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SPECIAL INSTRUCTIONS:

To: CoPlaintiffs
From: Michael Donnellan
Date: 16 April 1998
re: Proposed FOF/COL

Attached is the pre-final draft. Final draft goes out COB today. Any comments must be received b/f 5pm my time today. **Please call me TODAY and tell me whether I am authorized to sign on your behalf.** Thanks.

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO**

THE CITY OF ALBUQUERQUE and
THE BERNALILLO COUNTY
COMMISSIONERS, et al

Plaintiffs,

v.

SPARTON TECHNOLOGY, INC.,

Defendant.

Civil Action No.
CIV 97 0206 LH/JHG

Consolidated with:
CIV 97 0208 JC/RJP
CIV 97 0210 M/DJS
CIV 97 0981 LH/JHG

**PLAINTIFFS' PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW
FOR PLAINTIFFS' JOINT MOTION FOR PRELIMINARY INJUNCTION**

Plaintiffs submit the following proposed findings of fact and conclusions of law regarding Plaintiffs' Joint Motion For Preliminary Injunction.

I. PROPOSED FINDINGS OF FACT

1. Sparton Technology, Inc. ("Sparton") is a corporation organized under the laws of the State of New Mexico. Sparton is registered and does business in the State of New Mexico. Answer of Sparton Technology, Inc. in U.S. v. Sparton Technology, Inc., No. CV 97 0210 (D.N.M.) ("Answer") at ¶ 4.

2. Until March 14, 1983, Sparton was known as Sparton Southwest, Inc. Sparton Southwest, Inc. and Sparton Technology, Inc. are the same corporation. Answer at ¶ 21; March 29, 1997 Declaration of Vincent E. Malott In Support of the Joint Motion for Preliminary Injunction, Exhibit 1 to Plaintiffs' Joint Motion for Preliminary Injunction, ("Malott Declaration") at ¶ 15.

3. At all relevant times, Sparton owned and operated a facility located at 9621 Coors Road NW, Albuquerque, New Mexico ("the Sparton facility"). Answer at ¶¶ 11 & 18; Malott Declaration at ¶ 29.

4. The Sparton facility is located approximately one-half mile west of the Rio Grande River and sits approximately sixty to seventy-five feet above the groundwater table. Answer at ¶ 11; Malott Declaration at ¶ 29; Testimony of Dr. Robert D. Morrison at 32:22-33:1; Government Exhibit 3.

5. The Sparton facility is within the Albuquerque Basin and the groundwater in the vicinity of the Sparton facility is a part of the Santa Fe Group aquifer which is the sole source of drinking water for the city of Albuquerque, New Mexico. Answer at ¶ 13; Testimony of

Norman Gaume at 102:7-11 and 105:5-106:16; Government Exhibit 18; March 31, 1998 Affidavit of Norman Gaume, Exhibit 2 to Plaintiffs' Joint Motion for Preliminary Injunction, ("Gaume Affidavit") at ¶¶ 2-4; Testimony of Dr. Morrison at 33:11-14.

6. The groundwater underlying the Sparton facility flows generally to the northwest. Testimony of Dr. Morrison at 33:15-20; Government Exhibit 3; March 28, 1997 Affidavit of Dr. Morrison, Exhibit 3 to Plaintiffs' Joint Motion for Preliminary Injunction, ("First Morrison Affidavit") at ¶ 3.

7. Residential and commercial development has occurred in the area of the Sparton facility. Testimony of Dr. Morrison at 33:6-10 and 35:19-36:2; Government Exhibits 3 & 20; Testimony of Mr. Gaume at 110:14-112:5; Gaume Affidavit at ¶ 8; Malott Declaration at ¶ 7.

A. Solid or hazardous wastes were handled, stored, treated, transported, or disposed of at the Sparton facility

8. Manufacturing operations at the Sparton facility extended from 1961 to at least 1994. Manufacturing operations included the production of commercial, industrial, and military electronic components including printed circuit boards. Answer at ¶ 18; Malott Declaration at ¶¶ 21, 27, & 29.

9. In notifications and permit applications submitted to the United States Environmental Protection Agency ("EPA") in 1980 and 1983 that were signed by the Vice President and General Manager, Sparton stated that it handled numerous categories of hazardous wastes including wastes that fell within the EPA defined hazardous waste categories "F001" and "F005." Answer at ¶ 18; Malott Declaration at ¶¶ 10, 11, 13, & 14.

10. EPA regulations define the term "F001" to mean "[t]he following spent halogenated solvents used in degreasing: tetrachloroethylene, trichlorethylene, methylene chloride, 1,1,1-trichlorethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvents mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures." 40 C.F.R. § 261.31; Malott Declaration at ¶¶ 9 & 12.

11. EPA regulations define the term "F005" to mean "[t]he following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures." 40 C.F.R. § 261.31; Malott Declaration at ¶¶ 9 & 12.

