lot number.

APPLICATION RATE

Aqua Mag is applied using a chemical metering pump. In most applications, Aqua Mag is fed as a concentrate without the necessity of dilution. For Aqua Mag dosage rates or answers to technical questions, contact the technical assistance department of The Kjell Corporation.

MATERIAL SAFETY DATA SHEET

THE KJELL CORPORATION
 P.O. BOX 834
 BELOTT, WISCONSIN 53512-0834
 (800) 356-0422 (808) 755-0422

Product Name: **AQUA MAG**

Date Prepared: June 18, 1986

Last Revision: March 5, 1996

PRODUCT INFORMATION

Synonyms: Blended sodium phosphate
 Chemical Family: Liquid phosphate blend
 Formula: Proprietary
 Maximum Use: 23.4 mg/L



HAZARD RATINGS AND PROTECTION INDICES
 APPEAR IN APPROPRIATE BOXES.

HAZARD RATING

0 - MINIMAL HAZARD 1 - SLIGHT HAZARD
 2 - MODERATE HAZARD 3 - SERIOUS HAZARD
 4 - SEVERE HAZARD

PROTECTION INDEX

A - EYES B - HANDS
 C - RESPIRATORY D - BODY

Note: Use of an asterisk (*) or other designation
 indicates that there may be chronic health effects
 present. See safety file on the product.

PRECAUTIONARY INFORMATION

Precautionary Statement:
 (As defined by OSHA Hazard
 Communications Standard)

No significant health effects reported from
 manufacturing locations

INGREDIENTS / COMPONENTS

Chemical Identity:	Sodium ortho/polyphosphate blend
OSHA PEL:	Not listed
ACGIH TLV:	Not listed
CAS #:	68915-31-1
Hazard Class:	None

PHYSICAL DATA

Boiling Point:	Above 100° C.
Melting Point:	Not applicable
Vapor Pressure:	Not applicable
Vapor Density (Air = 1):	Not applicable
Specific Gravity (H ₂ O = 1):	1.367 ± 0.01
Evaporation Rate (Butyl Acetate = 1):	Non-volatile
Solubility in Water by Weight:	Complete
pH (neat):	5.2 ± 0.5
Appearance:	Clear liquid
Odor:	Slight

FIRE AND EXPLOSION DATA

Flash Point:	Non-combustible
Flammable Limits	
Upper:	Not applicable
Lower:	Not applicable
Extinguishing Media:	Not applicable
Special Fire Fighting Procedures:	Not applicable
Unusual Fire & Explosion Hazards:	None

REACTIVITY DATA

Stability:	Stable
Incompatibility:	Concentrated chlorine and concentrated mineral acids
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	Direct mixing of concentrates of chlorine and mineral acids
Hazardous Decomposition By-products:	Heat, chlorine, and sulfur dioxide

HEALTH HAZARD DATA

Routes of Exposure	
Eyes:	No published data
Skin Contact:	No published data
Skin Absorption:	No published data
Inhalation:	No published data
Ingestion:	No published data

Effects of Overexposure	
Acute Exposure:	No published data
Chronic Exposure:	When good industrial hygiene practices are followed, no significant inhalation hazard or skin irritation.

Other Health Effects	
Medical Conditions:	
Aggravated by Exposure:	None known
Carcinogenic Potential:	
NTP Annual Report:	Not listed
IARC Monographs:	Not listed
OSHA 29CFR Part 1910 Sub z:	Not listed

Additional Regulatory Information

FDA:	GRAS list: permitted in food
USDA:	Listed as acceptable if followed by a potable water rinse
NSF International:	Certified to meet ANSI/NSF Standard 60
Underwriters Laboratories:	Certified to meet ANSI/NSF Standard 60

Emergency and First-Aid Procedures

Eyes:	Flush with water. If irritation occurs seek medical attention.
Skin:	Wash with water. If irritation occurs seek medical attention.
Inhalation:	Remove from exposure.
Ingestion:	Rinse mouth and dilute stomach contents with water or milk if available.
Decontamination Procedure:	Wash with water.
Notes to Physician:	Large doses may cause nausea and diarrhea.

STORAGE AND HANDLING

Spill or Leak Procedures:	Material should be wiped up for salvage or disposal. Flush with water.
Waste Disposal Method:	If not salvaged, dispose in a landfill in accordance with local, state, and federal regulations.
Precautions in Storing:	Should be stored in clean area for quality assurance. Keep container closed when not in use. Protect from freezing and extreme heat.

SPECIAL PROTECTION

Respiratory:	None required
Eye:	Not mandatory
Protective Gloves:	Not mandatory
Clothing & Equipment:	No special requirements
Ventilation Requirements:	No special requirements
Work/Hygiene Practices:	No special requirements. Follow good industrial hygiene practices.

TRANSPORTATION DATA

DOT Proper Shipping Name:	Sodium phosphate solution
DOT Classification:	Not regulated
DOT Labels:	Not required
DOT Placards:	Not required
Emergency Accident Precautions & Procedures:	Not hazardous. See instructions above for release or spill.

MANUFACTURER'S DISCLAIMER

While The Kjell Corporation will make every effort to insure the validity of this information, we must rely on the information given to us by our suppliers, and thus make no warranty, express or implied, as to the validity of this data.

Any use of this product or method of application which is not described in the Product Data Sheet is the responsibility of the user.

Environmental:**Degradability/Aquatic Toxicity**

Aqua Mag constituents have been tested to be barely to non-toxic according to current classification levels.

< 1 ppm	Highly or strongly toxic
1-10 ppm	Toxic
10-100 ppm	Moderately toxic
100-1000 ppm	Slightly toxic
> 1000 ppm	Barely toxic to non-toxic

48-hr LC 50%	Daphne magna	3580 ppm*	
48-hr LC 50%	Lymnaea sp	2954 ppm*	
48-hr LC 50%	Fish	1650 ppm (n.n. orfe)	10,000 ppm @ pH 7**
25-hr/50-HR LC 50%	Daphne magna	1154 ppm/1089 ppm**	
0.5-hr EC 50%	Pseudomonas putida	1000-1500 ppm**	

EPA hazardous substance? No 40CFR116-117

Waste Disposal Methods: Must comply with all federal, state, and local disposal/discharge laws

RCRA Status of Unused Material: Non-hazardous 40CFR261

* Dowden, B.F., Bennett, H.J., "Toxicity of Selected Chemicals to Certain Animals," Journal WPCF, Sept. 1965, pp. 1308-1316.

**Schoeber, I.P., Huber, L., "Ecologically Relevant Data of Nonsurfactant Components of Detergents and Cleaners," Tenside Surfactants Detergents, 25, 99-107, (1988).

Appendix B

STORAGE AND COMPATIBLE MATERIALSMinimum Tank Ratings:

Holds liquid weighing 12 lb/gal (1.44 kg/L) minimum

Handles liquid temperatures up to 130° F (49° C)

Storage temperature range in container of 45°- 75° F (7°- 24° C)

Temperature regulate the indoor storage of drums/bulk tanks, or insulate and heat outdoor tanks.

Prevent indoor drum/tank exposure to cold flooring by elevating with pallets or insulation.

Compatible Storage/Plumbing/Pumping Materials:

High-medium density polyethylene, cross-linked polyethylene, fiberglass, reinforced plastic, 316 Stainless Steel, glass lined/epoxy lined steel tanks; Schedule 80 PVC/CPVC piping, clear PVC and white polyethylene tubing; Ceramic, teflon, viton, hypalon, and PVC liquid end pump materials.

Materials to Avoid in storage/plumbing:

Black iron, mild steel, galvanized, aluminum, zinc, copper, lead, brass, bronze, and tin.

Metering equipment:

Diaphragm, and peristaltic type metering pumps.

SPARTON

SPARTON TECHNOLOGY

March 23, 1998

Victoria Maranhille
Groundwater Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Re: DP-1184 March 20, 1998 letter to Victoria Maranhille

Dear Ms. Maranhille:

In response to your conversation earlier today with our consultant, Gary Richardson, we wish to revise the last paragraph of our response to Comment 4 of your letter dated March 16, 1998 to read as follows:

In addition to the airstripper effluent monitoring proposed in the Discharge Permit Application Form Item 18., Sparton will analyze for iron and manganese on a weekly basis for the first month, and monthly thereafter.

If you have any additional questions or comments, please contact us as soon as possible.

Sincerely,

SPARTON TECHNOLOGY, INC.



Richard D. Mico
Vice President and General Manager

File Sparten



GARY E. JOHNSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT

Ground Water Quality Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2918 phone
(505) 827-2965 fax



MARK E. WEIDLER
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

March 24, 1998

Mr. Richard D. Mico, V.P. & General Manager
Sparton Technology, Inc.
4901 Rockaway Boulevard SE
Rio Rancho, New Mexico 87124-4469

RE: Response to Submittal of Additional Information, DP-1184, Sparten Technology, Inc. - Coors Road Facility.

Dear Mr. Mico:

The New Mexico Environment Department (NMED) Ground Water Quality Bureau (GWQB), Pollution Prevention Section (PPS) has reviewed Sparten Technology, Inc.'s response to additional information dated March 20 and March 23, 1998. NMED/GWQB requested additional information from Sparten Technology, Inc. (Sparton) on March 16, 1998, in order to proceed with the discharge plan process for the Sparten - Coors Road Facility (DP-1184) ground water remediation system. The proposed discharge location is located northwest of Albuquerque, in projected Section 7, T11N, R3E, Bernalillo County. It is NMED's understanding from discussion with Gary Richardson that Sparten is pursuing the Alternate 2 (Calabacillas arroyo site) discharge location, therefore the following comments pertain only to the Alternate 2 discharge location.

1. NMED is aware that Sparten is currently in the process of negotiating with the fee owner of the land (Ron Brown) at the proposed Alternate 2 discharge location (Calabacillas arroyo site) and Sparten has committed to provide a signed lease agreement to NMED as soon as possible. Sparten must submit a signed lease agreement to NMED before the discharge plan can be approved in accordance with WQCC Regulation 3109.B. Upon receipt of a signed lease agreement, NMED will issue the discharge plan within 2 weeks.

DP-1184
Mr. Mico
March 24, 1998
Page 2

2. The information submitted by Sparton regarding the expansion of the infiltration gallery, the monitoring plan, product information, the contingency plan, and the closure plan satisfies NMED's request for additional information in accordance with WQCC Regulation 3107.

The public comment period for the DP-1184 will end on March 25, 1998. If there are no public comments received and there is no significant public interest to warrant a public hearing, NMED will continue to process the discharge plan application in accordance with New Mexico Water Quality Control Commission Regulations for the Alternate 2 location.

Thank you for your prompt response to NMED's request for information. If you have any questions pertaining to the discharge plan application or the discharge plan approval process, please feel free to contact me at (505) 827-0652.

Sincerely,



Victoria Maranville
Geologist
Ground Water Pollution Prevention Section

xc: Dennis McQuillan, NMED/GWQB
Ana Marie Ortiz, Assistant General Counsel, NMED Office of General Counsel
Gary Richardson, P.E., METRIC Corporation, 8429 Washington Place NE., Albuquerque,
NM 87113

**GROUNDWATER DISCHARGE PERMIT APPLICATION
FOR
COORS ROAD PLANT
GROUNDWATER REMEDIATION FACILITY
BERNALILLO COUNTY, NEW MEXICO
(DP-1184)**

RECEIVED

FEB 26 1998

SUBMITTED BY

**SPARTON TECHNOLOGY, INC.
RIO RANCHO, NEW MEXICO**

PREPARED BY

**METRIC CORPORATION
ALBUQUERQUE, NEW MEXICO**

**DECEMBER 1997
Revised to Reflect Amendments Requested
January 22, 1998**

FEBRUARY 1998

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ATTACHMENT B WELL DATA IN DISCHARGE SITE VICINITY

ATTACHMENT C DISCHARGE SITE SOIL DESCRIPTION

ATTACHMENT D LITHOLOGIC SAMPLE LOG FOR MW-66

ATTACHMENT E OPERATION PLAN

FIGURE 2 PLUME CONTAINMENT SYSTEM

FIGURE 3 CROSS SECTION A-A'

FIGURE 4 ALTERNATE 1 INFILTRATION GALLERY DETAILS

FIGURE 5 ALTERNATE 2 INFILTRATION GALLERY DETAILS

FIGURE 6 ALTERNATE 3 INFILTRATION GALLERY DETAILS

ATTACHMENT F DISCHARGE SITE APPROVAL DOCUMENTATION

INTRODUCTION

Sparton Technology, Inc. is submitting an application for a permit to discharge treated groundwater to infiltration galleries located in or adjacent to the Calabacillas Arroyo in Bernalillo County, New Mexico. The source of the treated water to be discharged is from groundwater recovery well(s).

