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SPARTON

SPARTON TECHNOLOGY

May 14, 1992

Mr. Keith N.Phillips, Chief
Technical Section (6H-CX)
RCRA Enforcement Branch
U.S. EPA, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Final RFI Report
Sparton Technology, Inc.
Coors Road Facility
Albuquerque, New Mexico

Dear Mr. Phillips:

In accordance with the provisions of the Consent Order, as amended, enclosed are six copies of the revised text and six copies of revised figures for the Final RFI report. Revisions and/or additions to the draft Final RFI report, dated December 1, 1991, are indicated by the revised date, May 1, 1992, at the bottom of each page. These revisions are in general conformance to EPA comments dated April 17, 1992. Our consultants have prepared an accompanying set of instructions for revising the RFI report into final form.

We trust that the Final RFI report submitted here will meet the approval of EPA. If you have any questions, please call.

Sincerely,

SPARTON TECHNOLOGY, INC.

Richard D. Mico
Vice President and General Manager

cc: Mr. Jan Appel
Mr. Jon DeWitt
Mr. Pierce Chandler
Mr. Gary Richardson
Mr. Benito Garcia

008214

Enc.

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Final Approved

RCRA FACILITY INVESTIGATION
VOLUME I OF II

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

MAY 1992

HDR

008213

A Report Prepared for:

Sparton Technology, Inc.
4901 Rockaway Boulevard, SE
Rio Rancho, New Mexico

RCRA FACILITY INVESTIGATION
Sparton Technology, Inc.
Coors Road Facility
Albuquerque, New Mexico

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December 14, 1990

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May 1, 1992

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Volume II

4. Boring Logs and Well Completion Diagrams
5. Groundwater Flow
6. Unsaturated Zone Boring Logs and Analytical Data
7. Off-Site Investigation
8. Description of Vicinity Wells
9. June 1991 Sampling and Analysis
10. Pumping Test Analysis
11. November 1991 Sampling and Analysis of MW-32

I INTRODUCTION

This report presents the findings of a RCRA Facility Investigation (RFI) conducted at the Sparton Technology, Inc. (Sparton) facility located at 9621 Coors Road, NW, in Albuquerque, New Mexico.

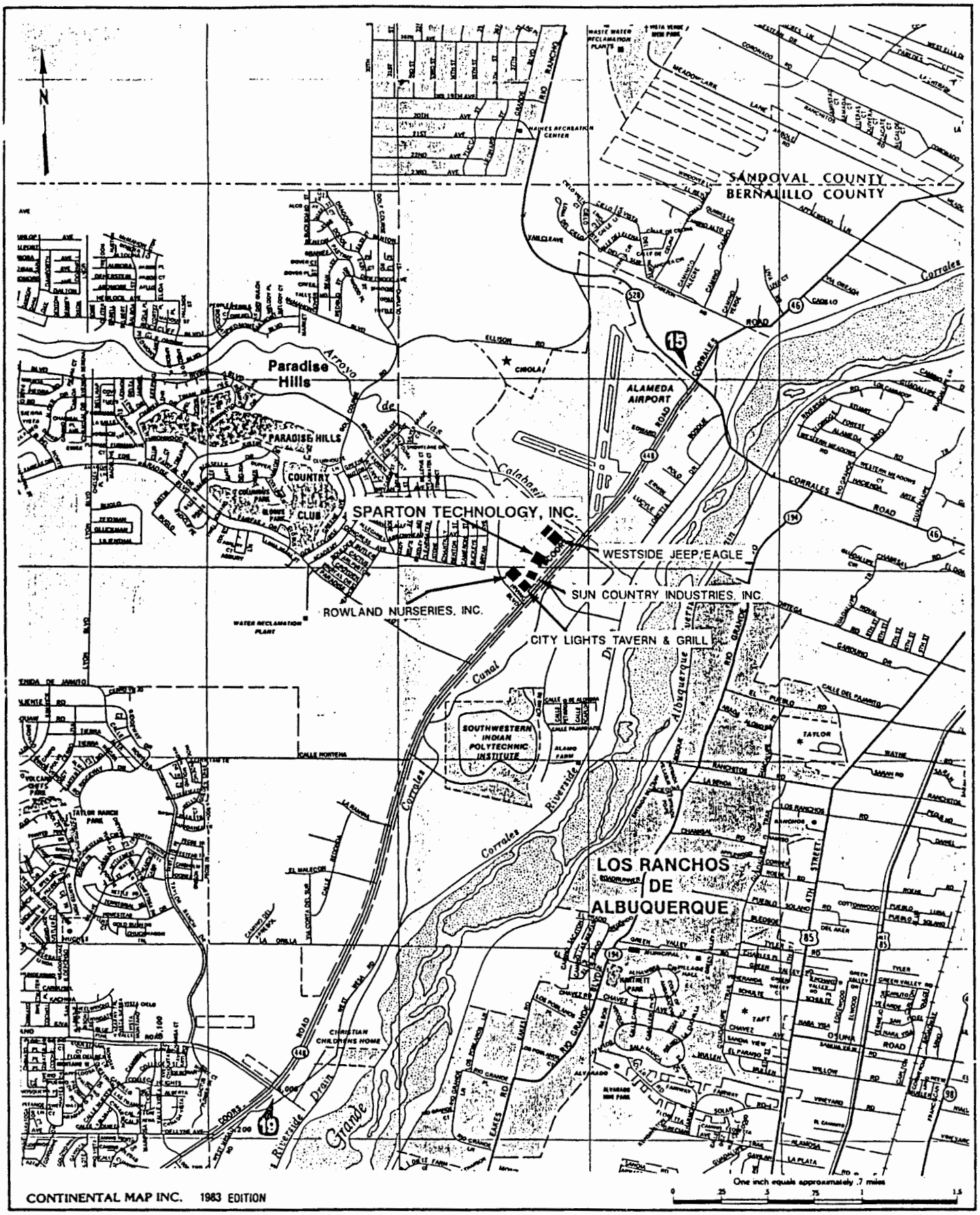
This RFI was conducted under the conditions of an Administrative Order on Consent entered into by Sparton and the U.S. Environmental Protection Agency (EPA) which became effective October 1, 1988. This report is being submitted in accordance with the provisions of that Consent Order.

II BACKGROUND

The Sparton facility is sited on an approximate 12-acre parcel of land located on the northwest side of Albuquerque, on State Highway 448, known locally as Coors Road, approximately 0.75 miles north of the intersection of Coors Road and Paseo del Norte (See Figure 1).

The Sparton facility began operation in 1961, and since that time has been engaged in the manufacture of electronic components, including printed circuit boards. The manufacturing process generates two waste streams which are managed as hazardous wastes: an aqueous metal plating waste, and a solvent waste stream. The plating wastes were stored in an in-ground concrete basin until approximately 1975. This basin was replaced by a lined surface impoundment in 1975, termed the "West Pond". A second lined surface impoundment was installed circa 1977. This pond was termed the "East Pond". Accumulated wastewater was periodically removed from the ponds via vacuum truck for off-site disposal at a permitted facility. Figure 2 shows the facility layout.

After the installation of the East Pond, the West Pond was not used again until January 1981. At that time, the West Pond was refurbished by providing a new liner and by constructing concrete sidewalls for liner support. From 1981 through August 1983, use of the two ponds was alternated so that each pond could be regularly inspected. No significant liner damage was identified during any of these inspections. In August 1983,



CONTINENTAL MAP INC. 1983 EDITION

Harding Lawson Associates
Engineering and
Environmental Services

LOCATION MAP

SPARTON TECHNOLOGY, INC.
9621 COORS ROAD NW
ALBUQUERQUE, NEW MEXICO

FIGURE **1**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	06310,039.12	DJU	12-21-89		

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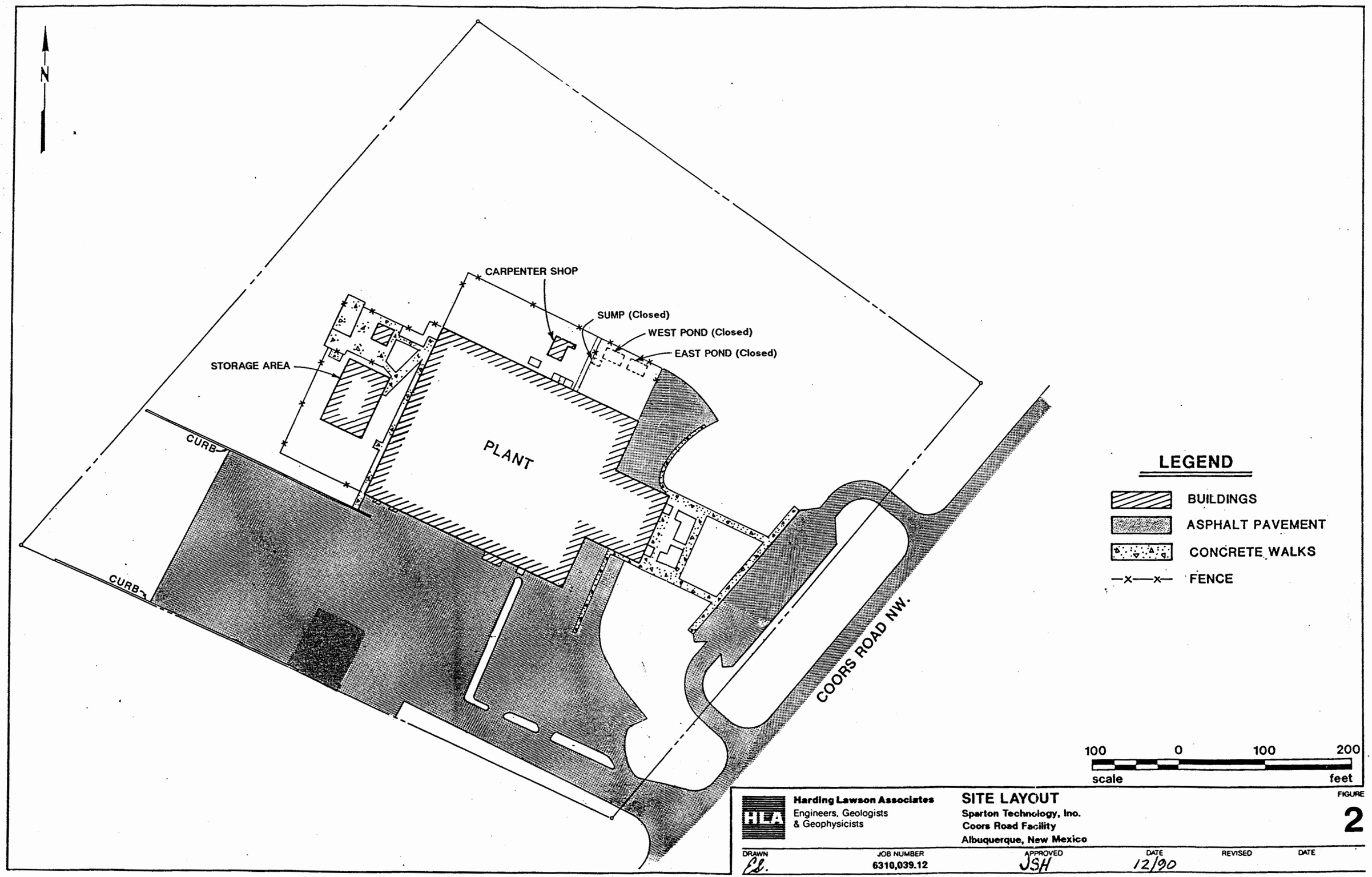

N
CARPENTER SHOP
SUMP (Closed)
WEST POND (Closed)
EAST POND (Closed)
STORAGE AREA
PLANT
CURB
CURB
COORS ROAD NW.
LEGEND
BUILDINGS
ASPHALT PAVEMENT
CONCRETE WALKS
FENCE
100 0 100 200
scale feet
Harding Lawson Associates
Engineers, Geologists
& Geophysicists
SITE LAYOUT
Sparton Technology, Inc.
Coors Road Facility
Albuquerque, New Mexico
FIGURE
2
DRAWN
JOB NUMBER
6310,039.12
APPROVED
JSH
DATE
12/90
REVISED
DATE

008226

Sparton ceased discharging to either pond and removed the plating wastes which were in the ponds at that time. The ponds have not been used since that time. Plating wastes are currently stored in drums in an on-site "less than 90 day" storage facility prior to shipment to a permitted off-site disposal facility.

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

In 1983, several groundwater monitoring wells were installed around the pond and sump area to determine whether there had been a release of hazardous constituents from the ponds or the sump. Analytical results from groundwater samples taken from these wells indicated concentrations of several constituents above state standards.

Since this initial finding in 1983, investigation of the nature and extent of the contamination continued through 1987. During this period, Sparton worked closely with the New Mexico Environmental Improvement Division (EID). Also during this period, the ponds were closed, and the entire pond and sump area was capped under a state-approved closure plan. In 1987, when it became apparent that contaminants had migrated beyond facility boundaries, the EPA commenced negotiations with Sparton to develop an Administrative Order on Consent. This Order was signed and became effective on October 1, 1988. Under the provisions of this order, in early 1989 Sparton completed the installation and start-up of an interim groundwater recovery well system to begin removal

of contaminants from the more concentrated areas of the contaminant plume in the upper flow zone.

Since 1983, the results of the ongoing investigation have been published in a number of reports, copies of which have been previously furnished to EPA and EID. A list of these reports is included in Figure 3.

The remainder of this RFI report will summarize the findings of the RCRA Facility Investigation, drawing on information from previous reports where appropriate for needed detail. The purpose of the RCRA Facility Investigation is to develop the information needed to support a Corrective Measures Study.

FIGURE 3

SUMMARY OF PREVIOUSLY PUBLISHED REPORTS

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

FIGURE 3

SUMMARY OF PREVIOUSLY PUBLISHED REPORTS (Continued)

Date of Publication	Report Title
11/18/88	*Aquifer Testing, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico; Metric Corporation*
10/26/89 (Revised 2/23/90)	*Effectiveness of the Groundwater Recovery Well System, Coors Road Facility, Albuquerque, New Mexico; Harding Lawson Associates*
12/27/89	*Preliminary Environmental Assessment-Properties Surrounding Sparton Technology, Inc., 9621 Coors Road, N.W., Albuquerque, New Mexico; Harding Lawson Associates*
7/6/90	*Areal Extent of the Zones of Relatively Lower Permeability; Sparton Technology, Inc., 9621 Coors Road, N.W., Albuquerque, New Mexico; Harding Lawson Associates*

III SOURCE CHARACTERIZATION

A. Description of Ponds and Sump

The pond and sump area at the Coors Road facility is believed to be the source of soil and groundwater contamination at the site. The pond and sump area is located on the north side of the main building (See Figure 2).

The East and West ponds were used to store aqueous plating wastes from the process areas. Some evaporation took place from the ponds, but the aqueous wastes were routinely removed on an approximate monthly basis and shipped off-site to a permitted disposal facility.

The location of the ponds, or surface impoundments, is shown in Figure 2. Each of these two adjacent ponds was approximately 19 feet by 28 feet in surface dimension, and approximately 5 to 6 feet deep. The top of each pond was flush with the ground surface. The ponds had vertical concrete walls and a natural sand bottom. The ponds and the area between the ponds were lined with a 30-mil, two-ply Hypalon^{R} membrane, and a one-ply, polyester, scrim liner. A sloped sand backfill within the concrete walls provided support for the liner.

The solvent storage sump was located near the ponds (See Figure 2). The sump was constructed of concrete blocks, and measured approximately 5 feet by 5 feet in surface dimension by 2 feet deep. This sump was used for storage of waste chlorinated and nonchlorinated solvents.

As described earlier, the ponds were used from approximately 1961 until August 1983, at which time discharge to the ponds ceased, and the ponds were emptied. The sump was originally closed in October 1980 by removing the remaining wastes and filling the sump with sand. Final pond and sump area closure was conducted in December 1986 under a State-approved closure plan. This closure consisted of backfilling the ponds, and the construction of an asphaltic concrete cap over the entire area to divert rainfall and surface water runon, thus minimizing infiltration of surface water into the ground in this area (See Figure 4).

B. Waste Description

The wastes which were stored in the pond and sump area are typical of electronic manufacturing facilities. The waste stream stored in the ponds was an aqueous stream from the metal plating process which contained a variety of metal ions. The sump was used to store a mixture of waste solvents from process and degreasing operations. Historical analyses of the contents of either the ponds or sump are not available, however the predominant constituents can be inferred from the groundwater analyses. Groundwater analyses were first conducted in 1983, and in 1985, routine quarterly analyses were instituted under a State-approved program for a number of on-site monitoring wells. Results from these analyses are summarized in Attachment 1.

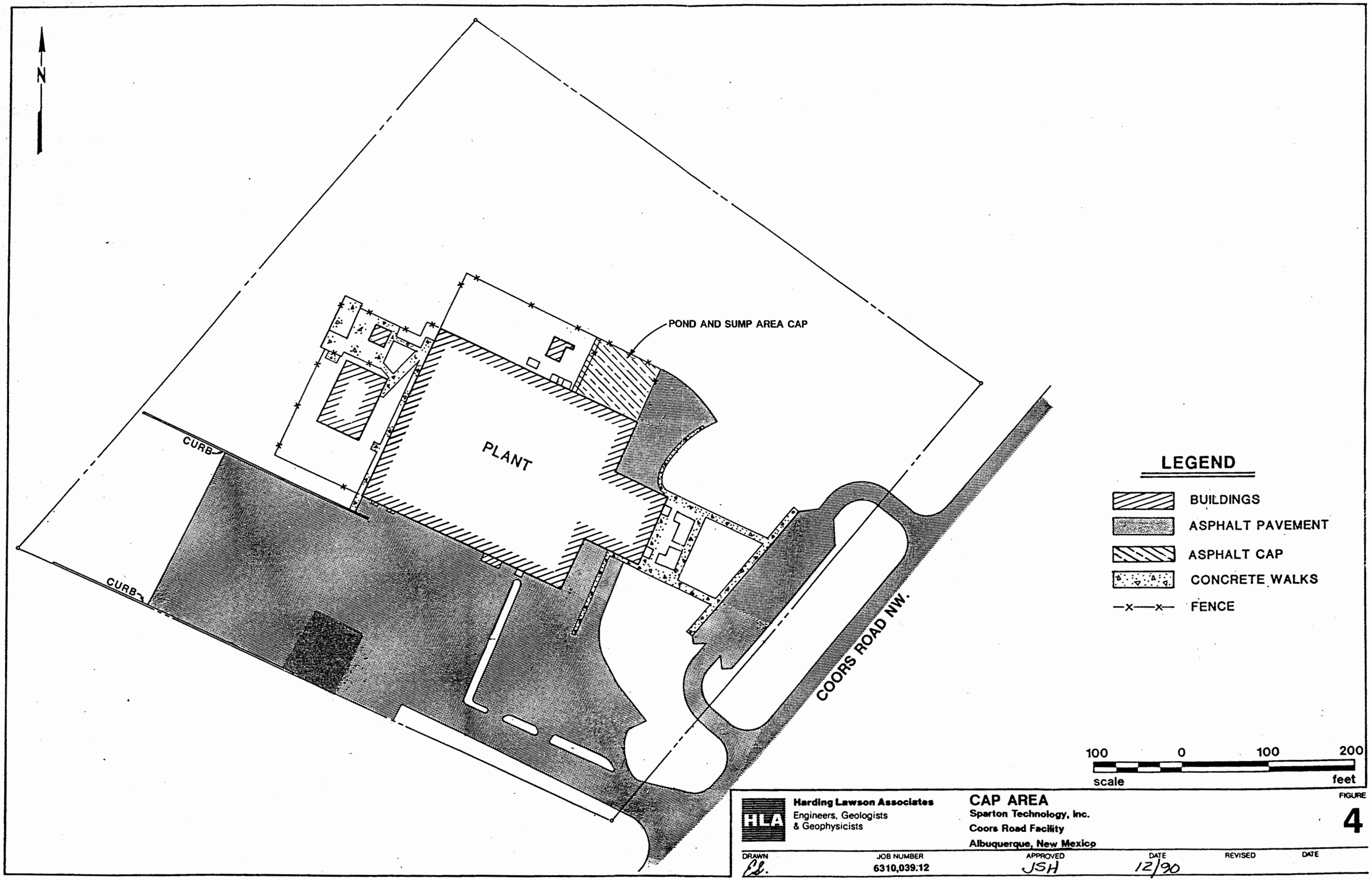
Based on these historical groundwater analyses, the primary hazardous constituents appear to include trichloroethylene (TCE) and 1,1,1-trichloroethane (TCA), with lesser

amounts of methylene chloride (MeCl), acetone, and 1,1-dichloroethylene (DCE). Physical, chemical, and toxicological characteristics of these chemicals are presented in Attachment 2. Based on these analytical results from groundwater samples taken from on-site monitoring wells, it is apparent that the contaminant release originated primarily from the solvent storage sump.

Free-phase solvents have not been identified in the sub-surface at the Sparton site. However, the historical maximum concentrations detected in groundwater on site and given in Figure 5 are approximately four percent of the solubility limit. Groundwater concentrations of approximately one percent of the solubility limit may indicate the presence of free-phase compounds. All of the chlorinated organic compounds identified at this site are denser than water and, if present in free-phase, would sink to the bottom of the water column.

Various metals have been detected in both soil and groundwater samples. Historically, chromium has the highest frequency of occurrence at elevated concentration.

Aromatic petroleum hydrocarbon constituents including benzene, toluene, ethylbenzene, and xylene (BTEX) have been detected in a single well. The source of the BTEX constituents is unknown; however they are inconsistent with, and potentially anomalous to, the historical operation at this site and the constituent data base of all sampling and analysis conducted to date.



Harding Lawson Associates
Engineers, Geologists & Geophysicists

CAP AREA
Sparton Technology, Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
Ed.	6310,039:12	JSH	12/90		

FIGURE 5

SOLUBILITY DATA

	[---------- Solubility, mg/l ----------]			
Parameter	Hazardline	MSDSs	Lange's Handbook of Chemistry	Historical Maximum Concentration @ MW-16, mg/l
TCE	1000 @ 68°F	1100 @ 77°F	1000 @ 77°F	37
TCA	700 @ 68°F	900 @ 68°F	----	30
MeCl	----	13,800 @ 68°F	20,000 @ 68°F	49
DCE	2250 @ 77°F	----	----	3.5

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C. Fate and Transport of Volatile Organic Compounds

Previous analytical work has established the presence of volatile organic compounds (VOC) in the subsurface. The identified compounds are classified as halogenated nonaromatic, aliphatic compounds. These compounds include TCE, TCA, MeCl and DCE. These compounds have been observed in the vapor phase, absorbed in the soil matrix, and dissolved in the groundwater. Considering the hydrogeologic conditions present at the site, it is anticipated that the fate and transport of these compounds will be influenced by both physical and chemical processes occurring in both the saturated and unsaturated zones.

1. Physical Processes - Saturated Zone

Due to the heterogeneous conditions in the saturated zone, fate and transport of the organic compounds will be affected by physical processes including advection, dispersion, and molecular diffusion. Advection is the transport of a constituent at the average groundwater particle velocity. The advection mechanism will dominate in cleaner sands and gravels (more porous structure) where the groundwater particle velocity is relatively higher. Advection will be primarily a horizontal phenomenon due to the anisotropic conditions caused by the horizontal geologic bedding structure. Advection will tend to elongate or extend the contaminant plume in a downgradient (hydraulic) direction from the source area. Advective processes will be slowed down or retarded by chemical processes affecting the plume.

Mechanical dispersion will occur as a result of velocity variation within the soil pore structure. Dispersion will impact the advection component and also result in lateral or transverse spreading of the plume.

Molecular diffusion will predominate in the low-permeability silt and clay layers and in those areas to the west where groundwater velocity is significantly reduced. Molecular diffusion will be controlled by concentration gradients and the tortuosity of the porous media.

2. Chemical Processes - Saturated Zone

For the volatile organic compounds identified at this site, chemical processes affecting their fate and transport in the saturated zone will include hydrolysis, sorption, volatilization and dissolution, and biodegradation.

Hydrolysis is the direct reaction of dissolved compounds with water molecules and can be an important abiotic degradation process for the identified compounds. Hydrolysis of TCE and TCA to DCE, and then to vinyl chloride (VC), is well documented in the literature. In addition, the presence of metal chloride catalysts in the subsurface can also result in the hydrolytic formation of organic acids.

Sorption is a generic description for both adsorption to the solid surfaces and absorption or penetration of the chemical compound into the solids. For the non-polar volatile organic compounds (VOC) present at this site, sorption will be essentially an equilibrium partitioning process between the dissolved aqueous phase and the porous

media. The sandy/gravelly materials will offer little in the way of sorptive surfaces or materials while silts and clays--particularly those containing any organic material--will provide a rich sorptive environment. Only a small percentage of silts and clays and/or organic materials can result in a significant amount of chemical sorption. The relative sorption potential for organics is given by the organic carbon partition coefficient, Koc, which is the ratio of the amount of chemical absorbed per unit weight of organic carbon to the chemical concentration in solution at equilibrium. Higher values of Koc indicate a higher sorption potential and tendency to bioaccumulate. Conversely a lower Koc indicates a higher mobility in the subsurface. Koc values for the identified compounds indicate relatively high mobility with low to moderate sorption.

Volatilization and/or dissolution from the aqueous phase is another chemical process affecting fate and transport. Henry's Law describes solution/vapor equilibrium for the VOC present at the site. Henry's Law constants, which combine the effect of vapor pressure with solubility and molecular weight, can be used to evaluate the effects of chemical volatility on aqueous phase fate and transport. Due to the low groundwater velocities, the gas-porous nature of the subsurface, and Henry's Law constants for the identified VOC, volatilization and/or dissolution from the aqueous phase is anticipated to be a significant fate and transport process.

The final chemical process is biodegradation. Significant documentation exists to show that chlorinated compounds present at this site such as TCE and TCA can be biologically reduced under both aerobic and anaerobic conditions. Anaerobic conditions

would include both sulfate reducing and methanogenic microorganisms. Biodegradation of the organic compounds identified on site can produce vinyl chloride, carbon dioxide, hydrogen chloride, chlorine, acetic acid, chloroethane, and/or biomass. It should be noted that the product vinyl chloride will be very persistent under anaerobic conditions but can be rapidly degraded under aerobic conditions.

3. Unsaturated Zone Processes

Fate and transport in the unsaturated (vadose) zone will be controlled by similar processes to those previously discussed. Sorption will probably be a significant process. The vadose zone generally contains greater amounts of organic materials and at this site the vadose zone contains significantly more clay and silt materials. Biodegradation may also be a major process in fate and transport. Microbial activity is generally much greater in the vadose zone than below the water table. Accordingly increased biodegradation is expected.

Due to the porous nature of the subsurface and wind and temperature effects, volatilization is the other significant process affecting fate and transport. Volatilization into a subsurface vapor phase (soil gas) with subsequent diffusion into the subsurface pore structure and/or dispersion into the atmosphere are anticipated to be occurring. The vertical soil gas profile will be a function of vapor density and source quantity. The horizontal soil gas extent will be controlled by the aqueous plume limits.

D. Fate and Transport of Metals

Fate and transport of metals, and particularly chromium, in both soil and groundwater will be controlled by sorption, chelation, and redox reactions. The mobility of chromium is strongly influenced by its oxidation state (valence) and/or ionic presence as chromate, etc. Sorption will predominate in fine-grained soils--particularly clays. Chromium is relatively insoluble in the metallic form; however, anions such as chromate are highly soluble. In addition, the chromate anion is readily soluble in, and mobile with, chlorinated solvents. As a result, chromium will be linked to the fate and transport of the VOC as discussed in previous sections.

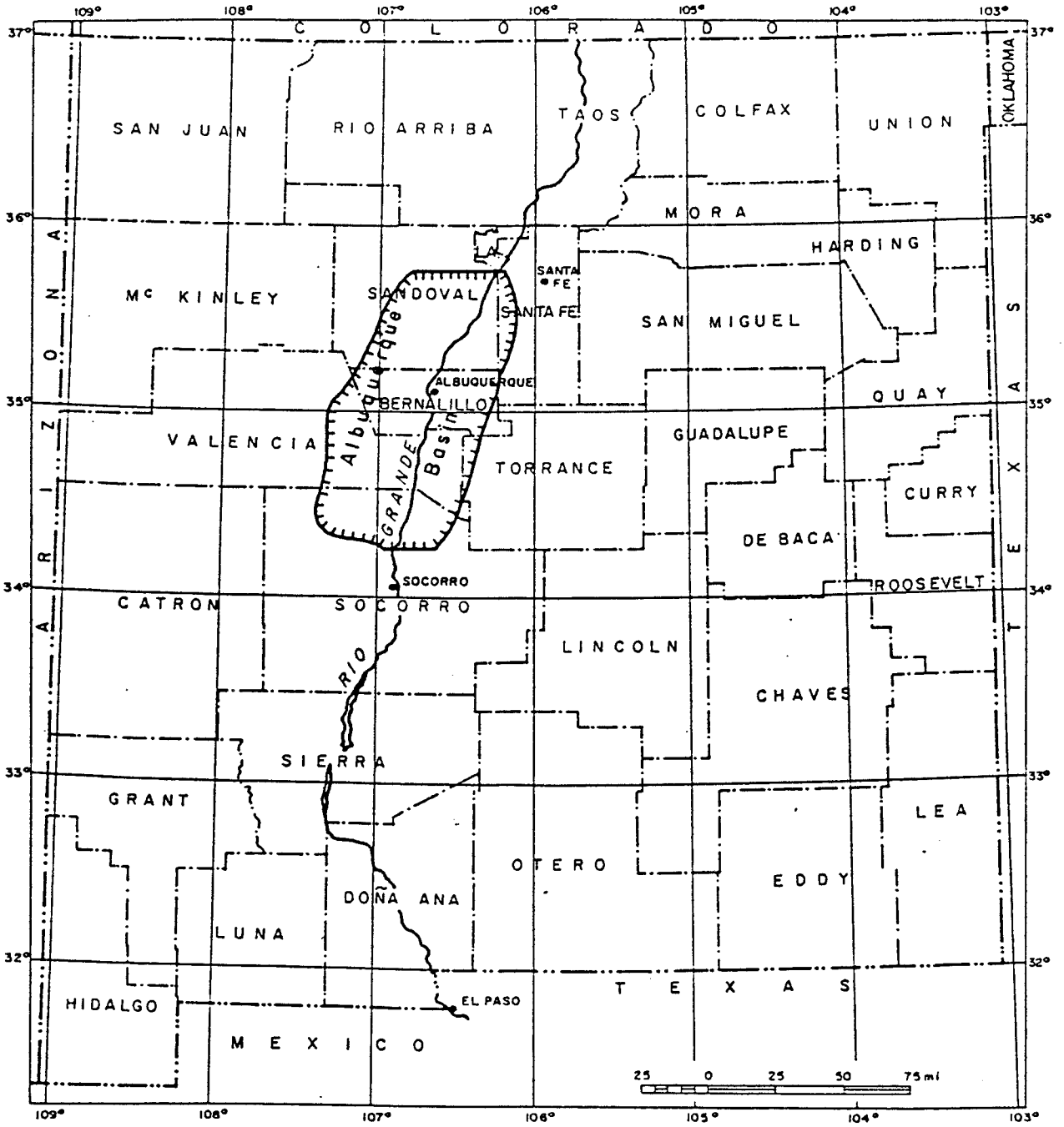
IV ENVIRONMENTAL SETTING

A. Regional

1. Physiography

The Sparton Technology facility is centrally located within the Albuquerque Basin of central New Mexico. The basin is approximately 102 miles long (north-south) and 25 to 40 miles wide (east-west). The Albuquerque Basin is in the middle part of the Rio Grande Valley which extends through the length of New Mexico (see Figure 6).

On the east flank of the Rio Grande are the Sandia and Manzano Mountains. Sandia Peak has an approximate elevation of 10,700 feet mean sea level (MSL). Sloping westward towards the river, pediments, bajada deposits, and terraces are located at the base of the mountain ranges. The elevation of the Rio Grande is approximately 4990 feet MSL in the vicinity of the site. The site is situated on the edge of a terrace next to the river flood plain at about elevation 5050 feet MSL. West of the facility, the elevation increases to about 5300 feet MSL. Southwest of this mesa-like topography are gentle, even slopes which are remnant volcanic flow areas.



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Environmental Services

LOCATION OF ALBUQUERQUE BASIN

Sparton Technology Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE
6

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
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2. Geology/Hydrogeology

a. Stratigraphy

The basin fill is estimated to be approximately 18,000 feet thick along the axis with sediment thickness varying throughout the basin boundaries. A generalized description of the sediments in the basin is presented in ascending order by age as follows:

(1) The Precambrian bedrock is overlain by Paleozoic and Mesozoic age sedimentary rocks which are comprised primarily of sandstones, shales, and marine limestones. The upper section consists mainly of continental and marine shale, and of sandstone with some gypsum, coal, and conglomerate. Both Paleozoic and Mesozoic rocks outcrop east of Albuquerque in the Sandia and Manzano Mountains. Only Mesozoic age rocks outcrop to the west in the Rio Puerco Valley.

(2) Sedimentary rocks of the Tertiary and Quaternary age sequence unconformably overlie the rocks of pre-Tertiary age. They are generally composed of unconsolidated to loosely consolidated fluvial deposits of gravel, sand, and silt interbedded with some volcanic basalts and tuffs.

(3) The Galisteo Formation consists of Eocene and Oligocene(?) age beds of variegated sandstone, sand, clay, shale, minor amounts of conglomerate, tuff, and limestone.

(4) The Miocene-Pliocene basin fill consists of up to 12,000 feet of sandstone, mudstone, and gravel of the Santa Fe Formation or Group. Facies changes of the Santa Fe occur throughout the area and are, in some cases, divided into different units within the Santa Fe Formation. The Santa Fe Group is divided into two formations, both of which underlie the surficial deposits in the Rio Grande Valley. Before the Santa Fe was raised from formation to group status, Bryan and McCann (1937) had divided it into three members -- the Lower Gray, the Middle Red, and the Upper Buff. The units within the Santa Fe Formation were later reclassified as the Ceja Member (upper Pliocene), Middle Red Member (Pliocene), and the Zia Member (Miocene). All units are overlain by the Pleistocene age Ortiz gravel, (Kelly 1977).

The units of the Santa Fe Group in the Albuquerque area are lenticular, faulted, folded, and generally discontinuous in outcrops. Therefore, it is difficult to correlate these units with recognized units of the Santa Fe Group in other areas. The lithology of the Santa Fe Group can be described as unconsolidated to loosely consolidated sediments and interbedded volcanic rocks ranging in size from boulders to clay particles. In the Albuquerque area, the Santa Fe Group east of the Rio Grande Valley and adjacent to the Sandia and Manzano Mountains consists of feldspar and quartz fragments eroded from these mountains. West of the Rio Grande Valley in the Albuquerque area, sediments consist chiefly of fine-grained sand, silt, and clay. The central portion of Albuquerque Basin consists of sediments derived from the Sandia and Manzano Mountains, western highlands, and erosion of the highlands farther north.

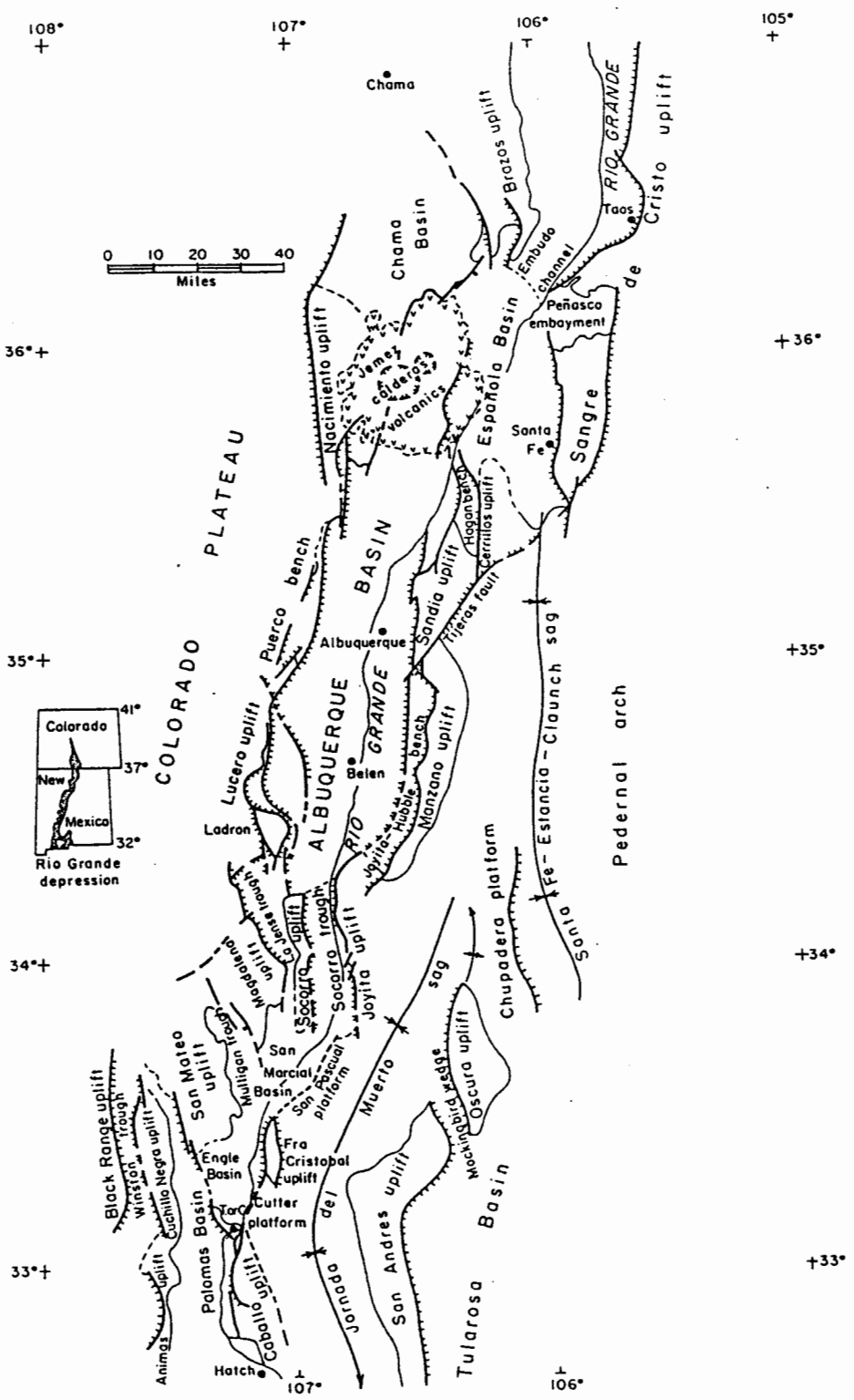
On the eastern edge of the Rio Grande Valley in the Albuquerque Basin, the series of confluent alluvial fans at the base of the mountain range, also known as bajada deposits, are derived from the Sandia and Manzano Mountains and unconformably overlie the Santa Fe Group. These sediments are of Recent age and range from poorly sorted mud flow material to well sorted stream gravel. The bajada deposits can be lithologically described as mostly arkosic derived from granite rocks in the mountains. The bajada deposits in this area range in thickness from 0 - 200 feet and are thickest toward the east edge of the Albuquerque Basin.