12. Sparton's manufacturing operations generated waste solvents and aqueous plating wastes containing heavy metals. May 14, 1997 Affidavit of Richard Mico, Exhibit A to Sparton's Response to Plaintiffs' Joint Motion for Preliminary Injunction, ("Mico Affidavit") at ¶ 4; Malott Declaration at ¶¶ 27 & 29.

13. From approximately 1961 to 1983, aqueous plating wastes and waste solvents were stored in surface impoundments and in a sump. Malott Declaration at ¶ 27.

14. Sparton stored wastes in drums placed on the ground at the Sparton facility through 1981. Malott Declaration at ¶ 21.

15. The wastes, including waste solvents, generated and stored by Sparton at the Sparton facility contained various chemicals including trichlorethylene ("TCE"), 1,1,1-trichloroethane, methylene chloride, 1,1-dichloroethylene, tetrachloroethylene, toluene, benzene, and chromium. Answer at ¶ 18; Mico Affidavit at ¶ 4; Malott Declaration at ¶ 27.

B. There Is an Imminent and Substantial Endangerment to Health or the Environment at The Sparton Facility

16. Analyses of samples collected from the groundwater underlying the Sparton facility show the presence of chemicals including trichlorethylene ("TCE"), 1,1,1-trichloroethane, methylene chloride, 1,1-dichloroethylene, tetrachloroethylene, toluene, benzene, and chromium. Answer at ¶ 19; Malott Declaration at ¶ 22; Testimony of Dr. Morrison at 33:21-34:19.

17. Analyses of samples collected from off-site groundwater monitoring wells show the presence of hazardous waste constituents and contaminants, including TCE, 1,1,1-trichloroethane, 1,1-dichloroethylene, tetrachloroethylene, and chromium. Answer at ¶ 22 and 23; Testimony of Dr. Morrison at 33:21-34:19; Government Exhibits 5 & 6.

18. TCE has been found in the groundwater underneath the Sparton facility at elevated concentrations ranging up to 90,900 parts per billion ("ppb"). Answer at 19, 22, 23; Testimony of Dr. Morrison at 41:22-42:11; Malott Declaration at ¶ 36; Government Exhibits 5 and 10.

19. TCE has been found in groundwater offsite at elevated concentrations ranging up to 4,700 ppb. Answer at 19, 22, 23; Testimony of Dr. Morrison at 41:22-42:11, 36:18-37:14, 38:7-39:16, and 43:10-25; Government Exhibits 4, 5, 6, 7, 8, 9, and 10; Malott Declaration at ¶ 36.

20. The plume of contaminated groundwater extends approximately one-half mile northwest of the Sparton facility. Testimony of Dr. Morrison at 38:7-25; Government Exhibits 3 & 7; First Morrison Affidavit at ¶ 3.

21. The plume of contaminated groundwater is currently expanding at a rate of approximately one hundred feet per year. Testimony of Dr. Morrison at 34:20-25 and 47:13-19; Testimony of Dr. Stavros Papadopoulos at 210:2-5; First Morrison Affidavit at ¶ 4; Government Exhibits 3 & 9.

22. At a rate of expansion of 100 feet per year, an additional 500 to 4,000 gallons of groundwater per hour is being contaminated. This is equal to approximately 4.5 million to 35 million additional gallons of contaminated groundwater per year. Testimony of Dr. Morrison at 48:12-50:5; First Morrison Affidavit at ¶ 4.

23. The magnitude of the expansion of the contaminant plume can be illustrated by comparison to the amount of water used by an average person. Prior to the start of Albuquerque's conservation efforts, the average person in Albuquerque used 250 gallons of water per day. Albuquerque's conservation goal is to reduce per capita water usage to 175 gallons per day. Using the lower rate of 175 gallons per capita per day, the additional quantity of groundwater contaminated by the Sparton plume each year is equal to the amount of water used daily by approximately 22,857 to 200,000 individuals. Testimony of Mr. Gaume at 108:20-109:12.

24. The New Mexico Environment Department ("NMED") regulates groundwater quality pursuant to its authority under the New Mexico Water Quality Act, NMSA §§ 74-6-1-74-6-17, and the Water Quality Control Commission regulations, 20 NMAC 6.2. Testimony of Dennis McQuillan at 151:1-6.

25. When exercising its authority, the NMED requires that all groundwater contamination be abated to conform to standards appropriate for the groundwater's present or best potential future use. It is not NMED's policy to allow groundwater pollution to remain unaddressed because the groundwater is not presently in use as drinking water. Testimony of Dennis McQuillan at 151:7-152:4 and 157:6-11.

26. It is the policy of NMED that all groundwater in the state is an important resource, and that in an arid state like New Mexico, every drop of useable groundwater is precious and needs to be protected. Testimony of Dennis McQuillan at 151:21-152:4.