The discharge permit application is prepared in accordance with the form provided by the New Mexico Environment Department, in order to ensure completeness of this submittal.

**NEW MEXICO ENVIRONMENTAL DEPARTMENT
GROUNDWATER DISCHARGE PERMIT APPLICATION FORM**

Name of facility: Coors Road Plant Groundwater Remediation Facility

Name, Title, and address of person(s) legally responsible for discharge:

**Owner of Facility
Owner's address:**

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

Sparton Technology, Inc.
4901 Rockaway Blvd. SE
Rio Rancho, New Mexico 87124-4469

Telephone No.: (505) 892-5300
FAX No.: (505) 892-5515

Telephone No: (505) 892-5300
FAX No.: (505) 892-5515

Name, title and address of local representative or contact person at the facility (if different than the responsible person), and consultant if consultant used:

Facility Representative

Consultant

John M. Wakefield
Sparton Technology, Inc.

METRIC Corporation
Attn.: Gary L. Richardson, P.E.
8429 Washington Place NE
Albuquerque, NM 87113

1. **Type of facility or operation (dairy, municipality, mining, etc.):** Discharge will result from a groundwater remediation operation in the vicinity of Sparton's Coors Road Plant electronics manufacturing facility.
2. **Proposed method(s) of treatment, storage, and/or disposal of effluent or leachate (Package plant-lagoon-leachfield, wetlands-infiltration gallery, air stripper-injection well, etc.):** Groundwater from recovery well(s) will be treated by an air stripper to remove volatile chlorinated solvents. Treated groundwater will be discharged to infiltration galleries in or adjacent to the nearby Calabacillas Arroyo (Alternates 1 and 2) or south of Congress Avenue (Alternate 3).

Discharge Characteristics

3. **Quantity:**

- a. **Design discharge rate in gallons per day (gpd):** up to 864,000 gpd
- b. **Gallons per day computed on an annual basis:** up to 315,360,000 gpy
- c. **Number of days per year facility will be discharging:** 365 days

4. **Method used to meter or calculate the discharge rate:**

Mechanical totalizing flow meter.

5. **Flow characteristics. Describe if flow is:**

a. **Daily (five or seven days per week) or seasonal (give months):**

Discharge is planned for as many as 365 days per year

b. **Continuous or intermittent:** Flow is planned to be continuous but may on occasion be intermittent

6. **Discharge Quality. List the concentrations of contaminants and toxic pollutants generally associated with the type of facility or operation. The contaminants of concern are those listed in Section 3-103 of the NM Water Quality Control Commission (WQCC) Regulations and total nitrogen (nitrate + total Kjeldahl nitrogen). The toxic pollutants are listed in WQCC Regulation 1101-TT.**

Contaminant	Max. daily value Concentration	Average daily value
Trichloroethylene (TCE)	0.100 µg/l	0.050 µg/l
1,1,1,-Trichloroethane (TCA)	0.060 µg/l	0.030 µg/l
1,1-Dichloroethylene (DCE)	0.005 µg/l	0.0025 µg/l
Methylene Chloride	0.100 µg/l	0.050 µg/l
Chromium, total	0.050 mg/l	0.050 mg/l

Location Information

7. **Location of discharge site (see FIGURE 1):**

County: Bernalillo

Township: 11 North Range: 3 East Section: 7 (proj.)

Latitude/Longitude: Lat. 35° 12' / Long. 106° 40'

Please provide a copy of a State of New Mexico road map with the property clearly outlined.

The discharge site location is indicated on FIGURE 1.

8. **Location of any water supply wells, injection wells, seeps, springs, bodies of water or water courses within one mile of the outside perimeter of the discharge site. These items must be plotted on a copy of the pertinent USGS topographic map(s) or an aerial photograph. Include the name(s) of the USGS topographic map(s). Water supply wells, water courses, and water bodies are indicated in FIGURE 1. No seeps, springs, or injection wells are present in the area. Water supply well data is outlined in ATTACHMENT B.**

9. **Give the location of any proposed or existing wells to be used for monitoring the groundwater quality.** If Alternate 1 is selected, a groundwater monitoring well will be installed about 25 feet northwest of the infiltration gallery (see ATTACHMENT E, FIGURE 2). The depth to the water table is about 145 feet at the monitoring well location. The monitoring well would be screened from about 10 feet above the water table to about 20 feet below the water table.

If Alternate 2 is selected, a groundwater monitoring well will be installed about 600 feet northwest of the infiltration gallery (see ATTACHMENT E, FIGURE 2). The depth to the water table is about 160 feet at the monitoring well location. The monitoring well would be screened from about 10 feet above the water table to about 20 feet below the water table.

If Alternate 3 is selected, a groundwater monitoring well will be installed about 25 feet northwest of the infiltration gallery (see ATTACHMENT E, FIGURE 2). The depth to the water table is about 110 feet at the monitoring well location. The well would be screened from about 10 feet above the water table to about 20 feet below the water table.

Groundwater Conditions

10. a. **The depth (feet) to groundwater below the discharge site:**
The depth to groundwater at discharge Alternates 1, 2, and 3 are estimated as 144', 119', and 107' respectively, using topographic surface contours and the water table contours provided in FIGURE 1.
- b. **The flow direction of groundwater below the site:**
The flow direction of groundwater in the vicinity of the discharge sites is northwest (FIGURE 1).
- c. **The gradient of the groundwater below the site:**
The groundwater gradient in the vicinity of the discharge sites is 0.002 ft/ft.
- d. **Reference or source of information for 10.a, b, c, above:**
Groundwater depth is estimated from FIGURE 1 by comparison of USGS quadrangle topographic contours with interpolations of plotted groundwater contours. Groundwater flow direction is derived from groundwater contours developed from monitor well sounding during July 1996. Groundwater gradient is estimated from groundwater contours in the vicinity of the discharge site, as shown on FIGURE 1.
11. a. **The Total Dissolved Solids (TDS) concentration (mg/l) of the groundwater:**
TDS locally ranges from 430 to 460 mg/l.
- b. **Reference or source of information:**
Results of sampling of February 3, 1997 and general chemistry analyses for wells MW-32, MW-51, MW-60, and MW-61.

Flooding Potential

12. Describe the flooding potential of the discharge site based on the latest Federal Emergency Management Agency flood plain information or site specific analysis:

Alternate 1 is located outside of but adjacent to the Calabacillas Arroyo floodway, as delineated by the U.S. Department of HUD, Federal Emergency Management Agency, October 14, 1983, Flood Boundary and Floodway Map, City of Albuquerque, NM Community Panel No. 350002 0002.

Alternate 2 is located within the Calabacillas Arroyo floodway.

Alternate 3 is located beneath a City of Albuquerque storm water detention pond site.

13. Describe the methods used to control flooding of the discharge site (berms, diversion channel, etc.):

Since Alternate 1 is outside the flood boundary. No flood control measures are necessary.

Alternate 2 is located within the Calabacillas Arroyo floodway. If this alternative is selected, the infiltration gallery will be buried 7.0 feet below the arroyo bottom to prevent it from being exposed by scour during passage of the 100-year storm (see ATTACHMENT E)

Alternate 3 is located beneath a City of Albuquerque storm water detention pond site. If this alternative is selected, the infiltration gallery will be buried 5.0 feet below the pond bottom to minimize infiltration of storm water into the infiltration gallery.

Soil and Geologic Information

14. Attach a copy of the USDA Soil Conservation Service soil survey map and descriptive information for soil(s) associated with the discharge site.

A soil map and soil description are presented in ATTACHMENT C.

15. Describe the lithology and thickness of each geologic unit below the discharge site. Please indicate which units are water bearing. This information may be obtained from driller's logs or geologic reports.

Sample logs are presented in ATTACHMENT D for monitor wells MW-62 and MW-66 (FIGURE 1) which describe lithology and thickness of geologic units below the discharge site. The ground elevation at MW-66 is 5103'. Ground elevations at Alternates 1 and 2 are estimated, from USGS topographic contours, at 5109' and 5080', respectively. The ground elevation at MW-62 is 5073. Ground elevation at Alternate 3 is estimated from USGS topographic contours at 5075.

Operational Plan

16. **An operational plan must be attached which describes how the system(s) for the collection, treatment, distribution and disposal of waste waters or other discharges will be operated and maintained.**

The leading edge plume containment system (see FIGURE 1) consists of 1) one or more containment well(s) producing up to 600 gpm (864,000 gpd) of groundwater, 2) an airstripper to remove VOC's from the water, 3) a pipeline leading from the well and airstripper location to the infiltration gallery, and 4) one or more infiltration galleries located either in the dedicated park area located on the north bank of the Calabacillas Arroyo (Alternate 1) or within the Calabacillas Arroyo Channel (Alternate 2) or at the storm water detention pond site located south of Congress Avenue (Alternate 3). A detailed explanation of the design and operation of the leading edge plume containment system is presented in ATTACHMENT E.

The containment system is planned to have a capacity between 50 gpm and 600 gpm. The actual system capacity will be determined by analysis of a series of pumping tests conducted on the installed containment well.

This application contains three alternate infiltration gallery locations. The actual location of the gallery will be based on the outcome of Sparton's ongoing negotiations with landowners and easement holders of the alternative sites. Alternate 1 is on land (a park site) owned by the City of Albuquerque. Alternate 2 is on land under private ownership and within a drainage easement held by Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA). Alternate 3 is on land (a floodwater detention pond site) owned by the City of Albuquerque.

The infiltration gallery designs presented in ATTACHMENT E are sized for 200 gpm. If the actual system capacity is more or less than 200 gpm, the gallery size will be increased or decreased proportionally.

Contingency Plan

17. **A contingency plan must be attached which describes actions to be taken in the event that spills or failures occur or ground water standards are threatened.**

In order to prevent discharge of untreated water to the infiltration gallery, the system will be equipped with a shutdown which will turn off the containment well pump if the airstripper blower fails. Additionally, the quality of the effluent from the airstripper will be monitored on a regular basis, as described in item 18. below, to provide early warning if the treatment efficiency of the airstripper is declining for any reason.

The infiltration gallery will be equipped with a piezometer to allow monitoring of

the water level in the gallery. This will provide early warning if the infiltration gallery is clogging and allow time for scheduling maintenance or repair. Additionally, the piezometer will be equipped with a high level shutdown which will turn off the containment well pump if the water level in the infiltration gallery rises to the top of the gravel in the gallery. This will prevent possible surface discharge of the treated groundwater.

Monitoring Plan

- 18. A monitoring plan must be attached which outlines the proposed sampling point locations (monitoring wells, outfalls, etc.), sampling protocols (bailers, pumps, etc.), sampling frequency (monthly, yearly, etc.), chemical parameters to be analyzed for (TDS, nitrate, etc.), static water levels, discharge rates (gpd), etc.**

Effluent from the airstripper will be monitored daily for the first week following start up, then weekly for the first month, and monthly thereafter. To ensure compliance with the New Mexico Water Quality Control Commission Regulations, Section 3-103. Water samples will be analyzed for trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethylene (DCE), methylene chloride and chromium.

The water level in the piezometer in the infiltration gallery will be measured on a weekly basis. If the water level approaches the top of the gravel in the gallery, maintenance will be scheduled.

A groundwater monitoring well will be installed down gradient from the infiltration gallery (see item 9 above). The monitoring well location for each infiltration gallery alternate location is shown on FIGURE 1. The well will be equipped with a dedicated sampling pump. It will be sampled on a quarterly basis for the first two years and then semi-annually. Following cessation of the discharge, the well will be sampled quarterly for two years. The samples will be analyzed for trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethylene (DCE), methylene chloride, and chromium. The water level will be measured prior to each sampling event.