Recent age alluvial sediments underlie the Rio Grande floodplain and its tributaries. The Recent age alluvium and the sediments of the underlying Santa Fe Group

can be differentiated in well cuttings. The unit contact usually occurs approximately 80 to 120 feet below the land surface. A change in lithology and unit consolidation is a major indication of the top of the Santa Fe Group and the bottom of the alluvium which is estimated to be considerably less than 200 feet thick. The thickest accumulations of alluvium occur in fans extending from tributary valleys into the main valley. Thinner accumulations are found in the tributary valleys.

b. Structural

The Sparton facility is located in the Rio Grande Rift system. This system trends north-south and is comprised of a series of fault blocked horst and graben structures. The Albuquerque Basin is situated in the Rio Grande Valley and is formed by a compound graben. The eastern border of the depression is formed by the upfaulted blocks of the Sandia and Manzano Mountains. The Albuquerque Basin is bounded on the west by the Colorado Plateau and the southern end of the Nacimiento uplift (see Figure 7). Rocks of the Santa Fe Group cover most the exposed faults. Some exposed faults appear to be en echelon but cannot be determined with certainty in some areas. Approximately 2.5 miles northwest of the Sparton facility is a fault scarp in the rocks of the Santa Fe Group that can be traced to within approximately one mile north of Arroyo de las Calabacillas. The fault does not displace a basalt flow southwest of the arroyo. The



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TECTONIC MAP OF RIO GRANDE RIFT SYSTEM

Sparton Technology Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE **7**

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downthrown side of the fault is located on the west side of the scarp. Other indications of faults, active or inactive, are not evident at this time.

c. Depositional History

The sedimentary rocks of the Rio Grande Valley area are of marine and continental origin and are underlain by crystalline rocks which were intruded, deformed, and eroded before Cambrian time. This region was reduced to a nearly flat broad undulating plain in the late Precambrian and early Paleozoic. This allowed the transgression of the epicontinental seas. From early Pennsylvanian to late Permian, alternating transgressions and regressions of shallow seas deposited 2,000 to 5,000 feet of sandstone, siltstone, limestone, and evaporites.

A major regression during most of the Mesozoic Era formed erosional sediments of continental origin. Sediments consisting of continental sandstones and shales were deposited during the Triassic, Jurassic, and early Cretaceous. During the late Cretaceous period, a major transgression covered the region and marine sandstone and shale were deposited. This was followed by uplift and erosion of the region in the early Tertiary period. During the early Tertiary and Eocene time, local basins in the Albuquerque area were filled with sandstone and shale creating the Galisteo Formation.

The Santa Fe Group which overlies the Galisteo Formation and underlies bajada deposits and Recent alluvium, was initially formed in the middle Miocene. Subsidence of the Rio Grande depression was simultaneously occurring with the formation of the Santa Fe Group, uplift of the western highlands, and the Sandia and Manzano

Mountains. Tectonic activity in this area increased erosional activity and filled the Rio Grande depression with sediments.

Drainage during most of the Miocene probably was into a closed basin (Wright, 1956, p. 390). By the close of the Miocene, drainage had become integrated and the ancestral Rio Grande developed as a through flowing stream. By the end of Pleistocene time, the Rio Grande was established near its present course but several hundred feet higher. Rejuvenation of the river in Pleistocene time resulted in downcutting to a depth about 120 feet below the present valley floor. Several cut terraces were developed on the valley fill above the present valley floor. Aggradation, which began after downcutting, has partially refilled the inner valley and is continuing today.

d. Water Levels/Seasonal Changes

Regional water table fluctuations occur as water is added to or withdrawn from the groundwater reservoir in the Albuquerque area. Long term water level declines may be attributed to heavy pumping from industrial and municipal wells in the Albuquerque area. The water table in the Albuquerque area will maintain a consistently lower level than the surrounding water table as long as the water demand remains the same. Deficient rainfall for long periods of time will also affect the water level on a long term basis.

Seasonal fluctuations are due to heavy precipitation and irrigation by surface water diverted from streams which tends to raise the water table. High water levels occur during the summer months in the inner valley when land is irrigated by water diverted from

the Rio Grande or where inundation by flood runoff is common. The lowest water levels in the area typically occur in the early spring before the first application of irrigation water. Fluctuations of water levels are quite consistent from year to year in areas where diverted river water is used for irrigation and where drains have been constructed.

e. Groundwater Flow Direction

The shape and slope of the water table throughout the valley fill, in most instances, is not uniformly planate. The irregularities in the surface occur as a result of lithologic facies changes which directly affect permeabilities and saturated thickness. This may cause mounding, coning, or troughing with the addition or withdrawal of water. The shape and slope of the groundwater is also affected by groundwater pumping in limited areas. The numerous water wells located at the intersection of Interstates 25 and 40 in Albuquerque and within 5 miles north and south of this location have a significant affect on the groundwater table. It is estimated that the water table has declined 40 feet in the last 50 years in this area. However, the influence that these wells have on the water table does not extend to the region around the Sparton facility. Groundwater pumping does not affect the water table in this area because large municipal and industrial wells are infrequent and widely spaced as seen on Figure 8. Map index numbers given on this figure are keyed to water well information detailed in Attachment 10.

The water table within the valley fill generally slopes southwestward at a low gradient diagonally down valley from the western bases of the Sandia and Manzano

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

Mountains. This southwestward slope is approximately 5 to 20 feet per mile with an increasingly steeper gradient near the mountain fronts. The water table becomes almost flat where the base of the Sandia and Manzano Mountains is 5 to 10 miles from the valley floor.

From the eastern side of the Rio Puerco, west of the Rio Grande, there is a southward trending zone approximately 8 miles wide, where the water table is lower than the water surface of the Rio Grande as shown on Figure 9. This zone hereafter will be referred to as the "groundwater trough" or simply "the trough." It extends from north to south, through the western half of the Albuquerque Metropolitan area, and coincides with the Rio Grande at some point downstream in Valencia County (F.B. Titus, U.S. Geological Survey, Oral Communication, 1960).

The regional groundwater movement is generally to the southwest. Groundwater movement from the Sandia and Manzano Mountains moves in a southwesterly direction and groundwater movement east of the groundwater trough and west of the Rio Grande is also in the southwestward direction. Groundwater flow between the groundwater trough and the Rio Puerco is eastward to southeastward.

The water table beneath the floor of the inner valley slopes approximately the same as the downstream slope of the Rio Grande. The water table is at or very close to the surface under the river channel. Near the Rio Grande, the water table slopes sharply toward drains excavated on both sides of the river which are designed to lower groundwater levels so that adjacent acreage can be farmed. Water table levels associated

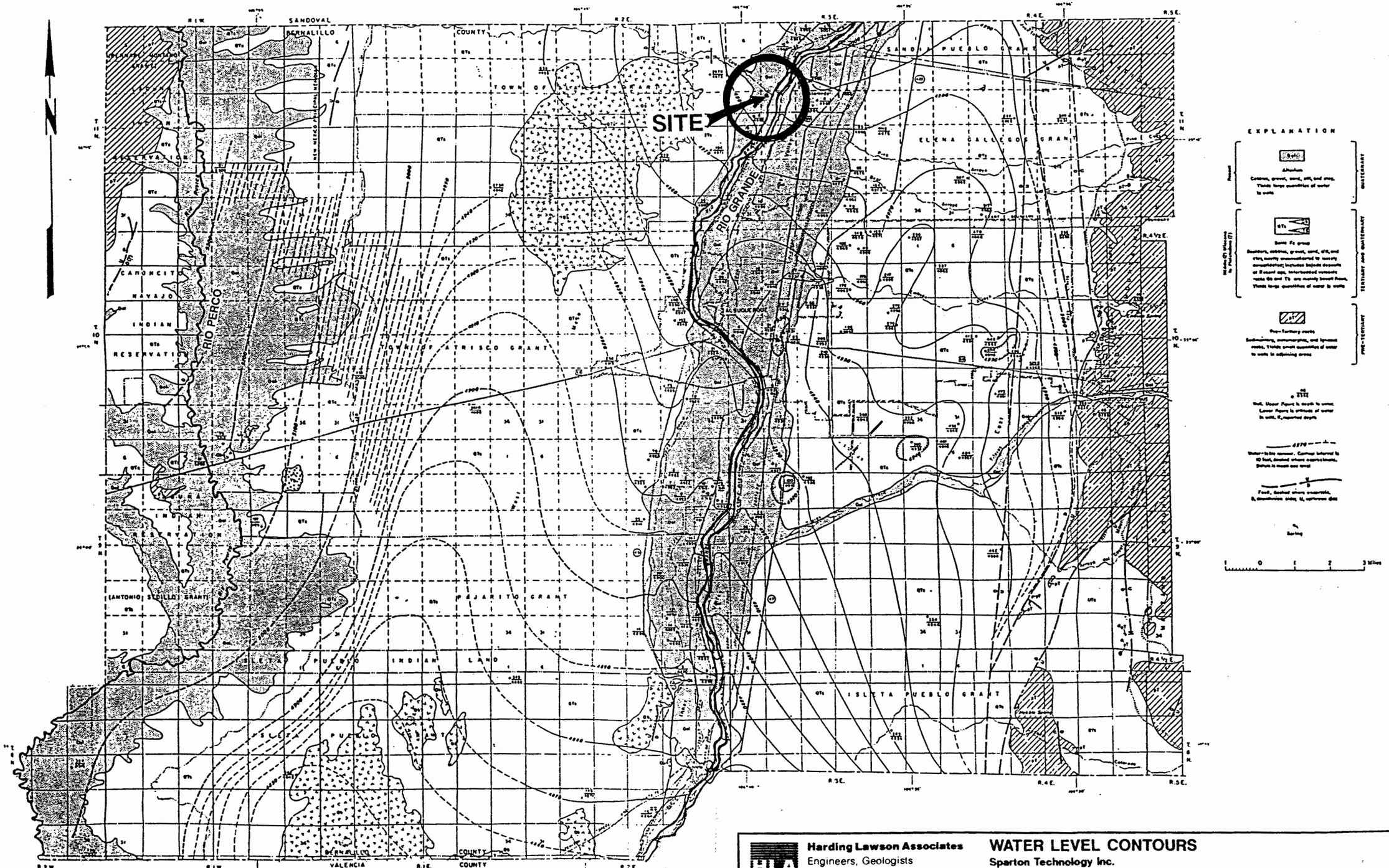

PLATE 1a

Map showing general geology and water-table contours in the southern half of the Albuquerque area, Bernalillo County, New Mexico.

Base compiled from U.S. Geological Survey topographic maps, 1950

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WATER LEVEL CONTOURS

Sparton Technology Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE **9**

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with these drains are about 8 feet below average land levels nearby. Drains also steeply sharpen the slope of the water table beneath most of the inner valley.

The contour lines in Figure 9 show the configuration of the water table and the direction of movement of groundwater. The groundwater moves generally downgradient at right angles to these lines. The steeper slopes indicated by the contour lines on the map show a greater resistance to the movement of water within the aquifer or, in some places, a greater amount of recharge. The greater resistance probably is caused by a reduction in the thickness of the water bearing materials, as the sediments are similar to those in other areas to the south where the transmissivity is known to be high. Cones of depression are evident on the water table and are caused by pumping large quantities of water from municipal water supply wells in the area.

f. Regional Groundwater Volumes and Velocities

The groundwater gradient in the valley is approximately equal to that of the Rio Grande. If the average coefficient of transmissibility of the valley fill - which includes the Santa Fe Group and the Alluvium - is about 200,000 gallons per day (gpd) per foot, and if the permeable part of the fill is 20 miles wide, the quantity of groundwater moving into the area would be about 26,000,000 gpd, 41 cubic feet per second (cfs), or 18,000 gallons per minute (gpm). This figure is only approximate and does not indicate more than the general order of magnitude, because the value of the coefficient of transmissibility is an

estimate based on a number of scattered pumping tests and may be considerably different from the true average (L.J. Bjorklund, B. W. Maxwell, Technical Report No. 21).

g. Groundwater Recharge

The groundwater reservoir in the Albuquerque area is recharged from many sources which include precipitation, underflow of groundwater from adjacent areas, applied irrigation water, seepage from streams, springs, seeps, drains, and canals.

The ephemeral streams such as Rio Puerco, Jemez River, arroyos, and canyons contribute a large amount of recharge water to the groundwater reservoir.

Some of the water from most of the ephemeral streams is evaporated after the flow ceases, but much of it seeps into the underlying alluvium and Santa Fe Group. Small floods in the arroyos usually fail to reach the inner valley because the flow is lost to the underlying sediments.

The only perennial stream flow in the basin is that of the Rio Grande. 2Infiltration of water diverted from the Rio Grande for irrigation is the greatest source of recharge. Recharge from this source is limited to the valley floor. Water diverted from the Rio Grande seeps to the groundwater reservoir from canals, ditches, and fields, and usually causes the water levels in wells in the irrigated area to rise during the irrigation season.

Discharge from the groundwater reservoir in the Albuquerque area occurs by means of evapotranspiration, springs and seeps, drains, water wells, and as base flow of the Rio Grande. In the Albuquerque area, the Rio Grande generally loses, rather than

gains, water. The net effect of all of these discharge phenomena over a period of years on groundwater storage is negligible, and recharge is approximately equal to discharge under natural conditions.

B. Site-Specific

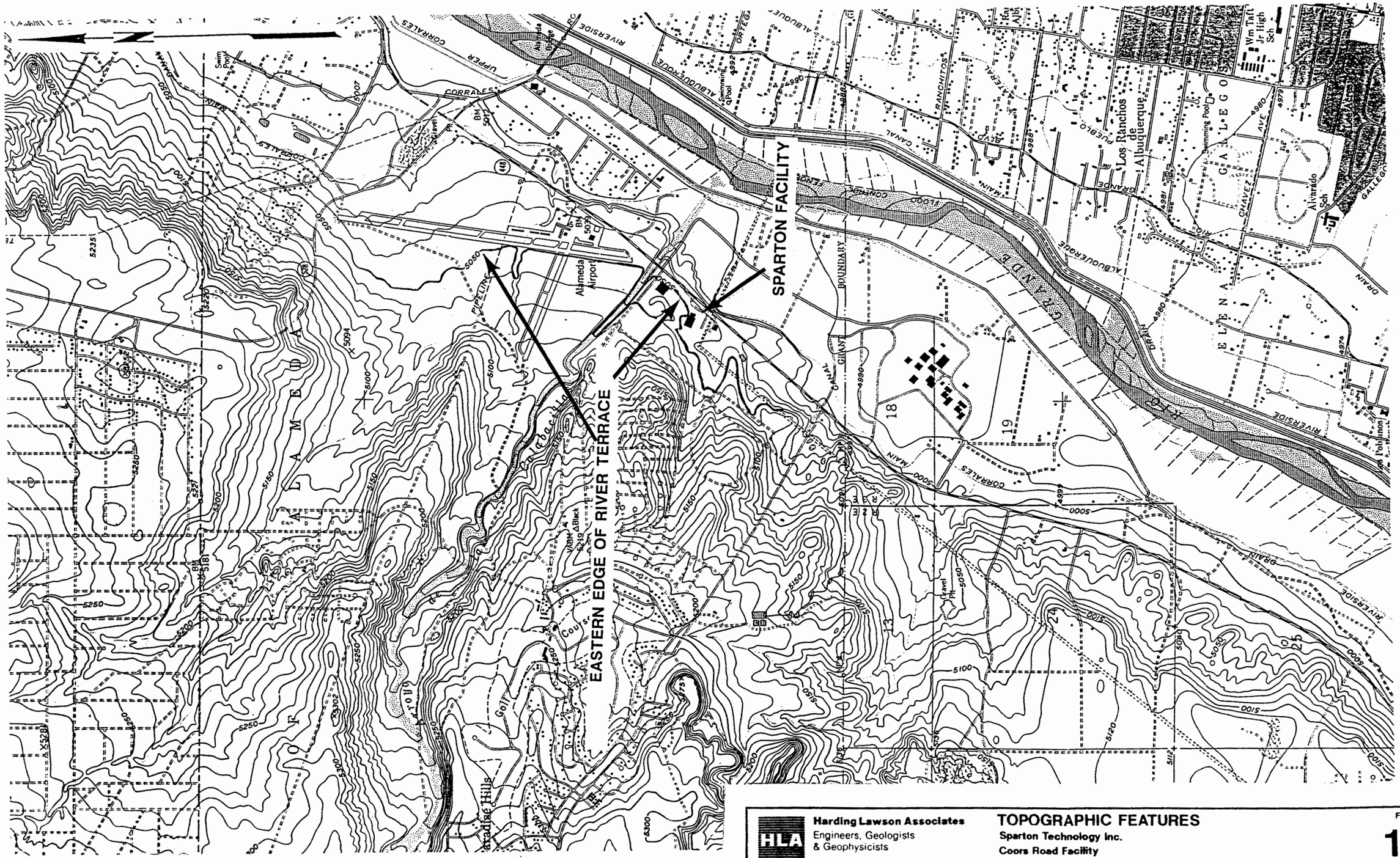
1. Site Topography

Numerous terraces were formed along the sides of the Rio Grande, Rio Puerco, and some of the larger tributary valleys during Quaternary channelling of the basin. Some terraces extend up to nearly 20 miles, whereas others are short and quite local. The Sparton facility is constructed on the eastern edge of a terrace approximately 60 feet (5050 MSL) above and 3,000 feet west of the Rio Grande (see Figure 10).

2. Geology/Hydrogeology

a. General

Several reports have been issued since 1983 describing various aspects of the site geologic and hydrogeologic regimes. Figure 3 lists the reports that contain logs of soil boring and well installation diagrams for soil borings and monitoring wells MW-1 through MW-33. Copies of these reports have been previously furnished to EPA. Figure 11 shows the locations of all on- and off-site groundwater monitoring wells. Attachment 4 includes copies of the logs of borings and well installation diagrams for wells completed after MW-33; specifically, MW-34 through MW-64 and PZ-1.



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TOPOGRAPHIC FEATURES

Sparton Technology Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE **10**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	6310,039.12	JSH	7/90		

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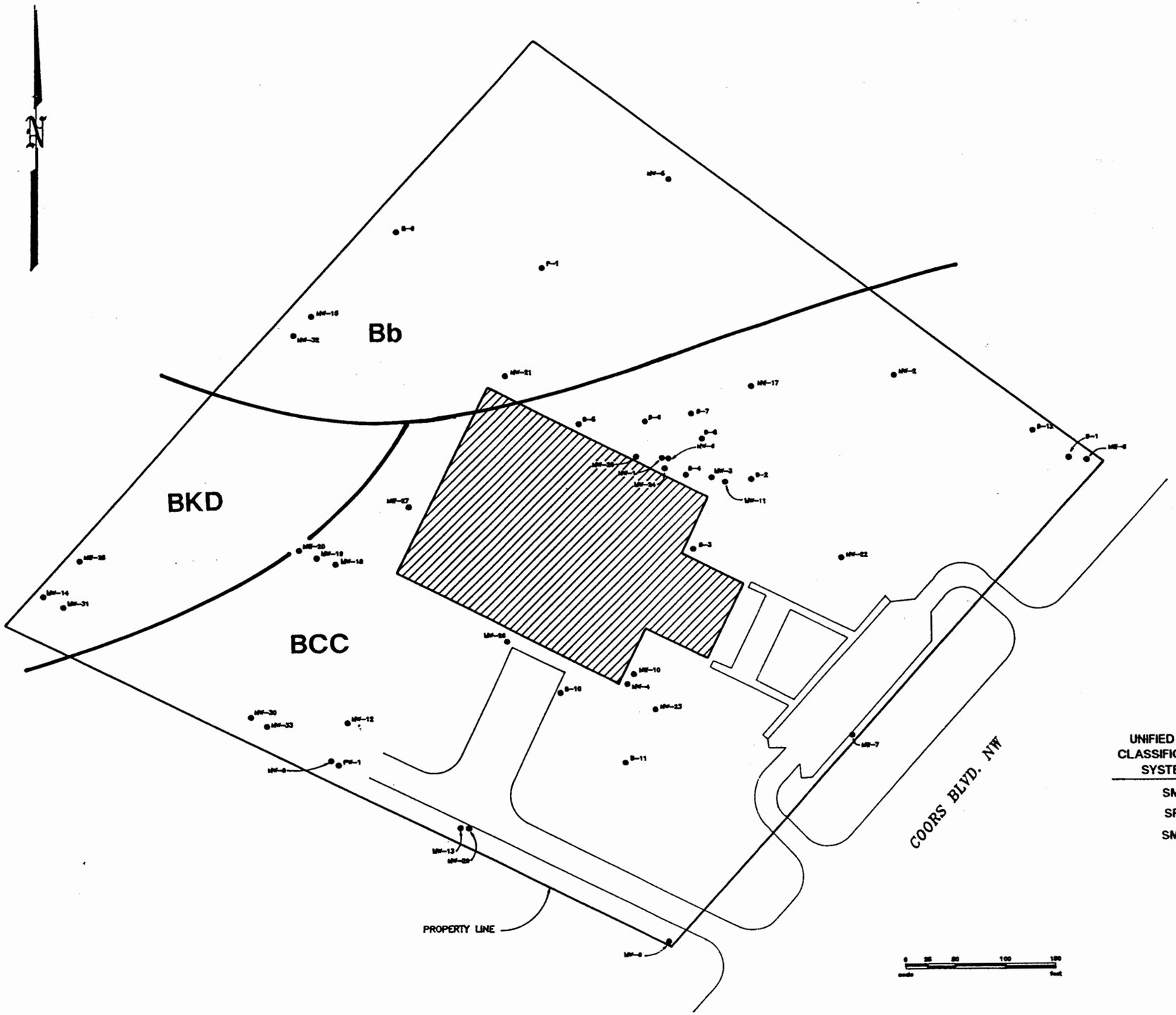
b. Soil Characterization

The representative surface soil series at the Sparton facility is the Bluepoint Series. It is classified as belonging to the Family Mixed Thermic, the Subgroup Topic Torripsamments, and the Order Entisols. A combination of the Blue-point Series converges (see Figure 12) at the Sparton facility and includes the Bluepoint loamy fine sand (BCC), the Bluepoint fine sand, hummocky (Bb), and the Bluepoint-Kokan Association, hilly (BKD). These soils are described as SM and SM/SP, respectively, within the Unified Soil Classification System. This system further describes these soils as well to poorly graded gravelly sands, with little or no fines. A wide range in grain size and a substantial amount of all intermediate particle sizes can be found in most SW soils, whereas predominantly one size or a range of sizes with some intermediate sizes missing can be found in the SP soils.

In a representative profile of the Bluepoint series, the surface layer is pale brown loamy fine sand about 8 inches thick. The underlying material to a depth of 60 inches or more is pale brown and light yellowish brown loamy sand. The soil is slightly calcareous and mildly to moderately alkaline. Permeability is high and infiltration is rapid.

Effective rooting depth is 60 inches or more. Bluepoint soils are used for range, irrigated crops, watershed, wildlife habitat, and community development.



LEGEND

MW-1 MONITORING WELL LOCATION AND NUMBER

B-1 BORING LOCATION AND NUMBER

NOTE

UNIFIED SOIL CLASSIFICATION SYSTEM

SM = Bb - BLUE POINT FINE SAND

SP = BKD - BLUE POINT-KOKAN ASSOCIATION

SM = BCC - BLUE POINT LOAMY FINE SAND

0 25 50 100 150
meters feet

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SOIL TYPES MAP

Sperlan Technology, Incorporated
Coors Road Facility
Albuquerque, New Mexico

SIGNATURES		DATE	PROJECT NO.	FIGURE 12
DR.	CHK.		06910,099.12	
CH.	APPR. J.H.	12-90		
REVISIONS	DATE		DESCRIPTION	

008259

A representative soil profile of the Sparton facility is presented in the "Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico." The three soil types which converge at the Sparton site can be described as follows.

The Bluepoint fine sand, hummocky (Bb), occurs near basalt flows on the piedmont, east of the Rio Puerco, and is a gently-rolling to rolling soil. The soil forms dunes of reworked sand 8 to 50 feet high with 5 to 15 percent slopes. The windward side is generally a deflation basin, and the leeward side is a low dune. The soil profile is similar to that described as the representative series, however, the surface texture differs.

The Bluepoint loamy fine sand, (BCC) is level to moderately sloping at 1 to 9 percent slopes. The soil profile is similar to that described as the representative series, however, about 10 percent of the surface layer acreage is sand.

The Bluepoint-Kokan Association, hilly (BKD) is composed of about 50 percent Bluepoint loamy fine sand that has 5 to 15 percent slopes and 40 percent Kokan gravelly sand that has 15 to 40 percent slopes. The Bluepoint soils are on fans between gravelly ridges of the hilly to steep Kokan soils that formed in old alluvial sand and gravel channels. The Kokan soil is found to have a high lime layer in the substratum.

Other characteristics used to further describe these soils include the relative permeability which ranges from 6.0 to greater than 40.0 inches per hour, and storage and available water capacity ranging from 0.03 to 0.09 inches per inch of soil. The pH of the soil ranges from 7.4 to 8.4 and has a salinity of 0-1 millimhos per centimeter at 25° C. Particle size distribution ranges from 0.074 mm to 2.0 mm with the greater size distribution

falling within the 2.0 mm to the 0.42 mm range. The Bluepoint soils are predominantly sandy with little or no clay fines and a low organic content. Therefore, the cation exchange capacity (CEC) is low.

c. Site Stratigraphy

The Sparton RCRA facility investigation area is situated within the Albuquerque Basin, a fault trough defined by Bryan (1938) as a component of the Rio Grande depression. Several structural benches are delineated within the basin; fault scarps striking north-south face the trough.

Geologic materials of the Albuquerque Basin are Precambrian to Holocene (Recent age). Outcrops of Precambrian, Paleozoic, and Mesozoic rock which preceded basin formation are essentially confined to the basin's east and west rims. The bulk of the basin fill, estimated to be as much as 18,000 feet in depth, is represented by the Santa Fe Group of Tertiary age overlain by Quaternary fill deposits. These deposits together comprise the local aquifer relevant to the Sparton RCRA facility investigation.

Kelley (1977) characterized the Santa Fe Group as three stratigraphic members; the lower Zia Sandstone Member, the middle Red Member, and the Ceja Member (uppermost part). Monitoring wells of the RCRA facility investigation area are estimated to be completed above the top of the Ceja Member. Lambert (1967, p.74) described the upper part of the Ceja as being "dominantly yellowish to grayish sandy pebble gravel and pebbly sand with lesser amounts of interbedded clay, mud, and sand".

Kelley (1977, p.18) described the lithology of the Ceja Member as quite variable, with the gravel being the principal characterizing aspect.

As described by Spiegel and Baldwin (1963) the upper Santa Fe Group (Ceja) is characterized by intertonguing pediment (alluvial fan) and axial river (fluvial) deposits. Basin aggradation during Ceja time was slower than early Santa Fe time because tectonic activity had decreased. Ceja deposition ended about half a million years ago when initial entrenchment of the present Rio Grande occurred. Since that time, the basin has been primarily degradational, undergoing several more cycles of river valley incision producing the present day inner valley of the Rio Grande. The basin had been primarily aggradational during Santa Fe time.

Above the Ceja Member, Lambert (1967, Fig. 2) mapped cobble and pebble gravels resting on a lower part of a much larger and deeper inset of sands and muds termed Los Duranes which represents significant aggradation occurring in the major drainages during post-Ceja backfilling episodes. He concluded that these gravels are younger insets of inner valley terrace fills and described them as overbank river beds. Lambert originally designated the Los Duranes as a formation within the Santa Fe Group, based on its difference in lithology from the Ceja. Kelley (1977, p.19) believes this difference and the considerable erosion unconformity implied, is the principal reason for separating this gravel from the Ceja Member and the balance of the Santa Fe Group.

The Los Duranes Formation, according to Lambert (1967, p. 154), is a relatively thick sequence of clay, mud, sand, and gravel deposited by the Rio Grande. He

estimated the formation to be 300 to 400 feet thick, filling a broad valley cut into the Ceja Member of the Santa Fe Formation. The Los Duranes, as described by Lambert at exposed sections, consists of well-stratified sequences of alternating clay and sandy mud layers of overbank origin. Interbedded with these mud-clay sequences are channel deposits consisting of beds and lenses of pebbly sand and sandy pebble gravel. Gravel is much less abundant in the Los Duranes Formation than mud-clay or pebble sand. It occurs locally within the sand beds and as separate layers of up to 15 to 20 feet thick, according to Lambert. In driller's logs the Los Duranes is very difficult to differentiate from the Rio Grande Floodplain Alluvium (Lambert 1967, p. 160).

Floodplain alluvium of fine to medium sand and gravels overlies the Los Duranes Formation and interfingers with alluvial fans and aprons of Young alluvium. Owing to the difficulty of picking the contact between the alluvium and the Los Duranes, Lambert (1967, p. 213) estimates total thickness of the alluvium to be 120 to 130 feet. Bjorklund and Maxwell (1961) estimate the thickness at 80 to 120 feet.

Young alluvium occurs as alluvial fans and aprons at the Coors Road Plant site and to the west on terrace surfaces. It consists principally of muddy fine sand, with lesser amounts of sandy gravel and mud. These sediments are derived primarily from the Los Duranes and Ceja Formations and deposited by generally small east-flowing tributaries to the Rio Grande.

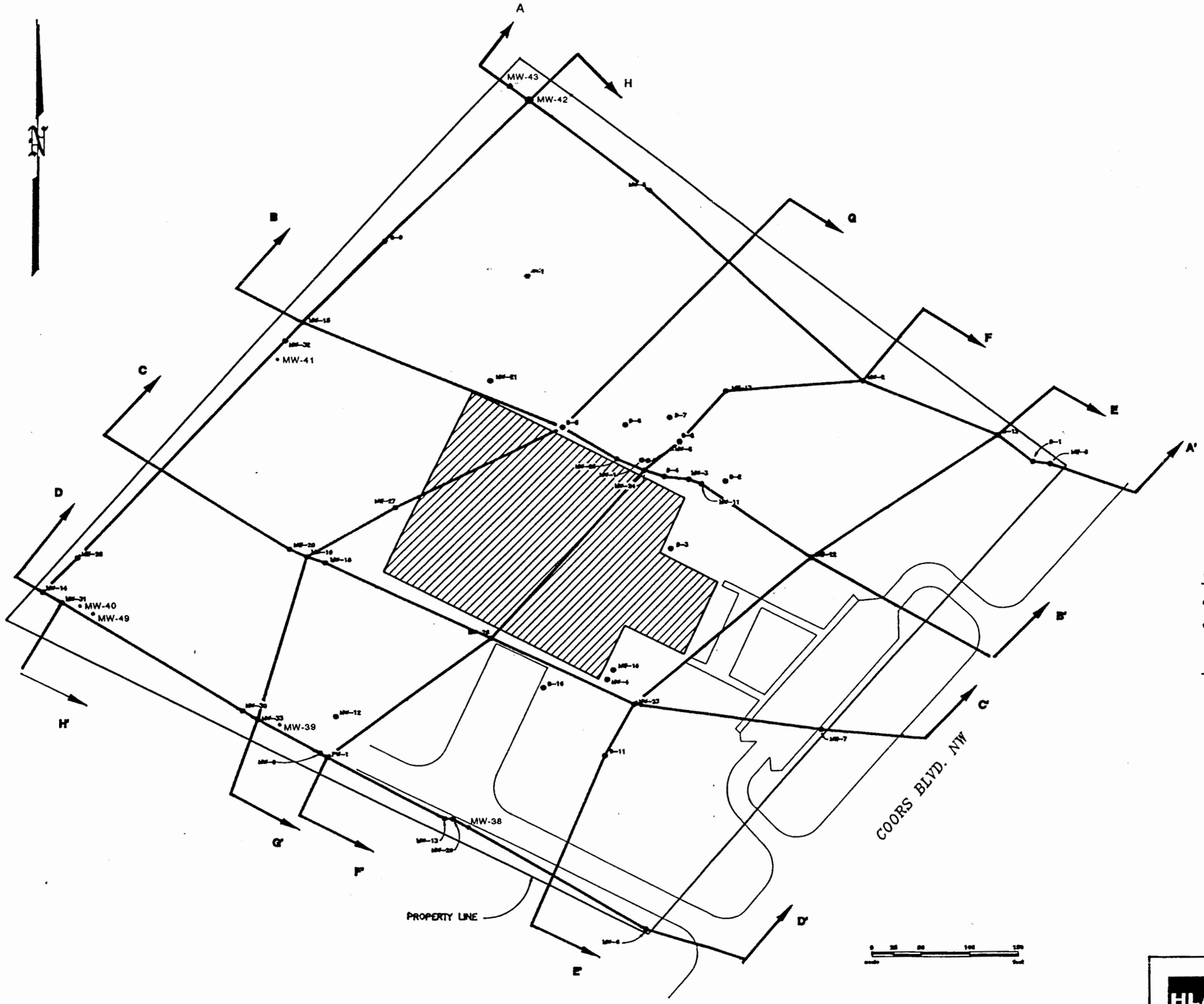
Figure 13 provides a characterization of site specific stratigraphy by section through the project vicinity. A plan view indicates the trace of the section which is

perpendicular to the Santa Fe Formation axis of deposition and parallel to the groundwater flow axis. Six monitoring wells located along section A-A' are completed in the Los Duranes Formation, above the Santa Fe Group. The basic lithology at each well boring is represented and illustrates the variability of thickness and lithologic occurrence in the formation.

Details from logs of borings made prior to the installation of monitor wells and piezometers have provided data for the construction of geologic cross-sections. Cross-section identification is presented in Figure 14. Figure 15 is a legend of geologic symbols which identify sediment types. Cross-sections A-A' through H-H' are presented in Figures 16 - 24. The stratification shown on these sections is based on boring log descriptions (classification) and may not represent correlatable geologic units and/or actual stratigraphy. However, these sections are useful to demonstrate the range and variability of subsurface conditions.

d. Project Hydrogeology

Previous reports for this project have used three flow zones to describe site-specific hydrogeology. These flow zones were identified as the upper, lower, and third flow zones. The lower flow zone was divided into two members; the upper lower flow zone and the lower lower flow zone. These flow zone divisions were based on stratigraphic and



LEGEND

- MW-1 MONITORING WELL LOCATION AND NUMBER
- B-1 BORING LOCATION AND NUMBER

NOTE

1. SEDIMENT GROUPS 1. 2. & 3 (ZORLP) AND HIGHER PERMABILITY GROUPS 4 & 5 HAVE BEEN COMBINED ON CROSS-SECTIONS FOR GREATER CLARITY AND INTERPRETATION

HLA Harding Lawson Associates Engineers, Geologists & Geophysicists

CROSS-SECTION IDENTIFICATIONS

Sperlan Technology, Incorporated
Coors Road Facility
Albuquerque, New Mexico

SIGNATURES		DATE	PROJECT NO.	FIGURE 14
DR.	DWL		00010,068.12	
CK.	APPR. J.H.	12-'90		

REVISIONS	DATE	DESCRIPTION

008266

MAJOR DIVISIONS				TYPICAL NAMES	
COARSE - GRAINED SOILS MORE THAN HALF IS LARGER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES	5
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES	5
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES	4
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL SAND-CLAY MIXTURES	4
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL-GRADED SANDS, GRAVELLY SANDS	4
			SP	POORLY GRADED SANDS, GRAVELLY SANDS	4
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES	3
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES	2
FINE - GRAINED SOILS MORE THAN HALF IS SMALLER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY	2
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	2
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	2
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	1
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	1
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	1
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS	

CLASSIFICATION OF SOILS - ASTM D2487-85

5 = HIGHEST RELATIVE PERMEABILITY

1 = LOWEST RELATIVE PERMEABILITY

Harding Lawson Associates
Engineers, Geologists & Geophysicists

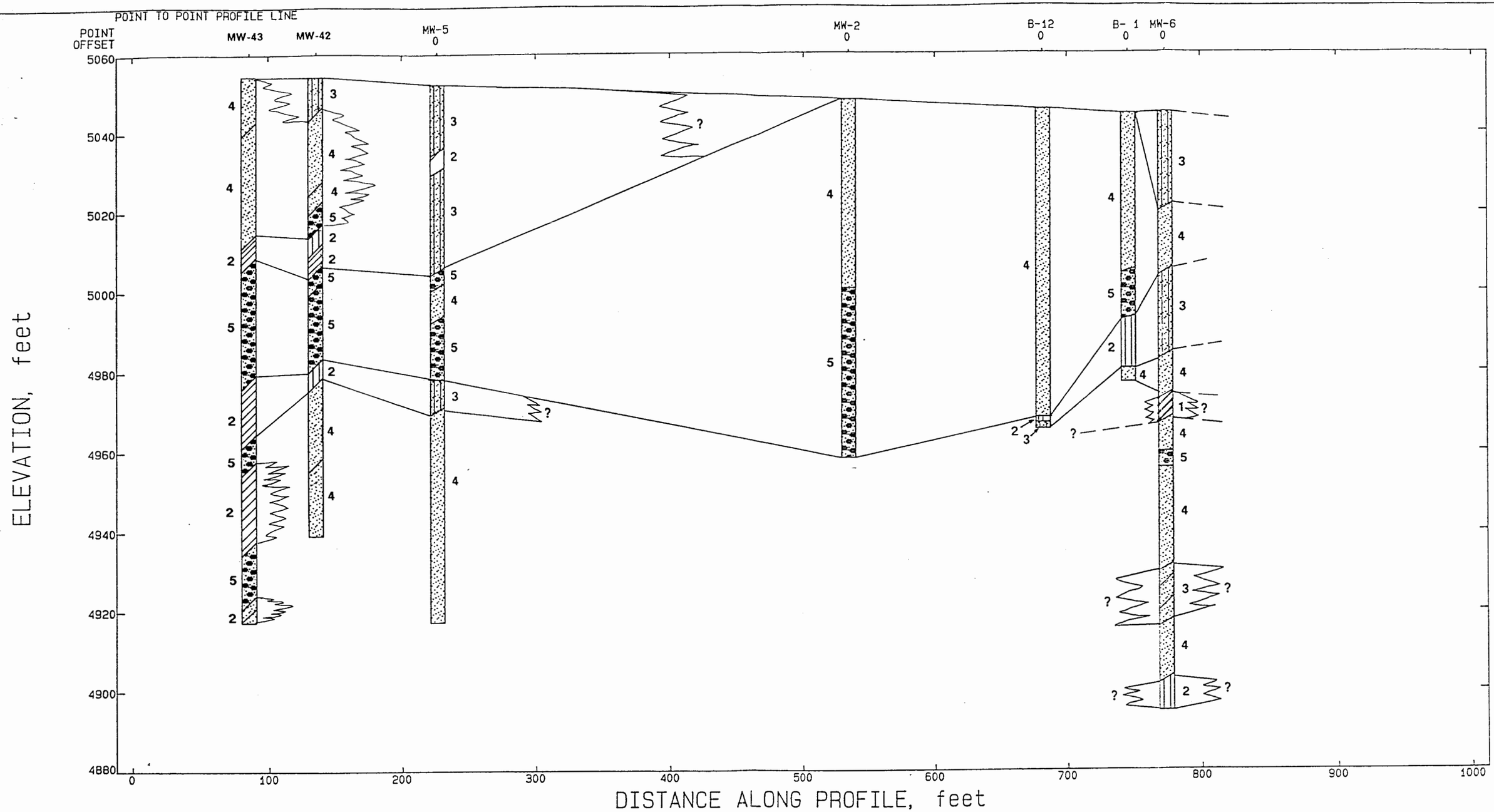
RELATIVE PERMEABILITY/SOIL CLASSIFICATION

SPARTON TECHNOLOGY, INC.