27. When siting additional drinking water wells, it is the practice of Albuquerque to rely upon the 1982 Master Plan of Water Supply for City of Albuquerque, N.M. and Environs ("the 1982 Master Plan") to determine the location of wells. Testimony of Mr. Gaume at 113:8-115:11, 124:19-125:1, and 142:11-16; Government Exhibit 21.

28. The 1982 Master Plan proposes 28 drinking water well locations within two and one-half miles of the Sparton facility. Of those 28 well locations, two are within approximately one-third of a mile of the Sparton facility and one is within approximately one-half mile of the Sparton facility. Testimony of Mr. Gaume at 122:22-124:10; Government Exhibits 21 and 22.

29. The groundwater within the Sparton contamination plume would be suitable for use as drinking water but for the Sparton contamination. Testimony of Mr. Gaume at 116:13-117:14; Gaume Affidavit at ¶ 9; April 29, 1997 Deposition of Norman Gaume, Exhibit 8 to Plaintiffs' Reply to Sparton's Response to Plaintiff's Motion for Preliminary Injunction, ("Gaume Deposition") at 176-180.

30. Albuquerque considered water resource development in the area of the Sparton facility, but decided not to utilize the area. The principal reason for the decision was the presence of the contamination emanating from the Sparton facility. Testimony of Mr. Gaume at 117:15-118:9 and 143:5-21.

31. Cleanup of the contaminated groundwater may be possible, but the success of cleanup efforts is not guaranteed. Cleanup of the groundwater contamination emanating from

the Sparton facility will be a time consuming process. Testimony of Dr. Morrison 51:10-21; Malott Declaration at ¶ 32; First Morrison Affidavit at ¶ 5.

32. Numerous samples of groundwater from the area contaminated by the Sparton plume have been analyzed and shown to contain less than 10,000 mg/l total dissolved solids. Gaume Deposition at 176-180.

33. In estimating future growth, it is the practice of Albuquerque to rely upon Urban Growth Projections prepared for the city by the Bureau of Business and Economic Research. The 1996 Urban Growth Projections for Albuquerque and Vicinity prepared by the Bureau of Business and Economic Research for Albuquerque project that the population in the area which includes the Sparton facility will grow from 9,222 in 1990 to 26,070 in 2005. Testimony of Mr. Gaume at 107:3-108:5; Government Exhibit 19.

34. The population growth in the area of the Sparton facility will require an increase in the supply of water. Testimony of Mr. Gaume at 109:12-13.

35. Albuquerque and Bernalillo County do not have a city-wide water distribution system. Instead, locally produced drinking water is served to customers through a local distribution system. Testimony of Mr. Gaume 108:14-19.

36. Albuquerque has officially adopted the 1997 City of Albuquerque Water Resources Management Strategy. Under the strategy set forth in that document, groundwater will continue to be a mainstay source of drinking water supply. During times of drought and peak water demand, groundwater will continue to be the sole supply of drinking water. Testimony of Mr. Gaume at 118:10-120:25; Government Exhibit 23.

37. Albuquerque and Bernalillo County have officially adopted a Ground-Water Protection Policy and Action Plan. The goals of the Ground-Water Protection Policy and Action Plan are (1) to protect groundwater resources, (2) to find and clean up groundwater contamination, and (3) to promote the coordinated protection and prudent use of groundwater resources. The Ground-Water Protection Policy and Action Plan designates areas within Bernalillo County that are crucial for purposes of protecting groundwater quality. The Sparton facility and its associated groundwater contamination are located within an area designated as crucial for purposes of protecting groundwater quality. Testimony of Mr. Gaume at 125:2-126:10 and 126:23-128:7; Government Exhibit 25.

38. EPA, the State of New Mexico, the County of Bernalillo, and the City of Albuquerque determined that the presence of solid or hazardous wastes in the soil and groundwater at the Sparton facility "may present an imminent and substantial endangerment to health or the environment." Testimony of Mr. Gaume at 130:4-14; Government Exhibits 29, 42, & 43; Mallot Declaration at ¶ 36.

39. Pursuant to the requirements of the Safe Drinking Water Act, 42 U.S.C. § 300f et seq., EPA has set health based standards for contaminants in drinking water. EPA has set two standards: (1) the maximum contaminant level goal ("MCLG") which is set at the level at which no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety; and (2) the maximum contaminant level ("MCL") which is set at

a level which is as close to the MCLG as is technologically feasible. See 42 U.S.C. § 300g-1(a)(4); Malott Declaration at ¶¶ 27, 34, & 36; Testimony of Dr. Morrison at 36:3-17.

40. New Mexico has established regulatory limits on the quantity of contaminants allowed in drinking water. These regulations are known as the New Mexico Water Quality Control Commission ("WQCC") regulations and are found at 20 NMAC § 6.2. Testimony of Dennis McQuillan at 151:9-16.