Closure Plan

- 19. A closure plan must be attached for system components that are likely to be discontinued during the term of the permit. The closure plan must address the reclamation and post-operational monitoring of groundwater at the site, as appropriate. Also the plan shall provide for plugging and abandonment of all monitor wells, after groundwater quality meets the WQCC Regulations.**

When the leading edge plume containment system has achieved its objective, the airstripper will be removed and sold for scrap. The containment well(s) will

be plugged and abandoned according to WQCC regulations. The pipeline from the containment well to the infiltration gallery will be capped on both ends and abandoned in place. The inlet piping to the infiltration gallery will be grouted with cement to prevent unauthorized discharge to the system. The gallery itself will be abandoned in place.

The monitoring well associated with the infiltration gallery will be retained until eight consecutive quarters of monitoring data have shown that the infiltration gallery has not caused contamination of the groundwater beneath the gallery site.

Signature(s)

20. Enclose a signed copy of the lease agreement between you and the owner of the property on which the proposed discharge will occur. Lease agreement should be valid for the duration of the discharge plan or until the discharge plan is modified.

It is recognized that an agreement between the owner of the land where the infiltration gallery is to be located and Sparton is required prior to NMED approval of this discharge permit. As discussed in item 16 above, negotiations with the landowners of the alternate sites are underway, and Sparton will forward agreement(s) to NMED as soon as they are completed.

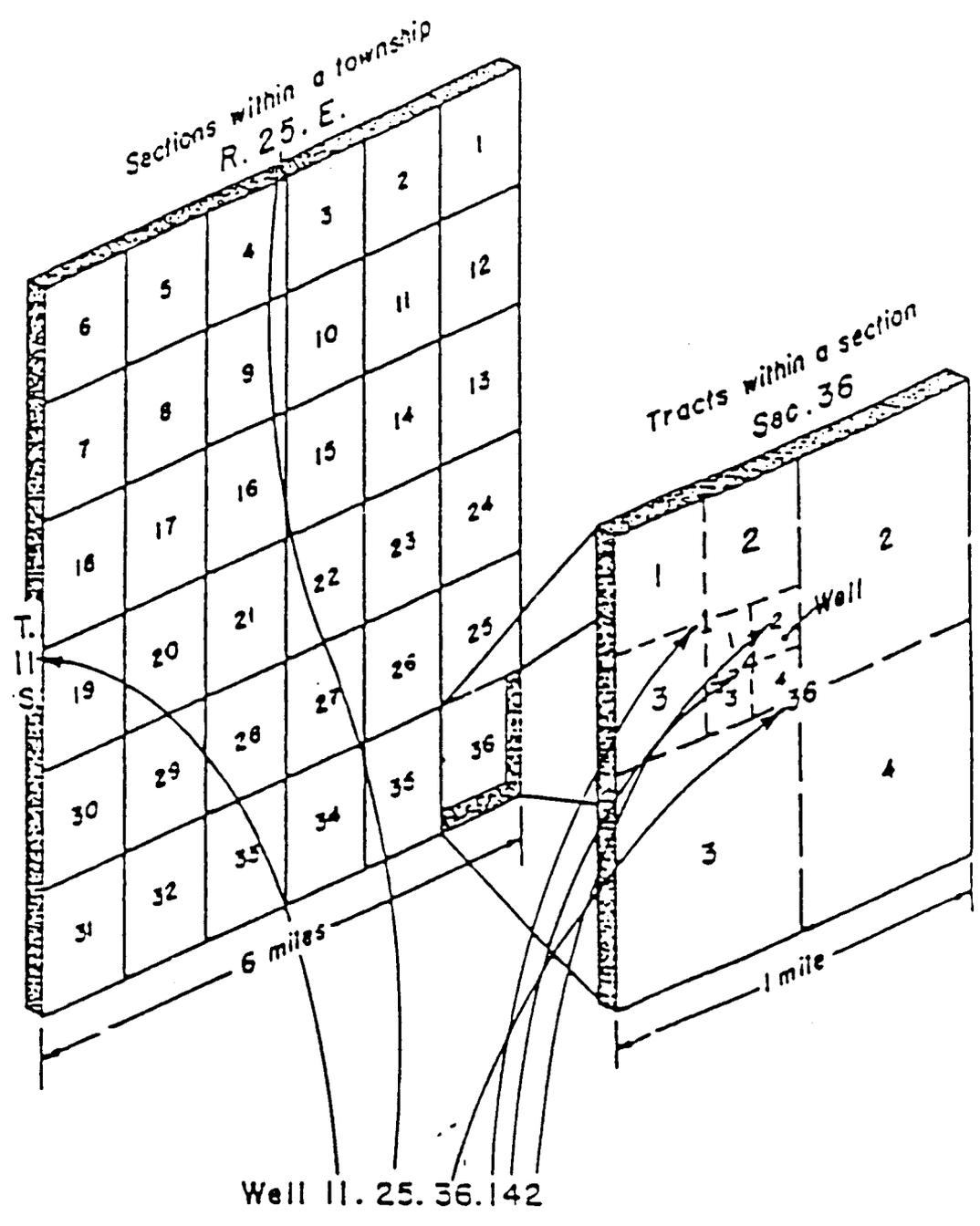
21. I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief such information is true, complete and accurate.

<u>Richard D. Muen</u>	<u>VP & GM</u>	<u>2/26/98</u>
Signature of person legally responsible for the discharge	Title	Date

ATTACHMENT A
WELL LOCATION SYSTEM

ATTACHMENT A DETERMINING WELL AND SITE LOCATIONS

USING TOWNSHIP, RANGE AND SECTION



ATTACHMENT B

**WELL DATA IN
DISCHARGE SITE VICINITY**

TABLE 1

**WELLS IN VICINITY OF COORS ROAD PLANT DISCHARGE SITES #1, #2, AND #3
SPARTON TECHNOLOGY, INC., ALBUQUERQUE, NEW MEXICO**

Well No.	Owner	SEO File No.	Location T. R. Sec.	Year Comp.	Depth of Well (ft)	Static Water Level (ft)	Date Meas.	Use of Water *	Remarks
W-1	Marion Davis	RG-55450	11.03.06.313	1993	280	180	02/19/93	D	
W-2	Albert J. Black	RG-3664	11.03.08.134	-	200	56	-	D	destroyed
W-3	Albert J. Black	RG-6095	11.03.08.134	-	200	47	-	D	destroyed
W-4	Robert B. Briscoe	RG-5774	11.03.03.140	1963	123	6	-	D	
W-5	Manual Sandoval	RG-59010	11.03.08.144	1994	180	28	02/17/94	D	
W-6	Clair or Rosemary Le Capitan	RG-9807	11.03.08.314	1995	210	30	10/27/95	D	
W-7	Lenny Poper	RG-60062	11.03.08.322	1994	225	12	09/27/94	D	
W-8	Ron Bohannan	RG-58707	11.03.08.330	1994	50	22	01/29/94	D	
W-9	Robert Briscoe	RG-12467	11.03.08.330	-	152	-	-	D	
W-10	Rick Schalk	RG-27958	11.03.08.330	-	149	56.25	-	D	
W-11	Robert J. Bickerstaff	RG-64774	11.03.08.332	1996	65	15	06/24/96	D	
W-12	Tom Clark	RG-64571	11.03.08.332	1996	30	10	07/12/96	D	
W-13	Robert Briscoe	RG-55957	11.03.08.333	1992	135	60	09/18/92	D	
W-14	Robert B. Briscoe	RG-5774	11.03.08.333	-	140	55	-	D	
W-15	Robert Floerchinger	RG-59857	11.03.08.334	1994	50	9	10/08/94	D	
W-16	Dana C. Wood	RG-65160	11.03.08.334	1996	75	15	06/27/96	D	
W-17	A. F. Black	RG-5711	11.03.17.100	-	68	16	-	D	
W-18	Skip Kruzich	RG-65858	11.03.17.110	1996	130	21	09/17/96	D	
W-19	Gilbert Sanchez	RG-64429	11.03.17.111	1996	75	20	11/03/96	D	
W-20	Dan Dickerson	RG-64790	11.03.17.111	1996	38	12	05/24/96	D	
W-21	Robert Res	RG-65085	11.03.17.112	1996	48	15	06/24/96	D	
W-22	Rutledge Hanes	RG-63991	11.03.17.114	1996	40	15	02/12/96	D	
W-23	Alicia Martinez	RG-67856	11.03.17.132	1996	38	15	09/19/96	D	
W-24	Frank Mann	RG-19912	11.03.18.413	1971		8	12/30/71	D	
W-25	River Pointe Group	RG-21704	11.03.18.413	1972	95	6	11/06/72	D	abandoned
W-26	Frank Mann	RG-2222	11.03.18.413	1958	86	-	-	D	
W-27	Ernest M. Baca	RG-57103	11.03.18.423	1993	220	10	04/15/93	D	
W-28	Patrick Glennon	RG-49098	11.03.18.423	1988	100	6	06/28/88	D	
W-29	Robert B. Duran	RG-50544	11.03.18.423	1988	204	-	-	D	
W-30	Robert Misurch	RG-35879	11.03.18.423	1981	114	9	04/01/81	D	

TABLE 1

WELLS IN VICINITY OF COORS ROAD PLANT DISCHARGE SITES #1, #2, AND #3
SPARTON TECHNOLOGY, INC., ALBUQUERQUE, NEW MEXICO

Well No.	Owner	SEO File No.	Location T. R. Sec.	Year Comp.	Depth of Well (ft)	Static Water Level (ft)	Date Meas.	Use of Water *	Remarks
W-31	Michael or Judith Graham	RG-50051	11.03.18.423	1988	200	16	11/15/88	D	
W-32	Tom David	RG-38495	11.03.18.423	1982	116	10	08/17/82	D	
W-33	George Everage	RG-42482	11.03.18.424	1984	90	-	-	D	
W-34	Gary Eyster	RG-48686	11.03.18.424	1987	80	6	07/11/86	D	
W-35	Mary Shalk	RG-39493	11.03.18.424	1983	113	12	04/05/83	D	
W-36	C. R. Peterson	RG-45840	11.03.18.424	1986	75	-	-	D	
W-37	Richard Chavez	RG-51406	11.03.18.441	1989	190	10	09/08/89	D	
W-38	Bryan Brennan	RG-33058	11.03.18.441	1979	137	9	09/19/79	D	
W-39	Pat Chapman	RG-38109	11.03.18.441	1982	97	11	10/12/82	D	
W-40	Del Gutierrez	RG-34878	11.03.18.441	1980	125	120	09/13/80	D	
W-41	Guy W. Berger	RG-45521	11.03.18.441	1986	105	8	04/24/86	D	
W-42	Alan Reeves	RG-43969	11.03.18.441	1985	100	6	05/22/85	D	
W-43	Tom Contieras	RG-46116	11.03.18.441	1986	124	-	-	D	
W-44	Jim Etre	RG-56244	11.03.18.442	1992	220	16	10/20/92	D	
W-45	Greg Moody	RG-36063	11.03.18.442	1981	120	10	06/04/81	D	

* Water Use Symbols

D = Domestic

ATTACHMENT C
DISCHARGE SITE SOIL DESCRIPTION

ATTACHMENT C
DISCHARGE SITE SOIL DESCRIPTION

According to the SCS soil survey which covers the alternate discharge sites, all of the sites are located within the Bluepoint Series. The Bluepoint Series consists of deep, somewhat excessively drained soils that formed in sandy alluvial and eolian sediments on alluvial fans and terraces. Slopes are generally 1 to 15 percent for the series.

Permeability is rapid. Available water capacity is 4 to 5.5 inches. Effective root depth is 60 inches or more.

A soil profile representative of the series is provided below:

- A1 0 to 8 inches, pale brown (10YR 6/3) loamy fine sand, brown (10YR 5/3) moist; single grained; loose; many fine and very fine roots and interstitial pores; slightly calcareous; mildly alkaline; clear, wavy boundary.
- C1 8 to 20 inches, pale brown (10YR 6/3) loamy sand, brown (10YR 5/3) moist; massive; slightly hard, few fine and very fine roots, very friable; many very fine interstitial pores; slightly calcareous; moderately alkaline; clear, wavy boundary.
- C2 20 - 60 inches, light yellowish brown (10YR 6/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable; few fine and very fine roots; many very fine interstitial pores; slightly calcareous in spots; mildly alkaline.