ALBEQUERQUE, NEW MEXICO

FIGURE 15

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
EZ	6310,039.12	JH	12-90		



July 24, 1989

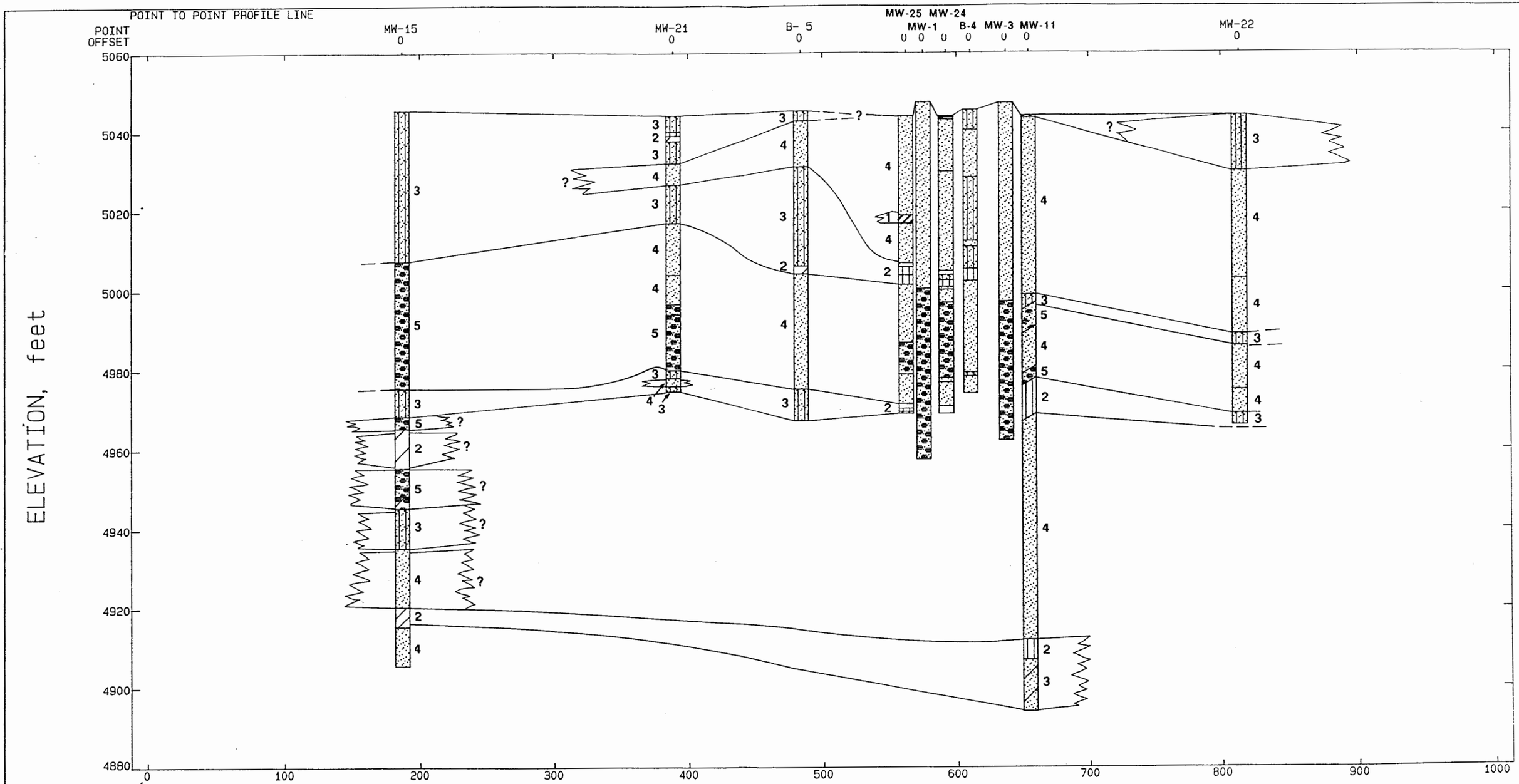
Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE A-A'

FIGURE 16

HARDING LAWSON ASSOCIATES - Houston, Texas

008268



NOTES: 1) SEDIMENT GROUPS 1,2 AND 3 (ZORLP) AND HIGHER PERMEABILITY GROUPS 4 AND 5 HAVE BEEN COMBINED ON CROSS-SECTIONS FOR GREATER CLARITY AND INTERPRETATION.

2) FIGURE 2 ALSO HAS AN ENLARGED DETAIL FOR GREATER CLARITY AND INTERPRETATION.

July 24, 1989

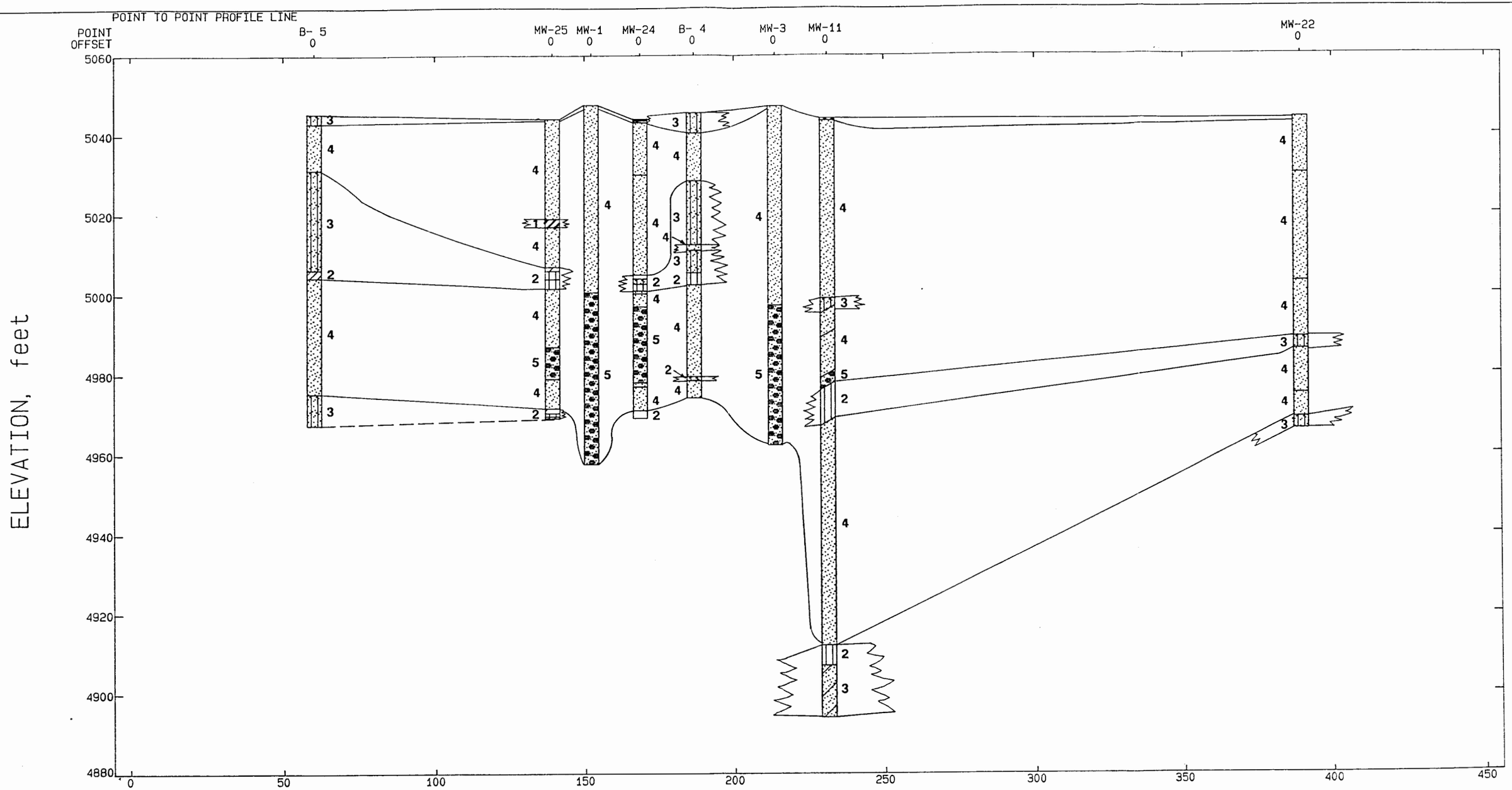
Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE B-B'

FIGURE 17

HARDING LAWSON ASSOCIATES - Houston, Texas

008269



NOTES: 1) SEDIMENT GROUPS 1,2 AND 3 (ZORLP) AND HIGHER PERMEABILITY GROUPS 4 AND 5 HAVE BEEN COMBINED ON CROSS-SECTIONS FOR GREATER CLARITY AND INTERPRETATION.

July 24, 1989

Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE B-B' (EXPLODED VIEW)

FIGURE 18

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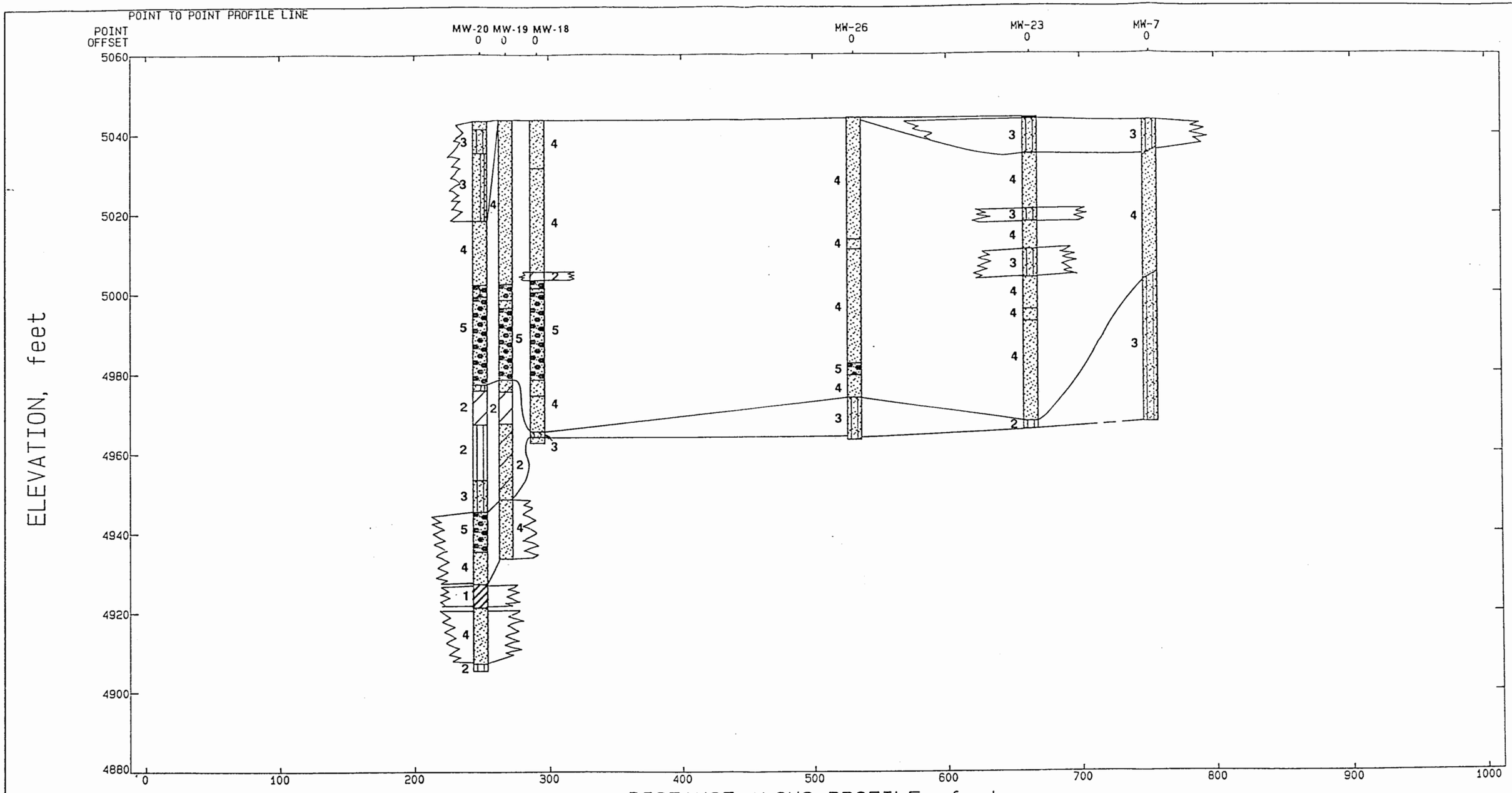


NOTES: 1) SEDIMENT GROUPS 1,2 AND 3 (ZORLP) AND HIGHER PERMEABILITY GROUPS 4 AND 5 HAVE BEEN COMBINED ON CROSS-SECTIONS FOR GREATER CLARITY AND INTERPRETATION.

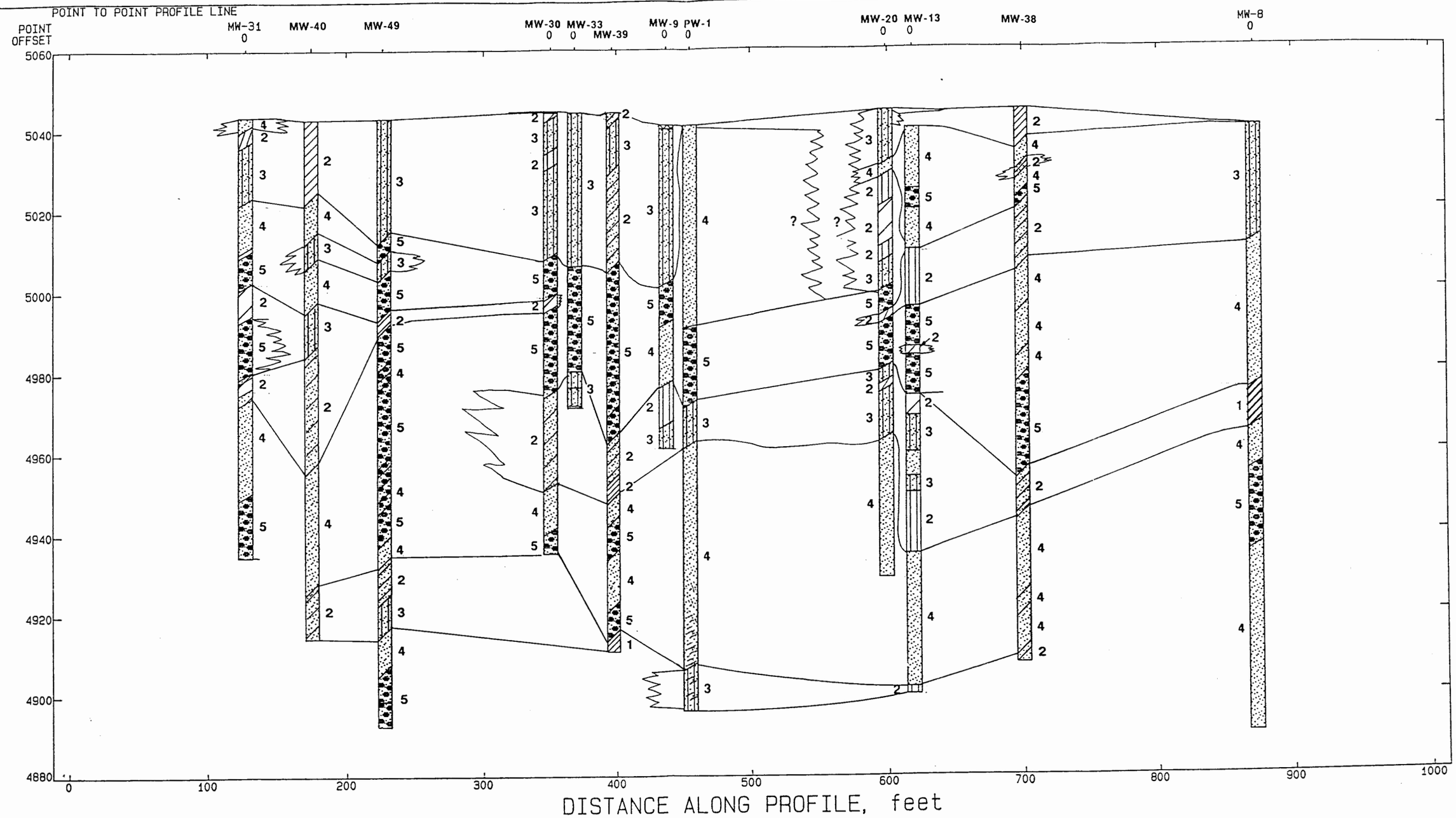
July 24, 1989

Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE C-C'

FIGURE 19

HARDING LAWSON ASSOCIATES - Houston, Texas



July 24, 1989

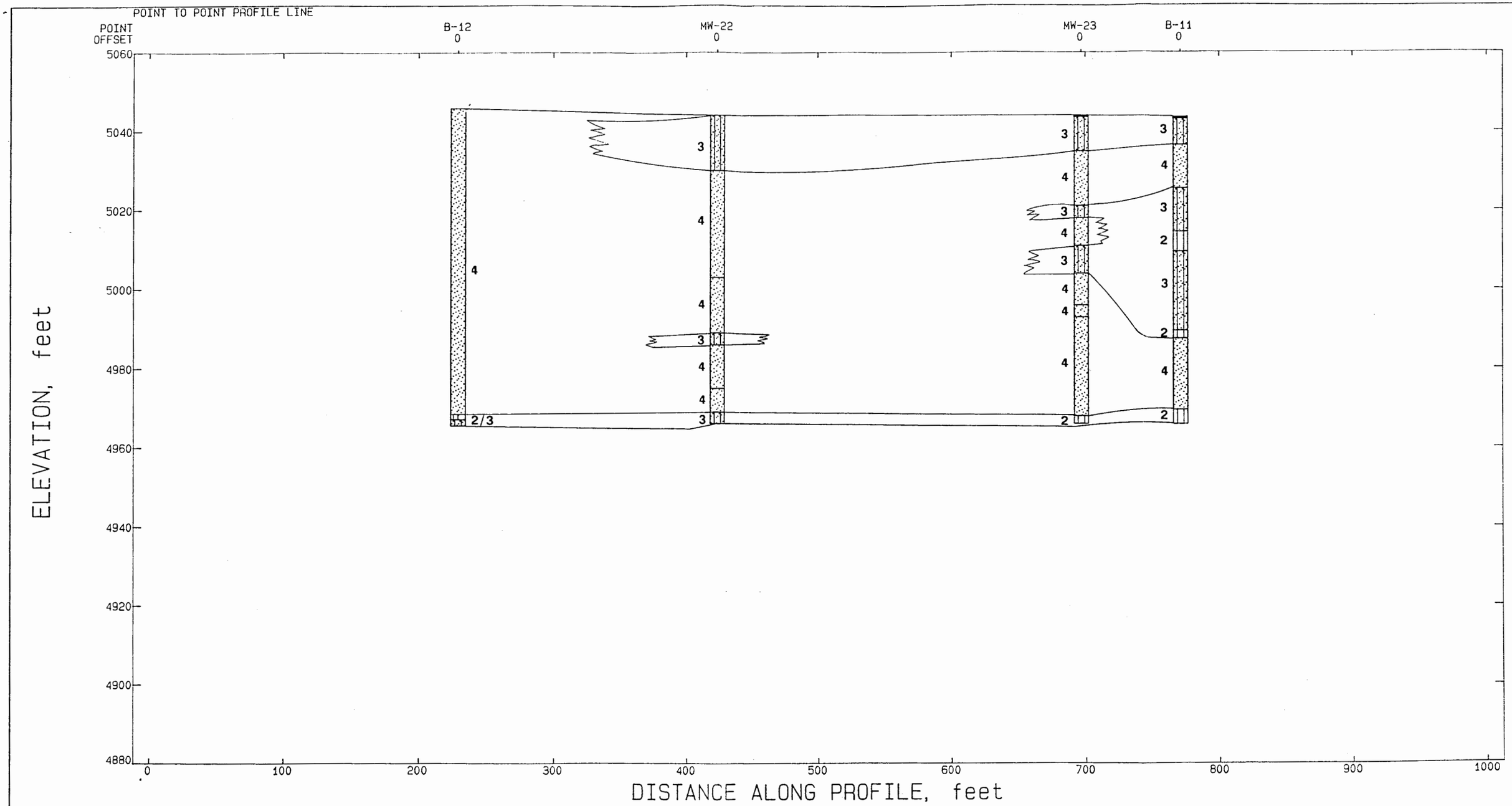
Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE D-D'

FIGURE 20

HARDING LAWSON ASSOCIATES - Houston, Texas

008272



July 24, 1989

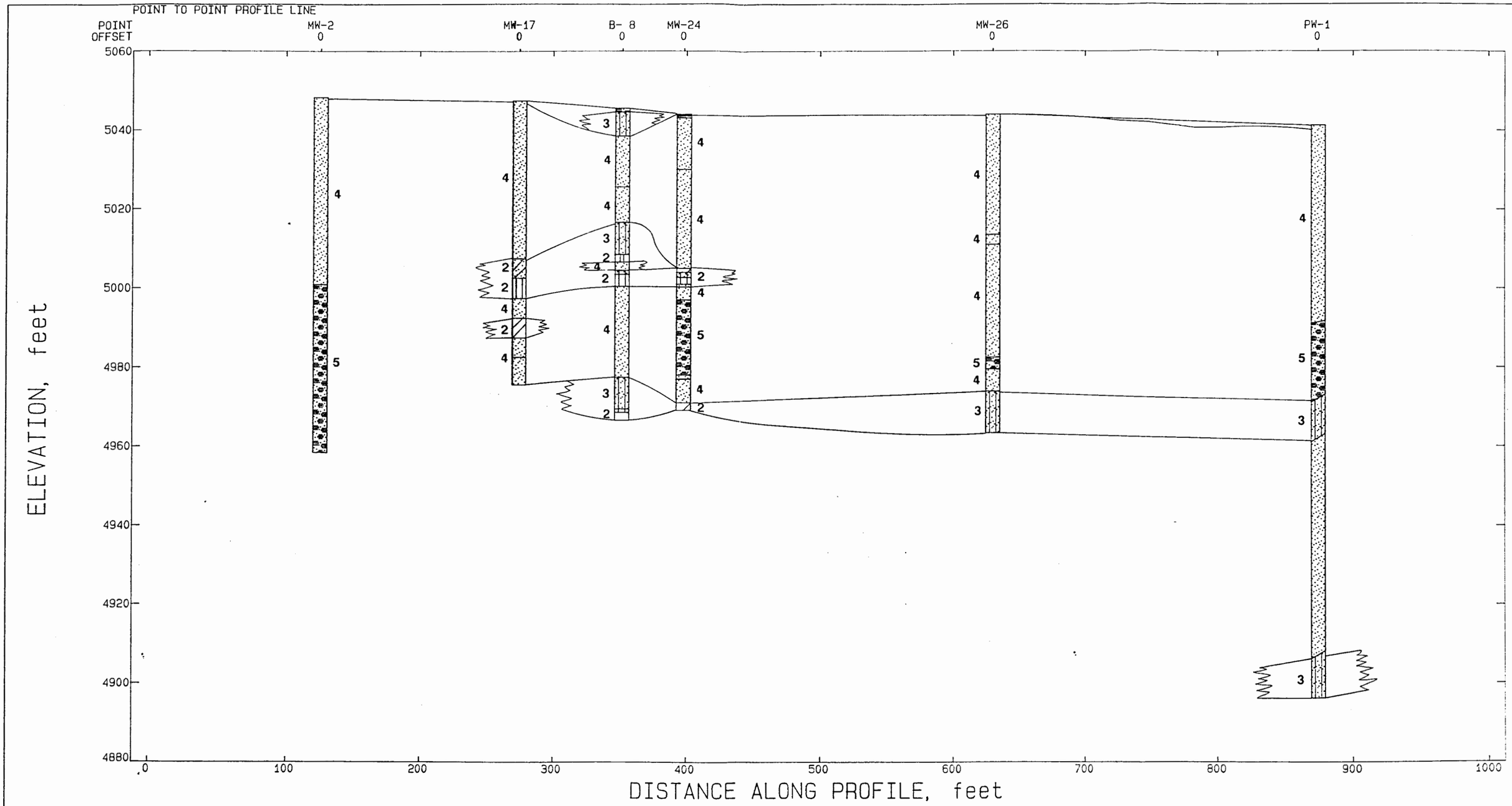
Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE E-E'

HARDING LAWSON ASSOCIATES - Houston, Texas

FIGURE 21

008273



July 24, 1989

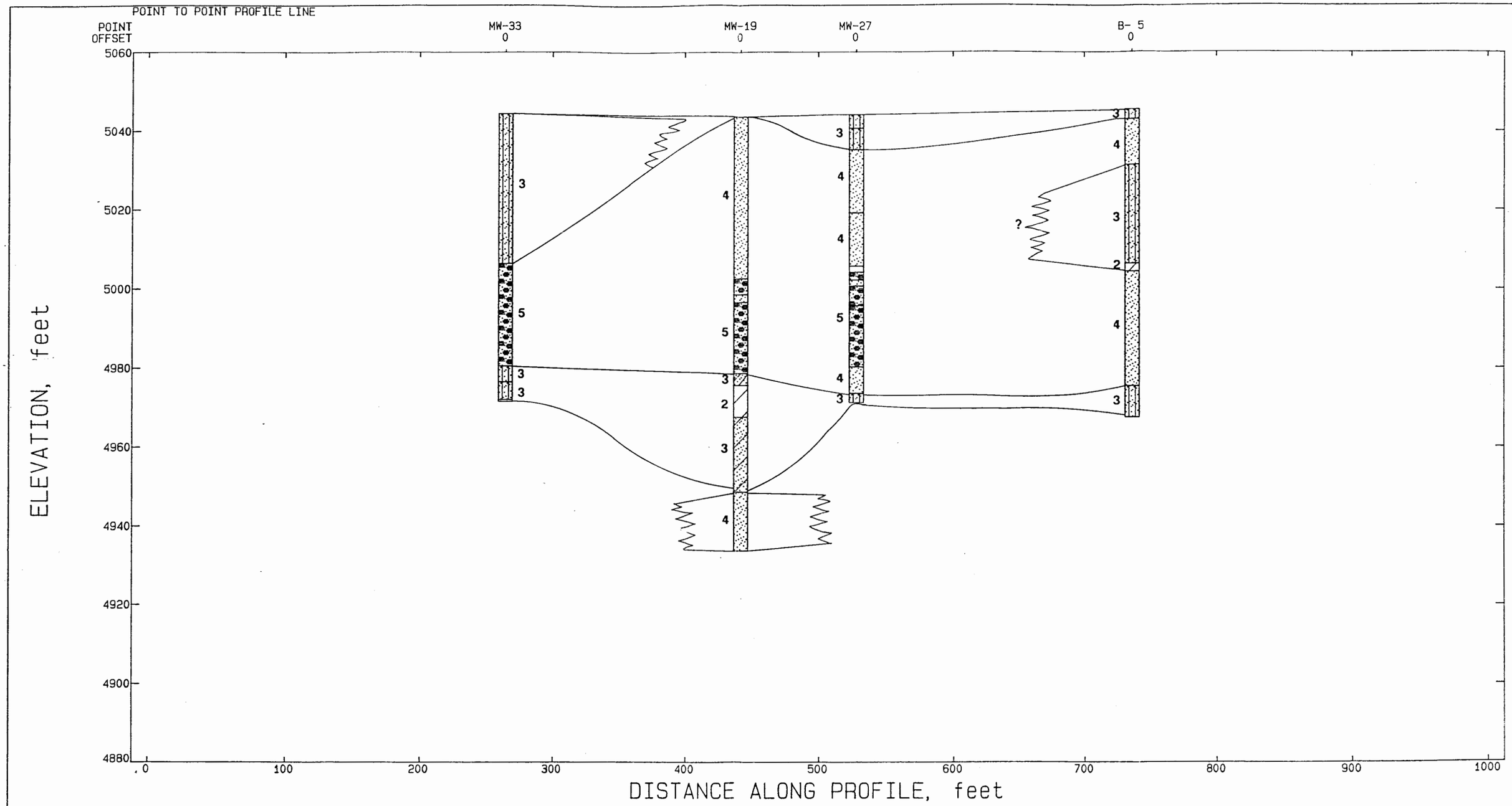
Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE F-F'

FIGURE 22

HARDING LAWSON ASSOCIATES - Houston, Texas

008274



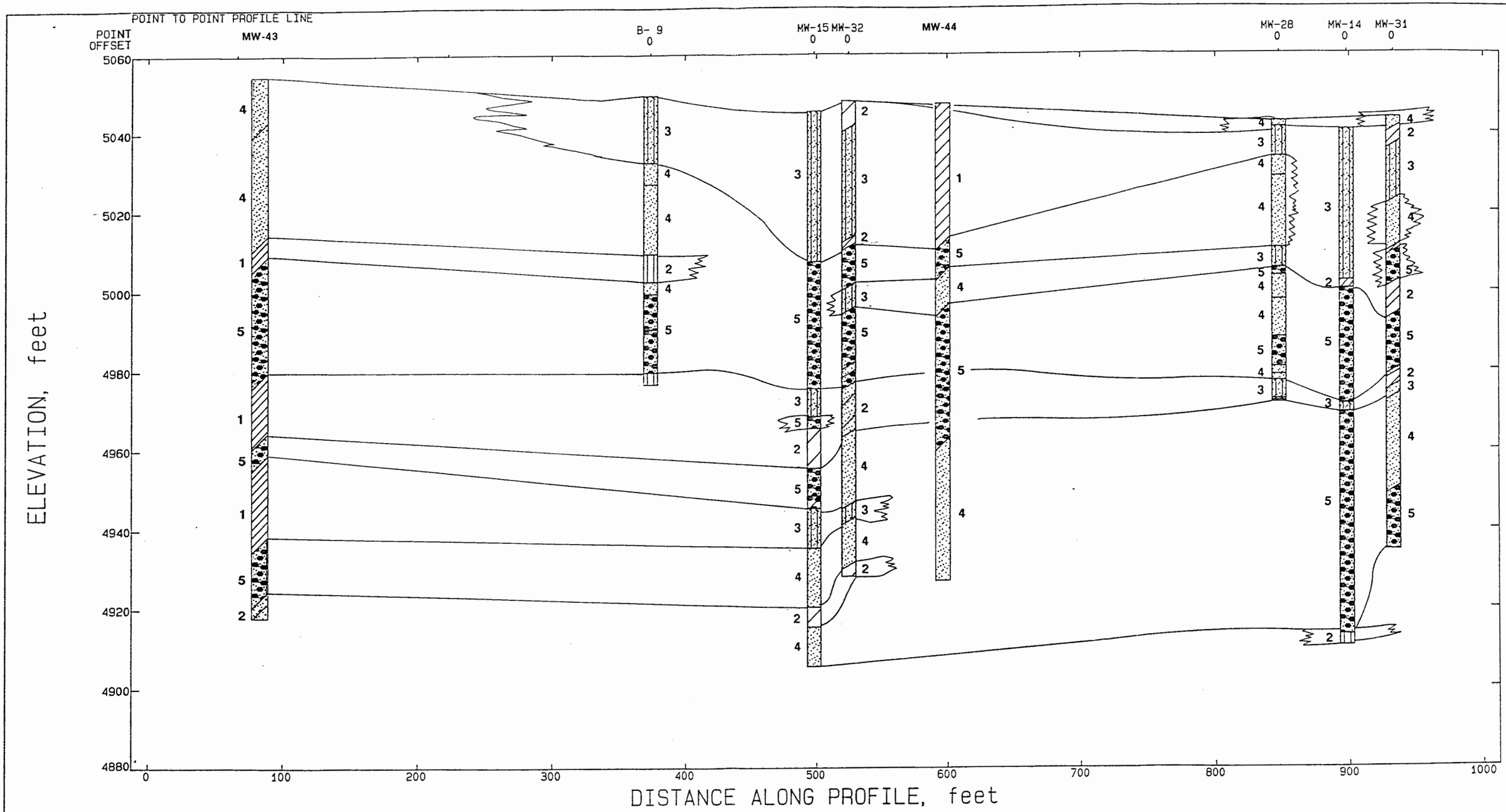
July 24, 1989

Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE G-G'

FIGURE 23

HARDING LAWSON ASSOCIATES - Houston, Texas



July 24, 1989

Sparton Technology Inc. - Albuquerque, New Mexico

SUBSURFACE PROFILE H-H'

FIGURE 24

HARDING LAWSON ASSOCIATES - Houston, Texas

potentiometric differences observed on site. However, as the investigation was expanded to a large area off site, the stratigraphic, and particularly the potentiometric, bases for these flow zone divisions were no longer encountered. All investigative work to date indicates that all of the referenced flow zones are hydraulically connected and constitute a single groundwater unit. However, due to the saturated thickness and the heterogeneous nature of this single groundwater unit, retention of the flow zone identification is very useful for vertical location purposes and assisting in three-dimensional description of the hydrogeology. For this reason and to maintain continuity with the previous reports and correspondence, the flow zone distinctions have been retained in this report.

An evaluation of the extent of interconnection of the upper and lower flow zones was conducted in late 1989 and the results were issued in a report titled "Areal Extent of the Zones of Relatively Lower Permeability" (HLA, 1990). This report evaluated the presence of various fine-grained layers at the facility. Review of well installations indicated that there was a noticeable potentiometric difference between wells set in the upper flow zone and the upper lower flow zone. A review of the logs of borings showed that the fine-grained layers or aquitards between these zones were composed of sediments ranging from clays to compacted silty sands, the latter of which is not typically thought of as an aquitard. Therefore, the term "zones of relatively lower permeability" (ZORLP) was used in place of the word "aquitard". The scale for classifying sediments or sediment groups was subjective and not based upon laboratory permeability tests. The nomenclature was used in an attempt to group sediment types for clearer understanding

of a complex subsurface regime. The ZORLP acronym is not intended to imply any level of effectiveness that a fine-grained layer may have to serve as a hydraulic barrier.

Conclusions of this report state that approximately 94% of the facility is underlain by the ZORLP. Areas where this unit is not present represent direct communication or interconnection of the flow zones. Additional details can be found in the ZORLP report.

The depth to groundwater varies from approximately 65 to 75 feet at the facility to approximately 200 feet in the hills to the west. On-site, groundwater elevation varies as much as two to three feet as a result of recharge from irrigated fields and the Corrales Main Canal. Potentiometric contour maps for the upper, upper lower, and lower lower flow zones have been prepared showing the effects of irrigation (highest water levels) and non-irrigation (lowest water levels). These maps are presented on Figures 25, 26, 27, 28, 29 and 30. The contour maps indicate a significant difference in piezometric elevation and gradient between the upper and lower flow zones on the north side of the facility. The noted difference corresponds to the presence and relative position of the ZORLP and suggests that the observed difference is the result of "perching" of the upper flow zone to the north of the facility. Over the remainder of the study area, piezometric levels and gradients are in good agreement. This agreement demonstrates the hydraulic continuity or interconnection between the designated flow zones and indicates that only a single shallow groundwater unit is present.

To the west of Irving Boulevard, hydraulic gradients are relatively flat and vary from 1:350 to 1:780 in a generally westward direction. Under the Sparton facility, gradients range from 1:50 to the southwest in the upper flow zone to 1:200 to 1:350 to the northwest in the lower flow zone.

Based on the results of field work and interpretations of pumping tests and water level data, the following aquifer parameters have been calculated for the Sparton site:

Aquifer Parameters
T = 12,000-18,000 gpd/ft
K = 0.0075-0.011 cm/sec 160-240 gpd/ft^2
S = 0.002-0.003
N = 0.25-0.40

T = Transmissivity

K = Hydraulic Conductivity

S = Storativity (dimensionless)

N = Porosity (dimensionless)

Aquifer parameters are from pumping test analyses and calculations included in Attachment 10. No pumping test data exist for the third flow zone.

Two major sediment types were encountered in borings at the Sparton facility. These sediment types include clays and sandy muds interbedded with gravelly sands. The gravelly sands predominate in the upper and lower flow zones. Both sediment types are found in every boring, however, correlation from boring to boring is not consistent because

To the west of Irving Boulevard, hydraulic gradients are relatively flat and vary from 1:350 to 1:780 in a generally westward direction. Under the Sparton facility, gradients range from 1:50 to the southwest in the upper flow zone to 1:200 to 1:350 to the northwest in the lower flow zone.