41. The concentrations of contaminants in groundwater at and in the vicinity of the Sparton facility presently exceed and in the past have exceeded the federal MCLGs and MCLs and the New Mexico WQCC standards. Substances detected in the most significant concentrations in groundwater at and in the vicinity of the Sparton facility together with the applicable MCLs, MCLGs, and New Mexico Limits are listed in Table 1. Malott Declaration at ¶ 36; Government Exhibits 4, 5, 6, 7, 9, & 10; Testimony of Dennis McQuillan at 152:18-24.

TABLE 1				
STANDARD FOR CONTAMINANTS IN WATER AND CONCENTRATIONS DETECTED IN GROUNDWATER AT AND IN THE VICINITY OF THE SPARTON FACILITY				
Contaminant	Federal Contaminant Limits		New Mexico WQCC Limit (ppb)	Highest Level Found in Groundwater at and in the Vicinity of the Sparton Facility (ppb)
	MCLG (ppb)	MCL (ppb)		
Trichloroethylene (TCE)	0	5	100	90,900
1,1,1-Trichloroethane	200	200	60	54,900
Methylene Chloride (Dichloromethane)	0	5	100	78,400
1,1-Dichloroethylene	7	7	5	31,600
Tetrachloroethylene	0	5	20	953
Benzene	0	5	10	4,720
Toluene	100	1000	750	193
Chromium (total)	100	100	50	32,100

42. According to the data base maintained by the New Mexico Environment Department, the plume of contamination emanating from the Sparton facility is among the largest plumes of chlorinated solvents in New Mexico. Testimony of Dennis McQuillan at 150:4-16 and 153:5-14.

43. According to the data base maintained by the New Mexico Environment Department, the Sparton plume contains the highest concentrations of the contaminant TCE in New Mexico. Testimony of Dennis McQuillan at 150:4-16 and 152:25-153:4.

C. Sparton Is a Person Who Has Contributed to the Handling, Storage, Treatment, Transportation, or Disposal of Hazardous Wastes at the Sparton Facility

44. Sparton handled and stored hazardous wastes at its facility. Answer at ¶ 18; Malott Declaration at ¶¶ 10, 11, 13, & 14.

45. The past operations of Sparton at the Sparton facility are the source of the groundwater contamination emanating from the Sparton facility. Answer at ¶ 19; Mico Affidavit at ¶ 5; Malott Declaration at ¶¶ 20 & 27.

D. Claim under Safe Drinking Water Act Section 1431

46. The groundwater under and in the vicinity of the Sparton facility is part of an aquifer that currently supplies the citizens of Albuquerque and Bernalillo County with drinking water, and, therefore, contains a sufficient quantity of groundwater to supply a public water system. Answer at ¶ 13; Testimony of Mr. Gaume at 102:7-11 and 105:5-106:16; Government Exhibit 18; Gaume Affidavit at ¶¶ 2-4; Testimony of Dr. Morrison at 33:11-14.

47. Given that the plume of contaminants emanating from the Sparton facility is still present and still expanding, State and local authorities have not successfully acted to protect the health of person from the contamination at the Sparton facility. See proposed facts 16-22.

E. The Actions Set Forth in the Workplan Attached to Plaintiffs' Joint Motion For Preliminary Injunction Are Necessary and Appropriate First Steps Towards Containment of the Contaminant Plume

48. The plume of contaminants emanating from the Sparton facility will continue to expand unless action is taken to contain it. Testimony of Dr. Morrison at 35:1-18, 40:8-11, 43:10-45:1, and 47:13-19; Government Exhibits 3, 8, & 9.

49. The expanding plume of contamination emanating from the Sparton facility can be contained. Testimony of Dr. Morrison 50:6-51:15; Testimony of Dr. Papadopolus at 238:25-241:18.

50. The method for containing the Sparton contaminant plume that is both standard in the industry and appropriate for this site is installation of an extraction well containment system. An extraction well containment system consists of one or more "extraction wells" which pump groundwater to the surface where it is treated and disposed of. The extraction wells are located and operated in such a manner that the contaminated groundwater flows into the extraction well. Testimony of Dr. Morrison at 50:21-51:9.

51. When designing an extraction well containment system, there are two goals. The first goal is to make sure that none of the contaminated groundwater flows past the

43. According to the data base maintained by the New Mexico Environment Department, the Sparton plume contains the highest concentrations of the contaminant TCE in New Mexico. Testimony of Dennis McQuillan at 150:4-16 and 152:25-153:4.

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51. When designing an extraction well containment system, there are two goals. The first goal is to make sure that none of the contaminated groundwater flows past the

extraction well. The second goal is to ensure that as little uncontaminated groundwater as possible flows into the extraction well in order to preserve groundwater resources and minimize costs. Testimony of Dr. Morrison at 70:11-71:5 and 96:7-97:12.