The three alternate discharge sites are located within two mapping units of the Bluepoint Series as outlined below:

BCC: Bluepoint loamy fine sand, 1 to 9 percent slopes.

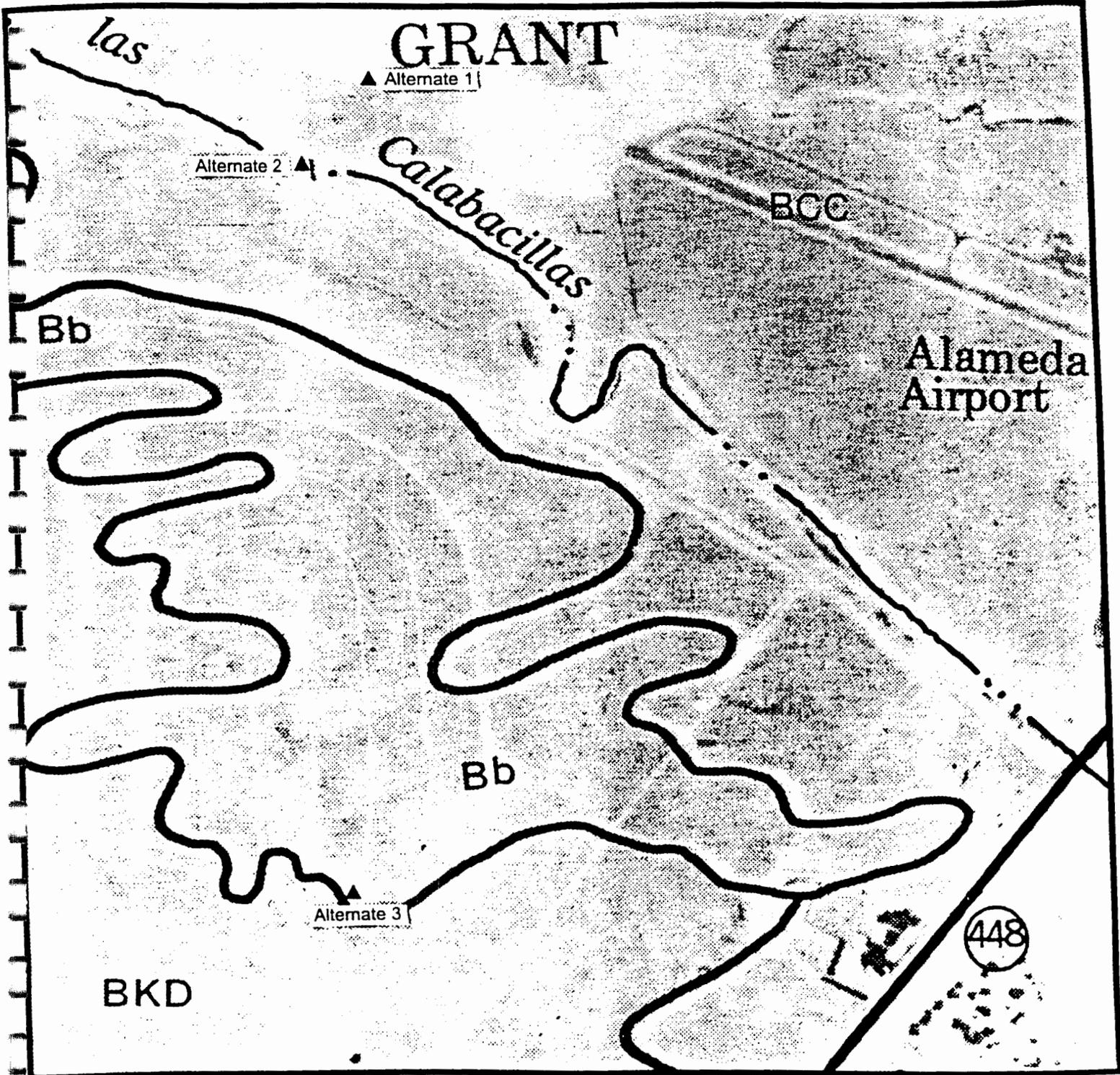
Alternate discharge sites 1 and 2 are located within the BCC mapping unit indicated on the accompanying soil map. This soil is nearly level to moderately sloping. It has the

profile described as representative of the Bluepoint Series, but on about 10 percent of the acreage the surface layer is sand. Runoff is slow, and the hazard of blowing sand is severe.

Bb: Bluepoint find sand, hummocky.

Alternate discharge site 3 is located within the Bb mapping unit. This gently rolling to rolling soil is in areas near the basalt flows. The soil unit occurs as low dunes 8 to 50 feet high of reworked sand. Areas are generally 15 to 100 acres in size. The soil has a profile similar to that described as representative of the series, but the surface layer differs in texture. Runoff is slow. The hazard of soil blowing is severe.

Source: USDA, Soil Conservation Service. June 1977. Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico.



Source: USDA SCS, June 1997 Soil Survey of Bernalillo County and parts of Sandoval and Valencia Counties, New Mexico. Map Sheet #10.

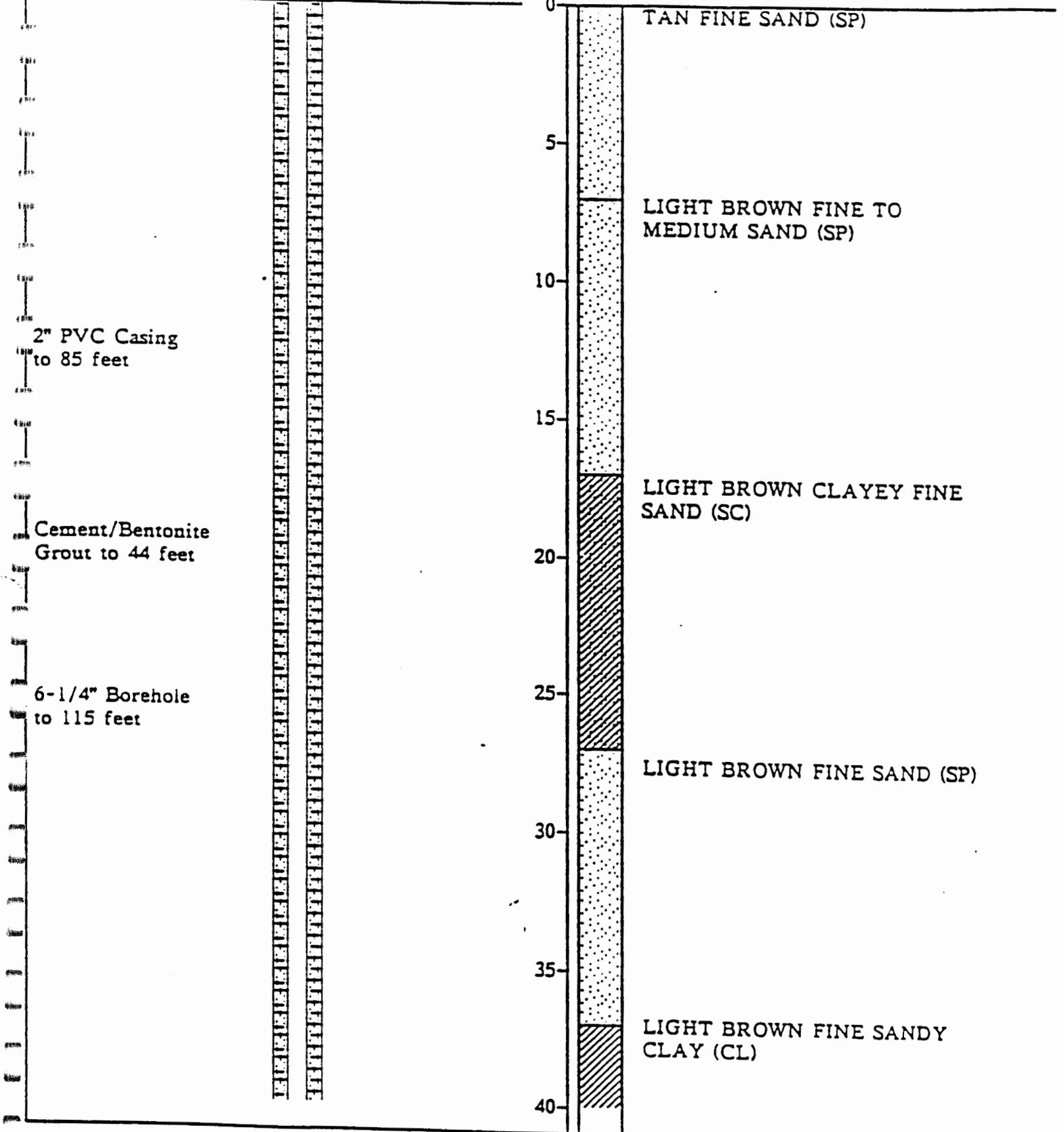


SOIL SURVEY MAP
 DISCHARGE LOCATION VICINITY
 SPARTON TECHNOLOGY, INC.
 BERNALILLO COUNTY, NEW MEXICO

ATTACHMENT D

**LITHOLOGIC SAMPLE LOGS
FOR MW-62 AND MW-66**

GROUND SURFACE



2" PVC Casing to 85 feet

Cement/Bentonite Grout to 44 feet

6-1/4" Borehole to 115 feet

TAN FINE SAND (SP)

LIGHT BROWN FINE TO MEDIUM SAND (SP)

LIGHT BROWN CLAYEY FINE SAND (SC)

LIGHT BROWN FINE SAND (SP)

LIGHT BROWN FINE SANDY CLAY (CL)