Based on the results of field work and interpretations of pumping tests and water level data, the following aquifer parameters have been calculated for the upper and lower flow zones at the Sparton site:

Upper Flow Zone	Lower Flow Zones
T = 6-615 gpd/ft	T = 12,000-18,000 gpd/ft
K = 2.9×10^{-5}-2.9×10^{-3} cm/sec 0.6-61.5 gpd/ft^2	K = 0.0075-0.011 cm/sec 160-240 gpd/ft^2
S = 0.018	S = 0.002-0.003
N = 0.25-0.40	N = 0.25-0.40

T = Transmissivity
K = Hydraulic Conductivity
S = Storativity (dimensionless)
N = Porosity (dimensionless)

Lower zone parameters are from pumping test analysis included in Attachment 10. No pumping test data exist for the third flow zone.

Two major sediment types were encountered in borings at the Sparton facility. These sediment types include clays and sandy muds interbedded with gravelly sands. The gravelly sands predominate in the upper and lower flow zones. Both sediment types are found in every boring, however, correlation from boring to boring is not consistent because

the depositional environment changes vertically as well as horizontally. Even at cluster well locations, where borings are in close proximity, significant lithologic variation has been observed.

The third flow zone on-site has been encountered at the southwest corner of the facility in well boring MW-49. Between the lower flow zone and the third flow zone, a stratum of clayey sand is present from a depth of 120 feet to 129 feet. Silty sands with clay laminations underlie this clayey sand layer to a depth of 138 feet. Below 138 feet are medium- to coarse-grained sands and sandy gravels to a depth of 148 feet. Monitoring well MW-49 is screened from 138 to 148 feet. The difference in potentiometric head between the lower portion of the lower flow zone (MW-40) and the third flow zone is 0.14 feet under highest water conditions and 0.08 feet under lowest water conditions. MW-49 is the only third flow zone well on/ or off/site.

Off-site well locations are presented in Figure 11. Monitoring wells MW-34, 35, 36, 37, 47, 48, 50, 51, 52, 53, 54, 57, 58, 61, 62, 63, and PZ-1 are screened in the upper flow zone. Monitoring wells MW-44, 45, 46, 56, 59, 60 and 64 are screened in the upper lower flow zone. Monitoring well MW-55 is the only off-site well screened in the lower lower flow zone. No off-site wells are screened in the third flow zone. Logs of borings for these wells are presented in Attachment 4. Sediments encountered in all bore holes are consistent with regional descriptions. Of the five off-site well clusters that monitor the upper flow zone and the upper part of the lower flow zone, only cluster MW-37/45 had a clay layer at a depth of 137 feet to 138 feet potentially correlatable to an on-site clay

layer (ZORLP). The absence of this clay layer (ZORLP) and comparison of piezometric data offsite indicate that the flow zones merge off-site and downgradient as the on-site clay layers pinch out. Groundwater potentiometric contour maps and presumed flow directions are presented on Figures 25, 26, 27, 28, 29, and 30.

Interpretations of hydraulic interconnections between flow zones are shown on potentiometric profiles located as shown on Figure 31. Profiles are shown on Figures 32, 33, 34, 35, 36 and 37. These profiles show the influence of the subsurface heterogeneity and anisotropy--particularly the gravelly layers and the horizontal structure. Due to the large variations in permeability resulting from the anisotropic and heterogeneous subsurface conditions, larger vertical hydraulic gradients depicted on the potentiometric profiles and contour maps reflect the hydraulic resistance to flow rather than the preferred direction of flow. There do not appear to be any significant vertical flow components.

e. Summary of Recent Groundwater Levels and Flow Direction

Figure 25 is a water table contour map for the upper flow zone based upon November 13, 1990 data. This data is representative of highest groundwater conditions corresponding to the end of the irrigation (recharge) season. Figure 26 is a water table contour map for April 4, 1991 data. This data is representative of lowest groundwater conditions prior to the start of the irrigation season. Maximum water levels occur to the north of the Sparton facility. Gradients are generally to the southwest across the Sparton property. Between the facility and Irving Boulevard, the gradients are generally to the west and northwest. Beyond Irving Boulevard the gradients begin a gradual arc back to the established southwestward regional gradient. On a large scale, groundwater flow direction can be assumed to be normal to the potentiometric contours.

The high groundwater elevation to the north of the facility and the onsite contours show some correspondence to the ZORLP. Comparison of the upper flow zone data with lower flow zone data indicates probable "perching" of the upper flow zone groundwater on the ZORLP on the north side of the facility.

The effect of irrigation results in a two-to three-foot change in potentiometric elevation to the south of the facility. However, west of Irving Boulevard the potentiometric elevation is relatively unaffected.

Figures 27 and 28 are potentiometric contour maps for the upper lower flow zone for the highest and lowest water conditions respectively. Both maps indicate hydraulic gradients to the northwest with irrigation causing a two-foot increase in

piezometric elevation at the facility. At the northwest limit of the contours, season has little effect on level. Contours may show the effect of flow "channeling" in gravelly zones under Irving Boulevard.

Figures 29 and 30 are potentiomentric contour maps for the lower lower flow zone for the highest and lowest water conditions respectively. Although data for this zone is limited, the piezometric levels and gradient directions agree closely with the upper lower flow zone mappings.

It should be noted that, from Irving Boulevard west, piezometric levels and gradients of both upper and lower flow zones correspond closely. Confirmation of this correspondence can be seen on the potentiometric profiles given on Figures 32, 33, 34, 35, 36 and 37.

No gradient direction can be determined for the third flow zone as only one well has been set in that zone. However, based on the potentiometric equivalence to the lower lower flow zone well at the same location, the third flow zone is anticipated to have similar levels and gradients to the lower flow zone.

C. Surface Waters

Surface waters in the vicinity of the Sparton facility include the Rio Grande, Las Calabacillas Arroyo, and Corrales Main Canal. The Rio Grande is located approximately 3,000 feet east of the Sparton facility. Las Calabacillas Arroyo located approximately 2,800 feet north of the site is an intermittent stream. The Corrales Main Canal, a manmade

hydraulic structure, is located approximately 300 feet east of the site and contains flowing water (Rio Grande source water) eight months out of the year. The canal is used primarily for irrigation. It is put into operation about March 1, and taken out of operation about October 31. During the winter months, the canal is dry and only receives water from precipitation or snowfall.

The level of the Rio Grande through most of the Albuquerque area is controlled by levees which maintain the river level above the level of the inner valley floor and the surrounding water table. The natural buildup of sediment which raises the river level allows recharge of the water table through a downward movement. As the water table rises under the riverbed, the water spreads out to the surrounding water table.

The chemical quality of the Rio Grande is good. A typical analysis of surface water of the Rio Grande from samples taken at the Albuquerque gauging station located on the downstream side of the Central Avenue Bridge, made by the U.S.G.S., is shown on Figure 38.

FIGURE 38
RIO GRANDE CHEMICAL QUALITY ANALYSIS[1]

Dissolved Constituent	Concentration mg/L[2]
Calcium (Ca)	53.0
Magnesium (Mg)	9.7
Sodium (Na)	33.0
Potassium (K)	3.8
Sulfate (SO_4)	73.0
Chloride (Cl)	13.0
Fluoride (F)	0.40
Silica (Sio_2)	22.0
Total Dissolved Solid (TDS)	298
Nitrogen NO2+NO3 (N)	<0.100
Phosphorous (P)	0.020
Boron (B)	0.080
Iron (Fe)	0.010
Arsenic (As)	0.004
Cadmium (Cd)	0.001
Chromium (Cr)	<0.001
Copper (Cu)	0.004
Lead (Pb)	<0.005
Mercury (Hg)	<0.0001
Selenium (Se)	<0.0001
Zinc (Zn)	0.005

FIGURE 38
RIO GRANDE CHEMICAL QUALITY ANALYSIS[1]
(Continued)

Chemical Quality Indicators	Concentrations
Specific Conductance	470 us/cm[3]
pH	8.46 standard units
Temperatures	16.0 °C[4]
Dissolved Oxygen	8.3 mg/l
Total Hardness ($CaCO_3$)	170 mg/l

(1) Analysis performed for samples taken on November 7, 1988
(2) mg/L = milligrams per liter
(3) us/cm = microsiemers per centimeter
(4) °C = degrees celsius

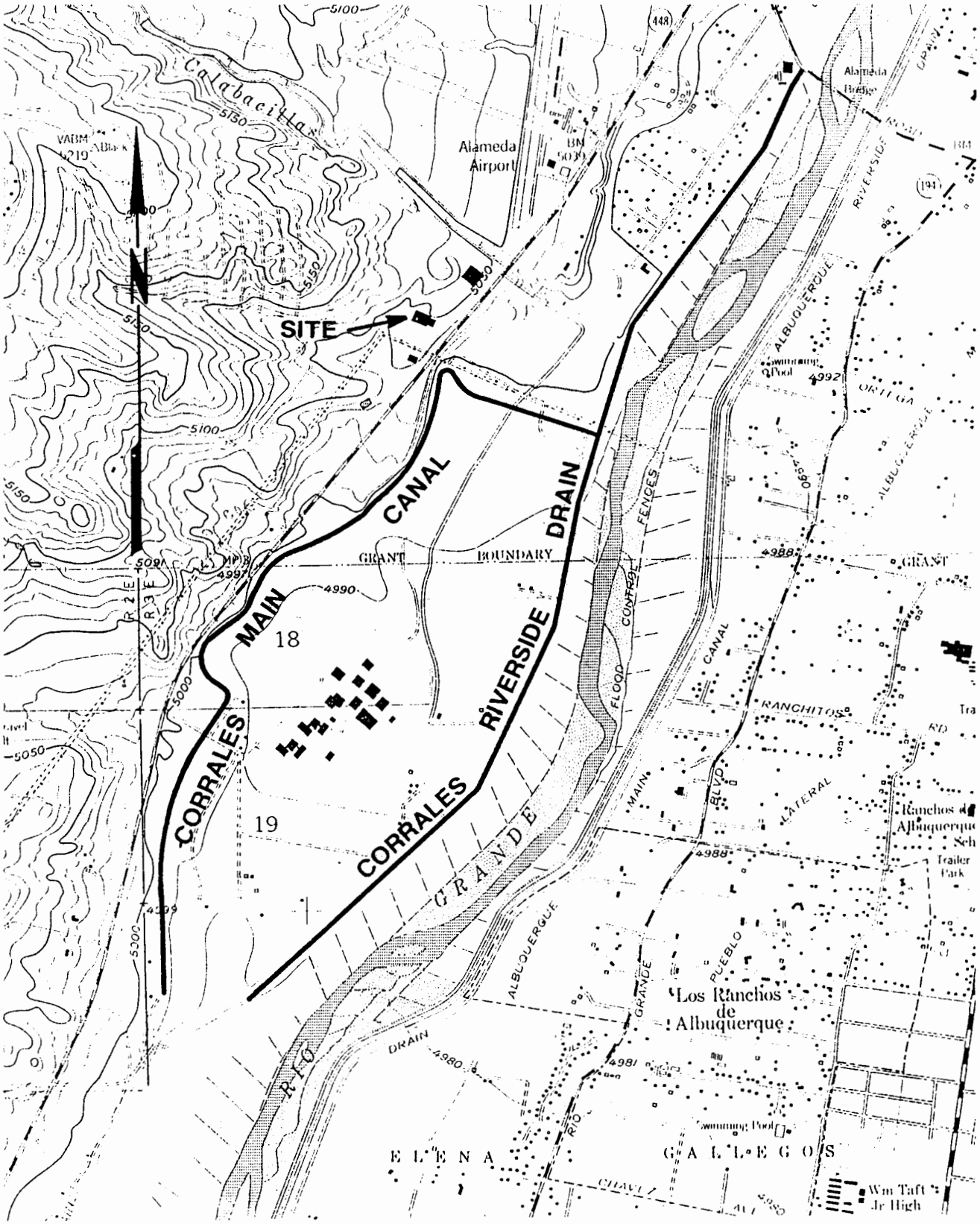
The average annual suspended sediment load for the Rio Grande in water year October 1988 to September 1989 was approximately 454 tons per day, with a maximum daily load of 13,900 tons on August 2 and a minimum daily of 7.9 tons on June 9.

The Rio Grande serves as the source water for the Corrales Main Canal. Therefore, the water quality of the Canal should be similar to that of the Rio Grande. The Corrales Riverside Drain is constructed approximately 200 feet west of the Rio Grande and approximately 2,800 feet east of the Sparton facility. The Corrales Main Canal is located approximately 300 feet east of the Sparton facility. The Corrales Riverside Drain was constructed to lower the water table in the floodplain area adjacent to the river so that it could be farmed. A section of the topographic map locating these features is shown in Figure 39.

D. Climate

Albuquerque is located in Bernalillo County. The Rio Grande flows southward through the county, which is in the central part of New Mexico. The land rises on both sides of the river and forms mesas that have elevations of about 5,000 feet. The valley and mesa areas are arid, having average annual precipitation near eight inches.

Summer is the rainy season. Half the annual precipitation falls during the period from July to October, typically as brief but often heavy thunderstorms. An average of 44 such storms occur each year, mostly during this period. Moisture is supplied by the generally



Harding Lawson Associates
Engineering and Environmental Services

MAN-MADE HYDRAULIC STRUCTURES

Sparton Technology Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE 39

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	6310,039.12	JSH	7/90		

008302

southeasterly circulation of moist air over the Gulf of Mexico from the Bermuda high pressure area, which shifts westward in summer. Winter precipitation is light because much of the moisture from storms over the Pacific Ocean falls over the mountains west of New Mexico as the storms move eastward.

There is considerable variation in precipitation from year to year and from month to month. The average number of days having 0.10 inch or more precipitation is 22.

The average annual temperature in Albuquerque is 57°F. The highest recorded temperature is 104°F, and the lowest recorded temperature is -17°F. The temperature reaches 90 on an average of 75 days a year, and freezing temperatures occur on an average of 105 days a year. The average frost-free season at Albuquerque is 190 days, from mid-April to late October.

Average annual relative humidity in Albuquerque is 43 percent, but ranges from near 60 percent early in the morning to nearly 30 percent in the afternoon. Sunshine occurs more than 75 percent of the possible hours, and is fairly evenly distributed in all seasons.

The average annual windspeed is 9 miles per hour. Spring is the windy season. Winds blow most frequently from the north in winter, and from the south along the river valley in summer. In Tijeras Canyon, the heavy cold air held back by the Sandia and Manzano Mountains finds access to the basin area and literally pours through the Canyon, spreading out on the mesa and valley below in gusts of up to 50 miles per hour.

Figure 40 shows annual patterns of precipitation, temperature, and wind speed and direction in Albuquerque.

FIGURE 40
ALBUQUERQUE CLIMATOLOGICAL PATTERNS

Month	Temperature, degree F			avg. total precipitation inches	avg. speed m.p.h.	Prevailing Direction
	avg. daily max	avg. daily min	daily mean			
January	47	24	35	0.31	8.0	N
February	53	27	40	0.40	8.8	N
March	59	32	46	0.47	10.1	SE
April	70	41	56	0.47	11.0	S
May	80	51	65	0.56	10.5	S
June	89	60	75	0.53	10.0	S
July	92	65	79	1.37	9.1	SE
August	90	63	77	1.38	8.2	SE
September	83	57	70	0.83	8.6	SE
October	72	45	58	0.78	8.3	SE
November	57	32	44	0.34	7.9	N
December	48	25	37	0.52	7.7	N

008304

V CONTAMINATION CHARACTERIZATION

A. Soil Contamination

1. Vadose Zone Investigation

An investigation of the vadose zone beneath the pond and sump area was conducted in September 1985. The results of this investigation were published in a report titled "Soil Investigation of the Unsaturated and Upper Saturated Zones, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico" (HLA, 1986). A copy of the boring logs and analytical results from that report are included as Attachment 6.

The results of PID field screening during drilling, surface soil gas screening, and analytical testing of soil samples indicate that contaminants migrated downward from the ponds and sump. The vertical migration was influenced by the relative location of fine grained silt and/or clay lenses and the presence of more porous course-grained sand and gravel layers. Interpretation of the results indicates both sorption and lateral spreading occurred due to the silt/clay. However, based on available results, the bulk of the contaminant release has completed its migration to the water table, leaving behind only scattered residual levels in the vadose zone in the pond and sump area.

a. Volatile Organic Constituents

Soil gas screening indicated a general increase in soil gas VOC concentrations with depth with the highest concentrations observed under the sump/pond

area. Isolated occurrences of higher soil gas concentrations were also observed at depths corresponding to fine-grained clay/silt lenses. These localized soil gas concentrations are believed to be related to residual VOC sorbed onto the finer-grained soil materials.

To identify residual concentration in the soil, total organic halogen (TOX) determinations were conducted on 126 soil samples using a modified Test Method 9020 procedure. The detection limit for this modified 9020 procedure was 2 milligrams per kilogram (mg/kg). Positive TOX detections were obtained in 21 of the soil samples from a total of 7 borings. Samples with positive TOX detections were also tested for target VOC previously identified in groundwater at the site. Target VOC concentrations were determined using Method 8010. However, the 8010 analyses confirmed the TOX analysis in only six of the samples representing three soil borings (B-5, B-7, and B-8) in the sump/pond area.

b. Total Metals

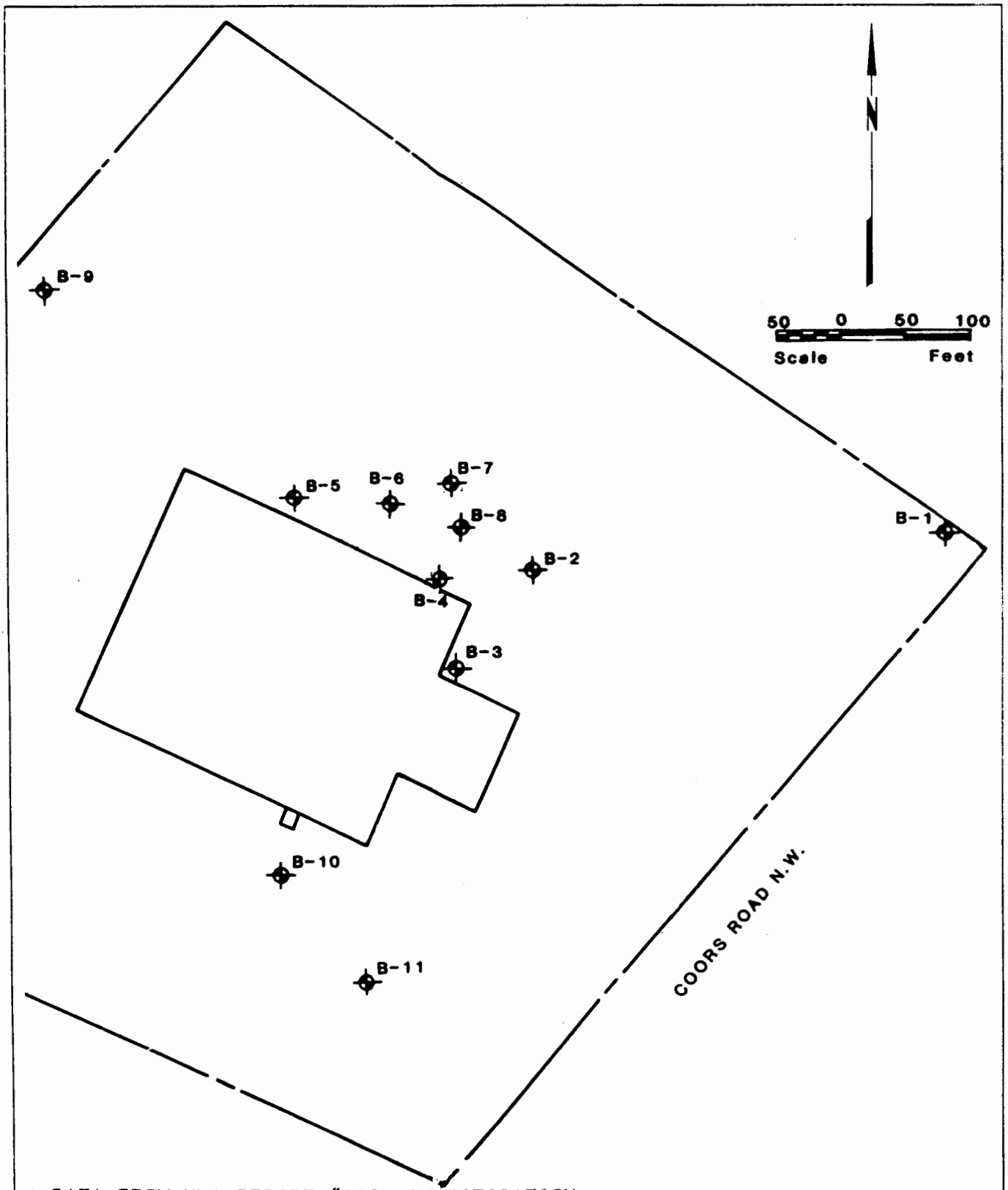
Total metals analyses were conducted on 126 soil samples to determine concentrations of cadmium, chromium, lead, and nickel. Analytical results on 34 samples exceeded nominal background levels for chromium (2-3 mg/kg). Maximum chromium concentration exceeded 3000 mg/kg at B-4 and B-8 underneath the sump/pond area. Evaluation of the data indicates sorption onto fine-grained silts and clays is probably the

dominant process affecting chromium concentration. The variation in chromium concentration is graphically depicted on Figures 41 through 52 which show the depth profiles of chromium concentration relative to subsurface lithology.

2. Surface Soil Gas Investigations

Three soil gas investigations have been conducted at the Sparton facility. The first soil gas investigation was conducted in 1984, and involved primarily on-site locations. The second investigation was conducted in 1987, and involved both on-site and off-site locations for soil gas measurements. The third investigation was conducted in June 1990, and covered both on-site and off-site locations. The investigations were conducted by Tracer Research Corporation using the same techniques and equipment. The results of the first two investigations were published in an HLA report dated October 19, 1987 and titled "Off-Site Investigation, Sparton Technology, Inc., Coors Road Plant, Albuquerque, New Mexico", a copy of which is included in Attachment 7. The report on the third investigation, "Shallow Soil Gas Investigation, Sparton Technology Building, 9621 North Coors Road, Albuquerque, New Mexico", is included in Attachment 9.

The purpose of these investigations was to obtain an estimate of the areal extent of the contaminant plume and to examine the impact of the upper flow zone pump and treat remediation on soil gas. All soil gas samples were taken in the shallow subsurface, approximately five to six feet below ground surface.



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

HDR

HDR ENGINEERING, INC.
DALLAS, TEXAS

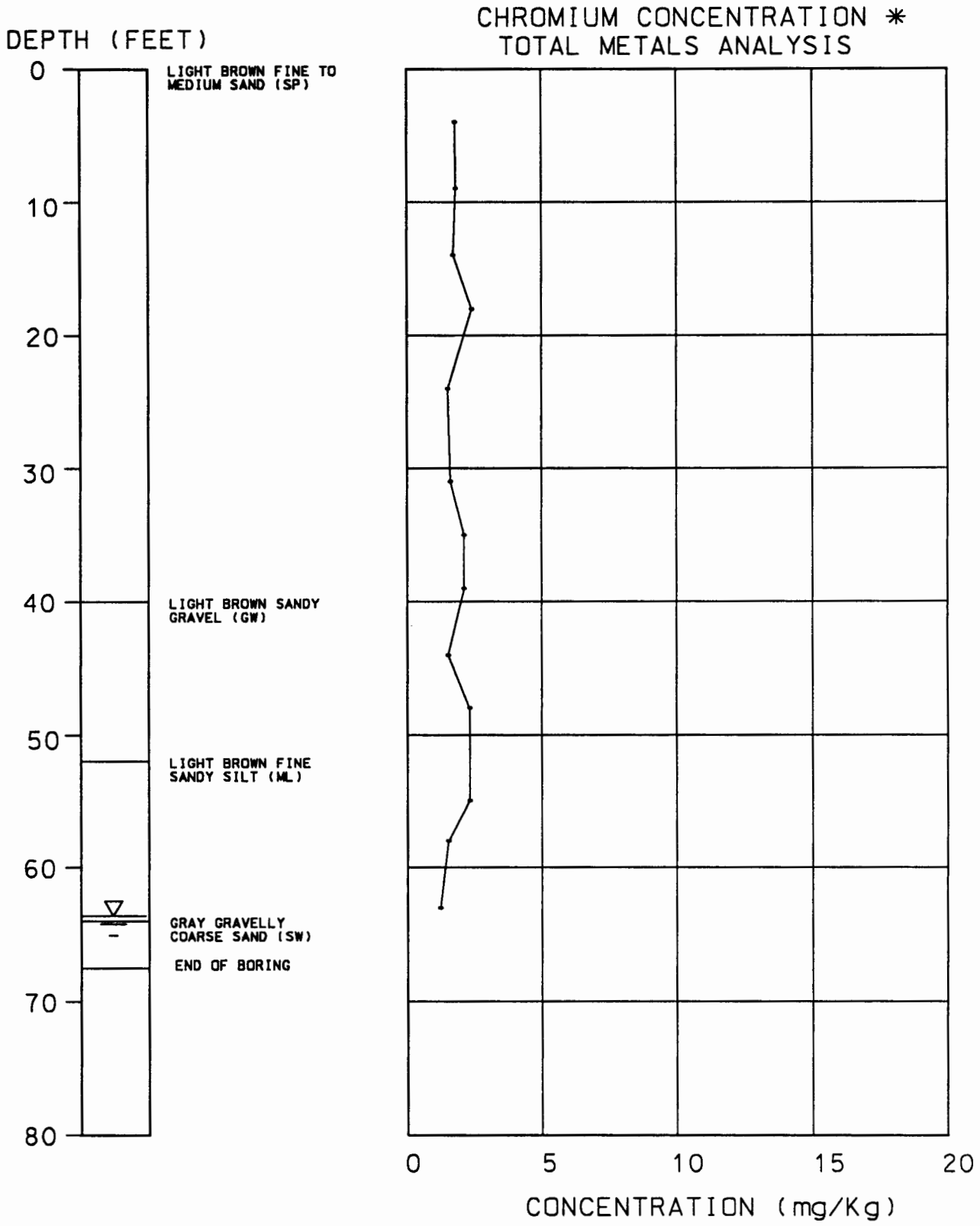
PLAN OF SOIL BORINGS

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

008308

Date 12/01/91

Figure 41



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

HDR

HDR ENGINEERING, INC.
DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

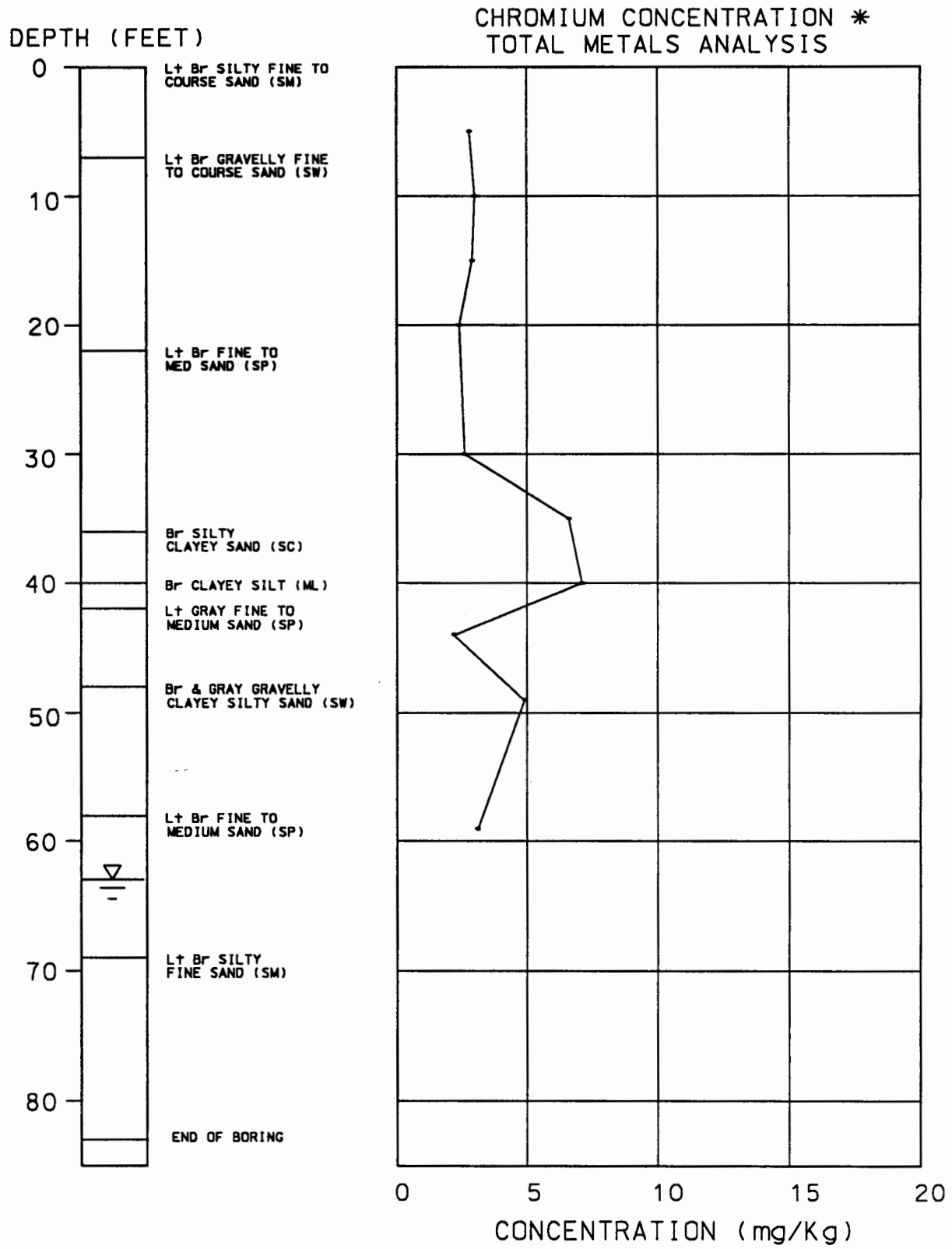
BORING B-1

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 42

008309



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

HDR

HDR ENGINEERING, INC.
DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

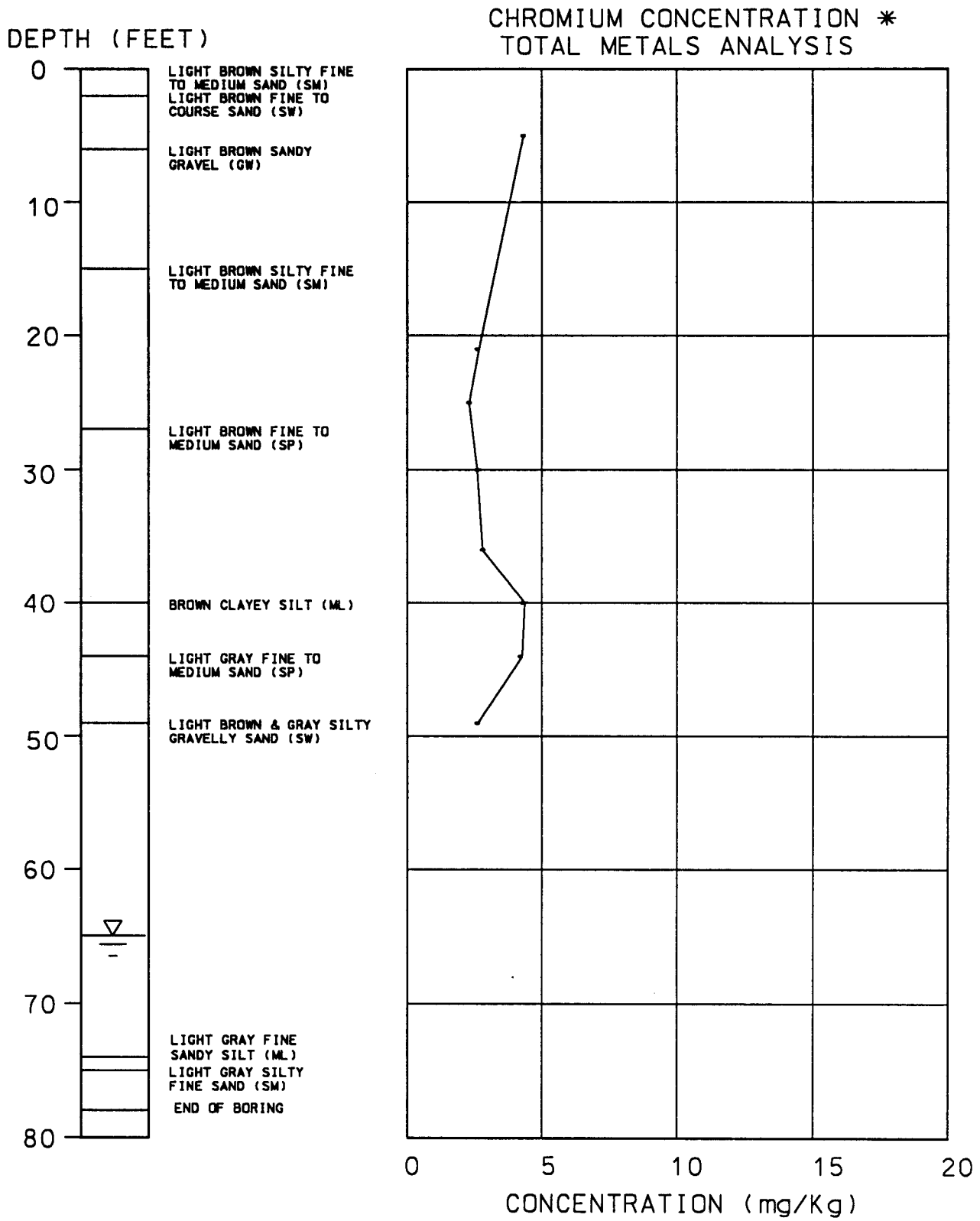
BORING B-2

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 43

008310



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

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DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

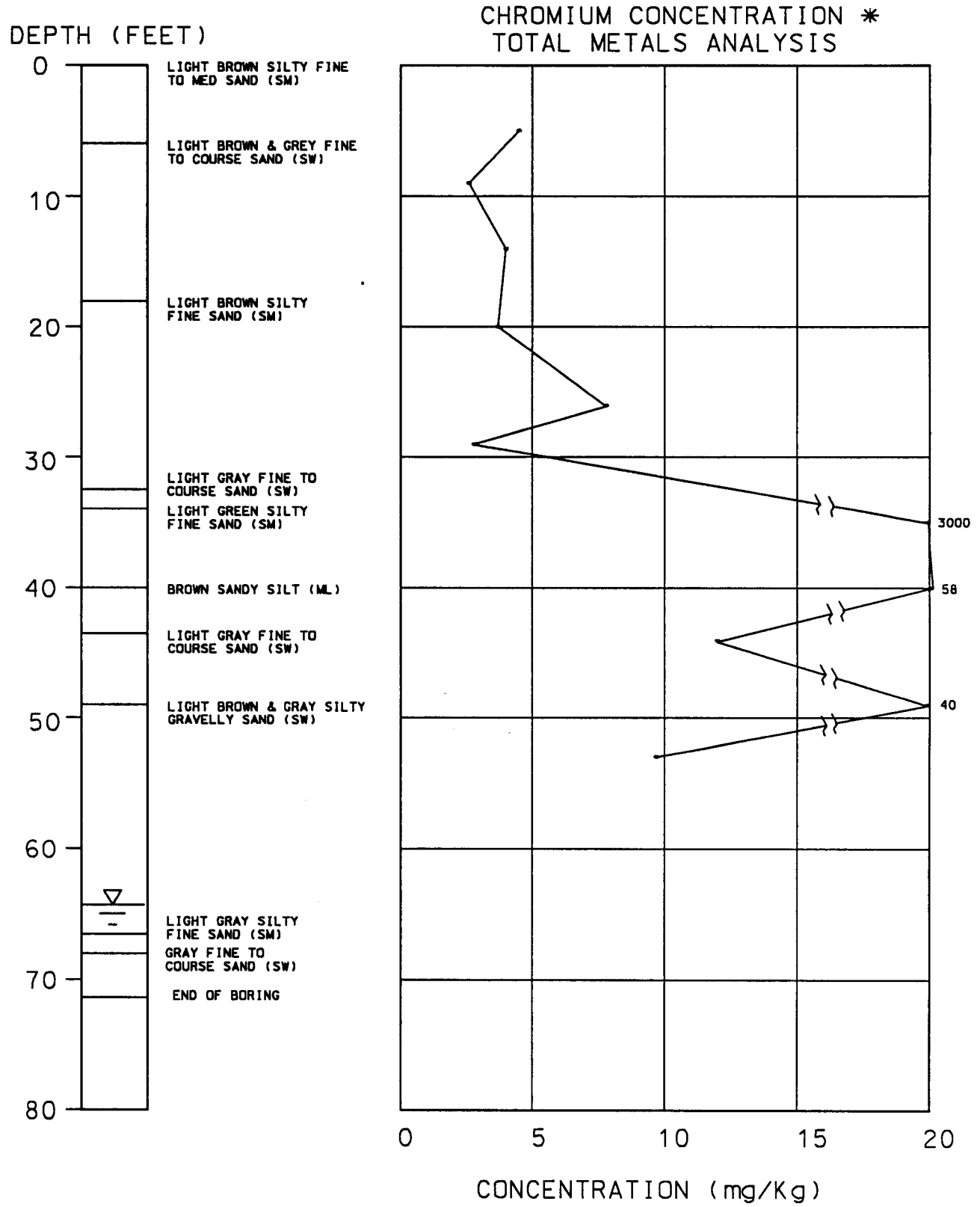
BORING B-3

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 44

008311



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

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HDR ENGINEERING, INC.
DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