52. Before a containment system for the Sparton facility that will meet these goals can be designed and constructed, essential data that are currently lacking must be gathered. The most critical pieces of missing data are the depth of contamination near the leading edge of the contaminant plume and the hydraulic properties of the aquifer in the area of the leading edge of the contaminant plume. Testimony of Dr. Morrison at 51:22-52:17.

53. Plaintiffs have moved the Court for injunctive relief in the form of an order requiring Sparton to implement a workplan ("the Workplan"). If implemented, the Workplan will provide the data needed to design and construct an extraction well containment system for the Sparton contamination plume. Government Exhibit 11; Testimony of Dr. Morrison at 52:18-53:9.

54. The Workplan sets forth a reasonable, cost-effective, standard industry approach to collecting the information needed to properly design a containment system to halt the expansion of the groundwater contamination plume. Testimony of Dr. Morrison at 71:19-72:4; Testimony of Mr. Richardson at 189:12-20.

55. The estimated cost to Sparton of implementing the Workplan is between \$200,00 and \$250,000. Testimony of Dr. Morrison at 69:19-70:10.

56. No discharge permit pursuant to the New Mexico Water Quality Act, NMSA §§ 74-6-1 to 74-6-17, or the WQCC regulations, 20 NMAC 6.2, is required for implementation of the Workplan. A discharge permit from the State will be required if Sparton is to continue to operate the test well after the conclusion of the pump test specified in the Workplan and dispose of the extracted water in an infiltration gallery. Testimony of Dennis McQuillan at 160:15-161:16 and 163:5-23.

57. On December 24, 1997, the New Mexico Environment Department ("NMED") received from Sparton a partially complete application for a discharge permit application which was received on December 24, 1997. On February 26, 1998, NMED received from Sparton an amended, but still partially incomplete, application. In accordance with the WQCC regulations, NMED published public notice of Sparton's application on February 25, 1998. 20 NMAC 6.2.3108. The public comment period closed on March 25, 1998. On March 16, 1998, NMED notified Sparton that the February 26, 1998 application was deficient in certain respects. Sparton's Exhibit 13; Testimony of Dennis McQuillan at 160:15-161:16 and 163:5-23; Testimony of Gary Richardson at 193:7-14 and 195:5-7.

58. EPA, one of the Plaintiffs, issued a Final Administrative Order to Sparton on February 9, 1998 pursuant to EPA's authority under RCRA Section 3008(h), 42 U.S.C. § 6928(h). The administrative order requires Sparton to implement the remedy selected for the Sparton site by EPA in June 1996. No testimony presented at the hearing on March 17-18, 1998 suggested that there was any conflict between the requirements of the February 1998 administrative order and the Workplan at issue in the Joint Motion for Preliminary Injunction. Malott Declaration at ¶ 33; Unopposed Motion for Leave To file Sparton Technology, Inc.'s

Second Amended Complaint And Supporting Memorandum, filed on or about February 24, 1998, at ¶¶ 2 & 3.

1. Depth of Contamination

59. Section I of the Workplan calls for installation of a monitoring well, known as MW 71, which will be used to determine the depth of contamination in the area of an existing cluster of two monitoring wells known as MW 60 and MW 61. MW 71 will be drilled in increments and periodic samples will be collected and analyzed for TCE. The well will be completed at the depth at which analysis shows that TCE concentrations are below 50 ppb. Also, if contamination greater than 4,200 ppb TCE is found during the installation of MW 71, the Workplan provides for installation of a second monitoring well in the same area at the depth of highest concentration. Exhibit 11.

60. When designing an extraction well containment system, it is critical to know the depth of contamination near the leading edge of the contaminant plume so that the extraction well can be designed to draw water from that depth. Otherwise, contamination could pass under the extraction well. Testimony of Dr. Morrison at 54:7-55:3; Government Exhibit 8; Testimony of Dr. Papadopoulos at 216:15-21.

61. The highest detected levels of contamination offsite are in the area of MW 60 and MW 61, approximately 2000 feet northwest of the Sparton property boundary. Government Exhibit 4; Testimony of Dr. Morrison at 41:2-42:1.

62. Contamination from Sparton is being carried by groundwater flow to the northwest. The closest, downgradient wells to MW 60 and MW 61 are the MW 68/MW 69 well cluster located approximately 1000 feet further to the northwest (shown as location A on Government Exhibit 8). No contamination has yet been detected in either MW 68 or MW 69. Thus, MW 60 and MW 61 are the contaminated wells in the center or "heart" of the contaminant plume which are closest to the leading edge of the contaminant plume. Government Exhibits 5, 6, 7, & 8; Testimony of Dr. Morrison at 31:8-11, 33:15-20, 42:12-43:8, 44:19-46:12, and 47:6-12.