Harding Lawson Associates
Engineers and
Environmental Services

MONITORING WELL DETAIL MW-62

Sparton Technology Inc.
Albuquerque, New Mexico

PLATE

DRAWN

JOB NUMBER

06310.039.12

APPROVED

DATE

12/90

REVISED

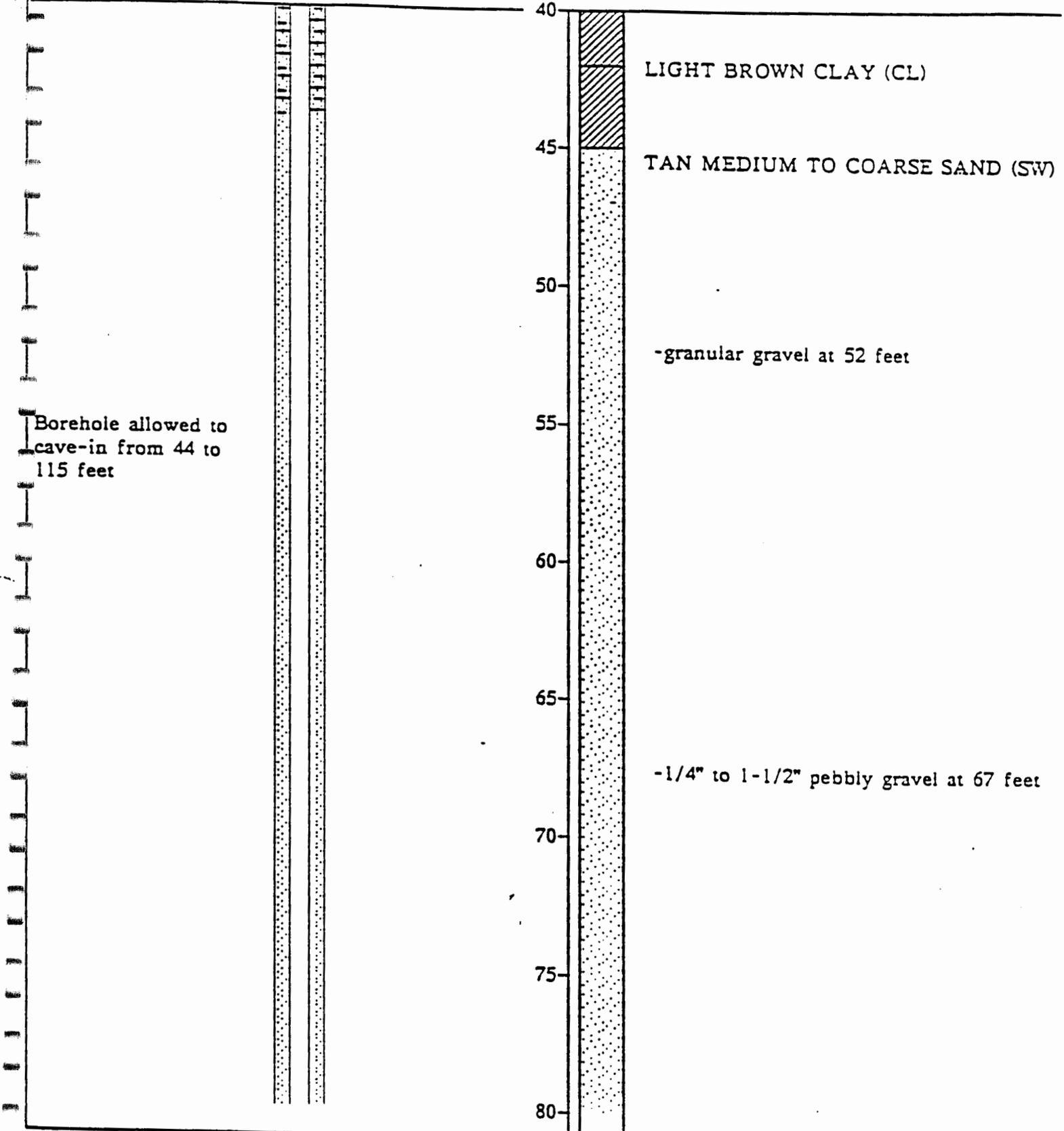
DATE

Top of casing
Elevation 5075.00

Equipment GS-1500

Elevation 5075.00 ft Date 9/28/90

GROUND SURFACE



Harding Lawson Associates **MONITORING WELL DETAIL MW-62**

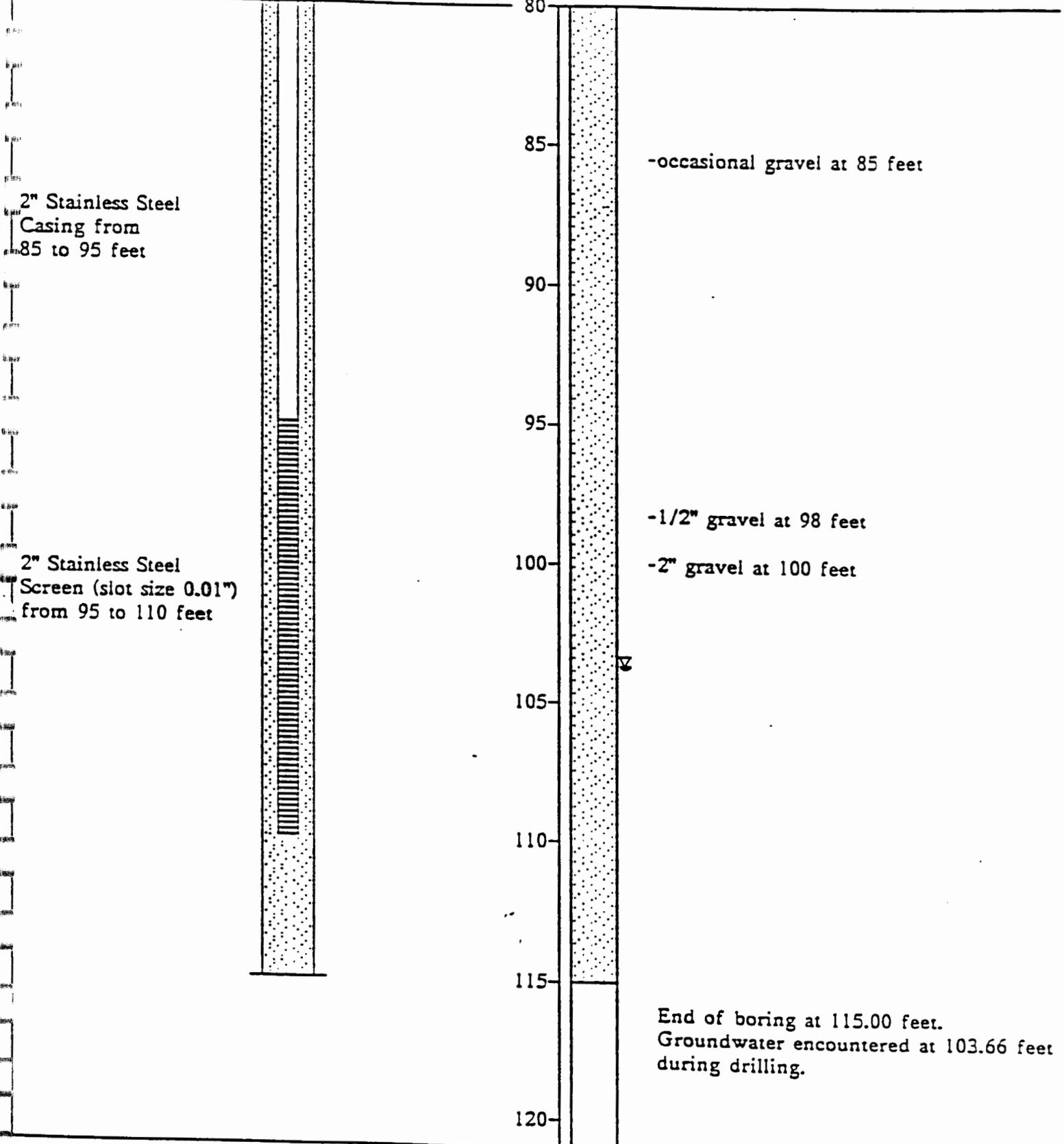
Engineers and
Environmental Services

Sparton Technology Inc.
Albuquerque, New Mexico

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	06310.039.12		12/90		

GROUND SURFACE



Harding Lawson Associates
Engineers and
Environmental Services

MONITORING WELL DETAIL MW-62

Sparton Technology Inc.
Albuquerque, New Mexico

PLATE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	06310.039.12		12/90		

METRIC
Corporation

SAMPLE LOG

Borehole Number MW-66 Borehole Location N1526389.09 E375859.24
Property Owner City of Albuquerque
Sample Logger Peter H. Metzner, Metric Corporation
Driller Rodgers Environmental Services, Inc.
Drilling Medium Mud Rotary
Date of Completion 6-20-96 Ground Elevation 5103.03

Depth (feet)	Thickness (feet)	Stratigraphic Description
0 - 5	5.0	Pale yellowish brown (10YR 6/2), poorly sorted, sub-angular to sub-rounded, fine sand to very coarse sand.
5 - 15	10.0	Pale yellowish brown (10YR 6/2), poorly sorted, sub-angular to sub-rounded, fine sand to granule gravel.
15 - 20	5.0	Pale yellowish brown (10YR 6/2), medium sorted, sub-angular to rounded, medium sand to granule gravel.
20 - 35	15.0	Pale yellowish brown (10YR 6/2), poorly sorted, sub-angular, very fine sand to very coarse sand.
35 - 40	5.0	Pale yellowish brown (10YR 6/2), poorly sorted, sub-angular, very fine sand to very coarse sand with some clay.
40 - 45	5.0	Pale yellowish brown (10YR 6/2), poorly sorted, sub-angular, very fine sand to very coarse sand.

METRIC
Corporation

SAMPLE LOG
Continued

Borehole Number MW-66 Borehole Location N1526389.09 E375859.24

Depth (feet)	Thickness (feet)	Stratigraphic Description
45 - 65	20.0	Pale yellowish brown (10YR 6/2), poorly sorted, sub-angular to sub-rounded, fine sand to granule gravel.
65 - 75	10.0	Pale yellowish brown (10YR 6/2), medium sorted, sub-angular to sub-rounded, fine sand to very coarse sand.
75 - 80	5.0	Pale yellowish brown (10YR 6/2), poorly sorted, sub-angular to sub-rounded, very fine sand to granule gravel with some clay.
80 - 85	5.0	Pale yellowish brown (10YR 6/2), well sorted, sub-angular to sub-rounded, granule gravel to small pebble gravel.
85 - 100	15.0	Pale yellowish brown (10YR 6/2), poorly sorted, sub-angular, very fine sand to very coarse sand.
100 - 120	20.0	Light brownish gray (5YR 6/1), poorly sorted, angular, medium sand to pebble gravel.
120 - 135	15.0	Light brownish gray (5YR 6/1), poorly sorted, angular to sub-angular, clayey very fine sand to small pebble gravel.
135 - 145	10.0	Light brownish gray (5YR 6/1), poorly sorted, angular, very fine sand to small pebble gravel.
145 - 150	5.0	Light brownish gray (5YR 6/1), poorly sorted, angular to sub-angular, medium sand to small pebble gravel.

METRIC
Corporation

SAMPLE LOG
Continued

Borehole Number MW-66 Borehole Location N1526389.09 E375859.24

<u>Depth (feet)</u>	<u>Thickness (feet)</u>	<u>Stratigraphic Description</u>
150 - 160	10.0	Light brownish gray (5YR 6/1), poorly sorted, angular, very fine sand to small pebble gravel.
160 - 175	15.0	Light brownish gray (5YR 6/1), poorly sorted, sub-angular, very fine sand to granule gravel.
175 - 200	25.0	Pinkish gray (5YR 8/1), angular to sub-rounded, sandy clay and clayey very fine sand to granule gravel.
200 - 205	5.0	Light brownish gray (5YR 6/1), angular to sub-rounded, clayey very fine sand to granule gravel.
205 - 215	10.0	Light brownish gray (5YR 6/1), angular to sub-rounded, medium sand to small pebble gravel.

ATTACHMENT E

OPERATION PLAN

ATTACHMENT E OPERATIONAL PLAN

The leading edge plume containment system (see FIGURE 2) consists of 1) one or more containment wells producing up to 600 gpm (864,000 gpd) of groundwater, 2) an airstripper to remove VOC's from the water, 3) a pipeline leading from the well and airstripper location to the infiltration gallery, and 4) one or more infiltration galleries located either in the dedicated park area located on the north bank of the Calabacillas Arroyo (Alternate 1), within the Calabacillas Arroyo Channel (Alternate 2), or beneath the floodwater detention pond site located south of Congress Avenue.

The containment well will consist of at least a 6 inch diameter steel cased well. The depth to water at the well site is about 200 feet. The well is planned to have about 100 feet of wire wound stainless steel screen extending from the water table to 100 feet below the water table. The well will be operated at a rate sufficient to produce a capture zone as wide as the contaminant plume (see FIGURE 2).

The airstripper, which will be located at the well head, will be sized to treat the flow from the well to achieve the WQCC standards for the VOC's identified in the application. Additionally, the groundwater will be treated at the well head with "Aqua Mag" to inhibit precipitation of calcium carbonate and other scaling compounds in the pipeline and infiltration gallery. "Aqua Mag" is a product of Kjell which is located in Janesville, Wisconsin. The product consists of 30% ortho phosphate and 70% poly phosphate.

The treated groundwater will be conveyed from the well head through an underground 6" plastic (PVC or PE) pipeline along public rights-of-way to the infiltration gallery site (see FIGURE 2).

Three alternative infiltration gallery sites are being considered as shown on FIGURE 2. The final gallery location will be based on Sparton's ability to gain access to one of the sites. In either case, the infiltration gallery was sized for 200 gpm based on the

experience at the Van Waters and Rogers (VWR) remediation site located in Albuquerque's South Valley. The VWR system is believed to be sized as follows:

$$\text{Size} = 12' \times 225' = 0.052 \text{ Ac}$$

$$\text{Capacity} = 120 \text{ gpm}$$

The system for Sparton was sized by adjusting the VWR system for the ratios of vertical hydraulic conductivity and capacity for the two sites as follows:

$$\frac{0.062 \text{ Ac} \times 2472 \text{ ft/yr} \times 200 \text{ gpm}}{814 \text{ ft/yr} \times 120 \text{ gpm}} = 0.3 \text{ Ac}$$

Alternate 1 is located in an undeveloped park site on the north bank of Calabacillas Arroyo (see FIGURE 2). If the infiltration gallery is constructed at this site, it will be recessed below the arroyo bottom elevation, as shown in FIGURE 3, to prevent the possibility of water seeping out of the arroyo bank. Details of Alternate 1 design are presented in FIGURE 4.