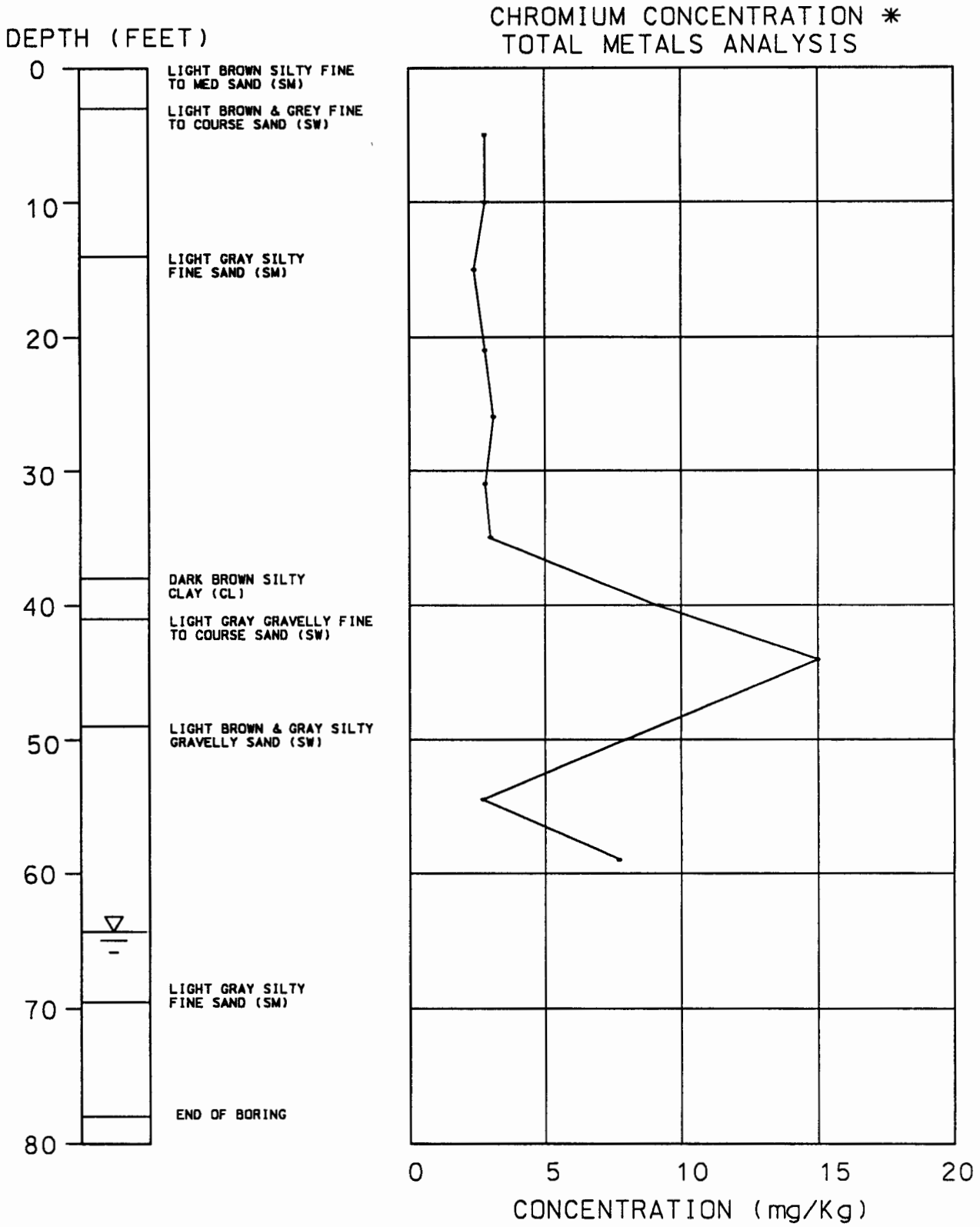
BORING B-4

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 45

008312



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

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HDR ENGINEERING, INC.
DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

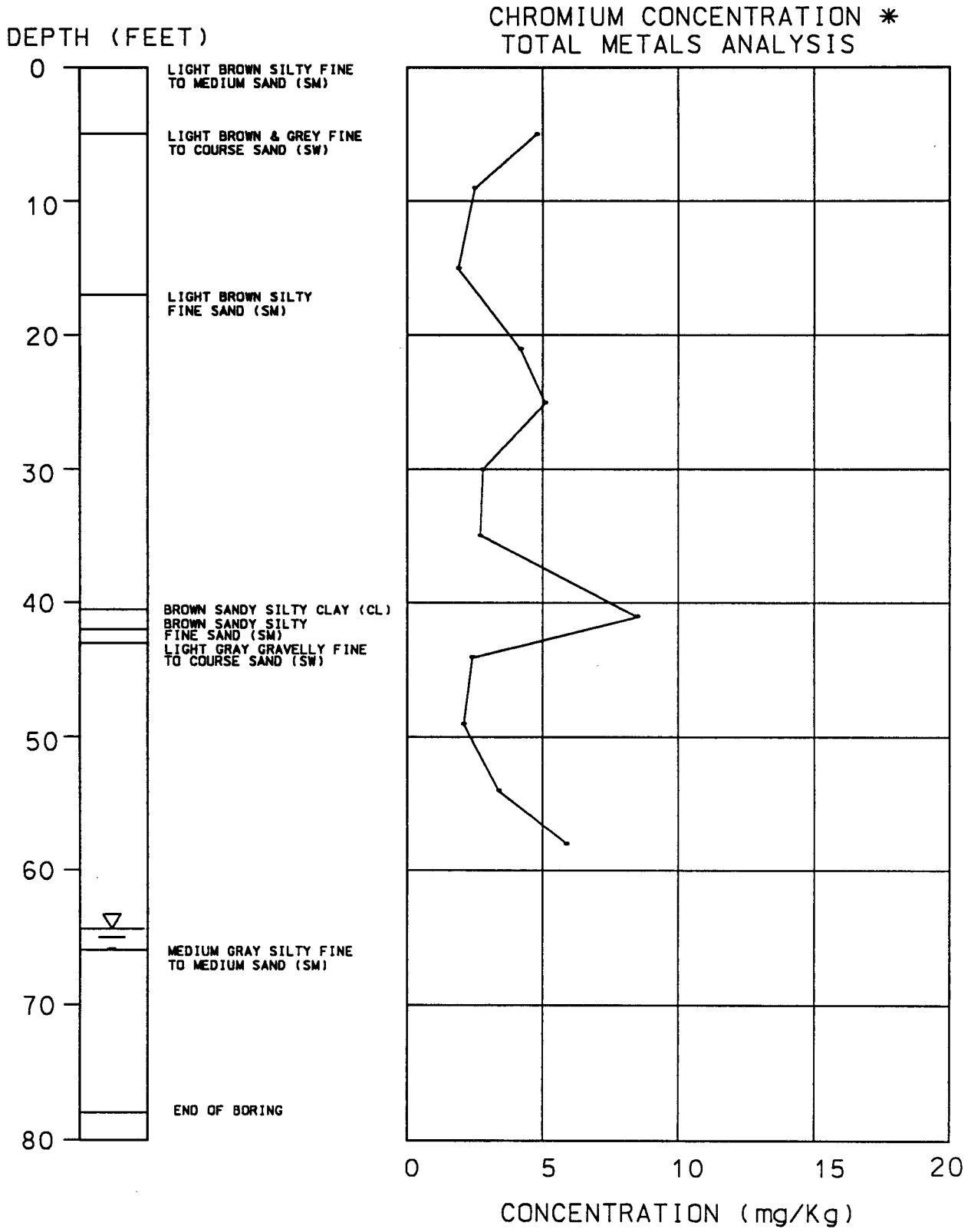
BORING B-5

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 46

008313



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

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DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

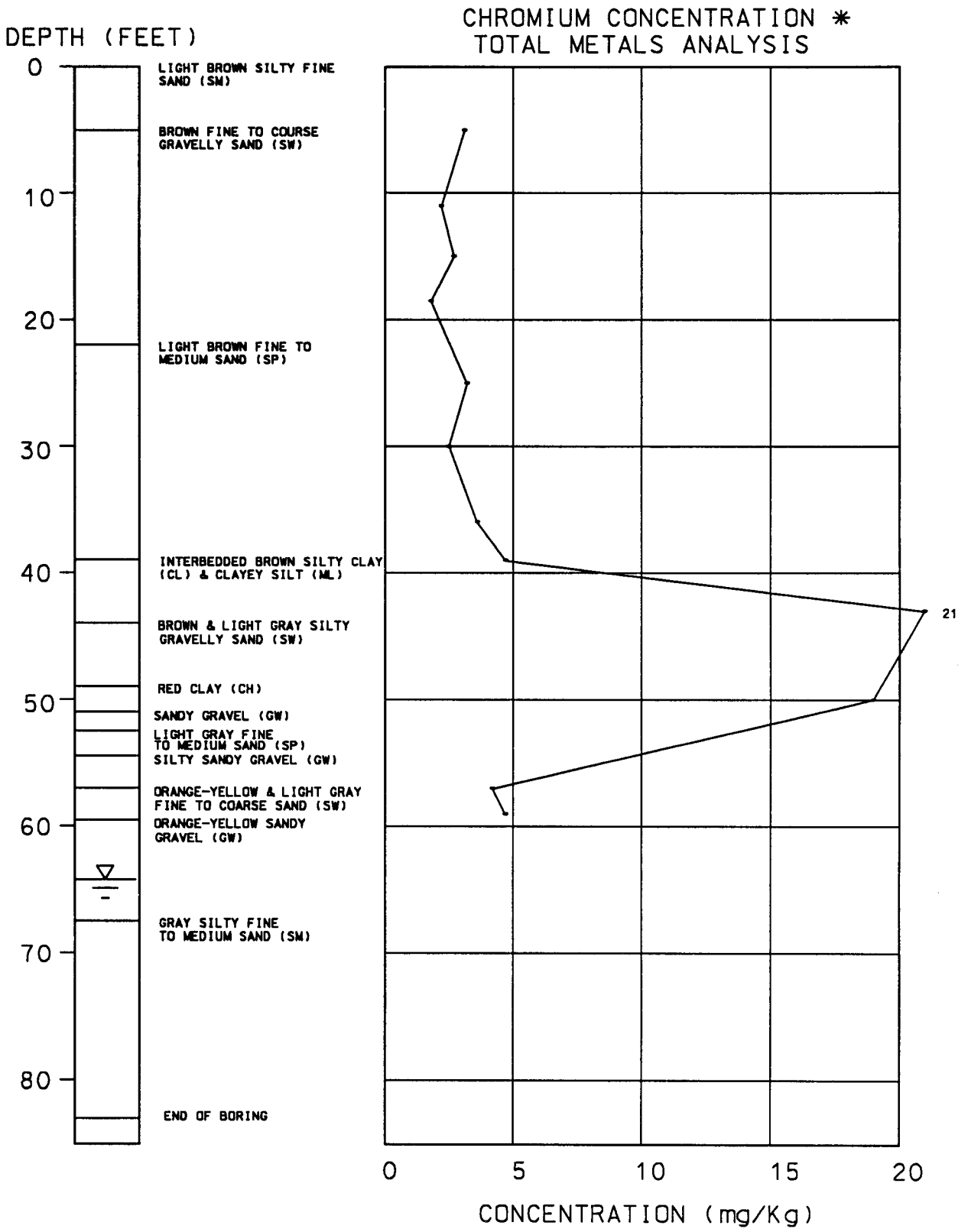
BORING B-6

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 47

008314



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

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DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

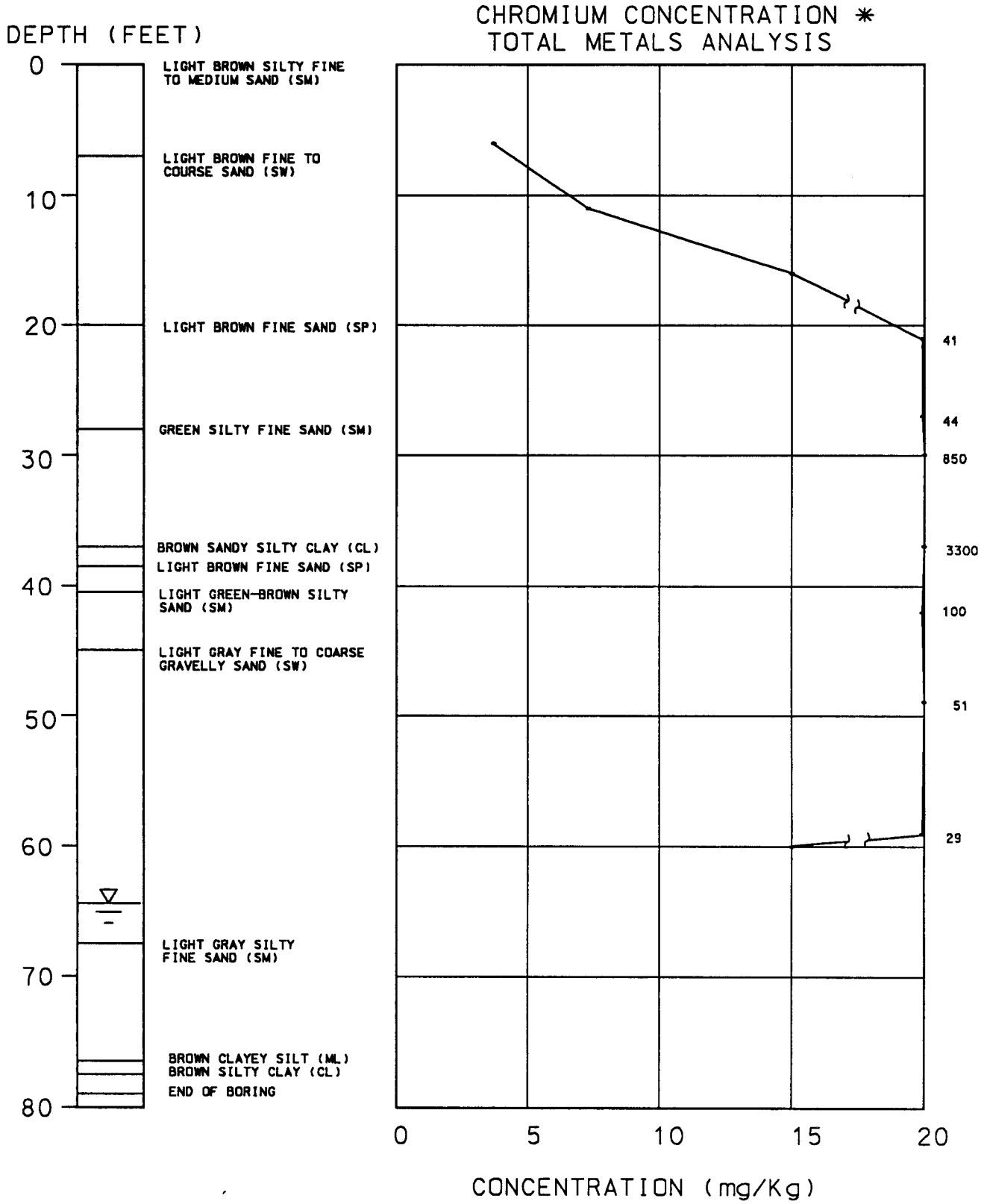
BORING B-7

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 48

008315



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

HDR

HDR ENGINEERING, INC.
DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

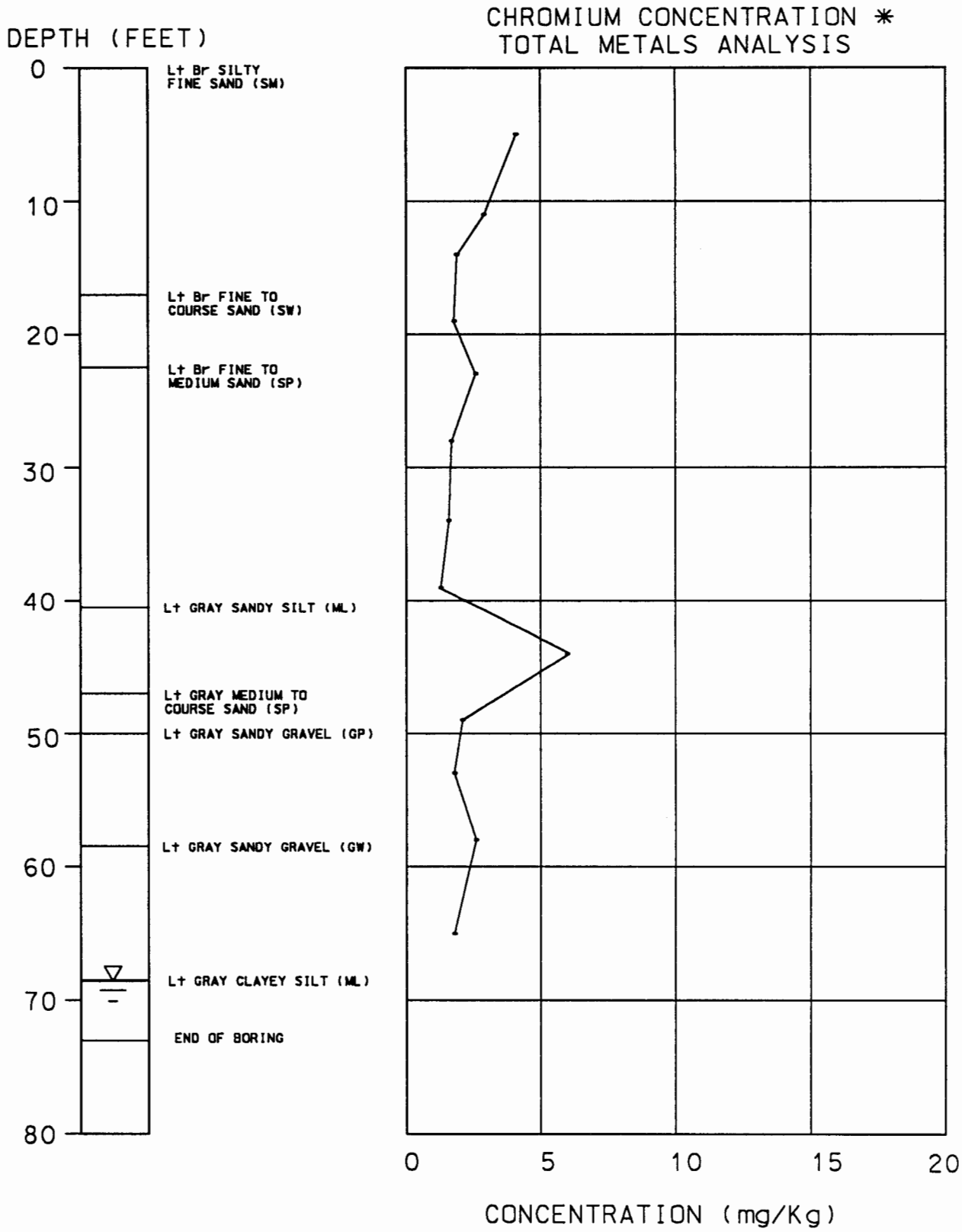
BORING B-8

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 49

008316



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

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HDR ENGINEERING, INC.
DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

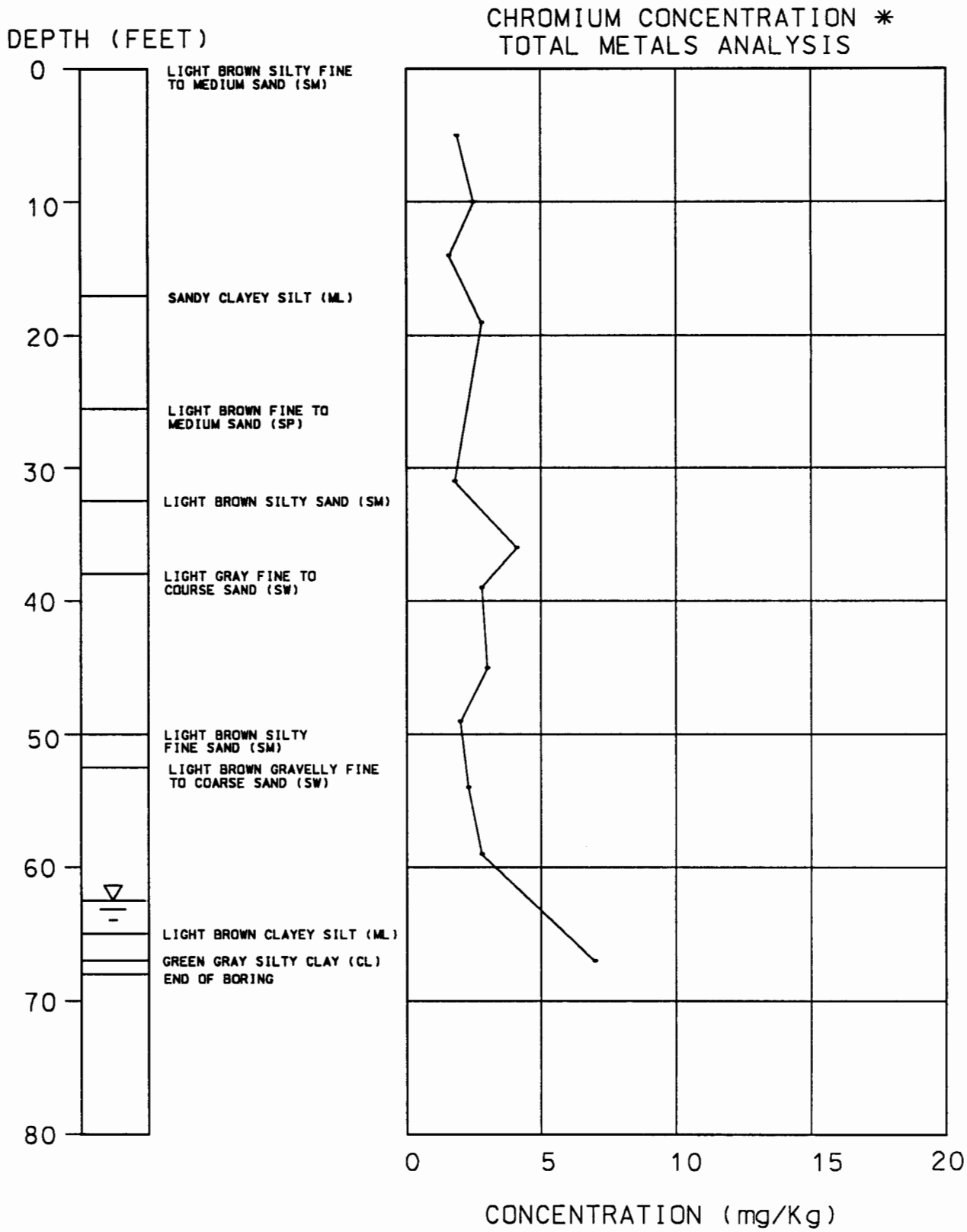
BORING B-9

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 50

008317



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

HDR

HDR ENGINEERING, INC.
DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

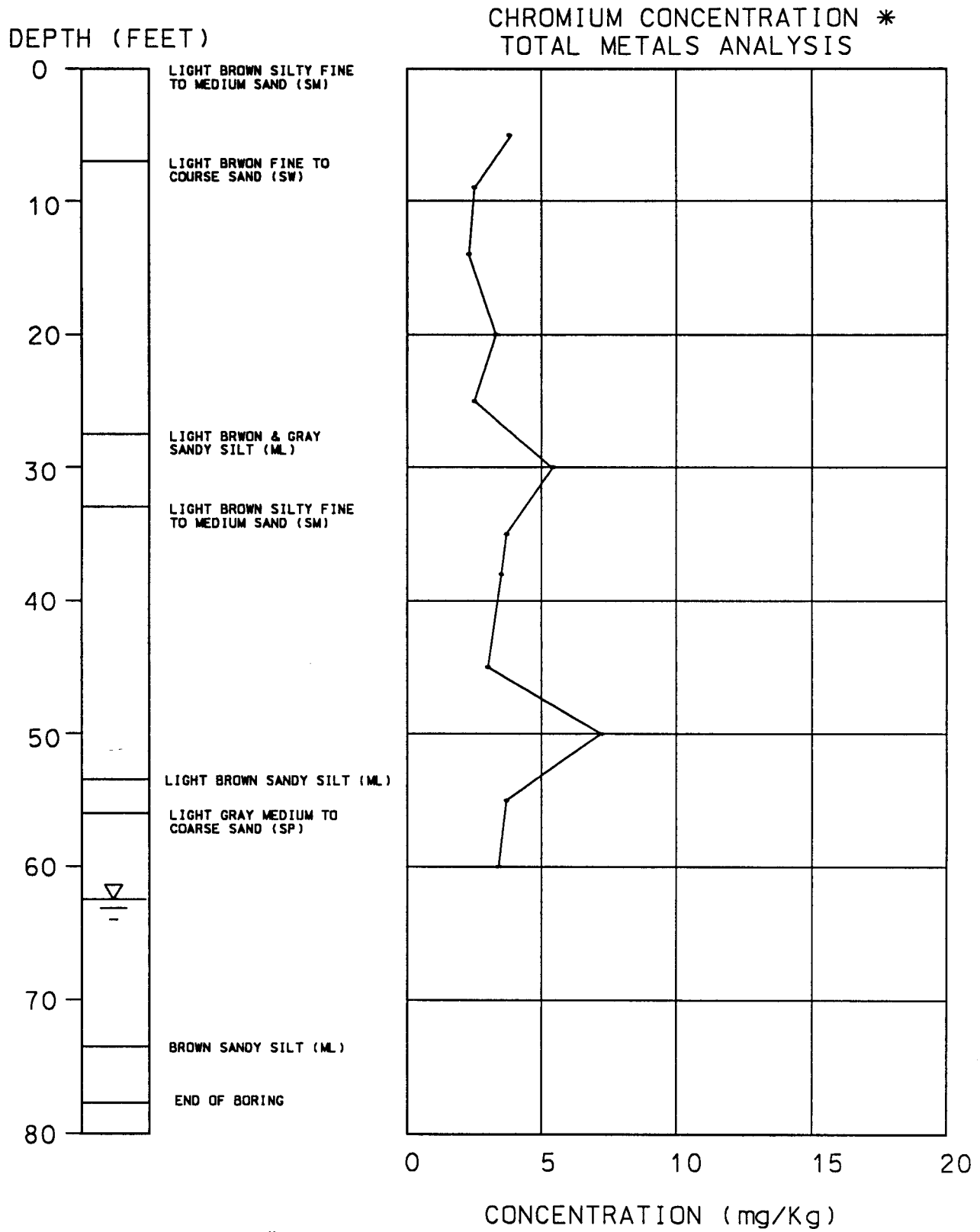
BORING B-10

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 51

008318



* DATA FROM HLA REPORT "SOIL INVESTIGATION OF THE UNSATURATED AND UPPER SATURATED ZONES"

HDR

HDR ENGINEERING, INC.
DALLAS, TEXAS

SOIL CHROMIUM CONCENTRATION

BORING B-11

SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Date 12/01/91

Figure 52

008319

Based on these soil gas surveys, it appeared that the contaminant plume had moved a short distance beyond the facility boundaries. The shape of the soil gas plumes also seem to suggest dispersion and diffusion as the predominant plume transport mechanisms with a lesser advection influence.

Based on the results of the 1987 and 1991 soil gas surveys, TCA and TCE were detected in the soil gas over approximately the same area. Within the facility boundary, however, TCE concentration dropped approximately one order of magnitude with only a single sampling point south of the building above 10 ug/l. TCA decreased approximately 1/3 to 1/2 within the property boundary to a single peak level above 10 ug/l. Comparison to 1984 on-site data indicate over a 30X decrease in TCA and a 50X decrease in TCE.

The soil gas results indicate a significant change in soil gas concentration due to both source removal and initiation of the pump and treat remediation in 1989. The decrease in concentration with time is also reflected in the quarterly groundwater monitoring results which were collected under the state program.

An anomalous soil gas concentration of TCE and TCA southwest of Congress Avenue and Irving Boulevard has been observed in both the 1991 and 1987 surveys. Based on the general shape and location of the anomaly, the absence of analytical detection in MW-34 and MW-35, and the general groundwater flow characteristics, the soil gas anomaly is not related to the contaminant plume originating at the Sparton Facility.

B. Surface Water and Sediment Contamination

There are three surface water bodies in the vicinity of the Sparton facility. The Rio Grande is located approximately 3,000 feet east of the Sparton facility and is considered a permanent surface water body. The river flows from northeast to southwest in the vicinity of the Sparton facility. The Las Calabacillas Arroyo located approximately 2800 feet north of the facility is an intermittent stream used for area precipitation runoff control. The Corrales Main Canal, an irrigation channel, is located approximately 300 feet east of the facility, across Coors Road, and runs southwest from there. This irrigation canal is generally used from March through October, and, except for precipitation, is dry from November through February.

Based on regional and site-specific groundwater gradients, each of these surface water bodies is either upgradient or cross-gradient from the source area at the Sparton facility, and hence would not be expected to be affected by the contaminant plume.

C. Air Contamination

Since the contaminant release occurred in the subsurface soils and has subsequently migrated to the groundwater, the only ongoing release of constituents to the atmosphere from the release is by volatilization of the constituents from the groundwater and subsequent movement of these vapors through the vadose zone and ultimately to the ground surface where they are released into the atmosphere. Soil gas concentrations measured in 1991, approximately 5 to 6 feet below ground surface, indicated average TCE

and TCA soil gas concentrations of less than 10 micrograms per liter (ug/l) on-site at the Sparton facility, tapering off to 0.001 ug/l approximately 1/2 mile away. The mass flux rate of these constituents into the atmosphere, while not measured, is felt to be minimal due to the low concentrations of soil gas measured during the 1991 survey.

An additional source of air emissions is associated with the interim groundwater recovery system. The air stripper, which strips the volatile organic contaminants from the groundwater, releases these contaminants into the atmosphere. These emissions are permitted by the City Albuquerque Environmental Health Department (Air Quality Permit Number 187).

D. Groundwater Contamination

1. Definition of Plume

A total of 56 groundwater monitoring wells have been installed to determine groundwater elevations and to collect representative samples for chemical analyses in an effort to define the horizontal and vertical limits of the contaminant plume. Figure 53 presents pertinent well screen data for the wells. For the purposes of the investigation, TCE and TCA concentration values have been plotted to define the plume configuration. These two compounds are the major constituents of the groundwater contamination as they are found to be the most prevalent in groundwater sample analyses. Acetone, DCE and MeCl have also been detected, but are not as prevalent as TCE and TCA.

FIGURE 53

WELL SUMMARY

WELL NUMBER	ZONE *	MEASURING POINT ELEVATION	DEPTH TO TOP OF SCREEN (FT.)	DEPTH TO BOTTOM OF SCREEN (FT.)	ELEVATION AT TOP OF SCREEN (FT.,MSL)	ELEVATION AT BOTTOM OF SCREEN (FT.,MSL)	LENGTH OF SCREEN (FT.)
PW-1	UFZ	5044.54	60.0	70.0	4984.54	4974.54	10.0
7	UFZ	5044.80	63.5	68.5	4981.30	4976.30	5.0
9	UFZ	5044.11	62.5	67.5	4981.61	4976.61	5.0
12	UFZ	5042.58	64.0	74.0	4978.58	4968.58	10.0
13	UFZ	5043.25	60.0	70.0	4983.25	4973.25	10.0
14	UFZ	5041.91	61.5	71.5	4980.41	4970.41	10.0
15	UFZ	5047.49	60.0	70.0	4987.49	4977.49	10.0
16	UFZ	5047.50	68.0	73.0	4979.50	4974.50	5.0
17	UFZ	5049.28	67.0	72.0	4982.28	4977.28	5.0
18	UFZ	5045.58	68.0	78.0	4977.58	4967.58	10.0
19	ULFZ	5046.25	97.0	107.0	4949.25	4939.25	10.0
20	LLFZ	5045.79	125.0	138.0	4920.79	4907.79	13.0
21	UFZ	5048.36	64.5	69.5	4983.86	4978.86	5.0
22	UFZ	5048.06	72.0	77.0	4976.06	4971.06	5.0
23	UFZ	5048.51	72.0	77.0	4976.51	4971.51	5.0
24	UFZ	5048.70	68.4	73.4	4980.30	4975.30	5.0
25	UFZ	5049.00	67.7	72.7	4981.30	4976.30	5.0
26	UFZ	5045.71	73.0	78.0	4972.71	4967.71	5.0
27	UFZ	5045.50	67.0	72.0	4978.50	4973.50	5.0
28	UFZ	5042.69	65.0	70.0	4977.69	4972.69	5.0
29	ULFZ	5044.51	103.0	113.0	4941.51	4931.51	10.0
30	ULFZ	5044.70	97.0	107.0	4947.70	4937.70	10.0
31	ULFZ	5043.53	96.0	106.0	4947.53	4937.53	10.0
32	LLFZ	5048.05	108.0	118.0	4940.05	4930.05	10.0
33	UFZ	5044.29	63.0	73.0	4981.29	4971.29	10.0
34	UFZ	5034.49	56.5	66.5	4977.99	4967.99	10.0
35	UFZ	5042.50	63.2	73.2	4979.30	4969.30	10.0
36	UFZ	5059.35	82.3	92.3	4977.05	4967.05	10.0
37	UFZ	5091.66	115.0	125.0	4976.66	4966.66	10.0
38	LLFZ	5044.32	126.5	136.5	4917.82	4907.82	10.0
39	LLFZ	5044.06	123.0	133.0	4921.06	4911.06	10.0
40	LLFZ	5043.35	117.0	127.0	4926.35	4916.35	10.0
41	ULFZ	5046.77	92.0	97.0	4954.77	4949.77	5.0
42	ULFZ	5057.33	105.0	115.0	4952.33	4942.33	10.0
43	LLFZ	5057.74	127.0	137.0	4930.74	4920.74	10.0
44	ULFZ	5058.71	106.0	116.0	4952.71	4942.71	10.0
45	ULFZ	5090.11	143.0	153.0	4947.11	4937.11	10.0
46	ULFZ	5118.98	170.0	180.0	4948.98	4938.98	10.0
47	UFZ	5155.83	180.0	195.0	4975.83	4960.83	15.0
48	UFZ	5168.31	192.0	207.0	4976.31	4961.31	15.0
49	3rdFZ	5043.67	137.7	147.7	4905.97	4895.97	10.0
50	UFZ	5211.51	235.0	250.0	4976.51	4961.51	15.0
51	UFZ	5058.86	75.0	85.0	4983.86	4973.86	10.0
52	UFZ	5165.81	190.8	206.0	4975.01	4959.81	15.2
53	UFZ	5164.24	189.8	204.0	4974.44	4960.24	14.2
(**) 54	UFZ	5097.64	117.0	132.0	4980.64	4965.64	15.0
55	LLFZ	5168.61	255.0	265.0	4913.61	4903.61	10.0
56	ULFZ	5168.61	220.0	230.0	4948.61	4938.61	10.0
57	UFZ	5103.54	126.0	141.0	4977.54	4962.54	15.0
58	UFZ	5168.89	194.0	209.0	4974.89	4959.89	15.0

FIGURE 53 (continued)

WELL NUMBER	ZONE *	MEASURING POINT ELEVATION	DEPTH TO TOP OF SCREEN (FT.)	DEPTH TO BOTTOM OF SCREEN (FT.)	ELEVATION AT TOP OF SCREEN (FT.,MSL)	ELEVATION AT BOTTOM OF SCREEN (FT.,MSL)	LENGTH OF SCREEN (FT.)
59	ULFZ	5059.18	104.5	115.0	4954.68	4944.18	10.5
60	ULFZ	5133.62	185.0	195.0	4948.62	4938.62	10.0
61	UFZ	5133.98	158.0	173.0	4975.98	4960.98	15.0
62	UFZ	5075.00	95.0	110.0	4980.00	4965.00	15.0
63	UFZ	5065.74	83.0	98.0	4982.74	4967.74	15.0
64	ULFZ	5097.84	138.8	149.0	4959.04	4948.84	10.2
PZ-1	UFZ	5144.22	182.7	198.0	4961.52	4946.22	15.3

(*) UFZ = UPPER FLOW ZONE
ULFZ = UPPER LOWER FLOW ZONE
LLFZ = LOWER LOWER FLOW ZONE
3rdFZ = THIRD FLOW ZONE

(**) WELL # 54 IS NONFUNCTIONAL

THE FOLLOWING WELLS HAVE BEEN MODIFIED OR COMPLETELY PLUGGED:

Well Number	Status
PW-1	Plugged back to upper flow zone+ - Converted to recovery well
P-1	Plugged
1	Plugged
2	Plugged
3	Plugged
4	Plugged
5	Plugged
6	Plugged
8	Plugged
10	Plugged
11	Plugged
12	Plugged back to upper flow zone+
13	Plugged back to upper flow zone+
14	Plugged back to upper flow zone+
15	Plugged back to upper flow zone+
18	Converted to recovery well
23	Converted to recovery well
24	Converted to recovery well
25	Converted to recovery well
26	Converted to recovery well
27	Converted to recovery well
28	Converted to recovery well
54	Used only for water level measurements

+ ORIGINALLY OPEN TO UFZ, ULFZ, AND LLFZ

Revised 12/1/91

Various metals have been detected in groundwater samples as well. Elevated concentrations of barium, chromium, lead, and manganese have been identified. Historically, chromium has the highest frequency of occurrence of elevated concentration. The elevated chromium detections are exclusively within the boundaries of the TCE plume and restricted to the upper and upper lower flow zones.

The groundwater protection Maximum Concentration Limit (MCL) of 0.05 mg/l has been used as the Level of Significance for chromium. A comparison of results from 39 wells given in Figure 54 indicates that, out of 13 chromium detections, 8 samples exhibited concentrations above 0.05 mg/l. However, the analytical results are for total metals analyses and were conducted on unfiltered, acid-preserved samples obtained from stainless steel well screens. Accordingly, comparison of these total metals results to groundwater protection standards based on dissolved metals concentrations may be misleading and/or inappropriate. However, the total metals analyses do provide a conservative estimate of chromium concentration.