63. On January 20, 1998, analysis of a sample from MW 60 which is approximately thirty feet below the water table showed the presence of TCE at concentrations of 4,200 ppb. No monitoring wells or other sampling points exist below the depth of MW-60. No data is available to show the depth of contamination in the area of MW 60 and MW 61. Government Exhibit 8; Testimony of Dr. Morrison at 43:10-44:9 and 46:13-47:5; Testimony of Mr. Richardson at 194:3-18.

64. The actions required by Section I of the Workplan will define the depth of contamination in the area of MW 60 and MW 61. Testimony of Dr. Morrison at 54:7-55:3; Testimony of Mr. Richardson at 192:2-6; Testimony of Dr. Papadopoulos at 259:9-17.

2. The Hydraulic Properties Of The Aquifer

65. The Workplan calls for a pump test to be conducted in the area of the leading edge of the contaminant plume. Under the Workplan, the pump test is to be conducted after Sparton has determined the depth of contamination in the area of the MW 60/61 well cluster.

The Workplan specifies that a test well and two observation wells shall be installed just beyond the leading edge of the contaminant plume as shown on Government Exhibit 12. Next, a pump test consisting of several phases shall be conducted. During the pump test, the impact of pumping the test well at various rates will be observed in the observation well and in other, specified monitoring wells. Government Exhibits 11 and 12; Testimony of Dr. Morrison at 63:5-64:9 and 64:24-65:19.

66. A pump test is the standard method used by hydrogeologists to determine the hydraulic properties of an aquifer. Testimony of Dr. Morrison at 62:16-63:10.

67. When designing an extraction well containment system, it is important to know the hydraulic properties of the aquifer near the leading edge of the contaminant plume in order to determine (1) the number of extraction wells, (2) the position and spacing of these wells, and (3) the appropriate pumping rate for the extraction well(s). Testimony of Dr. Morrison at 62:15-63:4.

68. If, instead of conducting the pump test described in the Workplan, Sparton installed an over-designed containment system, that system would be likely to draw in uncontaminated water, which is a valuable resource. Testimony of Dr. Morrison at 70:11-71:5.

69. If, instead of conducting the pump test described in the Workplan, Sparton simply installed a containment system, that system might not work because it could be improperly located, too small, at an incorrect depth, and/or equipped with incorrect pump infrastructure. If these problems occurred and the containment system failed to capture all contaminants, the plume of contaminants would continue to expand. Testimony of Dr. Morrison at 71:6-18 and 80:12-16.

70. The data gathered during the pump test will allow a hydrogeologist to mathematically calculate the size of the capture zone which would be produced by a particular combination of extraction wells and pumping rates. Testimony of Dr. Morrison at 65:11-20 and 67:15-69:8; Testimony of Mr. Richardson at 192:15-194:2; Testimony of Dr. Papadopulos at 254:6-12.

71. The pump test set forth in the workplan will provide information about the hydraulic characteristics of the aquifer sooner than any other alternative. If the containment system proposed by Sparton is inadequate, that fact will be known and can be corrected more quickly if the pump test set forth in the work plan is conducted than under any other alternative. Testimony of Dr. Papadopulos at 255:12-256:10.

72. Although pump tests were conducted on-site at the Sparton facility, approximately 2,600 feet away from the leading edge of the contaminant plume, no pump test has yet been conducted in the area of the leading edge of the Sparton contaminant plume. The on-site pump tests are not an adequate substitute for the pump test in the area of the leading edge of the contaminant plume described in the Workplan. Testimony of Dr. Morrison 66:8-67:14.

73. The pump test described in the Workplan will allow Sparton to demonstrate whether a single extraction well containment system using the test well described in the

Workplan will be sufficient to contain the contaminant plume. Testimony of Dr. Morrison at 63:5-64:4; Testimony of Dr. Papadopoulos at 255:12-256:14.

II. CONCLUSIONS OF LAW

1. In order to obtain a preliminary injunction, the movant must establish:
 - (1) substantial likelihood that the movant will prevail on the merits;
 - (2) that the movant will suffer irreparable injury if the injunction is not issued;
 - (3) that the threatened injury to the movant outweighs any damage that the injunction would cause to the opposing party; and
 - (4) that the injunction would not adversely affect the public interest.

Lundgrin v. Claytor, 619 F.2d 61, 73 (10th Cir. 1980); Wilson v. Amoco Corp., 1998 WL 3431, *12 (D. Wyo 1998) (granting preliminary injunction under RCRA Section 7002).

A. Substantial Likelihood of Success on the Merits

2. In their motion for preliminary injunction, Plaintiffs asserted claims under Resource Conservation Act ("RCRA") Sections 7002 and 7003, 42 U.S.C. §§ 6972 and 6973, and the United States has asserted an additional claim under Safe Drinking Water Act ("SDWA") Section 1431, 42 U.S.C. § 300i.