Alternate 2 is located in the bottom of the Calabacillas Arroyo (see FIGURE 2). If the infiltration gallery is located at this site, it will be placed deep enough to prevent scour in the arroyo channel from exposing it (see FIGURE 3). A scour analysis was conducted to estimate the total long term degradation plus local scour depth such that the infiltration gallery can be placed deep enough to prevent the gallery from being destroyed during its useful life, which is assumed to be 4 years. Two primary references were used in determining a reasonable depth to bury the proposed infiltration gallery to be built in the Calabacillas Arroyo bottom. The two cited references are as follows:

Mussetter Engineering, Inc. December 1996. Draft Report Calabacillas Arroyo Prudent Line Study and Related Work. Prepared for AMAFCA.

Mussetter, K. A., Lagasse, P. F., Harvey, M. D. November 1994, Sediment and Erosion

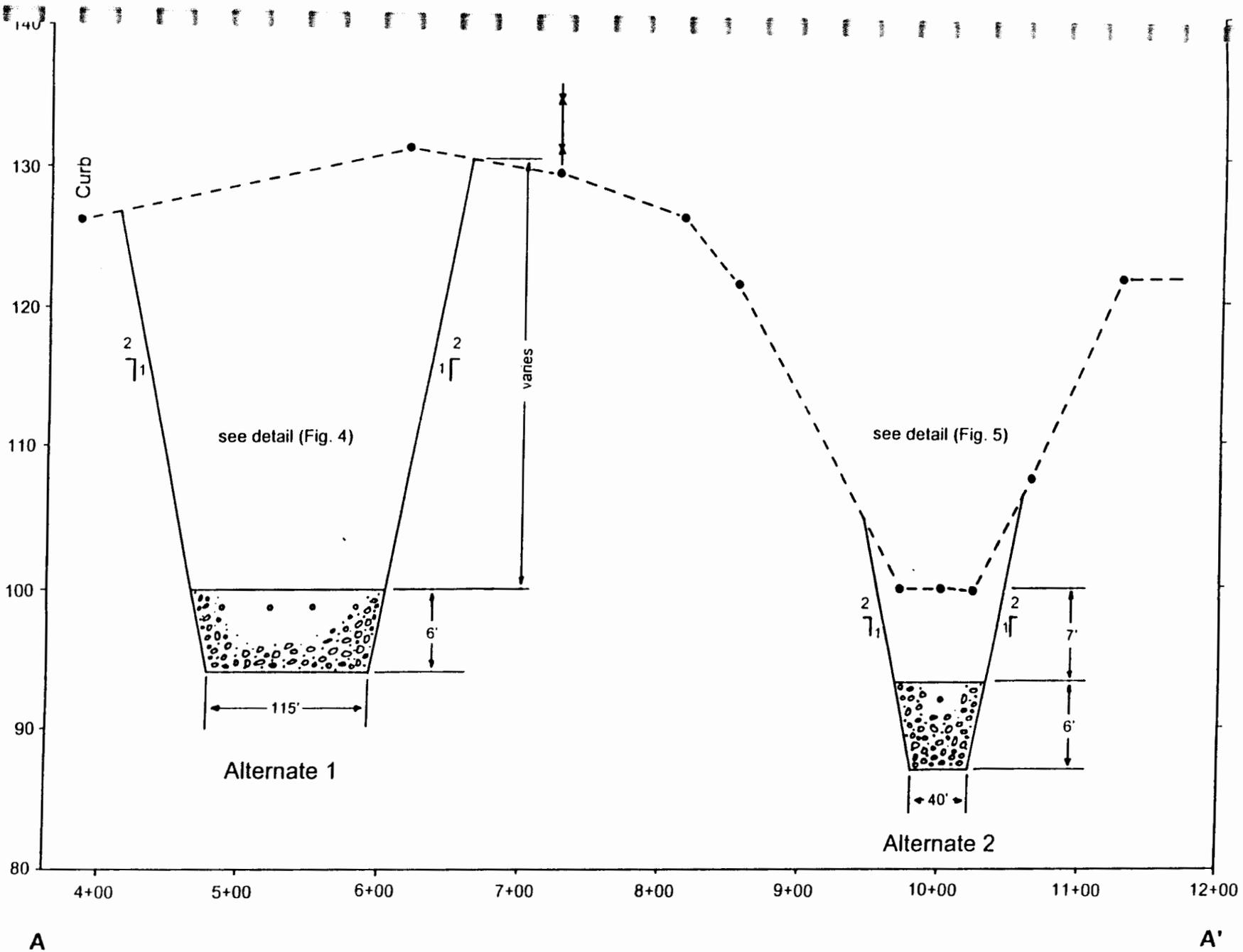


FIGURE 3
CROSS SECTION A-A'

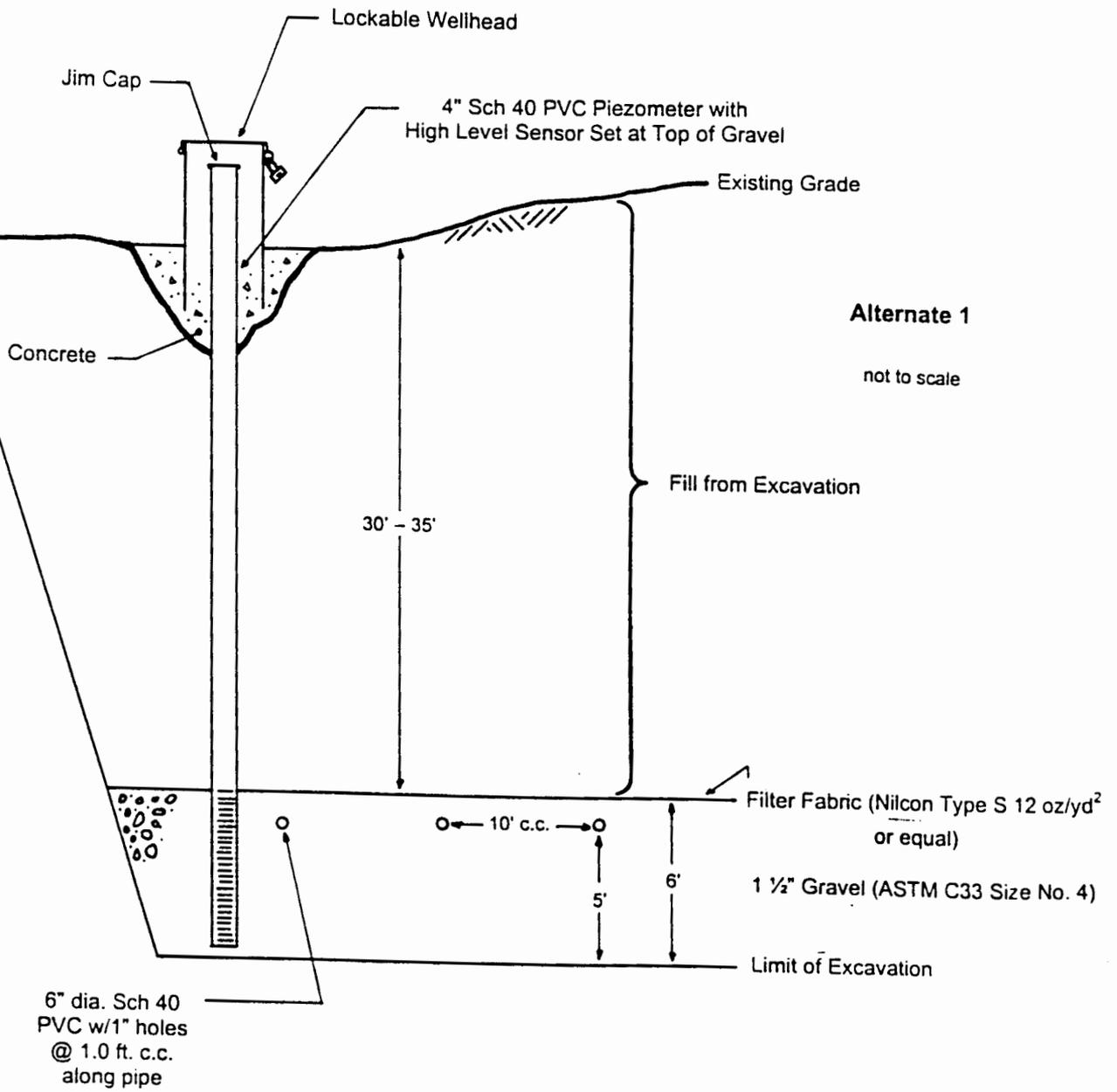


FIGURE 4
 ALTERNATE 1
 INFILTRATION GALLERY DETAILS

Design guide. Prepared for AMAFCA.

The Mussetter, December 1996 report provides design flows, hydraulic variables and maximum long term degradation values for the arroyo reaches. The maximum degradation was assumed to occur at the upstream end reach. The scour at a particular station was assumed to vary linearly with distance.

Equation 3.90 from Mussetter et al, November 1994, allows calculation of local scour as follows:

$$y_s = \underbrace{(0.73 \cos \theta)}_{\text{Flood Wall Scour}} + \underbrace{(0.14 \pi Fr^2) \cos \theta}_{\text{Antidune Scour}} + \underbrace{4 Fr^{0.33} \sin \theta}_{\text{Impingement Scour}}$$

TABLE 1 shows scour calculations for Station 68+00. The calculations indicate that 7.0 feet of cover will protect the infiltration gallery from the expected scour with a significant safety factor. Each time the gallery is rebuilt, it will be constructed to a total depth of 13.0 feet below the arroyo bottom that exists at the time of reconstruction. This will result in the gallery being constructed at lower and lower elevations as time passes if the arroyo bed is continuing to degrade. Details of the Alternate 2 design are presented in FIGURE 5.

Alternate 3 is located beneath the bottom of the floodwater detention pond located south of Congress Avenue (see FIGURE 2). If the infiltration gallery is constructed at this site, it will be buried 5.0 feet below the pond bottom to minimize infiltration of storm water into the infiltration gallery. Details of Alternate 3 are presented in FIGURE 6.

All three alternates are equipped with a piezometer to monitor the water level within the gravel such that maintenance can be scheduled if the gallery is clogging.

It is believed that the life of the infiltration gallery will be limited by clogging of the infiltration interface, and clogging rate is proportional to infiltrated volume per unit area.