FIGURE 54
SPARTON TECHNOLOGY, INC.
MONITOR WELL DATA
TOTAL METALS SUMMARY
JUNE 1991 SAMPLING

WELL NO.	DATE SAMPLED*	BARIUM (mg/L)**	CHROMIUM (mg/L)**	LEAD (mg/L)**
UPPER FLOW ZONE				
13	06/17/91	0.047	< 0.01	< 0.01
21	06/18/91	0.064	< 0.01	< 0.01
22	06/20/91	0.15	< 0.01	< 0.005
33	06/17/91	0.083	0.48	< 0.01
34	06/14/91	0.1	< 0.01	< 0.005
35	06/15/91	0.063	< 0.01	< 0.005
36	06/13/91	0.066	0.077	< 0.005
37	06/14/91	0.046	< 0.01	< 0.01
47	06/11/91	0.05	0.14	< 0.005
48	06/11/91	0.046	0.27	< 0.005
51	06/14/91	0.12	< 0.01	0.006
52	06/13/91	0.038	< 0.01	< 0.005
53	06/11/91	0.063	0.019	< 0.005
57	06/13/91	0.15	0.044	0.029
58	06/11/91	0.046	0.017	< 0.005
61	06/10/91	0.051	< 0.01	< 0.005
62	06/10/91	0.068	< 0.01	< 0.005
63	06/14/91	0.053	< 0.01	< 0.005
UPPER LOWER FLOW ZONE				
19	06/17/91	0.04	< 0.01	< 0.01
29	06/19/91	0.14	< 0.01	< 0.005
30	06/18/91	0.081	0.07	< 0.01
31	06/19/91	0.061	< 0.01	< 0.005
41	06/19/91	0.043	0.016	< 0.005
42	06/14/91	0.056	< 0.01	< 0.005
44	06/20/91	0.1	< 0.01	< 0.005
45	06/13/91	0.047	0.16	< 0.005
46	06/13/91	0.075	0.34	< 0.005
56	06/16/91	0.049	0.18	< 0.005
59	06/14/91	0.07	< 0.01	< 0.005
60	06/10/91	0.06	< 0.01	< 0.005
64	06/13/91	0.046	< 0.01	< 0.005
LOWER LOWER FLOW ZONE				
20	06/17/91	0.12	< 0.01	< 0.01
32	06/20/91	0.14	< 0.01	
38	06/18/91	0.12	< 0.01	< 0.01
39	06/18/91	0.026	0.02	< 0.01
40	06/19/91	0.014	< 0.01	< 0.005
43	06/20/91	0.17	< 0.01	< 0.01
55	06/14/91	0.037	< 0.01	< 0.005
3rd FLOW ZONE				
49	06/20/91	0.12	< 0.01	< 0.005

* Q REFERS TO THE QUARTER OF THE YEAR

** < LESS THAN SYMBOL REFERS TO NON-DETECT AT INDICATED METHOD DETECTION LIMIT

*** COMBINED HEXAVALENT AND TRIVALENT RESULTS

Revised
12/01/91

Groundwater quality data for wells located in the Rio Grande Valley north of Albuquerque, obtained from a 1987 joint study conducted by the New Mexico Environmental Improvement Division and the New Mexico Health and Environment Department, indicate manganese concentrations that exceeded state standards in eleven out of twenty-one samples (Gallaher, et al, 1987). It is believed that the manganese concentrations found in the study area are either naturally occurring or are due to an outside source beyond the scope of this study.

All constituents detected in groundwater sample analyses are presented in Attachments 1, 3, 9, and 11.

2. Horizontal Extent of Contamination

As indicated under site-specific hydrogeology in previous Section IV.B.2.d. of this report, only a single groundwater unit has been investigated beneath the site. Previous reports and correspondence subdivided this groundwater unit into flow zones-- the upper, the upper lower, the lower lower, and the third flow zones. Due to the saturated thickness of the groundwater unit, this subdivision has been retained to simplify three dimensional description. Use of these zone subdivisions is a convenient method to provide horizontal planes of reference at different depths within the groundwater unit.

a. Upper Flow Zone

(1) TCE Plume Configuration

The general configuration of the contaminant plume has been determined by contouring TCE concentration data from 22 upper flow zone wells. These contours are given on Figure 55. TCE concentrations were obtained from sampling and analysis conducted during June 1991. Analytical results are included in Attachment 9. The June 1991 TCE data together with previous sampling results are tabulated on the figure as well.

The less than 5 microgram per liter (ug/l) isopleth or contour represents the detection limit of the perimeter of the plume. Based on this boundary, the length along the longitudinal axis of the plume is approximately 2100 feet northwest from the facility's western property line. The longitudinal axis of the plume closely parallels the groundwater hydraulic gradient given on Figures 25 and 26. Transverse width of the plume is approximately 1400 feet.

Comparison of the June 1991 data with data obtained in 1989 and 1990 indicates that the areal extent and concentrations of TCE are both decreasing. In addition, the plume migration has apparently stopped in response to source removal, on-site remediation, and various fate and transport processes.

(2) TCA Plume Configuration

Figure 56 presents the general TCA plume configuration based on June 1991 data from 22 upper flow zone wells. The TCA plume has a similar alignment to the TCE plume with a slight increase in width. However, off-site concentrations of TCA are generally over an order of magnitude less than the TCE plume.

Comparison of the June 1991 data with previous analyses indicates little change in areal extent. However, the average concentration of TCA has dropped. The data comparison also indicates no migration of the TCA plume over the last several years.

b. Upper Lower Flow Zone

(1) TCE Plume Configuration

Figure 57 presents the general configuration of a TCE plume based on analytical results from 13 wells screened in the upper lower flow zone. The isopleth contours are based on June 1991 data given in Attachment 9. The less than 5 ug/l isopleth represents the detection limit of the plume. Based on this boundary, the length of the plume along the longitudinal axis is approximately 1900 feet northwest from the west side of the facility. The longitudinal axis parallels the groundwater hydraulic gradient shown on figures 27 and 28. Width of the plume is approximately 1400 feet. Overall, the areal coverage is similar to the upper flow zone plume.

(2) TCA Plume Configuration

The general configuration of the TCA plume is given on Figure 58. Concentration isopleths on this figure are based on June 1991 analytical results included in Attachment 9. The TCA Plume is configured similarly to the TCE plume; however, TCA concentrations are, on the average, over an order of magnitude less.

Comparison with previous data indicates a reduction in TCA concentration with no detectable change in areal extent and/or location of the plume.

c. Lower Lower Flow Zone

(1) TCE Plume Configuration

The TCE plume for the lower lower flow zone is shown on Figure 59. The TCE plume configuration is based on June 1991 concentration data (Attachment 9) obtained from 6 wells and November 1991 data (Attachment 11) for well MW-32 screened in the lower lower flow zone. The plume alignment parallels the groundwater hydraulic gradients given on Figures 29 and 30. The plume is shorter and much narrower than the plumes above. Off-site length is 1800 feet and width is approximately 700 feet.

Comparison of the June and November 1991 data with data from 1989 and 1990 indicate no significant change in TCE concentration and no measurable change in areal extent or plume location.

(2) TCA Plume Configuration

Figure 60 presents the general plume configuration based on June 1991 data for six wells and November 1991 data for MW-32. The TCA plume has the same basic configuration and alignment as the TCE plume; however, it is much shorter and narrower than the TCE plume. The TCA concentrations are also lower.

Comparison with previous data indicates no significant change in either areal extent of the plume or TCA concentration.

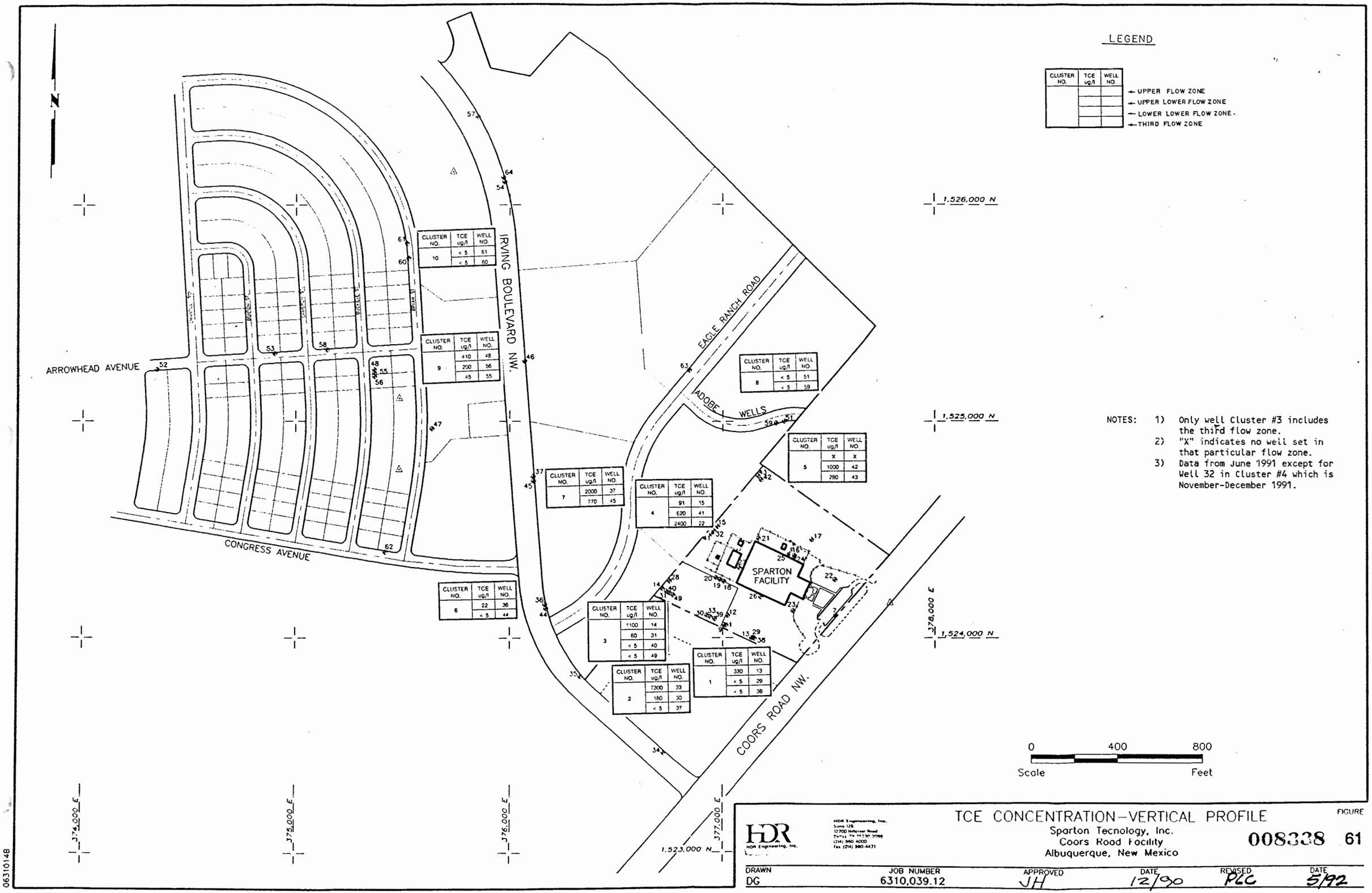
d. Third Flow Zone

Only a single well has been constructed in the third flow zone (Well no. 49). June 1991 analyses from this well did not detect volatile organic constituents. Previous analyses in January 1990 detected trichlorofluoromethane at concentrations slightly above detection limits of 5 ug/l.

3. Vertical Extent of Contamination

a. Data Presentation

Vertical extent of contamination has been evaluated using groundwater analytical results from ten well clusters and four vertical cross sections covering the plume body. The location of the ten well clusters (five on-site and five off-site) is shown on Figures 61 and 62. Analytical data on these figures is from the June 1991 sampling with the exception of MW-32 data obtained in November 1991. Figure 63 is a key for identifying the wells, screen elevations, and flow zones monitored at each well cluster.



NOTES:

1) Only well Cluster #3 includes the third flow zone.
2) "X" indicates no well set in that particular flow zone.
3) Data from June 1991 except for Well 32 in Cluster #4 which is November-December 1991.

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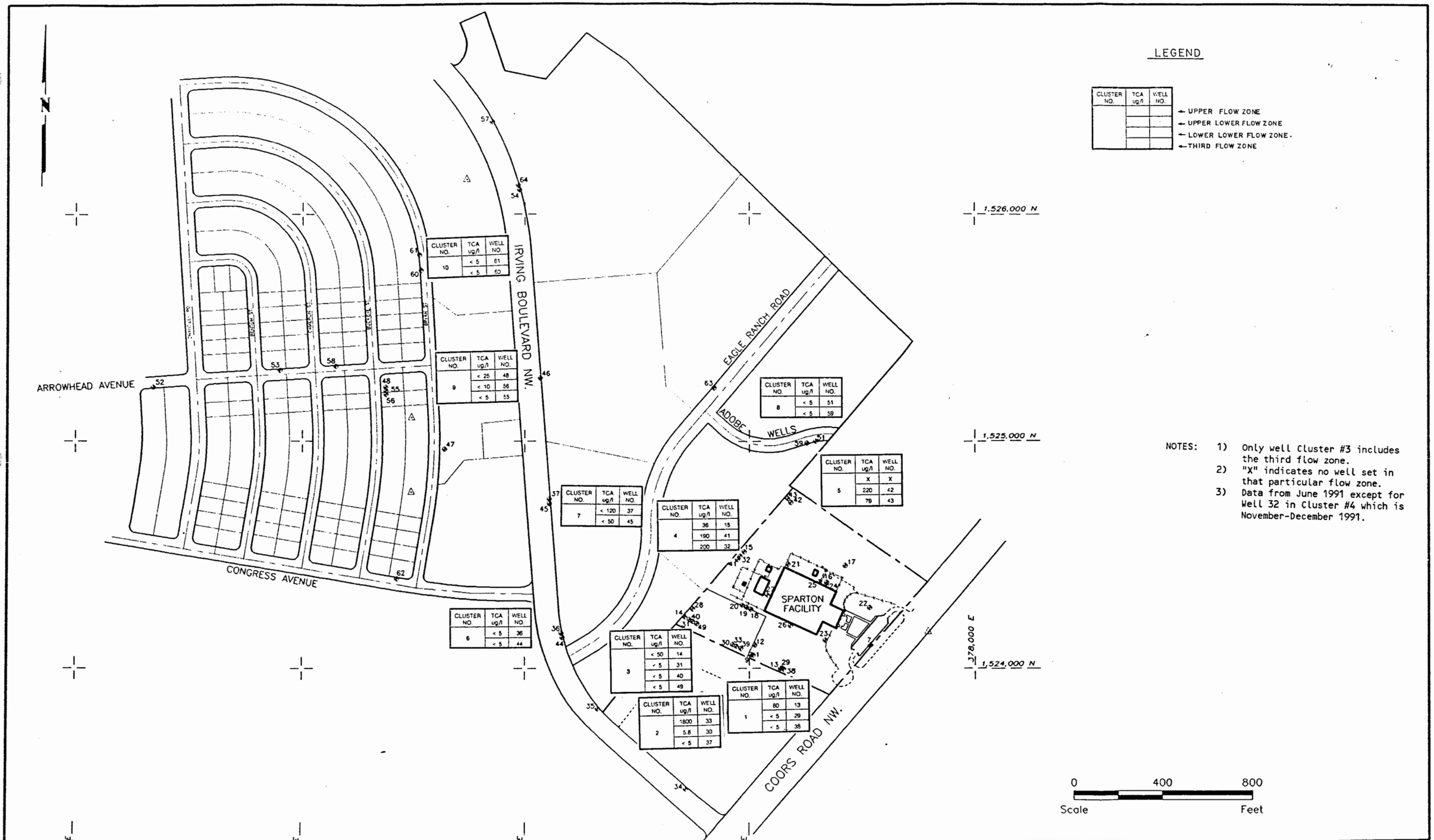
TCE CONCENTRATION–VERTICAL PROFILE

Sparton Tecnology, Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE 008338 61

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
DG	6310,039.12	JH	12/90	PLC	5/92

06310148



NOTES:
1) Only well Cluster #3 includes the third flow zone.
2) "X" indicates no well set in that particular flow zone.
3) Data from June 1991 except for Well 32 in Cluster #4 which is November-December 1991.

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TCA CONCENTRATION–VERTICAL PROFILE

Sparton Tecnology, Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE 008339 62

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
DG	6310,039.12	JH	12/90	PLC	5/92

06310158

FIGURE 63

WELL CLUSTER SUMMARY			
Well Cluster No.	Well No.	Screened Interval Elevation, Ft (MSL)	Flow Zone
1	13	4983.35 - 4978.35	UFZ
	29	4941.57 - 4931.57	ULFZ
	38	4917.85 - 4907.85	LLFZ
2	33	4981.36 - 4971.36	UFZ
	30	4947.70 - 4937.70	ULFZ
	39	4921.07 - 4911.07	LLFZ
3	14	4980.94 - 4970.94	UFZ
	31	4947.57 - 4937.57	ULFZ
	40	4926.46 - 4916.26	LLFZ
	49	4905.88 - 4895.88	TFZ
4	15	4987.51 - 4977.51	UFZ
	41	4954.79 - 4949.79	ULFZ
	32	4940.08 - 4930.08	LLFZ
5	42	4952.28 - 4942.28	ULFZ
	43	4930.69 - 4920.69	LLFZ
6	36	4977.0 - 4967.0	UFZ
	44	4954.68 - 4944.68	ULFZ
7	37	4976.66 - 4966.66	UFZ
	45	4949.35 - 4939.35	ULFZ
8	51	4983.86 - 4973.86	UFZ
	59	4954.68 - 4944.18	ULFZ
9	48	4976.31 - 4961.31	UFZ
	56	4948.61 - 4938.61	ULFZ
	55	4913.61 - 4903.61	LLFZ
10	61	4975.98 - 4960.98	UFZ
	60	4948.62 - 4938.62	ULFZ

NOTE: UFZ = UPPER FLOW ZONE
ULFZ = UPPER LOWER FLOW ZONE
LLFZ = LOWER LOWER FLOW ZONE
TFZ = THIRD FLOW ZONE

Vertical profile sections to depict vertical plume configuration were developed along the longitudinal axis of the plume and at three transverse locations. Profile locations are shown of Figure 31. Profiles are shown on Figures 64 through 69. Concentration isopleths shown on the profiles are based on June 1991 analytical results given in Attachment 9 (MW-32 from November 1991 analytical results in Attachment 11) and based on the flow zone concentration isopleth interpretations given on Figures 55 through 60.

b. TCE Vertical Profile Trends

Of the ten well clusters, eight clusters (1, 2, 3, 4, 5, 6, 7 and 9) have detectable concentrations of TCE. Seven of these clusters show significant decreases in TCE concentration with depth. Only well cluster 4 on the west side of the Sparton property shows an increase in TCE concentration with depth. In the four cluster wells south and southwest of the facility (Clusters 1, 2, 3 and 6) TCE concentration was below detection limit (5 ug/l) in the bottom well of the cluster.

TCE concentration isopleths shown on the profile cross sections indicate a possible horizontal channeling effect in the upper lower flow zone in the central area of the plume. This channeling is probably related to differential fate and transport processes associated with the gravelly lower flow zone, i.e. minimal sorption, ease of movement. The profile cross sections generally indicate a typical dispersion/diffusion profile in the vertical direction.

c. TCA Vertical Profile Trends

TCA concentrations in three clusters (6, 8 and 10) are below 5 ug/l detection limits. In three other clusters (3, 7 and 9), TCA is below increased detection limits resultant from sample dilution requirements for other constituents; however, detection limits decreased to 5 ug/l with depth. Clusters 2 and 5 show decreasing TCA concentrations with depth. Cluster 4 shows higher TCA concentration in the upper lower and lower lower flow zones.

The TCA concentration isopleths on the profile cross sections generally indicate a typical dispersion/diffusion profile in the vertical direction.

4. Plume Movement

The current TCE and TCA plume configurations (Figures 55-60) indicate an apparent net advective component of plume movement of 50 to 60 feet per year over the last 25 years. This advective component is within the range of groundwater velocities reported in the HLA report titled "Off-site Investigation" included as Attachment 7. However, groundwater analytical results indicate no discernible movement of the perimeter of the plume since 1989. This reduction or loss of an advective component is believed to be the result of the significant decrease in hydraulic gradient to the west of the facility and retardation effects including sorption, dissolution, hydrolysis, and/or biodegradation.

The TCE and TCA plumes are relatively wide compared to length. The plume width and the movement of constituents upgradient from the source indicate that diffusion

has probably played a more significant role in determining the movement and shape of the plume.

5. Presence of Appendix IX Constituents

The predominant Appendix IX constituents found consistently throughout the study area are TCE and TCA. DCE and MeCl were detected on a less frequent or consistent basis, but still with some regularity. Chromium was detected with some regularity within the boundaries of the TCE plume in the upper and upper lower flow zones. Previous analysis in March 1989 and re-analysis of MW-32 (lower lower flow zone) in November 1991 (Attachment 11) indicated low levels of benzene, toluene, ethylbenzene, and xylene (BTEX). The presence of BTEX seems anomalous and isolated to this well; however, in early sampling (1983-1984) of upper flow zone wells MW-9, MW-14, and MW-16, BTEX constituents were also encountered. Occurrences of other Appendix IX constituents were random and inconsistent. A complete listing of all analytical results for wells installed pursuant to the RFI is provided in Attachments 3, 9, and 11.

Due to elevated levels of TCE in many of the samples, dilution of the samples prior to analysis was necessary to lower the TCE concentration to within the limits of the analytical instrument. Because of this dilution, the detection limits for other VOC compounds included in the analytical suite were raised to levels which in most cases, exceeded either federal or state standards. All such instances occurred in wells which are inside the plume boundaries and which are therefore considered to be contaminated.

6. Fate and Transport of Volatile Organic Constituents

a. Constituent Physical and Chemical Characteristics

Five volatile organic constituents (VOC) have been detected with some frequency in soil, groundwater, and soil gas at this site. These include Acetone, DCE, MeCl, TCE and TCA. TCE and TCA are the most prevalent followed by DCE. 1,1,2,2--2tetrachloroethane (TeCA) was detected in two soil borings and tetrachloroethylene (TeCE) was encountered in the soil gas surveys. BTEX constituents are present in a single lower lower flow zone well (MW-32). Physical and chemical data for these constituents are given in Figure 70. In addition to these VOC, vinyl chloride (VC) is also included as a potential biodegradation product of TCE, TCA, TeCE, and DCE.

With respect to solubility, Acetone is the most soluble by several orders of magnitude. MeCl is the next most soluble. Benzene, TCE, TCA, VC, TeCA, and DCE are an order of magnitude less soluble. Ethylbenzene, xylene and TeCE are the least soluble.

Solution/vapor equilibrium is described by Henry's Law. Henry's Law constants for the various constituents indicate that VC will partition most readily from the dissolved aqueous phase into the vapor phase. DCE, TCA, and TeCE will partition next most readily. Acetone will be the most difficult to partition into the vapor phase.

Based on a comparison of organic carbon partition coefficients (Koc), ethylbenzene would have the highest adsorption potential, highest bioaccumulation potential, and lowest mobility. Toluene, xylene, and TeCe would rank next. Acetone and MeCl would have the lowest adsorption potential and the highest mobility.

FIGURE 70
CONSTITUENT PHYSICAL AND CHEMICAL DATA

NAME	CAS #	MOLECULAR WEIGHT (g/mole)	WATER SOLUBILITY (mg/l)	VAPOR PRESSURE (mm Hg)	HENRY'S LAW CONSTANT (atm-m^3/mole)	Koc (ml/g)	SPECIFIC GRAVITY @ 20°	VAPOR DENSITY (air=1.0)	BOILING POINT (^{o}C)
Acetone (2-Propanone)	67-64-1	58	1.00E+06	2.70E+02	2.06E-05	2.2	0.7880	2.00	56.5
Benzene	71-43-2	78	1.75E+03	9.52E+01	5.59E-03	83	0.8787	2.80	80.1
1,1-Dichloroethylene (Vinylidene Chloride)	75-35-4	97	2.25E+03	600E+02	3.40E-02	65	1.2129	3.40	31.70
Dichloromethane (Methylene Chloride)	75-09-2	85	2.00E+04	3.62E+02	2.03E-03	8.8	1.3255	2.90	39.75
Ethylbenzene	100-41-4	106	1.52E+02	7.00E+00	6.43E-03	1100	0.8660	3.90	136.25
1,1,2,2-Tetrachloroethane (Tetrachloroethane)	79-34-5	168	2.90E+03	5.00E+00	3.81E-04	118	1.5866	5.80	146.5
Tetrachloroethylene (Perchloroethylene)	127-18-4	166	1.50E+02	1.78E+01	2.59E-02	364	1.6230	5.80	121.0
Toluene	108-88-3	92	5.35E+02	2.81E+01	6.37E-03	300	0.8660	3.90	110.6
1,1,1-Trichloroethane (Methyl Chloroform)	71-55-6	133	1.50E+03	1.23E+02	1.44E-02	152	1.3376	4.60	113-114
Trichloroethylene	79-01-6	131	1.10E+03	5.79E+01	9.10E-03	126	1.4649	4.53	86.7
Vinyl Chloride (Chloroethylene)	75-01-4	63	2.67E+03	2.66E+03	8.19E-02	57	0.9106	2.20	-13.4
Xylene (mixed)	1330-20-7	106	1.98E+02	1.00E+01	7.04E-03	240	0.86-0.88	3.66	137-144

008351

Specific gravity indicates that BTEX, acetone and VC are lighter than water. The remaining constituents are all heavier than water. In the vapor state, all constituents are heavier than air. TeCE is the most dense (almost six times more dense than air). Thus TeCE vapor would settle or migrate downward more readily through the unsaturated zone and also displace less dense vapors. Based on vapor density, the vapor phase of all of the constituents would tend to migrate downward through the unsaturated zone.

b. Active Source Period

Both ponds and sumps were used to contain the waste stream at the facility from 1961 into the early 1980's. Leaks and/or overflows from these units would constitute an active source to the subsurface. Fate and transport mechanisms responsible for the subsequent movement and distribution of the volatile organic constituents (VOC) are discussed in the following sections.

(1) Unsaturated Zone

In the unsaturated zone, fate and transport processes during the active source period would include gravity mechanisms, advection, sorption, and volatilization. The forces of gravity would carry free phase and/or aqueous phase constituents downward from the ground surface. Due to the heterogeneous nature of the subsurface (lenticular, horizontally bedded sands, silts and clays), the constituents would trace an erratic pathway down to the top of the water table.

In addition to the gravity mechanisms, advective processes associated with precipitation and other infiltration would tend to carry the constituents down to the top

of the water table as well. The advection would be subject to similar pathway irregularities as described under gravity mechanisms.

Migration through the unsaturated zone would be influenced by sorption processes due to the presence of silt, clay and organic materials. The effect of the sorption would be to retard the downward migration resulting from the gravity and advection processes.

Volatilization of the constituents into the vapor phase could result in vapor phase movement in three possible directions in the unsaturated zone:

- Molecular diffusion of the vapor phase toward the surface would occur due to concentration gradients. Upon reaching the surface, the vapor phase constituents would escape to the atmosphere due to wind dispersion effects.
- Because of molecular diffusion the vapor phase would also spread laterally in the subsurface as a function of the concentration gradient and any subsurface vapor currents caused by temperature differentials.
- Vertical movement of the vapor phase downward would also occur due to the relatively high vapor densities of the identified organic constituents in the source area.

Biotransformation may also have taken place in the unsaturated zone; however, the impact of biodegradation is a matter of speculation at this time and at an

early stage of source activity it is believed that selective development of microorganism colonies would not have occurred.

(2) Saturated Zone

Fate and transport in the saturated zone would have begun with solution into the groundwater from either contact with the free product and/or the aqueous phase and also contact at the water surface with the vapor phase resulting from volatilization in the unsaturated zone. Solution into the groundwater and subsequent movement would have resulted in development of a contaminant plume.

Horizontal Movement. Based on the hydrogeologic characteristics and the recently observed plume shapes, it is believed that horizontal development of the plume during the active source period was the result of both advection and mechanical dispersion processes. It is believed that the initial direction of movement was influenced by the perching effect of the zone of relatively lower permeability (ZORLP) and the irregular surface of that zone. Subsequent movement was affected by the groundwater hydraulic gradient and highly permeable gravelly zones. As the plume spread due to advective and mechanical dispersion processes, retardation due to sorption, biodegradation, hydrolysis, and off-gassing or dissolution to the unsaturated zone would have occurred. Sorption would have been related primarily to the silt and clay lenses and off-gassing would, of course, have occurred only at the water surface. In addition, the plume would have been affected by molecular diffusion into the less permeable zones where groundwater velocities would have been essentially zero.

Vertical Movement. Vertical movement of the plume appears to have been primarily a function of molecular diffusion and mechanical dispersion processes expanding the plume downward. Based on the current plume geometry, it is believed that molecular diffusion probably played a larger part in the plume expansion due to the horizontal silt and clay bedding minimizing vertical groundwater velocity components. It should be noted that hydrogeologic studies at this site have observed that vertical hydraulic gradients are related to resistance to vertical flow as opposed to indicating high velocity, vertical flow components. The absence of significant vertical flow components is due to the horizontal bedding and lenticular nature of the subsurface materials. Retardation of the vertical movement also occurred due to sorption of the organic chemicals onto clay and silt materials and may have also occurred due to biodegradation.

c. Inactive Source Period

In the early 1980's, use of the ponds and sump was discontinued and these waste management units were closed out. In addition, in early 1989, pump and treat remediation of shallow groundwater was initiated within the property boundary. As a result, the fate and transport mechanisms and their influence on the shape and distribution of the plume would have been altered. As in previous sections, discussion of the inactive source period will be subdivided into unsaturated zone and saturated zone processes.

(1) Unsaturated Zone

In the unsaturated zone, the previously discussed processes would have continued. However, the source of volatile organic constituents had been essentially

removed. As a result, the supply for the gravity mechanism would have been terminated; however, constituents already present in the subsurface zone would have continued to migrate downward under the influence of gravity. Similarly, materials in the unsaturated zone would also have been subject to advective movements associated with precipitation and other infiltration. However, advective movements would have been slowed by the cap placed on the source area. Sorption would also have been occurring in the lower zones of the unsaturated or vadose zone; however, due to the termination of the source, desorption may have occurred in the upper portion of the unsaturated zone due to equilibrium requirements with respect to the vapor phase and/or as possibly related to the flushing effect of infiltrating water around the edge of the cap.

The cap probably reduced constituent loss to the atmosphere. However, vapor phase mechanics continued to impact soil sorption and groundwater solution due to equilibrium requirements. Removal of the source and the pumping and treating of shallow groundwater resulted in a decrease in shallow groundwater constituent concentrations with time. As a result of the decreasing shallow groundwater concentrations, shallow groundwater off-gassing may have decreased. Conversely, reduction of the shallow groundwater concentration due to pumping and treating could also have resulted in an increased solution of the vapor phase existing above the water table.

(2) Saturated Zone

During the inactive source time period, a number of artificial penetrations were made into the saturated zone for purposes of sampling and/or monitor well installation. Due to the "perched" hydraulic gradients existing in some areas, these artificial

penetrations could have resulted in movement of contaminants in a vertical direction in addition to fate and transport anticipated from natural processes.

In the saturated zone, advection and mechanical dispersion effects became minimal as the plume moved offsite to the west due primarily to the reduced groundwater velocity in this area. As a result, diffusion apparently became the dominant physical process and it is believed to be occurring to the present, often at concentrations below detection limits along the perimeter or surface of the plume.

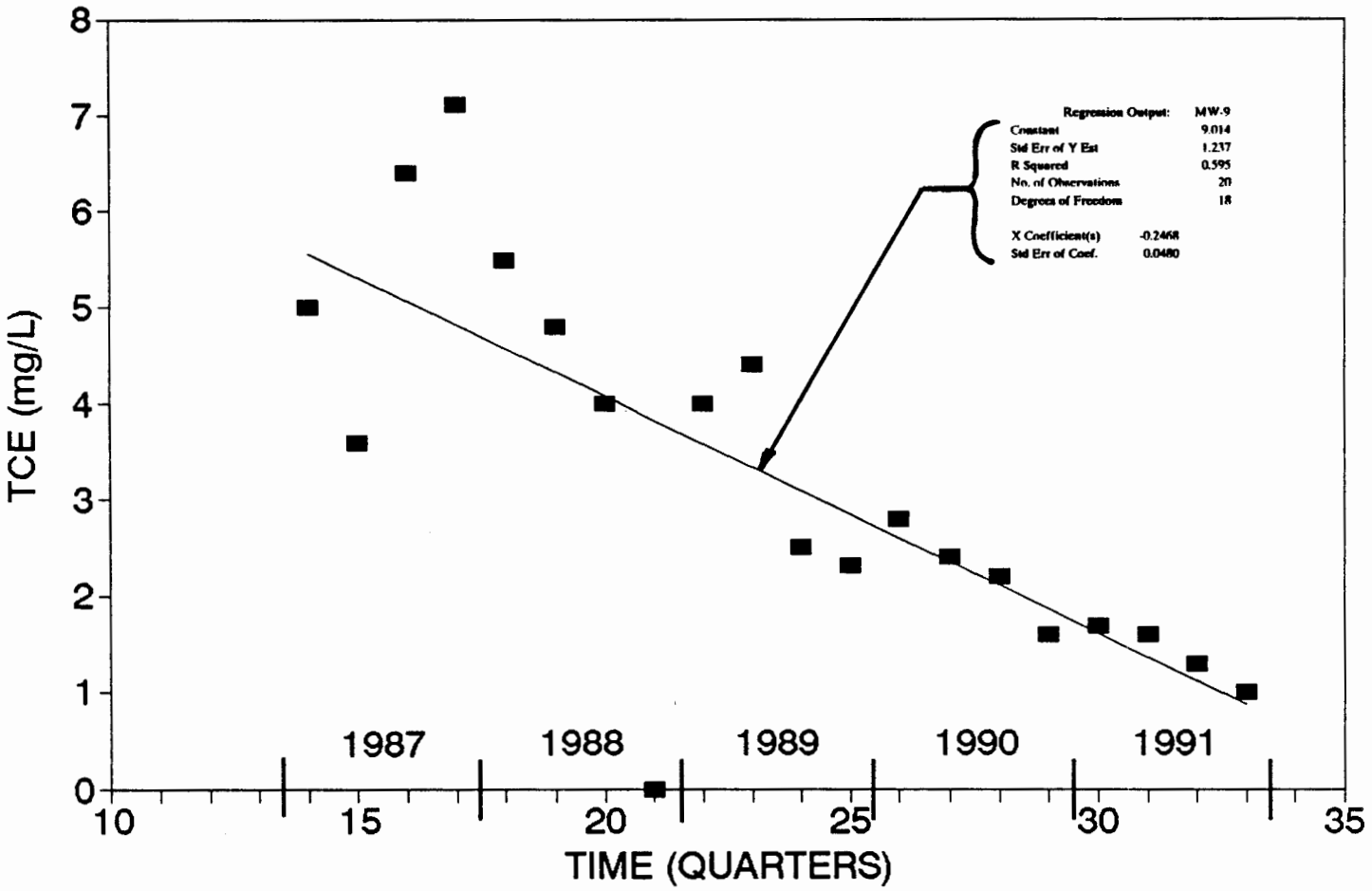
Dissolution or off-gassing occurring from the groundwater surface was probably the most dominant chemical process occurring during this period and the effect of dissolution would retard and apparently has even reduced the areal extent of the plume.

As the plume expanded, sorption became the second most dominant chemical process in stopping or slowing down the advance of the plume. However, it should be noted that, as the concentration drops in the interior of the plume due to removal of the source and due to pump and treat remediation reducing constituent mass, desorption may be occurring in response to the concentration decrease.

Hydrolysis and biodegradation are probably occurring although these processes have not been documented. Biodegradation would be expected to become a more significant process with the passage of time as microbial action would develop in response to the laws of natural selectivity, that is, those organisms that can utilize the constituents present in groundwater as a food source would tend to multiply.

d. Future Movement

Plume contouring based on groundwater sampling and analysis conducted since early 1989 and soil gas analyses conducted since 1987 indicate that the plume is shrinking in areal and vertical extent and is experiencing a significant reduction in concentration at almost all sampling locations. Time-history plots of TCE concentration obtained from the quarterly monitoring data base also indicate a steady decrease in concentration (see Figures 71-78). Considering that the source has been removed and that the pump and treat remediation is being conducted in the source area, the observed reduction in plume size and constituent concentrations should continue into the future. However, there is insufficient data currently available to predict the rate of plume and/or concentration decrease.