1. **Plaintiffs' Claims under Resource Conservation and Recovery Act**

3. RCRA Section 7002(a) states:

[A]ny person may commence a civil action on his own behalf--

(1) . . .

(B) against any person, . . . including . . . any past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment.

42 U.S.C. § 6972(a).

4. RCRA Section 7003(a) provides:

[U]pon receipt of evidence that the past or present handling, storage, treatment, transportation or disposal of any solid waste or hazardous waste may present an imminent and substantial endangerment to health or the environment, the Administrator may bring suit on behalf of the United States in the appropriate district court against any person (including . . . any past or present owner or operator of a treatment, storage, or disposal facility) who has contributed or is contributing to such handling, storage, treatment, transportation, or disposal to

restrain such person . . . [or] to order any person to take such other action as may be necessary, or both

42 U.S.C. § 6973(a).

5. In order to establish that Sparton is liable under RCRA Sections 7002 and 7003, Plaintiffs need only establish that (1) handling, storage, treatment, transportation, or disposal of solid waste or hazardous waste at the Sparton facility (2) may present an imminent and substantial endangerment to health or the environment and (3) Sparton contributed to such handling, storage, treatment, transportation, or disposal of solid waste or hazardous waste.

6. In Sparton's Response to the Joint Motion for Preliminary Injunction, it admits that its industrial processes contaminated the groundwater underneath its facility and that the groundwater contamination is currently expanding through the aquifer. Sparton's Response at 2 and 22.

7. Hazardous or solid wastes were handled, stored, treated, transported, or disposed of at the Sparton facility.

8. Sparton contributed to the handling, storage, treatment, transportation, or disposal of hazardous or solid waste at the Sparton facility.

9. For purposes of the Motion for Preliminary Injunction, Sparton has stipulated that an imminent and substantial endangerment exists. Transcript at 25:14-19.

10. Hazardous or solid wastes in the groundwater at and in the vicinity of the Sparton facility may present an imminent and substantial endangerment to human health or the environment.

11. Plaintiffs are substantially likely to prevail upon their claims under RCRA Sections 7002 and 7003.

2. United States' Claims under the Safe Drinking Water Act

12. Section 1431 of the SDWA, 42 U.S.C. § 300i, provides, in pertinent part:

[T]he Administrator, upon receipt of information that a contaminant which is present in or is likely to enter a public water system or an underground source of drinking water may present an imminent and substantial endangerment to the health of persons, and that appropriate State and local authorities have not acted to protect the health of such persons, may take such actions as he may deem necessary in order to protect the health of such persons The actions which the Administrator may take include (but shall not be limited to) (1) issuing such orders as may be necessary...and (2) commencing a civil action for appropriate relief including a restraining order or permanent or temporary injunctions.

42 U.S.C. § 300i(a).

13. In order to establish that Sparton is liable under SDWA Section 1431, the United States need only establish that (1) a contaminant present in an underground source of drinking water (2) may present in imminent and substantial endangerment to the health of persons and (3) that appropriate State and local authorities have not acted to protect the health of such persons.

14. The term "contaminant" is broadly defined by the SDWA to mean "any physical, chemical, biological, or radiological substance or matter in water." 42 U.S.C. § 300g.

15. Contaminants, including TCE, are present in the groundwater contaminated by the Sparton contamination plume.

16. The term "underground source of drinking water" is defined as "an aquifer or its portion . . . (a)(1) which supplies any public water system; or (2) which contains a sufficient quantity of groundwater to supply a public water system and (i) currently supplies drinking water for human consumption; or (ii) contains fewer than 10,000 mg/l total dissolved solids." 40 C.F.R. § 144.3.

17. The groundwater contaminated by the Sparton contamination plume is an underground source of drinking water within the meaning of the SDWA.

18. For purposes of the Motion for Preliminary Injunction, Sparton has stipulated that an imminent and substantial endangerment exists. Transcript at 25:14-19.

19. Contaminants present in the groundwater contaminated by the Sparton contamination plume may present in imminent and substantial endangerment to the health of persons.

20. Based upon finding of fact number 47 and for purposes of the United States' claim under the SDWA, the Court finds that appropriate State and local authorities have not successfully acted to protect the health of persons subject to the imminent and substantial endangerment presented by the groundwater contaminants emanating from the Sparton facility.

21. The United States is substantially likely to prevail upon its claims under SDWA Section 1431.

3. Relief Sought

22. The Workplan proposed by Plaintiffs sets forth tasks which are necessary to abate the imminent and substantial endangerment which is stipulated to exist at the Sparton facility.

B. Plaintiffs Will Suffer Irreparable Injury If the Injunction Is Not Issued

23. The continued expansion of the plume of contaminated groundwater emanating from the Sparton facility, as stipulated, presents an imminent and substantial endangerment to health and the environment.