Alternate 3

not to scale

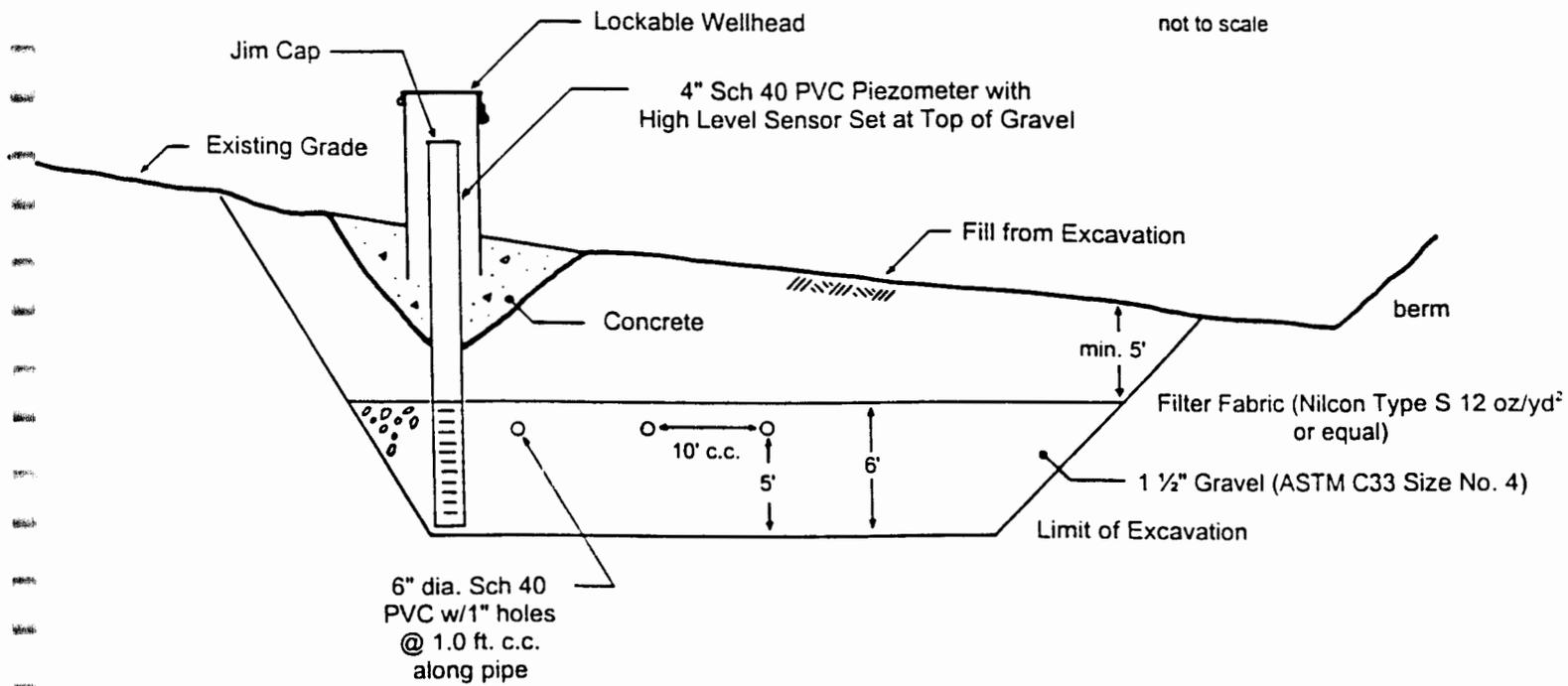


FIGURE 6

ALTERNATE 3
INFILTRATION GALLERY DETAILS

The water will be pretreated with "Aqua Mag", as is the case at the VWR site. The predicted lifespan for the Sparton Coors Road infiltration gallery is calculated as follows:

$$\begin{aligned} \text{VWR Wetted Area (120 gpm)} \\ &= 12' \times 225' + 6(2)(12+225) \\ &= 5544 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} \text{VWR Wetted Area (200 gpm)} \\ &= 5544 \times \frac{200}{120} \\ &= 9240 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} \text{Sparton Wetted Area (200 gpm)} \\ &= 0.3 \times 43,560 + 6(4)[\sqrt{0.3(43,560)}] \\ &= 15,811 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} \text{Life Sparton Site} &= \frac{\text{Area Sparton (200 gpm)}}{\text{Area VWR (200 gpm)}} \times \text{Life VWR Site} \\ &= \frac{15,811}{9,240} \times 2.5 \text{ yr.} = 4.2 \text{ yr.} \end{aligned}$$

Use 4.0 yr.

When the infiltration gallery clogs, the system will be shut down and the infiltration gallery will be excavated and reconstructed at the same location.

Groundwater extraction combined with airstripper treatment is considered a best demonstrated available technology for volatile organic constituents (VOC) such as TCE and TCA. Further, 9 ½ years of successful experience with the current on-site system, consisting of groundwater extraction and airstripper treatment system confirms the applicability of the technology to the Sparton site. The success provides the basis for the plan to utilize airstripper treatment technology in the offsite plume leading edge vicinity. The containment well (FIGURE 2) planned near the plume leading edge will be screened to the deeper of: (1) deepest contamination detected at well cluster #9 (MW-48, 55, 56, and 67) or (2) the elevation at which less than 50 ppb TCE is first detected in new MW-70 to provide effective vertical capture. In addition, previous pumping tests and a number of recent studies/investigations show that a single well should have a

horizontal capture exceeding the current width of the plume. However, horizontal and vertical capture of the containment well will be verified by extended demonstration. Long-term performance of the containment well will be monitored by means of the existing groundwater monitoring network (FIGURE 1).

TABLE 1

**SCOUR CALCULATIONS INFILTRATION
GALLERY AT Sta. 68+00
(Upstream from Blacks Arroyo)
(Reach 7, $\theta = 0^\circ$)**

Design Storm	10-yr	100-yr
Peak Flow (Existing conditions) (CFS)	4,210	10,340
Velocity (V) (FPS)	10.0	13.2
Hydraulic Depth (D) (FT)	3.1	5.4
$Fr = v/\sqrt{gD}$	1.00	1.00
Max. Degradation (After 10 yr, Exist. Cond.) (FT)	8.1	8.1
Degradation @ Sta. 68+00 (3/17 x 8.1) (FT)	1.4	1.4
Antidune Scour $Y_1 (0.14\pi Fr^2) \cos \theta$ (FT)	<u>1.4</u>	<u>2.4</u>
Total Scour (FT)	<u>2.8</u>	<u>3.8</u>

ATTACHMENT F

**DISCHARGE SITE APPROVAL
DOCUMENTATION**

Arrangements are being negotiated with the City of Albuquerque, Albuquerque Metropolitan Arroyo flood Control Authority, and the owner of the Calabacillas Arroyo. Final documents will be provided when available.

METRIC
Corporation ENVIRONMENTAL ENGINEERING AND SCIENCE

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

October 22, 1998

Mr. James B. Harris
Thompson & Knight
1700 Pacific Ave., Suite 3300
Dallas, TX 75210

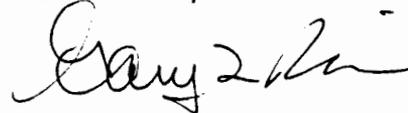
Dear Jim:

Enclosed is a copy of the quality assurance and quality control plan for Pinnacle Laboratories. Stavros and Pierce both indicated that you were going to compile the submittal, so you will need this document. Also enclosed is FIGURE 3, Additional Vadose Zone Investigation and Robust SVE Implementation Schedule.

If you have questions please contact me.

Sincerely,

METRIC Corporation



Gary L. Richardson, P.E.
Executive Vice President

GLR/rkh

cc: Stavros Papadopoulos
Pierce Chandler
Jan Appel



GARY E. JOHNSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT
Ground Water Quality Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-2900 phone
(505) 827-2965 fax

for Sparton



MARK E. WEIDLER
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 26, 1998

Mr. Richard D. Mico, V.P. & General Manager
Sparton Technology, Inc.
4901 Rockaway Boulevard SE
Rio Rancho, New Mexico 87124-4469

RE: Discharge Plan Approval, DP-1184, Sparton Technology, Inc. - Coors Road Facility

Dear Mr. Mico:

Pursuant to Water Quality Control Commission (WQCC) Regulation 3109, the discharge plan application for DP-1184, submitted by Mr. Richard D. Mico for the discharge of up to 864,000 gallons per day (gpd) of treated contaminated ground water from the Sparton Technology, Inc. - Coors Road Facility (Sparton) ground water remediation system is hereby approved, subject to the conditions listed below. The facility is located in northwest Albuquerque in projected Section 7, T11N, R3E, Bernalillo County. In approving this discharge plan, the New Mexico Environment Department (NMED) has determined that the requirements of WQCC Regulation 3109.C have been met.

The approved Sparton treatment and disposal system is briefly described as follows:

Contaminated ground water will be pumped from one extraction well to an air stripper to remove volatile chlorinated solvents. Treated ground water will be piped to an infiltration gallery located beneath the Calabacillas Arroyo channel (projected Section 7.14, T11N, R3E) for infiltration. Ground water below the infiltration site is at a depth of approximately 119 feet and has a total dissolved solids concentration of approximately 400 to 500 milligrams per liter.

The approved discharge plan consists of the materials submitted by Sparton and METRIC Corporation dated December 23, 1997, January 22, February 26, March 20, and March 23, 1998. The discharge shall be managed in accordance with the approved plan and is subject to the conditions listed below.

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However, approval of this discharge plan does not relieve you of your responsibility to comply with the New Mexico Water Quality Act, WQCC Regulations, any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

CONDITIONS FOR APPROVAL

This discharge plan approval is subject to the following conditions for the following reasons:

1. Sparton shall meter the volume of treated effluent discharged and remediation enhancement solution injected monthly and report the volumes of each to NMED in the quarterly reports as described in Condition #3 (below).

The reason for this condition is to provide a mechanism for monitoring the volume of treated effluent discharged in accordance with WQCC Regulation 3107.A.1.

2. Sparton shall sample the newly installed ground water monitor wells located in the vicinity of the infiltration gallery (Specific Requirement #3) within 30 days of installation and development, and prior to discharging treated effluent to the infiltration gallery, and shall submit the results to NMED within 60 days of well installation. The monitor wells shall be sampled and analyzed for the following parameters: chlorinated solvents (trichloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethylene, and methylene chloride) using EPA Method 8021 HALO (formerly EPA 8010), total dissolved solids (TDS), and for chromium, iron and manganese using EPA Method 6010 or equivalent methods.

The reason for this condition is to establish water quality in the vicinity of the infiltration gallery prior to Sparton beginning discharge, in accordance with WQCC Regulation 3107.A.8.

3. Sparton shall submit quarterly monitoring reports to NMED. Quarterly monitoring reports shall be received by the Ground Water Pollution Prevention Section (GWPPS) no later than January 31, April 30, July 31, and October 31 of each year.

Monitoring reports shall include the following: monthly effluent discharge volumes and monthly effluent quality analyses, quarterly water levels and analytical results for all monitor wells used to monitor ground water quality in the vicinity of the infiltration gallery, weekly measurements of water levels in the piezometer, and a summary of system operation and maintenance performed during the quarter.

The reason for this condition is to provide a monitoring plan to ensure that ground water quality standards are not exceeded as a result of your discharge in accordance with WQCC Regulation 3106, 3107.A.5., and 3107.A.8.

4. If the effluent quality of the discharge does not meet WQCC standards, Sparton shall immediately shut down the remediation system until the sample results are confirmed. A confirmation sample shall be collected from the treated effluent within 48 hours of receipt of the initial analytical results. The system will remain deactivated for the shortest practical time, until the problem can be remedied and the treated effluent quality does not exceed WQCC standards.

The reason for this condition is to provide a contingency plan to address failure of the treatment system in accordance with WQCC Regulation 3107.A.8, and 3107.A.10.

5. In the event of a spill or discharge of contaminated water at the well head, piping, or infiltration gallery, Sparton shall shut down the remediation system, determine the quantity, extent, and impact of the spill or discharge, and implement corrective action. Sparton shall inform GWPPS verbally within 24 hours of the spill or discharge event. Within seven (7) days of the spill or discharge event, Sparton shall submit to GWPPS a written explanation of the cause of the spill or discharge and remedial action taken. In addition, Sparton will also notify Surface Water Quality Bureau (SWQB) within 24-hours in the event of a spill or discharge to the arroyo.

The reason for this condition is to provide a mechanism for dealing with unauthorized spills and system failure in accordance with WQCC Regulation 1203.A, and 3107.A.10.

SPECIFIC REQUIREMENTS

The terms and conditions of this approval contain specific requirements which are summarized below.

1. Sparton is authorized to discharge up to 864,000 gpd of treated contaminated ground water which has been treated using an air stripping process to below WQCC standards, into an infiltration gallery located beneath the Calabacillas Arroyo channel (projected Section 7.14, T11N, R3E).
2. Sparton will install the top of the infiltration gallery a minimum of seven (7) feet

below the arroyo bottom that exists at the time of construction to prevent scour in the arroyo channel from exposing the infiltration gallery.

3. Sparton will install three ground water monitor wells near the infiltration gallery prior to effluent being discharged into the infiltration gallery. The monitor wells will be located as follows: one down gradient monitor well will be located within 50 feet down gradient of the infiltration gallery; one down gradient monitor well will be located within 150 feet down gradient of the infiltration gallery; and one up gradient monitor well will be located within 250 feet up gradient of the infiltration gallery.

All newly installed monitor wells used to monitor ground water quality in the vicinity of the infiltration gallery will be surveyed to common permanent bench mark to the nearest one-hundredth of a foot.