TCE CONCENTRATION VS TIME
MW-9 (UPPER FLOW ZONE)
SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

FIGURE 71

Revised 12/1/91

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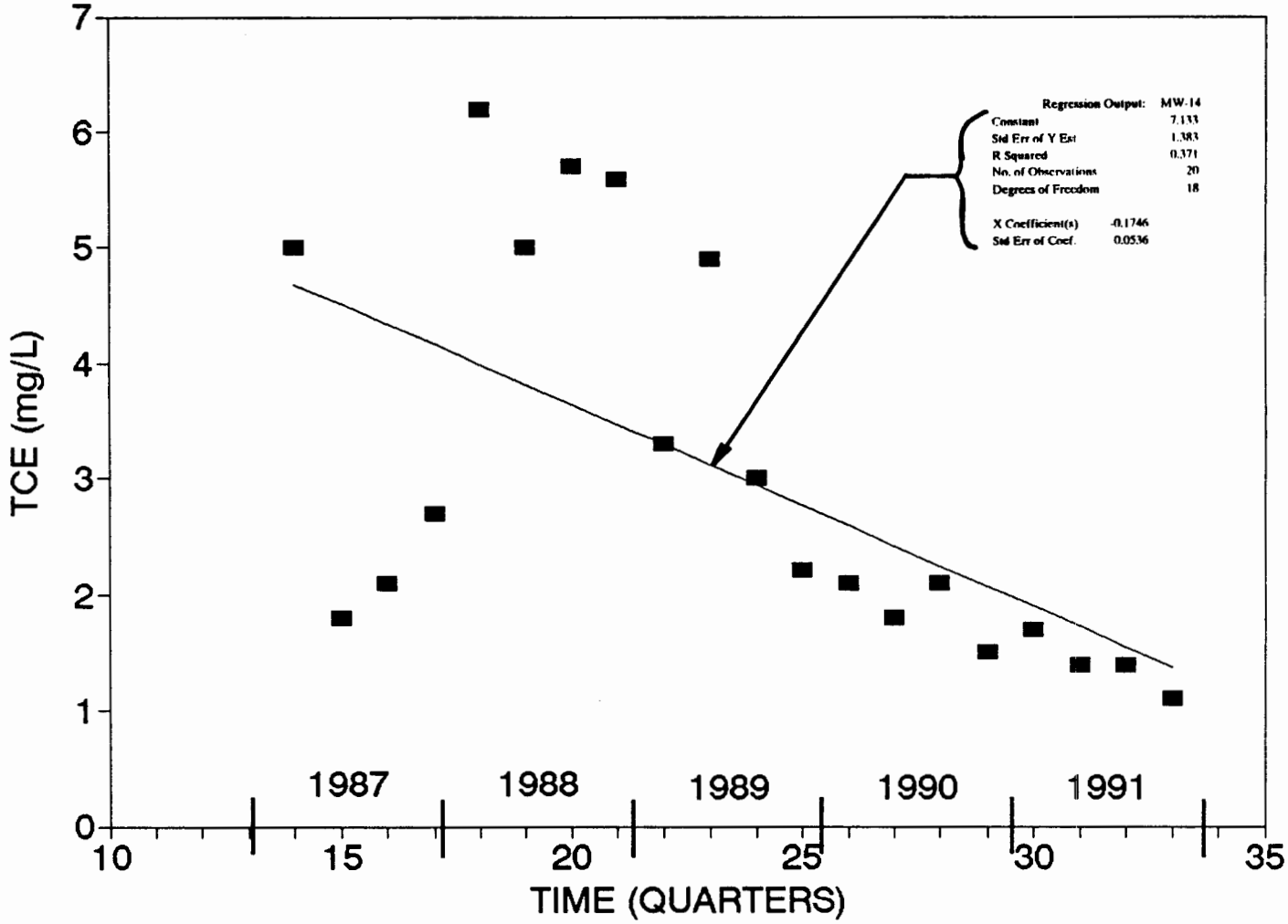

TCE CONCENTRATION VS TIME
MW-14 (UPPER FLOW ZONE)
SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

FIGURE 72

Revised 12/1/91

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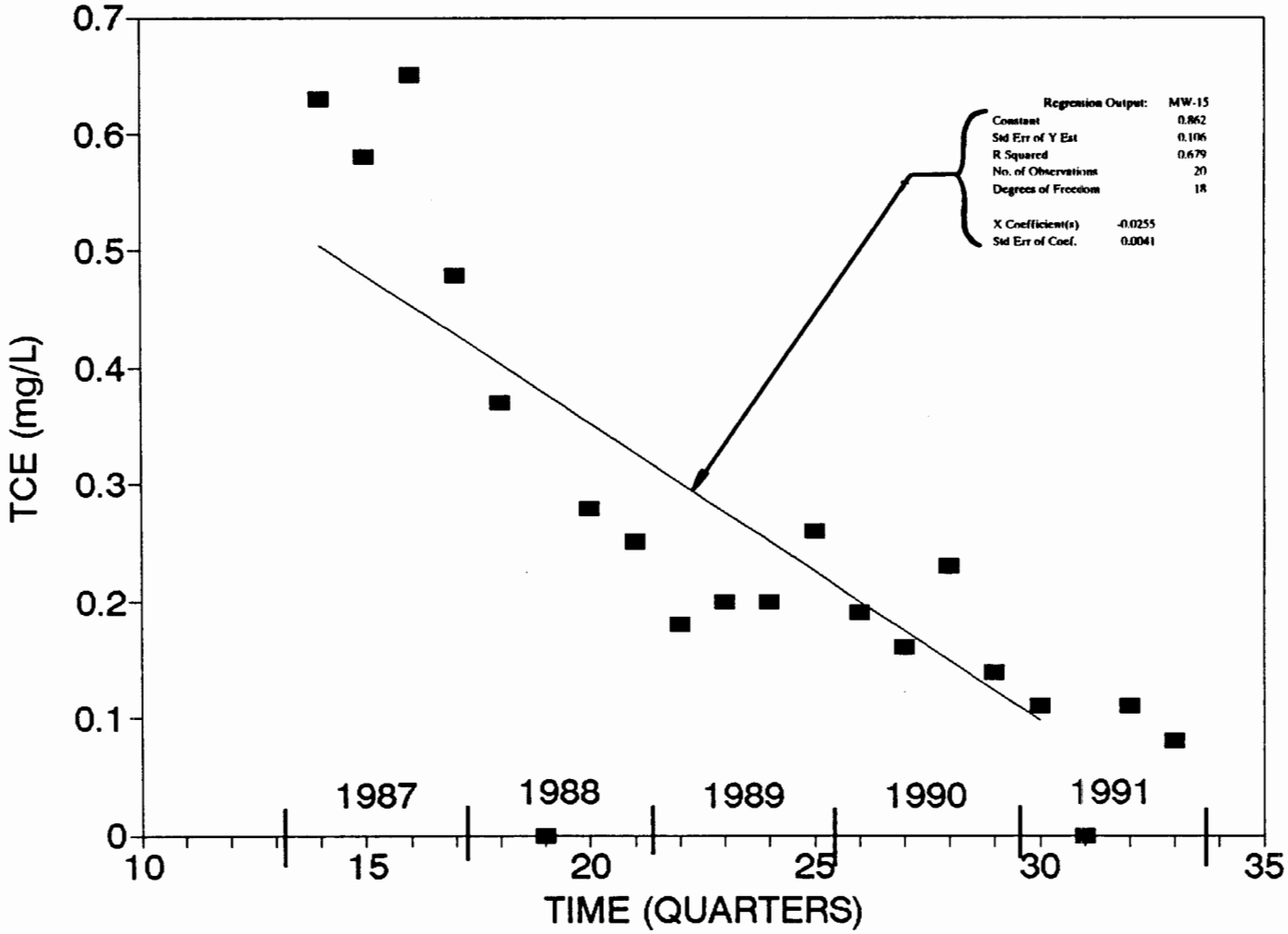

TCE CONCENTRATION VS TIME
MW-15 (UPPER FLOW ZONE)
SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

FIGURE 73

Revised 12/1/91

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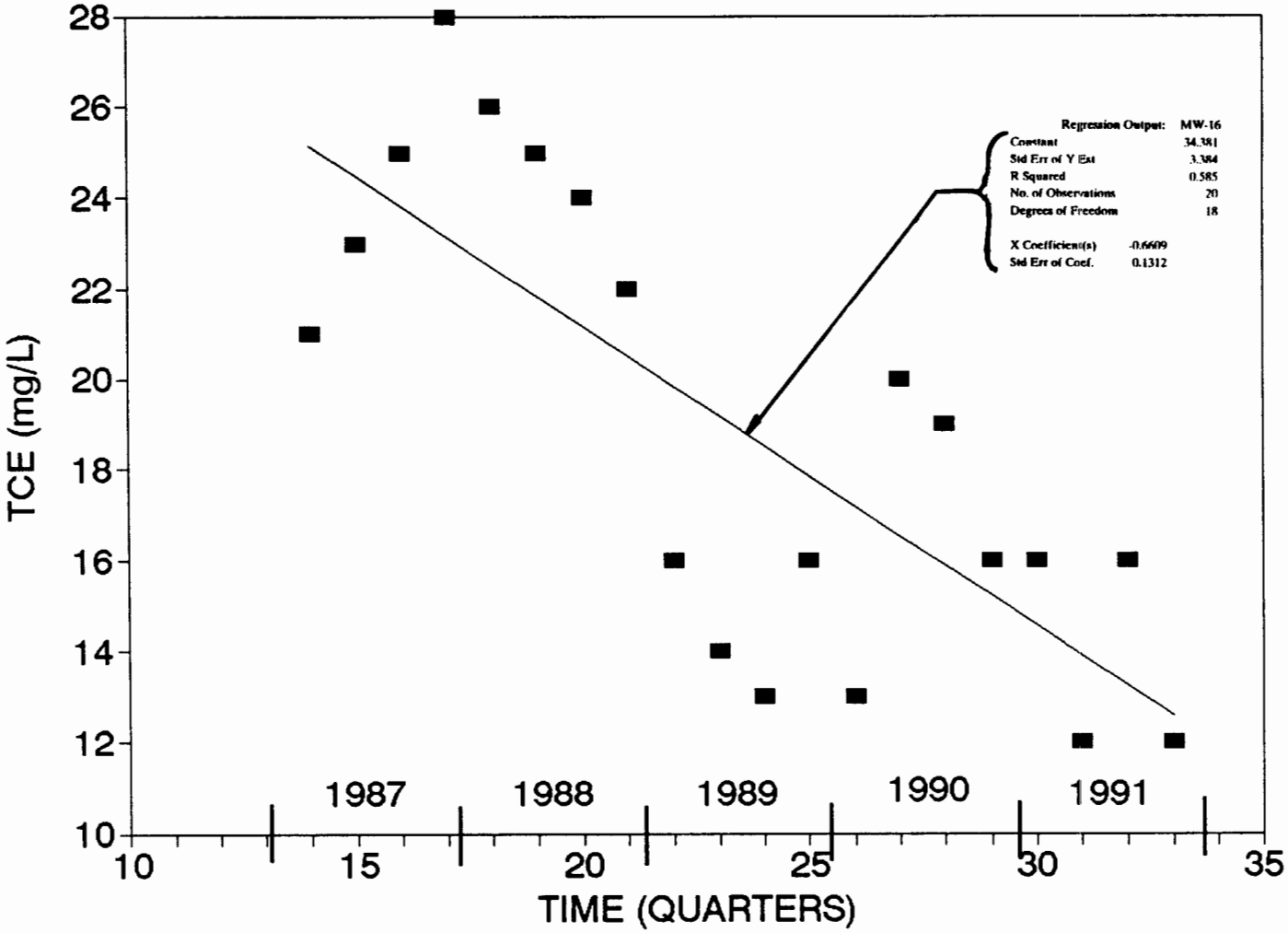
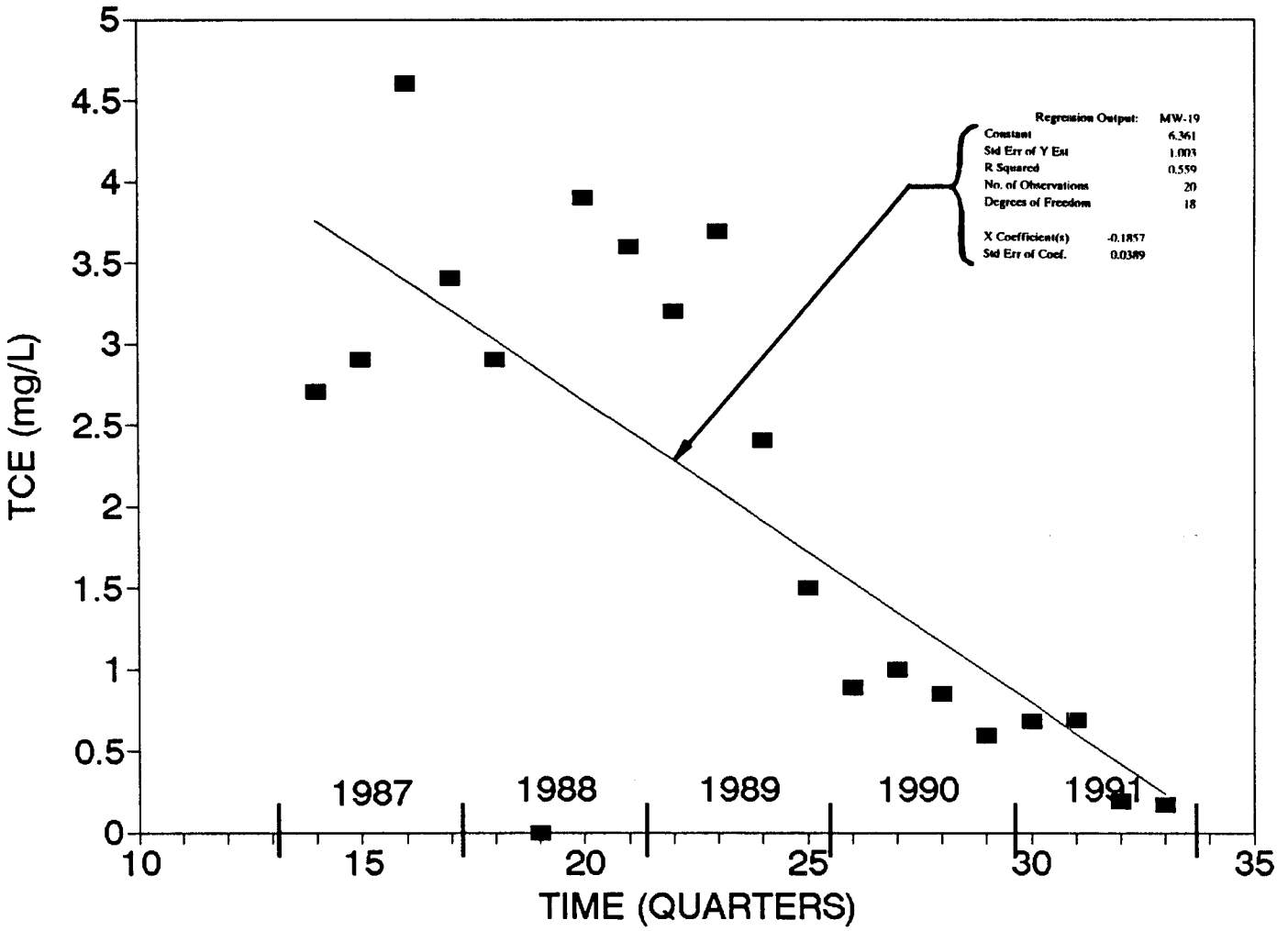


TCE CONCENTRATION VS TIME
MW-16 (UPPER FLOW ZONE)
SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

FIGURE 74

Revised 12/1/91

008362



TCE CONCENTRATION VS TIME
MW-19 (UPPER LOWER FLOW ZONE)
SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

FIGURE 75

Revised 12/1/91

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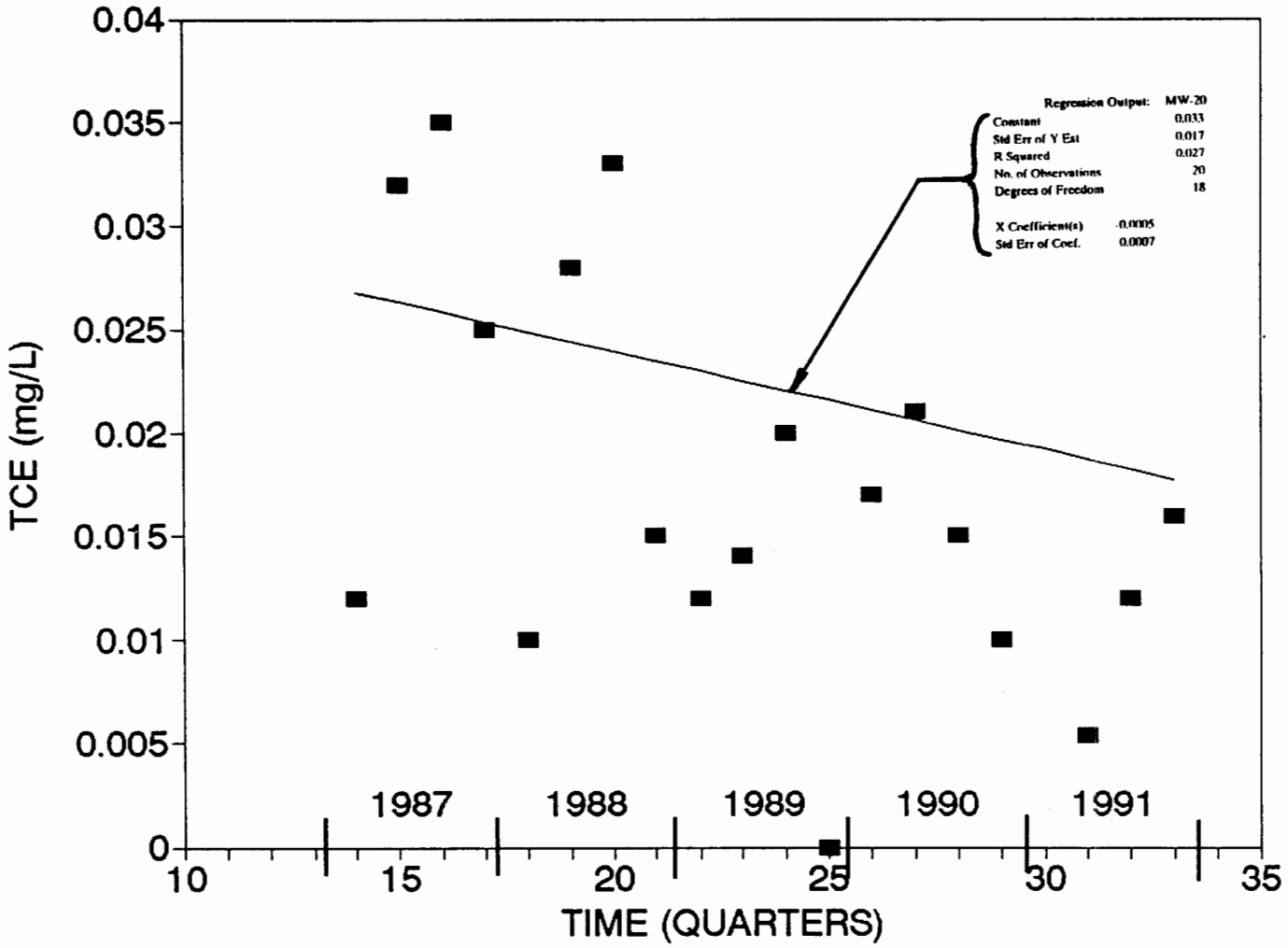
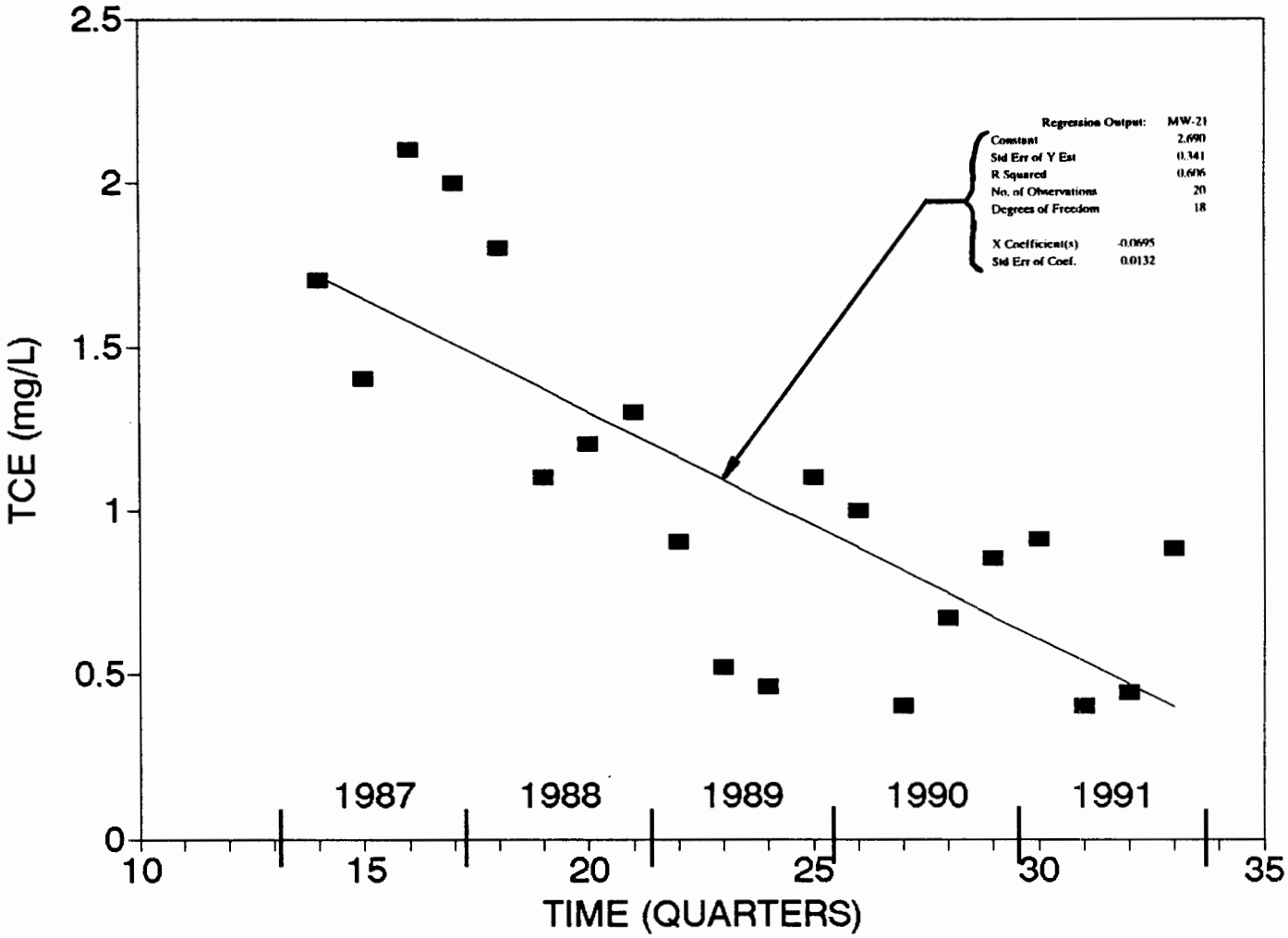


TCE CONCENTRATION VS TIME
MW-20 (LOWER LOWER FLOW ZONE)
SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

008364 FIGURE 76

Revised 12/1/91

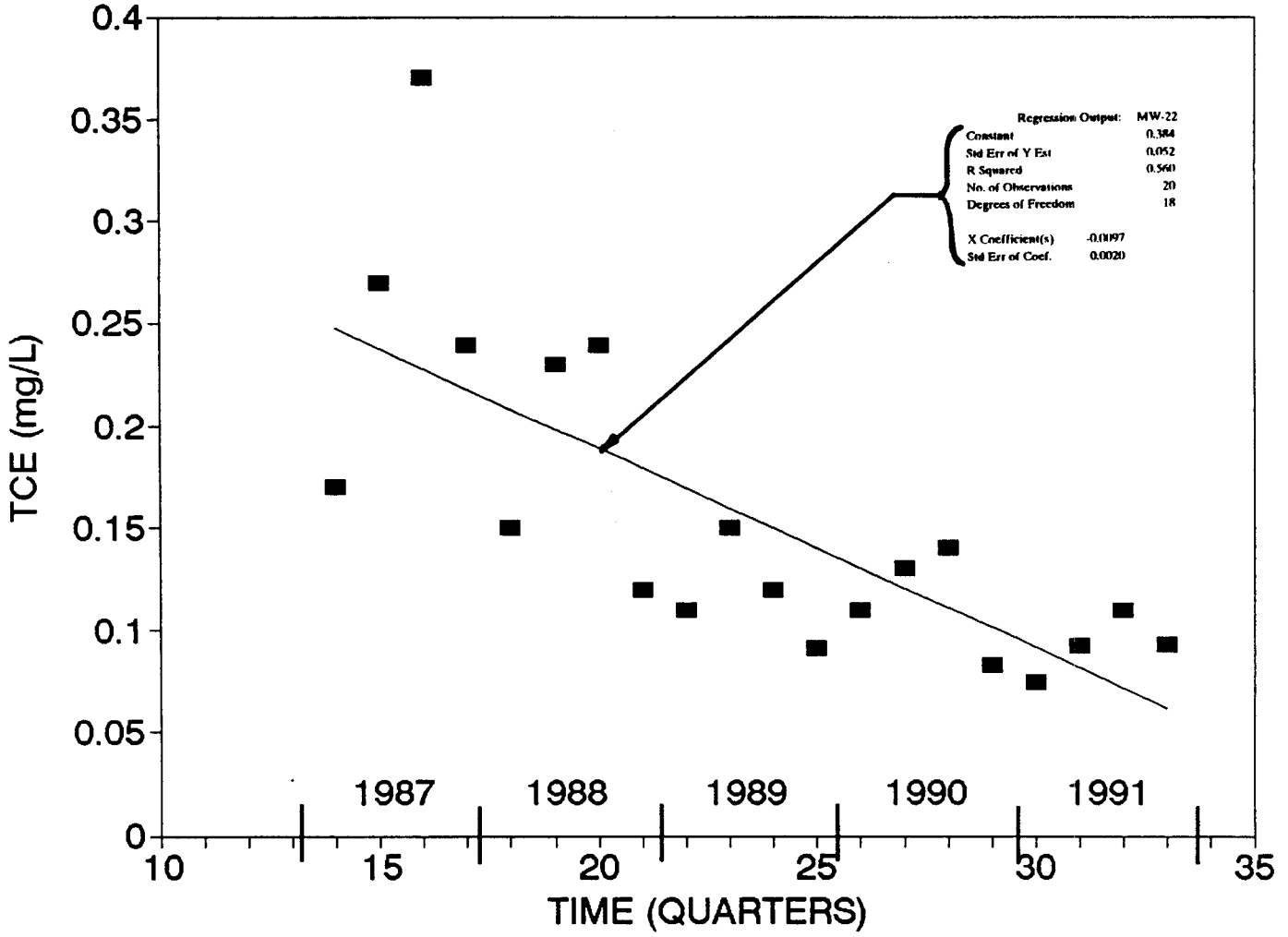


TCE CONCENTRATION VS TIME
MW-21 (UPPER FLOW ZONE)
SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

Revised 12/1/91

008365

FIGURE 77



TCE CONCENTRATION VS TIME
MW-22 (UPPER FLOW ZONE)
SPARTON TECHNOLOGY, INC.
ALBUQUERQUE, NEW MEXICO

008366 FIGURE 78

Revised 12/1/91

7. Fate and Transport of Metallic Constituents

Various metals have been detected in soil and groundwater samples at the site. Most detections are very low and within background concentrations. However, elevated concentrations of chromium have been detected in soil samples under the source (pond/sump area) and in groundwater samples within the upper portion of the VOC plume. Fate and transport of chromium and other metals will be controlled by sorption, chelation, and redox reactions. Sorption will predominate in fine-grained soils, however, chemical reactions are poorly understood.

At the Sparton site, chromium was apparently carried downward with percolating water. Chromium was absorbed onto fine-grained soils in the unsaturated zone some 40 to 50 feet below the surface. Chromium was also carried into the groundwater. It is assumed that chromium movement was the result of solvation and being transported with the TCE/TCA. This assumption is based on: the poor solubility of chromium in the metallic state; the high solubility in water/chlorinated solvents in anionic forms such as chromate; and coincidence of elevated chromium concentration with elevated concentration of TCE/TCA.

Source removal probably eliminated the downward movement through the unsaturated zone. The movement in the groundwater is also reasonably static at this time due to the assumed relationship with the VOC plume. Future movement will be related to the dynamics of the VOC plume and partitioning onto fine-grained soils below the water table.

8. Effectiveness of Interim Recovery Well System

Under the provisions of the Consent Order, an interim groundwater recovery well system was installed in the upper flow zone. A report on the evaluation of the effectiveness of this groundwater recovery well system will be submitted to EPA for approval within 30 days after the final RFI report has been approved by EPA.

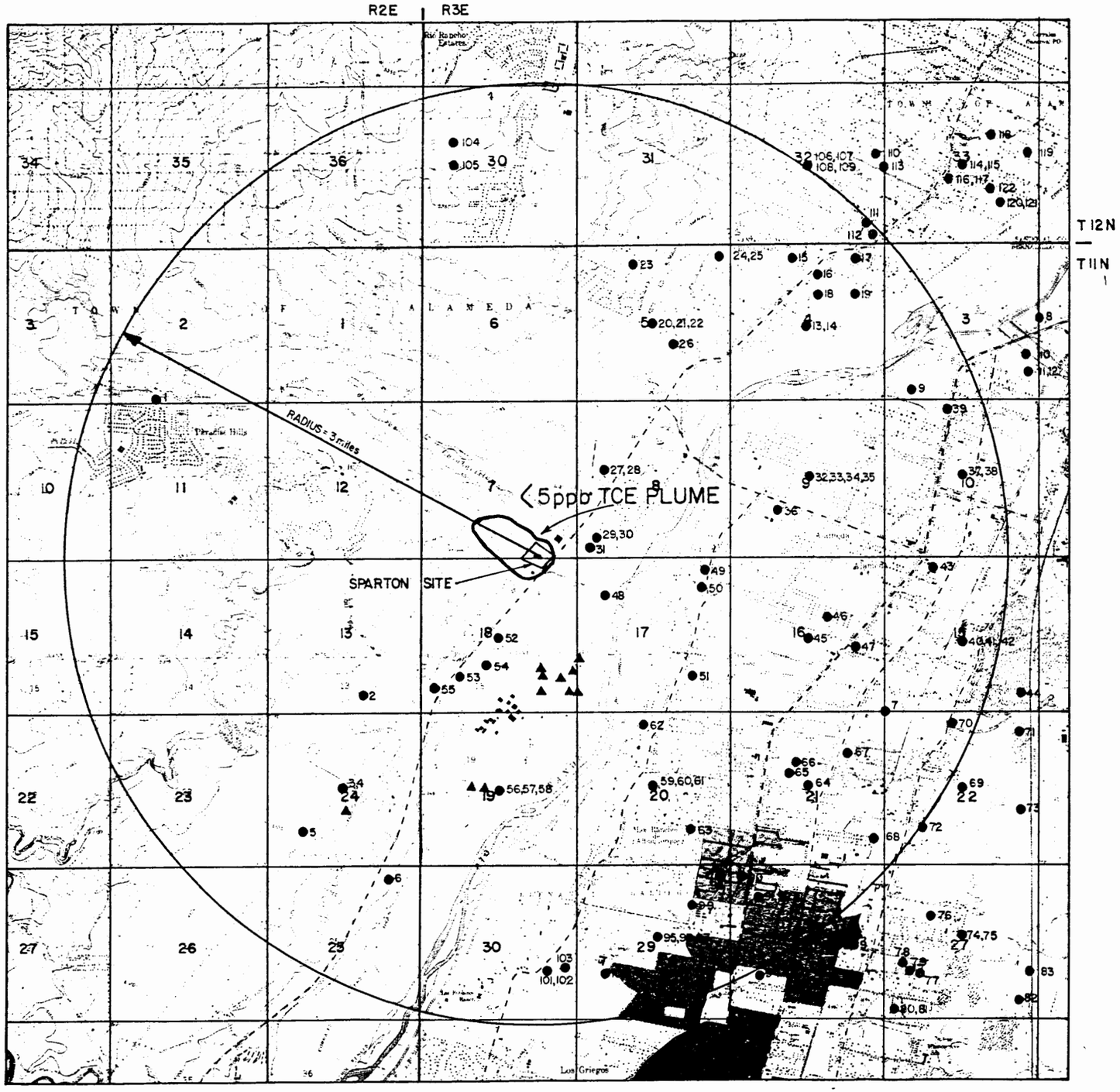
VI POTENTIAL RECEPTORS

A. Groundwater

Figure 8 shows the locations of non-monitor wells in the vicinity of the Sparton site. The wells designated as "wells confirmed by state records" are described in Attachment 8. The information was obtained from New Mexico State Engineer Office records. The wells designated as "wells visually observed" were located by field reconnaissance. Records are not available to determine the type or use for these wells, or if they are even in use.

Figure 79 shows the location of the nearest municipal well to be approximately 2.5 miles westnorthwest of the Sparton facility. There are two other municipal wells located approximately 2.5 miles north. These are the only existing municipal wells known to exist on the west side of the Rio Grande within a three-mile radius of the Sparton site.

Figure 80 shows the locations of planned future wells in the vicinity of the Sparton facility. This information was extracted from the "Water Systems Master Plan for the City of Albuquerque" updated in 1982. None of these wells have been installed at this time. In a personal communication with Mr. Norman Gaume, Operations Manager for the City of Albuquerque Water Utility, Mr. Gaume stated that there are no plans to install municipal wells in this area before the limit of their planning horizon, currently the year 2000.



LEGEND

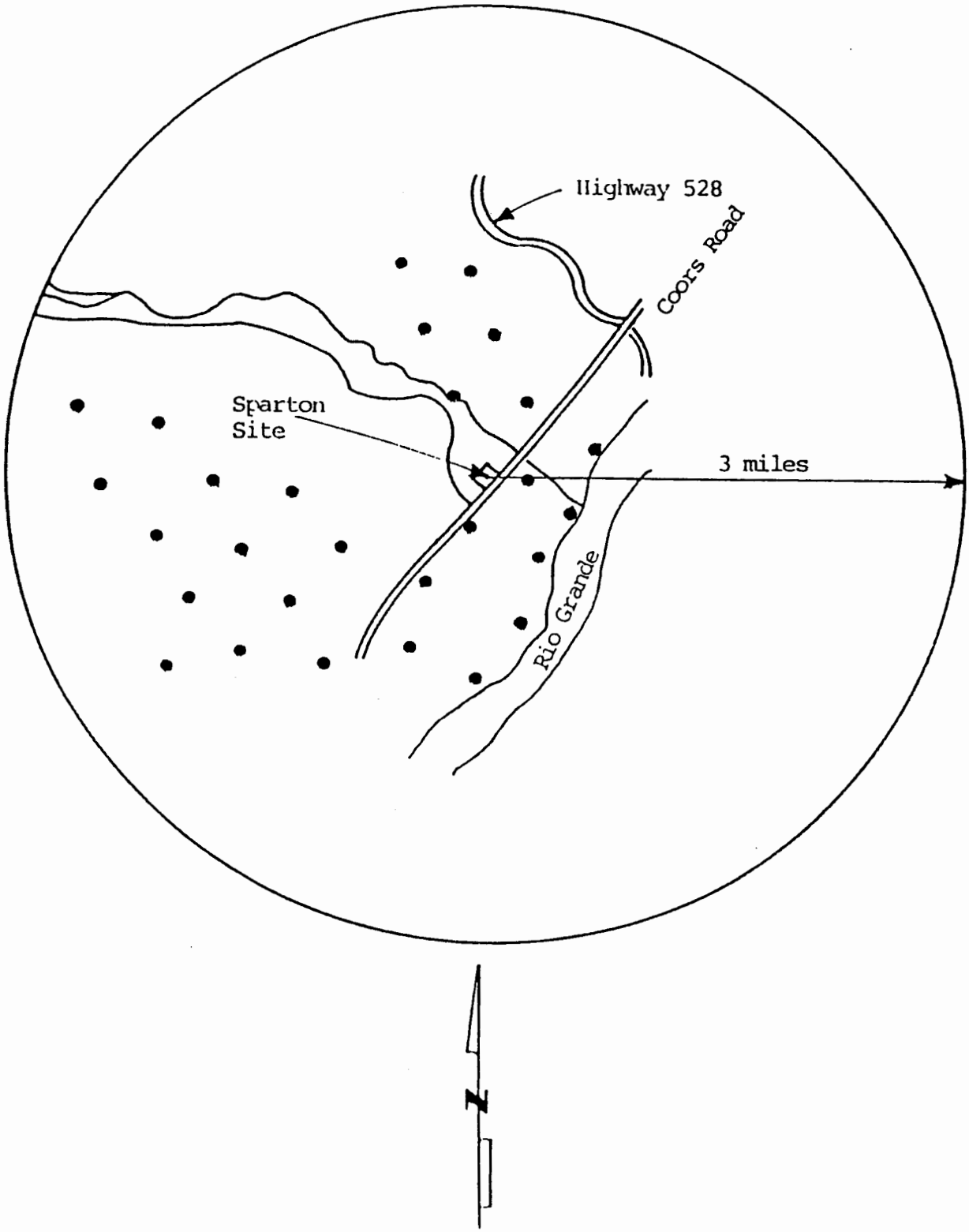
- ●15 WELL CONFIRMED BY STATE RECORDS
- ▲ WELL VISUALLY OBSERVED
- — PLUME LIMIT AT < 5 ppb TCE

METRIC Corporation HORIZONTAL PLUME LIMIT

SPARTON TECHNOLOGY, INC.
Albuquerque, New Mexico

Date 7/30/91 | FIGURE 79

008370



Scale 1" = 1 mile

● Planned municipal wells

Harding Lawson Associates
Engineers and
Environmental Services

PLANNED MUNICIPAL WELLS
Sparton Technology Inc.
Coors Road Facility
Albuquerque, New Mexico

FIGURE
80

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
	6310,039.12	JH	12-90		

B. Surface Waters

No domestic or municipal surface water sources exist within a 1.5-mile radius of the Sparton facility. Irrigation at residential, commercial, and industrial establishments is principally derived from municipal water systems. No future development of surface water for domestic or municipal uses is anticipated for the area.

Some limited fishing is currently available in the Corrales Riverside Drain and Rio Grande east of the Sparton site. No expansion of fishing opportunities is expected in the future in the area (New Mexico Game and Fish Department, Operations Plan, Aquatic Management of N.M. Wildlife 1987 to 1995, and J. Maracchini, N.M. Area Fisheries Manager, oral communication).

Local surface water sources are the Corrales Main Canal, the Corrales Riverside Drain, and the Rio Grande which provide water for irrigated agriculture to the east of the Sparton site. No expansion of this agricultural use is contemplated.

No current industrial uses of surface waters are known in the local area, and no future surface water use is anticipated.

Surface water in the Corrales Main Canal, the Corrales Riverside Drain, and the Rio Grande supports vegetative habitats and associated wildlife. No expansion of this function is planned.

C. Human Use or Access

There are no existing or planned recreational facilities adjacent to the Sparton facility. Neither are there any existing or planned hunting facilities or opportunities adjacent to the Sparton facility.

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

The Sparton facility is located within an area zoned for manufacturing. Adjacent land to the north is also zoned for manufacturing. To the west and south of the facility, zoning is for commercial development. Lands to the east of the facility are zoned for agriculture. These current zone designations for lands adjacent to the facility are supported and recommended to be maintained in the future by the Coors Corridor Plan (April 1984).

Prevailing winds in the area of the Sparton facility are shown in Figure 81. Winds blow most frequently from the north in winter, and from the south along the Rio Grande Valley in summer. Existing and planned residential areas are located to the west of the facility.

FIGURE 81

PREVAILING WINDS AND AVERAGE MONTHLY WIND SPEEDS		
Month	**Average Speed m.p.h.**	**Prevailing Direction**
January	8.0	N
February	8.8	N
March	10.1	SE
April	11.0	S
May	10.5	S
June	10.0	S
July	9.1	SE
August	8.2	SE
September	8.6	SE
October	8.3	SE
November	7.9	N
December	7.7	N

Source: National Oceanic and Atmospheric Administration, Local Climatological Data, Albuquerque, New Mexico, 1978

D. Surface Water Biota

There are no known surface water bodies on, adjacent to, or affected by the Sparton facility.

E. Ecology

The vegetation in the area of the Sparton facility has been altered through development. The facility site exhibits landscaping comprised of lawn, shrubs, and trees (cottonwood and conifers). The principal plant community in adjacent areas is grassland or shrubland. Dominant grasses include burro grass, gramma grasses, fluffgrass, dropseeds, galleta, alkali socaton, needle and thread, western wheatgrass, three-awn, bottlebrush, and squirreltail. Shrubs and forbs include sagebrush, snakeweed, Morman tea, locust, fourwing saltbrush, indigo bush, yucca, prickly pear, peppergrass, stickleaf, and spectacle pod. Where the grassland or shrubland community is disturbed, there is a decrease in black gramma and bush muckly, and an increase in galleta, sand dropseed, and annual plants.