24. In Amoco Production Co. v. Village of Gambell, 480 U.S. 531, 544-45 (1987), the Court held that "[e]nvironmental injury by its nature can seldom be adequately remedied by money damages and is often permanent or at least of long duration, i.e., irreparable." Id. at 545. See also Sierra Club v. Hodel, 848 F.2d 1068, 1097 (10th Cir. 1988) (holding that continuation of construction activities prior to completion of environmental studies required by federal law would constitute irreparable harm); Provo River Coalition v. Pena, 925 F. Supp. 1518, 1524 (D. Utah 1996) (holding that construction activities which would permanently alter Provo Canyon constitute irreparable injury).

25. When a case is brought under an environmental statute such as RCRA or the SDWA, "the primary focus shifts from irreparable harm to concern for the general public interest. Thus, although it is not appropriate to dispense with the required showing of irreparable harm, it is permissible as part of the traditional balancing process to lessen the weight attributable to that usually dispositive factor." Wilson v. Amoco Corp., 1998 WL 3431 at * 11 (citations omitted). See also U.S. v. Bethlehem Steel Corp., 38 F.3d 862, 868 (7th Cir. 1993); U.S. EPA v. Environmental Waste Control, Inc., 917 F.2d 327, 332 (7th Cir. 1990); Buchholz v. Dayton Int'l Airport, 1995 WL 811897 (S.D. Ohio 1995); U.S. v. Marine Shale Processors, 81 F.3d 1329, 1359 (5th Cir. 1996)

26. The continued expansion of the groundwater contamination plume emanating from the Sparton facility constitutes an irreparable harm to Plaintiffs.

27. The Workplan proposed by Plaintiffs sets forth actions which are necessary to address the irreparable harm which will be caused by further expansion of the contaminant plume.

C. The Threatened Injury to Plaintiffs Outweighs Any Damage That the Injunction Would Cause to Sparton

28. In cases involving environmental harm, the balance of harms generally favors the environment: "If . . . [environmental] injury is sufficiently likely, the balance of harms will usually favor the issuance of an injunction to protect the environment." Amoco, 480 U.S. at 545.

29. Where the public interest is at stake, that interest generally outweighs other interests. U.S. v. San Francisco, 310 U.S. 16, 30-31 (1940) (where United States sought injunctive relief to enforce the Raker Act [1913 federal statute granting certain public rights of way], the Court upheld relief without balancing the equities); Associated Sec. Corp. v. S.E.C., 283 F.2d 773, 775 (10th Cir. 1960) ("[T]he necessity of protection of the public far outweighs any personal detriment resulting from the impact of applicable laws.").

30. The threatened injury to Plaintiffs at issue in this case is harm to the environment and to the public interest.

31. Any potential damage that granting of the motion for preliminary injunction would cause to Sparton is minimal and limited to financial concerns.

32. The threatened injury to Plaintiffs and to the public interest far outweighs any damage that the injunction would cause to Sparton.

D. The Injunction Will Not Adversely Affect the Public Interest

33. It is in the public interest to protect valuable environmental resources including groundwater resources. See Weinberger v. Romero-Barcelo, 456 U.S. 305, 312 (1982) (“[C]ourts of equity should pay particular regard for the public consequences in employing the extraordinary remedy of injunction.”); Keystone Bituminous Coal Ass'n v. DeBenedictis, 480 U.S. 470, 505 (1987) (upholding a Pennsylvania law that imposed liability on coal companies in order to deter certain mining practices determined to damage surface lands); Nat'l Indian Youth Council v. Andrus, 623 F.2d 694, 696 (10th Cir. 1980) (considering “the public interest in protecting the environment” when upholding a district court’s denial of a preliminary injunction); and Wyoming Outdoor Coordinating Council v. Butz, 484 F.2d 1244, 1250 (10th Cir. 1973) (declaring that the “public interest in preserving the character of the environment is one that [a movant] may seek to protect by obtaining equitable relief”); Wilson v. Amoco Corp., 1998 WL 3431, * 18 (“If left unabated, migration of the contamination may impact what is currently uncontaminated, pristine groundwater. That threat alone is a sufficient basis for the issuance of an injunction.”).

34. Since the preliminary injunctive relief requested by Plaintiffs will protect environmental resources, it is not adverse to the public interest.

E. State Discharge Permit

35. The New Mexico Environment Department has timely processed Sparton’s discharge permit application pursuant to 20 N.M.A.C. 6.2.3108 & 3109.

F. Conclusion

36. Plaintiffs are entitled to preliminary relief under RCRA Sections 7002 and 7003, 42 U.S.C. § 6972 and 6973, and SDWA 1431, 42 U.S.C. § 300i, in the form of a preliminary injunction requiring Sparton to implement the Workplan.