All monitor wells will be installed according to NMED Guidelines for Monitor Well Construction and Abandonment (copy enclosed). Monitor wells will be screened with 30 feet of well screen, screened from 10 feet above the static water level (as indicated during monitor well installation), and 20 feet below the water table.

If any monitor well is destroyed or damaged during flooding of the arroyo, Sparton will repair or replace the monitor well as necessary and within a reasonable period of time.

4. Sparton will design and construct the infiltration gallery for a discharge of 200 gpm. However, if the infiltration gallery must be sized greater than 200 gpm, Sparton will submit revised plans and specifications for system modification to NMED for approval prior to discharging more than 200 gpm.
5. Sparton is authorized to add approximately 4 parts per million of liquid nutrients (Aqua Mag) to the injection water at the wellhead to inhibit precipitation of calcium carbonate and other scaling compounds in the pipeline and infiltration gallery.
6. Sparton will install an automatic shutdown switch to turn off the containment well pump in the event the air stripper blower fails. In addition, the infiltration gallery will be equipped with a piezometer to monitor the water level in the infiltration gallery. The piezometer will be equipped with a high water level shut down system which will shut down the containment well pump if the water level within the infiltration gallery rises to the top of the gravel in the infiltration gallery. Sparton will either have the containment well checked by an operator twice per week or install an automatic shut off alarm to notify a responsible person in the event of a

system shut down to prevent the system from being shut down for an extended period of time.

7. Sparton will sample effluent from the air stripper system after start-up daily for the first week, weekly for the first month, and monthly thereafter. Samples will be analyzed for chlorinated solvents (trichloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethylene, and methylene chloride) using EPA Method 8021 HALO (formerly EPA 8010), and for chromium using EPA Method 6010. In addition, the air stripper effluent will be sampled on a weekly basis for the first month of operation, and monthly thereafter for iron and manganese using EPA Method 6010.
8. Sparton will sample all monitor wells associated with the infiltration gallery on a quarterly basis for the following parameters: chlorinated solvents using EPA Method 8021 HALO, and for chromium, iron, and manganese using EPA Method 6010. NMED will consider a request for a reduction in the monitoring after two years of system operation for the following: 1) a reduction in monitoring frequency for the up gradient well, and 2) a reduction in monitoring frequency for iron and manganese if these constituents are not detected above WQCC standards. A minimum of one down gradient monitor well will be monitored on a quarterly basis for the duration of the discharge.
9. In the event the infiltration gallery fails or clogs, Sparton will replace the infiltration gallery at the same location within 6 weeks of system failure. Each time the infiltration gallery is rebuilt, the bottom of the infiltration gallery will be constructed to a total depth of thirteen (13) feet below the existing arroyo bottom as determined at the time of construction.
10. In the event that ground water is contaminated in the vicinity of the infiltration gallery as a result of Sparton's discharge, Sparton will abate any resulting ground water contamination in accordance with 3109.E and Subpart IV of the New Mexico Water Quality Control Commission Regulations.
11. When the Sparton site is closed, Sparton will monitor the ground water in the vicinity of the infiltration gallery for eight consecutive quarters for the following parameters: chlorinated solvents (trichloroethylene, 1,1,1-trichloroethane, 1,1-dichloroethylene, and methylene chloride) using EPA Method 8021 HALO (formerly EPA 8010), and for chromium using EPA Method 6010. If WQCC ground water quality standards are not exceeded after 8 consecutive quarters, Sparton shall implement the Closure Plan as stated in the amended discharge plan application dated February 26, 1998 and the supplement to the discharge plan dated March 20, 1998. The closure plan

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includes: removal of the air stripper, capping and abandoning in-place the pipeline leading from the containment well to the infiltration gallery, plugging and abandonment of all monitor wells associated with the infiltration gallery according to NMED Guidelines for Monitor Well Construction and Abandonment (copy enclosed), and removal and proper off-site disposal of all perforated pipe from the infiltration gallery.

GENERAL DISCHARGE PLAN REQUIREMENTS

In addition to any other requirements provided by law, approval of discharge plan, DP-1184, is subject to the following general requirements:

Monitoring and Reporting

Monitoring and reporting shall be as specified in the discharge plan and supplements thereto. These requirements are summarized on the attached sheet(s). Any inadvertent omissions from this summary of a discharge plan monitoring or reporting requirement shall not relieve you of responsibility for compliance with that requirement.

Record Keeping

1. The discharger shall maintain at the facility, a written record of ground water and wastewater quality analyses.

The following information shall be recorded and shall be made available to the NMED upon request.

- a. The dates, exact place and times of sampling or field measurements.
- b. The name and job title of the individuals who performed the sampling or measurements.
- c. The dates the analyses were performed.
- d. The name and job title of the individuals who performed the analyses.
- e. The analytical techniques or methods used.
- f. The results of such analyses, and

- g. The results of any split sampling, spikes or repeat sampling.
2. The discharger shall maintain a written record of any spills, seeps, and/or leaks of effluent, leachate and/or process fluids not authorized by this discharge plan.
3. The discharger shall maintain a written record of the operation, maintenance and repair of facilities/equipment used to treat, store and/or dispose of wastewater; to measure flow rates; and/or to monitor water quality. This will include repairs, replacement or calibration of any monitoring equipment and repairs or replacement of any equipment used in Sparton's waste or wastewater treatment and disposal system.
4. The discharger shall maintain a written record of the amount of effluent discharged.

Inspection and Entry

In accordance with § 74-6-9.B & E NMSA 1978 and WQCC Regulation 3107.D., the discharger shall allow the Secretary or his authorized representative, upon the presentation of credentials, to:

1. Enter at regular business hours or at other reasonable times upon the discharger's premises or where records must be kept under the conditions of this discharge plan.
2. Inspect and copy, during regular business hours or at other reasonable times, any records required to be kept under the conditions of the discharge plan.
3. Inspect, at regular business hours or at other reasonable times, any facility, equipment (including monitoring and control equipment), practices or operations regulated or required under this discharge plan.
4. Sample or monitor, at reasonable times for the purpose of assuring discharge plan compliance or as otherwise authorized by the New Mexico Water Quality Act, any effluent at any location before or after discharge.

Duty to Provide Information

In accordance with § 74-6-9.B NMSA 1978 and WQCC Regulation 3107.D., the discharger shall furnish to the NMED, within a reasonable time, any relevant information which it may request to determine whether cause exists for modifying, terminating and/or renewing this discharge plan or to determine compliance with this plan. The discharger shall furnish to the NMED, upon request, copies of records required to be kept by this discharge plan.

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Spills, Leaks and Other Unauthorized Discharges

This approval authorizes only those discharges specified in the discharge plan. Any unauthorized discharges violate WQCC Regulation 3104, and must be reported to the NMED and remediated as required by WQCC Regulation 1203. This requirement applies to all seeps, spills, and/or leaks discovered from the treatment and disposal system.

Retention of Records

The discharger shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this discharge plan, and records of all data used to complete the application for this discharge plan, for a period of at least five years from the date of the sample collection, measurement, report or application. This period may be extended by request of the Secretary at any time.

Enforcement

Failure to grant the Secretary or his authorized representative access to the records required to be kept by this discharge plan or to allow an inspection of the discharge facilities or to the collection of samples is a violation of this discharge plan and the WQCC Regulations. Such violations as well as other violations of the discharge plan or WQCC Regulations, may subject the discharger to a compliance order, a compliance order assessing a civil penalty or an action in district court pursuant to § 74-6-10 NMSA 1978, and/or modification or termination of this discharge plan pursuant to § 74-6-5.L NMSA 1978. Penalties assessed as part of a compliance order shall not exceed \$15,000 per day for violations of the terms of this permit or the requirements of § 74-6-5 NMSA 1978, and shall not exceed \$10,000 per day for violations of other sections of the Water Quality Act.

Modifications and/or Amendments

The discharger shall notify NMED, pursuant to WQCC Regs. 3107.C, of any modifications or additions to the Sparton's wastewater disposal system, including any increase in wastewater flow rate or wastewater storage and disposal management changes to the system as approved under this discharge plan. The discharger shall obtain NMED's approval, as a discharge plan modification, prior to any increase in the quantity or concentration of constituents in the leachate above those approved in this plan. Please note that WQCC Regs. 3109.E and F provide for possible future amendment of the plan.

Other Requirements

Please be advised that the approval of this plan does not relieve Sparton of liability should your

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operation result in actual pollution of surface or ground water which may be actionable under other laws and/or regulations.

RIGHT TO APPEAL

If Sparton is dissatisfied with this action taken by NMED, Sparton may file a petition for hearing before the WQCC. This petition shall be in writing to the Water Quality Control Commission within thirty (30) days of the receipt of this letter. Unless a timely request for hearing is made, the decision of the NMED shall be final.

TRANSFER OF DISCHARGE PLAN

Pursuant to WQCC Regulation 3111, prior to any transfer of ownership, the discharger shall provide the transferee a copy of the discharge plan, including a copy of this approval letter and shall document such to the NMED.

PERIOD OF APPROVAL

Pursuant to WQCC Reg. 3109.G.4., this discharge plan approval is for a period of 5 years. This approval will expire on June 26, 2003, and you must submit an application for renewal at least 120 days before that date.

Sincerely,



Marcy Leavitt, Chief
Ground Water Quality Bureau

ML:VM

Enclosures: NMED Monitor Well Construction and Abandonment Guidelines, DP Summary

xc: Dennis McQuillan, NMED/GWQB
Ana Marie Ortiz, Assistant General Counsel, NMED Office of General Counsel
L. William Bartels, Dist. Manager, NMED Dist. 1
NMED Albuquerque Field Office
Gary O'Dea, Esq., City of Albuquerque

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Michael Donnellan, Esq., US Department of Justice
Charlie DeSaillan, Esq., NM Office of Attorney General and ONRT, P.O. Box. 1508, Santa
Fe, New Mexico 87504
Gary Richardson, P.E., METRIC Corporation, 8429 Washington Place NE., Albuquerque,
NM 87113

NMED, GROUND WATER ACTION, DISCHARGE PLAN SUMMARY

Discharge Plan Number..... 1184
Date Report Generated..... 26-JUN-98
Staff Reviewer..... VICTORIA MARANVILLE

Legally Responsible Party. RICHARD MICO VP&GM (505)892-5300
Owner..... RICHARD D MICO
4901 ROCKAWAY BLVD SE
RIO RANCH NM 87124-4469

Facility..... SPARTON TECHNOLOGY INC

Primary Waste Type..... INDUSTRIAL OTHER
Treatment..... HYDROCARBON REMEDIATION AIR STRIPPER
Discharge..... INFILTRATION BASIN
Discharge Location..... CALABACILLAS ARROYO (PROJECTED SECTION 7.14,
T11N, R3E)

Application Received..... 24-DEC-97..... Discharge Volume.....8640.00 gpd
Public Notice Published... 26-FEB-98..... Depth to GW..... 119 feet
Discharge Plan Approved... 26-JUN-98..... TDS..... 400 mg/l
Discharge Plan Expires.... 26-JUN-03

Monitoring Reports due.... 31-JAN 30-APR 31-JUL 31-OCT

<u>Sampling Category</u>	<u>Annual Frequency</u>	<u>No. of Sites</u>	<u>Sampling Description</u>
2	12	1	Monthly meter readings of treated effluent discharged.
12	12	1	Monthly volumes of remediation enhancement solution injected.
6	4	3	Quarterly sampling and analysis for all monitor wells used to monitor ground water in the vicinity of the infiltration gallery for: chlorinated solvents using EPA Method 8021 HALO, and chromium using EPA Method 6010.
6	12	1	Airstripper effluent shall be sampled daily for the first week, weekly for the first month, and monthly thereafter for the following: chlorinated solvents and chromium.
12	12	1	Air stripper effluent shall also be sampled for iron and manganese weekly for the first month of system operation and monthly thereafter.

____ If this space is checked, monitoring requirements are summarized or explained in more detail on the attached sheet. Any inadvertent omission from this summary does not relieve the discharger of responsibility for compliance with that requirement.

Send All monitoring reports or correspondence to: VICTORIA MARANVILLE

Ground Water Pollution
Prevention Section
Environment Department
P.O. Box 26110
Santa Fe NM 87502
(505) 827-2900