Wildlife resources in the facility area have been significantly affected by increased urbanization. Much of the original grassland has been replaced by less palatable species as well as shrubs such as snakeweed. Other than acting as a soil stabilizer, many of the shrubs and grasses are of little value to wildlife.

Representative wildlife species inhabiting the vicinity of the Sparton facility include the black-tailed jackrabbit, desert cottontail rabbit, kangaroo rats, pocket mouse, white-footed mouse, ground squirrel, northern grasshopper mouse, horned lark, mourning dove, scaled

quail, mockingbird, several species of sparrows, prairie falcon, collard lizard, roundtailed horned lizard, and roadrunner.

F. Demographic Profile

Demographic data for the vicinity are based on information in the Census of Population and Housing: Census Tracts, Albuquerque, New Mexico, Standard Metropolitan Statistical Area and the 1980 Census of Population and Housing Tape File 1 and 3, U.S. Department of Commerce, Bureau of Census, Washington, D.C., 1980, as summarized in the Northwest Area Plan. The Sparton facility area is contained in Census Tract 47.3. Information for this tract is, in some instances, presented by block which describes a larger area than just the immediate facility vicinity.

The population of the greater area of the facility vicinity is just over 24,000 persons with the largest number of people in the 20-to-64 age group. The school age group, 5-to-19, is approximately half the size of the 20-to-64 age group. The pre-school age group, 0-to-4, outnumbers the over-65 age group. The population is distributed in approximately 8,352 households.

The area population is 47% Spanish ethnicity. There is less than 2% Black, approximately 4% American Indian, and less than 1% Asian. The area population is relatively stable, with 44% maintaining a five-year residency in the same house and 54% having been born in New Mexico.

G. Endangered or Threatened Species

Eight species of plants are currently listed as endangered or threatened in New Mexico by the U.S. Fish and Wildlife Service and the New Mexico Heritage Program, but none of the habitats for these plants occur in the vicinity of the Sparton facility.

Of the seven bird species and one mammal specie listed as endangered in New Mexico by the New Mexico Department of Fish and Game as of 1983, four bird species were recorded as having been sighted in or near the facility area in 1984. The birds were McCown Lingspurs, Bell Vieros, Peregrine Falcons, and Mississippi Kites. Certain federal endangered species, such as the Whooping Crane and Bald Eagle, may fly over the Rio Grande during migration and may land locally to feed.

VII GROUNDWATER PROTECTION STANDARDS

A. Maximum Concentration Limits

Maximum concentration limits for groundwater protection have been established by EPA relative to releases from solid waste management units in 40 CFR 264.94. These MCLs are shown in Figure 82.

B. Maximum Contaminant Levels (MCLs)

Maximum contaminant levels (MCLs) for drinking water are promulgated under the Safe Drinking Water Act and can be found in 40 CFR 141.61 and 141.62. MCL's may be considered as appropriate standards for groundwater protection if the groundwater is, or could be potentially, used for drinking consumption. Current MCLs (January 1991) are given in Figure 83.

C. New Mexico Groundwater Standards

The New Mexico Water Quality Control Commission (WQCC) Human Health Standards for groundwater quality, as defined in Part 3-103 of the WQCC regulations, are shown in Figure 84.

D. Other Standards

For constituents not covered by regulatory protection standards, alternate concentration limits (ACL's) or action levels can be developed using constituent data

FIGURE 82

MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUNDWATER PROTECTION	
Constituent	**Maximum Concentration mg/l**
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.1
Toxaphene	0.005
2,4-D	0.1
2,4,5- P Silvex	0.01

Source: 40 CFR 264.94

FIGURE 83

SAFE DRINKING WATER ACT MAXIMUM CONTAMINANT LEVELS

Type of Contaminant	Name of Contaminant	Maximum Contaminant Level (MCL) (mg/l)
Inorganic Chemicals	Asbestos	7 MFL (million fibers per liter longer than 10 microns)
	Arsenic	0.05
	Cadmium	0.005
	Chromium	0.1
	Fluoride	4 (secondary MCL of 2 triggers public notice)
	Mercury	0.002
	Nitrate (as N)	10
	Nitrite (as N)	1
	Total Nitrate/Nitrite	10
	Selenium	0.05
	Lead, Copper	Under Revision
Organic Chemicals	**Pesticides/PCBs**	
	Endrin	0.0002
	Lindane	0.0002
	Methoxychlor	0.04
	Toxaphene	0.003
	2,4,5-TP (Silvex)	0.05
	2,4-D	0.07
	Alachlor	0.002
	Atrazine	0.003
	Carbofuran	0.04
	Chlordane	0.002
	Dibromochloropropane	0.0002
	Ethylene dibromide	0.00005
	Heptachlor	0.0004
	Heptachlor epoxide	0.0002
	PCB's	0.0005
	Pentachlorophenol*	0.001
	Volatile Organic Chemicals	
	Benzene	0.005
	Carbon tetrachloride	0.005
	1,2-Dichloroethane	0.005
	p-Dichlorobenzene	0.075
	1,1-Dichloroethylene	0.007
	1,1,1-Trichloroethane	0.20
	Trichloroethylene	0.005
	Vinyl chloride	0.002
	o-Dichlorobenzene	0.6
	cis-1,2-Dichloroethylene	0.07
	trans-1,2-Dichloroethylene	0.1
	1,2-Dichloropropane	0.005
	Ethylbenzene	0.7
	Monochlorobenzene	0.1
	Styrene	0.1
	Tetrachloroethylene	0.005
	Toluene	1
	Xylenes	10

Source: 40 CFR 141

FIGURE 84

NEW MEXICO GROUNDWATER STANDARDS	
Parameter	**Maximum Allowable Concentration**
Arsenic	100 ug/l
Barium	1000 ug/l
Cadmium	10 ug/l
Chromium	50 ug/l
Cyanide	200 ug/l
Fluoride	1600 ug/l
Lead	50 ug/l
Total Mercury	2 ug/l
Nitrate as N	10000 ug/l
Selenium	50 ug/l
Silver	50 ug/l
Uranium	5000 ug/l
Radioactivity: Combined Radium-226 and Radium-228	30.0 pCi/l
Benzene	10 ug/l
Polychlorinated Biphenyls	1 ug/l
Toluene	750 ug/l
Carbon Tetrachloride	10 ug/l
1,2-Dichloroethane	10 ug/l
1,1-Dichloroethylene	5 ug/l
1,1,2,2-Tetrachloroethylene	20 ug/l
1,1,2-Trichloroethylene	100 ug/l
Ethylbenzene	750 ug/l

FIGURE 84 (Continued)

NEW MEXICO GROUNDWATER STANDARDS	
Parameter	**Maximum Allowable Concentration**
Total Xylenes	620 ug/l
Methylene Chloride	100 ug/l
Chloroform	100 ug/l
1,1-Dichloroethane	25 ug/l
Ethylene Dibromide	0.1 ug/l
1,1,1-Trichloroethane	60 ug/l
1,1,2-Trichloroethane	10 ug/l
1,1,2,2-Tetrachloroethane	10 ug/l
Vinyl Chloride	1 ug/l
PAHS: total naphthalene plus monomethylnaphthalenes	30 ug/l
Benzo-a-pyrene	0.7 ug/l
Secondary Standards	
Chloride (Cl)	250 mg/l
Copper (Cu)	1000 ug/l
Iron (Fe)	1000 ug/l
Manganese (Mn)	200 ug/l
Phenols	5 ug/l
Sulfate (SO_4)	600 mg/l
Total Dissolved Solids (TDS)	1000 mg/l
Zinc (Zn)	10 mg/l
pH	between 6 and 9

FIGURE 84 (Continued)

NEW MEXICO GROUNDWATER STANDARDS	
Parameter	**Maximum Allowable Concentration**
Irrigation Standards	
Aluminum (Al)	5000 ug/l
Boron (B)	750 ug/l
Cobalt (Co)	50 ug/l
Molybdenum (Mo)	1000 ug/l
Nickel (Ni)	200 ug/l

Source: New Mexico Water Quality Control Commission Regulations, Part 3-103.

obtained from the Integrated Risk Information System (IRIS) updated on a continuous basis by U.S. EPA's Office of Health and Environmental Assessment. Using the constituent data and standardized human intake assumptions, ACLs can be calculated. Constituent data is given as carcinogen slope factors (CSF's) for carcinogenic effects and as reference doses (RfD's) for systemic toxicants. For those constituents identified at this site, CSF and RfD data is included in Figure 85.

E. Background Concentrations

Monitor well MW-6 was located upgradient of the source area in the northern corner of the facility property. Historical analyses of groundwater samples from this well showed elevated concentrations of the principal parameters found in the Sparton plume (see Attachment 1). The well was plugged and abandoned in early 1989 under the provisions of the Consent Order.

Monitor well MW-51 was installed in April 1990. This well is located north of the Sparton facility, west of the car dealership which is adjacent to Sparton's northeastern boundary. Analyses of groundwater samples from this well show slightly elevated concentrations of TCE.

FIGURE 85

CONSTITUENT DATA FOR HEALTH RISK ASSESSMENT

CONSTITUENT NAME	CLASS	ORAL REFERENCE DOSE (mg/kg/day)	ORAL CARCINOGEN SLOPE FACTOR $(mg/kg/day)^{-1}$
Acetone	D	1.0E-01	NA
1,1-Dichloroethylene	C	9.0E-03	6.0E-01
Methylene Chloride	B	6.0E-02	7.5E-03
1,1,2,2-Tetrachloroethane	C	NA	2.0E-01
Tetrachloroethylene	B2	1.0E-02	5.1E-02
1,1,1-Trichloroethane	D	9.0E-02	NA
Trichloroethylene	B2	NA	1.1E-02
Chromium (VI)	A	5.0E-03	4.1E+01*
Benzene	A	NA	2.9E-02
Ethylbenzene	D	1.0E-01	NA
Toluene	D	3.0E-01	NA
Xylenes	D	2.0E+00	NA

* Inhalation slope factor

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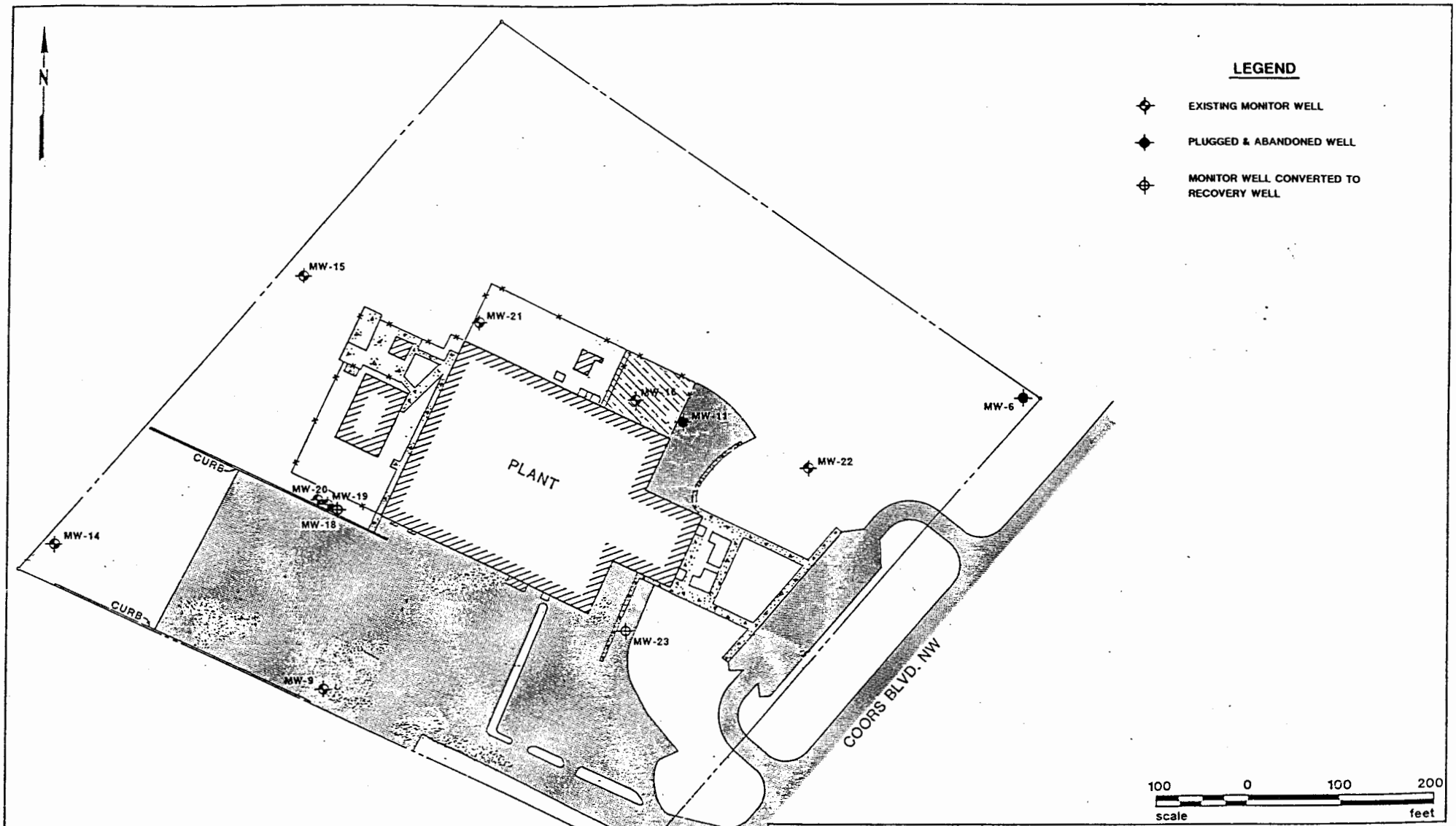
QUALITY CONTROL REVIEWER:

Michael K. Stacey

Michael K. Stacey, P.E.
Project Manager

ATTACHMENT 1

Alternate Groundwater Monitoring Database



Harding Lawson Associates
Engineers, Geologists & Geophysicists

ALTERNATE GROUNDWATER MONITORING PROGRAM

Spartron Technology, Inc.
Albuquerque, New Mexico

FIGURE

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
CL	6310.039.12	JEM	12/90		

008390

ALTERNATE GROUNDWATER MONITORING PROGRAM WELL SUMMARY

WELL NUMBER	ZONE *	MEASURING PT. ELEVATION	DEPTH TO TOP OF SCREEN (FT.)	DEPTH TO BOTTOM OF SCREEN (FT.)	ELEVATION AT TOP OF SCREEN (FT.,MSL)	ELEVATION AT BOTTOM OF SCREEN (FT.,MSL)	LENGTH OF SCREEN (FT.)
6	UFZ	5046.39	61.5	66.5	4984.89	4979.89	5.0
8	UFZ	5042.62	58.0	63.0	4984.62	4979.62	5.0
9	UFZ	5044.11	62.5	67.5	4981.61	4976.61	5.0
11	LLFZ	5046.31	134.0	139.0	4912.31	4907.31	5.0
14	UFZ	5041.91	61.5	71.5	4980.41	4970.41	10.0
15	UFZ	5047.49	60.0	70.0	4987.49	4977.49	10.0
16	UFZ	5047.50	68.0	73.0	4979.50	4974.50	5.0
18	UFZ	5045.58	68.0	78.0	4977.58	4967.58	10.0
19	ULFZ	5046.25	97.0	107.0	4949.25	4939.25	10.0
20	LLFZ	5045.79	125.0	138.0	4920.79	4907.79	13.0
21	UFZ	5048.36	64.5	69.5	4983.86	4978.86	5.0
22	UFZ	5048.06	72.0	77.0	4976.06	4971.06	5.0
23	UFZ	5048.51	72.0	77.0	4976.51	4971.51	5.0

(*) UFZ = UPPER FLOW ZONE
ULFZ = UPPER LOWER FLOW ZONE
LLFZ = LOWER LOWER FLOW ZONE

008391

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[---------- mg/l ----------]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 05 (UPPER FLOW ZONE) ********* >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																	
1983	4	8.00	688	22	0.9	81	21	---	---	---	---	< 0.1	---	---	0.37	---	---
1984	4	7.64	721	---	1.8	112	3.8	0.22	0.6	< 0.01	< 0.01	---	0.12	< 0.01	0.68	< 0.006	---
1985	1	8.09	711	---	---	---	0.9	0.21	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	8.07	640	27	0.8	91	2	0.04	0.5	< 0.01	0.01	0.2	0.14	0.01	0.34	< 0.04	54
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
2) IF A COMPOUND WAS NOT DETECTED, THE METHOD DETECTION LIMIT IS SHOWN, PRECEEDED BY A "<" (less than sign).
3) --- = NOT TESTED.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 06 (UPPER FLOW ZONE) ********* >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																	
1983	4	7.97	821	38	10	95	7.8	---	---	---	---	< 0.1	---	---	0.032	---	---
1984	4	7.50	866	---	16	120	6.1	0.45	0.1	< 0.01	< 0.01	---	0.25	< 0.01	0.34	0.005	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	7.89	871	---	---	---	1.7	0.31	---	---	---	---	---	---	---	---	---
1985	3	7.46	833	38	15	140	1.4	0.4	< 0.1	< 0.01	< 0.01	---	0.33	< 0.005	0.23	< 0.01	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	7.43	810	---	---	---	12	0.32	---	---	---	---	---	---	---	---	---
1986	2	7.34	821	---	---	---	1.9	1.4	---	---	---	---	---	---	---	---	---
1986	3	7.77	831	---	---	---	6.3	0.59	---	---	---	---	---	---	---	---	---
1986	4	7.72	846	28	14	142	4.4	0.421	< 0.1	< 0.01	< 0.01	---	0.3	< 0.005	---	< 0.01	79
1987	1	8.03	886	---	---	---	3.7	0.26	---	---	---	---	---	---	---	---	---
1987	2	7.61	879	---	---	---	1.2	0.18	---	---	---	---	---	---	---	---	---
1987	3	7.61	784	27	14	12	3.3	0.35	< 0.1	< 0.01	< 0.01	0.2	0.34	< 0.01	0.066	< 0.04	79
1987	4	7.55	832	---	---	---	0.4	0.3	---	---	---	---	---	---	---	---	---
1988	1	7.62	885	---	---	---	1.1	0.19	---	---	---	---	---	---	---	---	---
1988	2	7.61	880	---	---	---	1.5	0.15	---	---	---	---	---	---	---	---	---
1988	3	7.60	812	23	20	118	2.3	0.120	< 0.1	0.01	< 0.01	< 0.1	0.31	< 0.01	0.042	< 0.04	76
1988	4	7.80	775	---	---	---	1.6	0.100	---	---	---	---	---	---	---	---	---
1989	1	7.40	675	---	---	---	2.1	0.039	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
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[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 07 (UPPER FLOW ZONE) *********																	
1983	4	7.94	507	116	0.4	39	80	---	---	---	---	< 0.1	---	---	0.089	---	---
1984	4	7.43	692	---	3.3	85	3.6	0.85	0.2	0.02	< 0.01	---	0.11	0.021	0.03	< 0.006	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	8.12	693	23	3	103	0.6	0.21	< 0.1	< 0.01	< 0.01	< 0.1	0.18	< 0.01	0.032	< 0.04	55
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
				[mg/l													]
********** WELL NO. 08 (UPPER FLOW ZONE) *********							>>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<										
1983	4	8.05	579	18	1.7	65	15	---	---	---	---	< 0.1	---	---	0.098	---	---
1984	4	7.50	763	---	7.4	80	5.5	0.18	0.4	< 0.01	< 0.01	---	0.37	< 0.01	< 0.006	< 0.006	---
1985	1	7.96	735	---	---	---	2.1	0.088	---	---	---	---	---	---	---	---	---
1985	2	7.78	741	---	---	---	1.3	0.15	---	---	---	---	---	---	---	---	---
1985	3	7.42	715	33	5.5	69	1.8	0.38	< 0.1	< 0.01	< 0.01	---	0.31	< 0.005	< 0.005	< 0.01	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	7.40	708	---	---	---	16	0.098	---	---	---	---	---	---	---	---	---
1986	2	7.27	764	---	---	---	2	0.18	---	---	---	---	---	---	---	---	---
1986	3	7.68	754	---	---	---	14	0.37	---	---	---	---	---	---	---	---	---
1986	4	7.48	784	37	2.1	74	1.3	0.233	< 0.1	< 0.01	< 0.01	---	0.52	< 0.005	---	< 0.01	64
1987	1	8.22	754	---	---	---	2	0.069	---	---	---	---	---	---	---	---	---
1987	2	7.78	772	---	---	---	3.3	0.054	---	---	---	---	---	---	---	---	---
1987	3	7.61	705	37	3	53	3.2	0.15	0.2	< 0.01	< 0.01	0.1	0.38	< 0.01	0.22	< 0.04	61
1987	4	7.59	703	---	---	---	3	0.07	---	---	---	---	---	---	---	---	---
1988	1	7.82	782	---	---	---	3.7	0.042	---	---	---	---	---	---	---	---	---
1988	2	7.56	799	---	---	---	1.5	0.052	---	---	---	---	---	---	---	---	---
1988	3	7.60	737	23	1.7	71	2.5	0.070	0.1	< 0.01	0.01	< 0.1	0.57	0.01	0.18	< 0.04	99
1988	4	6.60	717	---	---	---	2.2	0.093	---	---	---	---	---	---	---	---	---
1989	1	7.50	771	---	---	---	3.4	4.080	---	---	---	---	---	---	---	---	---

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YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
				[mg/l													]
********** WELL NO. 09 (UPPER FLOW ZONE) *********																	
1983	4	7.36	2320	400	< 0.1	340	29	---	---	---	---	< 0.1	---	---	3.4	---	---
1984	4	6.70	2350	---	< 0.1	372	14	21	1.7	< 0.01	< 0.01	---	13	< 0.01	1.9	0.19	---
1985	1	7.00	2040	---	---	---	6.1	15	---	---	---	---	---	---	---	---	---
1985	2	7.31	1770	---	---	---	7.2	9.1	---	---	---	---	---	---	---	---	---
1985	3	6.92	1590	210	< 0.1	300	4.6	6.9	0.9	< 0.01	< 0.01	---	7.9	< 0.005	1.1	0.11	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	6.96	1340	---	---	---	20	6.7	---	---	---	---	---	---	---	---	---
1986	2	7.02	1380	---	---	---	3	5	---	---	---	---	---	---	---	---	---
1986	3	7.46	1480	---	---	---	3.1	6.3	---	---	---	---	---	---	---	---	---
1986	4	7.71	1470	138	< 0.1	226	1.4	5.08	5.1	< 0.01	< 0.01	---	5.5	< 0.005	---	0.081	110
1987	1	8.03	1440	---	---	---	3	3.2	---	---	---	---	---	---	---	---	---
1987	2	7.66	1370	---	---	---	2.1	4.0	---	---	---	---	---	---	---	---	---
1987	3	7.87	1300	116	< 0.1	203	2	4.4	2.6	< 0.01	< 0.01	2.2	4	< 0.01	0.24	0.06	103
1987	4	7.39	1220	---	---	---	2.8	2.6	---	---	---	---	---	---	---	---	---
1988	1	8.29	1210	---	---	---	1.7	2.5	---	---	---	---	---	---	---	---	---
1988	2	7.26	1130	---	---	---	2.7	3.6	---	---	---	---	---	---	---	---	---
1988	3	7.30	1040	66	< 0.1	182	3.8	2.870	1.7	< 0.01	0.01	1.1	3.5	0.01	1.3	< 0.04	94
1988	4	7.60	1080	---	---	---	1.9	2.580	---	---	---	---	---	---	---	---	---
1989	1	7.10	1080	---	---	---	1.5	5.180	---	---	---	---	---	---	---	---	---
1989	2	7.50	981	---	---	---	0.7	2.110	---	---	---	---	---	---	---	---	---
1989	3	7.70	992	69	< 0.1	225	1.8	2.390	1.5	< 0.01	< 0.01	---	2.9	< 0.01	0.11	< 0.04	89
1989	4	7.5	962	---	---	---	3.2	1.99	---	---	---	---	---	---	---	---	---
1990	1	7.4	911	---	---	---	1.4	2.470	---	---	---	---	---	---	---	---	---
1990	2	7.4	969	69.4	< 0.10	208	3.0	2.300	0.60	< 0.010	0.011	---	2.1	0.011	0.026	0.21	88.2
1990	3	7.4	977	---	---	---	1.5	1.730	---	---	---	---	---	---	---	---	---
1990	4	7.6	1080	---	---	---	1.9	1.530	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 10 (LOWER FLOW ZONE) *********							>>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<										
1983	4	8.03	694	26	0.1	95	7.6	---	---	---	---	0.1	---	---	0.75	---	---
1984	4	7.74	702	---	0.2	119	3	0.04	0.4	< 0.01	< 0.01	---	< 0.05	0.01	0.93	0.02	---
1985	1	7.73	689	---	---	---	1.7	0.013	---	---	---	---	---	---	---	---	---
1985	2	7.94	702	---	---	---	1.6	0.013	---	---	---	---	---	---	---	---	---
1985	3	7.39	694	28	< 0.1	125	9	0.05	< 0.1	< 0.01	< 0.01	---	0.15	< 0.005	1	< 0.01	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	7.49	678	---	---	---	8.8	0.076	---	---	---	---	---	---	---	---	---
1986	2	7.30	673	---	---	---	10	0.14	---	---	---	---	---	---	---	---	---
1986	3	7.86	681	---	---	---	2.1	0.13	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	7.71	679	44	< 0.1	102	4.7	1.8	0.1	< 0.01	< 0.01	0.1	0.5	< 0.01	1.2	< 0.04	42
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 11 (LOWER FLOW ZONE) *********							>>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<										
1983	4	7.89	741	30	< 0.1	97	18	---	---	---	---	< 0.1	---	---	0.76	---	---
1984	4	7.76	699	---	0.5	118	2.2	0.006	0.6	< 0.01	< 0.01	---	< 0.05	0.01	0.78	0.006	---
1985	1	8.01	733	---	---	---	1.7	0.032	---	---	---	---	---	---	---	---	---
1985	2	7.95	752	---	---	---	1.7	0.01	---	---	---	---	---	---	---	---	---
1985	3	7.57	697	29	< 0.1	130	1.7	0.01	< 0.1	< 0.01	< 0.01	---	0.12	< 0.005	0.98	< 0.01	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	7.53	717	---	---	---	4.2	0.014	---	---	---	---	---	---	---	---	---
1986	2	7.38	679	---	---	---	11	0.19	---	---	---	---	---	---	---	---	---
1986	3	7.87	683	---	---	---	2.4	0.058	---	---	---	---	---	---	---	---	---
1986	4	7.76	696	28	< 0.1	110	1.3	0.010	< 0.1	< 0.01	< 0.01	---	0.1	< 0.005	---	< 0.01	43
1987	1	8.18	692	---	---	---	8.5	0.011	---	---	---	---	---	---	---	---	---
1987	2	7.69	660	---	---	---	1.7	< 0.005	---	---	---	---	---	---	---	---	---
1987	3	7.65	639	22	< 0.1	77	3.2	0.038	0.3	< 0.01	< 0.01	0.1	0.14	< 0.01	0.98	< 0.04	42
1987	4	7.55	832	---	---	---	0.4	0.3	---	---	---	---	---	---	---	---	---
1988	1	7.84	666	---	---	---	1.1	0.012	---	---	---	---	---	---	---	---	---
1988	2	7.69	611	---	---	---	1.9	0.021	---	---	---	---	---	---	---	---	---
1988	3	7.60	580	18	< 0.1	85	2.0	0.010	0.4	< 0.01	< 0.01	< 0.1	0.12	< 0.01	0.75	< 0.04	36
1988	4	7.90	597	---	---	---	2.0	< 0.02	---	---	---	---	---	---	---	---	---
1989	1	7.40	605	---	---	---	1.7	< 0.005	---	---	---	---	---	---	---	---	---

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GROUNDWATER MONITORING RESULTS
PART 1 of 4

[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 12 (UPPER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	3	7.65	769	23	1.32	136	1.7	0.074	---	< 0.005	< 0.005	< 0.1	0.12	< 0.005	0.98	< 0.01	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	7.91	1050	139	1.7	195	6.3	3.6	0.5	< 0.01	< 0.01	0.4	2.7	< 0.01	0.82	< 0.04	80
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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3) --- = NOT TESTED.

008399

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[---------- mg/l ----------]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 13 (UPPER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	7.43	1090	---	0.6	148	5.2	3.6	3.1	< 0.01	---	---	2.6	0.038	2	0.04	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	7.73	955	35	4.1	128	3.7	0.79	< 0.1	< 0.01	< 0.01	< 0.1	0.8	< 0.01	0.37	< 0.04	67
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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3) --- = NOT TESTED.

008400

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 14 (UPPER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	7.61	1290	---	1	192	5.9	3.7	1	0.6	---	---	2	0.58	0.76	0.04	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	7.76	1200	34	3.1	175	3.8	2.3	< 0.1	1.1	< 0.01	---	1.8	1.1	---	0.03	77
1987	1	7.89	1190	---	---	---	2.6	3.5	---	---	---	---	---	---	---	---	---
1987	2	7.43	995	---	---	---	1.7	0.53	---	---	---	---	---	---	---	---	---
1987	3	7.58	877	64	2.7	132	2.7	1	0.1	0.41	0.54	< 0.1	0.82	0.95	0.017	< 0.04	68
1987	4	7.52	991	---	---	---	0.8	1.7	---	---	---	---	---	---	---	---	---
1988	1	12.17	5000	---	---	---	3.1	2.6	---	---	---	---	---	---	---	---	---
1988	2	7.40	3030	---	---	---	3.2	3.8	---	---	---	---	---	---	---	---	---
1988	3	11.90	3410	97	10	66	3.5	3.500	< 0.1	0.70	< 0.01	< 0.1	0.30	0.55	0.014	< 0.04	99
1988	4	12.40	2950	---	---	---	2.5	1.870	---	---	---	---	---	---	---	---	---
1989	1	11.70	3700	---	---	---	2.5	2.420	---	---	---	---	---	---	---	---	---
1989	2	10.50	934	---	---	---	1.6	1.800	---	---	---	---	---	---	---	---	---
1989	3	11.00	1010	92	23	172	2.4	2.170	< 0.5	1.0	< 0.01	---	1.2	0.96	< 0.01	< 0.04	68
1989	4	11.5	1400	---	---	---	2.0	1.270	---	---	---	---	---	---	---	---	---
1990	1	11.4	1080	---	---	---	1.7	1.830	---	---	---	---	---	---	---	---	---
1990	2	11.3	1080	63.5	22.3	167	2.6	1.360	< 0.50	0.90	< 0.10	---	0.87	0.80	< 0.010	< 0.040	59.6
1990	3	11.1	1040	---	---	---	1.8	1.170	---	---	---	---	---	---	---	---	---
1990	4	10.9	957	---	---	---	2.6	1.210	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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3) --- = NOT TESTED.

0084401

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[---------- mg/l ----------]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 15 (UPPER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	7.68	885	---	4.4	146	2.7	1.1	0.5	< 0.01	---	---	0.16	< 0.005	0.06	< 0.01	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	7.99	853	53	5.6	126	1.3	1.1	< 0.1	< 0.01	< 0.01	---	0.13	< 0.005	---	< 0.01	60
1987	1	8.32	801	---	---	---	1.3	0.42	---	---	---	---	---	---	---	---	---
1987	2	7.60	764	---	---	---	1.1	0.43	---	---	---	---	---	---	---	---	---
1987	3	8.01	812	41	4.7	135	2.4	0.49	< 0.1	< 0.01	< 0.01	< 0.1	0.14	< 0.01	< 0.005	< 0.04	58
1987	4	7.65	790	---	---	---	0.9	0.45	---	---	---	---	---	---	---	---	---
1988	1	8.20	819	---	---	---	1.1	0.29	---	---	---	---	---	---	---	---	---
1988	2	7.78	871	---	---	---	27	0.28	---	---	---	---	---	---	---	---	---
1988	3	7.70	827	63	6.2	122	2.5	0.290	< 0.1	< 0.01	< 0.01	< 0.1	0.12	< 0.01	0.034	< 0.04	61
1988	4	8.30	808	---	---	---	1.6	0.170	---	---	---	---	---	---	---	---	---
1989	1	7.70	874	---	---	---	1.2	0.925	---	---	---	---	---	---	---	---	---
1989	2	7.60	656	---	---	---	0.5	0.220	---	---	---	---	---	---	---	---	---
1989	3	7.70	652	32	4.7	114	1.2	0.270	< 0.5	< 0.01	< 0.01	---	0.15	< 0.01	< 0.01	< 0.04	54
1989	4	7.90	710	---	---	---	1.0	0.180	---	---	---	---	---	---	---	---	---
1990	1	7.8	624	---	---	---	0.9	0.170	---	---	---	---	---	---	---	---	---
1990	2	7.8	653	27.1	4.8	98.8	1.9	0.113	< 0.50	< 0.010	< 0.010	---	0.12	< 0.010	< 0.010	< 0.040	49.2
1990	3	7.8	683	---	---	---		0.152	---	---	---	---	---	---	---	---	---
1990	4	7.8	807	---	---	---	1.5	0.151	---	---	---	---	---	---	---	---	---

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008402

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[---------- mg/l ----------]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 16 (UPPER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	7.17	5300	---	< 0.1	2180	54	15	310	< 0.01	---	---	14	0.75	17	0.4	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	7.30	2930	---	---	---	140	23.3	---	---	---	---	---	---	---	---	---
1986	4	7.02	4920	364	1.4	1610	25	29.3	390	< 0.02	< 0.02	---	18	0.017	---	0.35	220
1987	1	7.61	4530	---	---	---	0.019	31	---	---	---	---	---	---	---	---	---
1987	2	7.15	4040	---	---	---	14	27	---	---	---	---	---	---	---	---	---
1987	3	7.24	3330	231	3.5	1370	14	27	250	< 0.01	< 0.01	230	12	< 0.01	4.1	0.25	188
1987	4	7.27	3700	---	---	---	17	25	---	---	---	---	---	---	---	---	---
1988	1	7.52	3800	---	---	---	10	15	---	---	---	---	---	---	---	---	---
1988	2	7.70	611	---	---	---	13	27	---	---	---	---	---	---	---	---	---
1988	3	7.30	2510	239	6.6	500	19	29.8	107	< 0.01	0.04	90	9.1	0.04	1.6	0.23	160
1988	4	7.50	2340	---	---	---	6.4	18.200	---	---	---	---	---	---	---	---	---
1989	1	7.20	1740	---	---	---	4.4	7.960	---	---	---	---	---	---	---	---	---
1989	2	7.40	1370	---	---	---	8.1	15.300	---	---	---	---	---	---	---	---	---
1989	3	7.70	1420	85	1.2	193	4.2	20.500	86	0.03	0.02	---	3.0	0.05	0.46	0.06	89
1989	4	7.4	1700	---	---	---	5.8	16.7	---	---	---	---	---	---	---	---	---
1990	1	7.4	1430	---	---	---	3.8	16.200	---	---	---	---	---	---	---	---	---
1990	2	7.6	1340	92.3	1.7	189	5.2	10.100	94.3	< 0.010	0.035	---	1.7	0.041	0.088	0.049	83.9
1990	3	7.5	1510	---	---	---	3.6	17.100	---	---	---	---	---	---	---	---	---
1990	4	7.4	1750	---	---	---	4.3	15.6	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 17 (UPPER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	7.90	695	---	< 0.1	98	5.1	3.1	1.5	< 0.01	---	---	0.19	0.27	4.1	0.11	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	7.37	743	32	2.7	116	4.7	2.9	0.8	< 0.01	0.32	0.2	0.12	0.32	2.8	0.13	58
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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008404

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 18 (UPPER FLOW ZONE) ********* >>>>> WELL CONVERTED TO RECOVERY WELL IN 1989 <<<<<																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	7.54	760	---	---	---	6.2	4.9	---	---	---	---	---	---	---	---	---
1986	4	7.25	782	31	2.7	129	0.5	6.02	< 0.1	< 0.01	< 0.01	---	0.13	< 0.005	---	< 0.01	57
1987	1	8.24	793	---	---	---	2.4	4.4	---	---	---	---	---	---	---	---	---
1987	2	7.36	798	---	---	---	1.1	1.8	---	---	---	---	---	---	---	---	---
1987	3	7.37	797	33	2.6	108	50	1.9	0.4	< 0.01	0.01	< 0.1	0.15	< 0.01	< 0.005	< 0.04	56
1987	4	7.50	740	---	---	---	2.1	3.2	---	---	---	---	---	---	---	---	---
1988	1	7.55	739	---	---	---	0.8	2.4	---	---	---	---	---	---	---	---	---
1988	2	12.03	7440	---	---	---	2.7	3.6	---	---	---	---	---	---	---	---	---
1988	3	7.50	774	31	3.1	122	3.4	3.780	< 0.1	< 0.01	< 0.01	< 0.1	0.12	< 0.01	0.009	< 0.04	55
1988	4	7.60	637	---	---	---	1.6	2.780	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
2) IF A COMPOUND WAS NOT DETECTED, THE METHOD DETECTION LIMIT IS SHOWN, PRECEEDED BY A "<" (less than sign).
3) --- = NOT TESTED.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
				[mg/l]													
********** WELL NO. 19 (LOWER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	7.20	934	58	2.2	145	1.1	3.4	< 0.1	< 0.01	0.043	---	0.3	0.043	---	0.01	92
1987	1	8.18	915	---	---	---	1.7	2.6	---	---	---	---	---	---	---	---	---
1987	2	7.40	884	---	---	---	1.2	1.1	---	---	---	---	---	---	---	---	---
1987	3	7.45	842	54	0.9	110	1.9	2.7	0.2	0.02	0.01	< 0.1	0.33	0.03	0.11	< 0.04	76
1987	4	7.48	870	---	---	---	2	2.7	---	---	---	---	---	---	---	---	---
1988	1	7.56	946	---	---	---	1	1.6	---	---	---	---	---	---	---	---	---
1988	2	7.71	902	---	---	---	1.7	2.7	---	---	---	---	---	---	---	---	---
1988	3	7.50	869	65	1.1	131	3.4	3.830	0.4	0.02	< 0.01	< 0.1	0.33	0.02	0.11	< 0.04	69
1988	4	7.60	753	---	---	---	1.3	1.920	---	---	---	---	---	---	---	---	---
1989	1	7.10	856	---	---	---	1.2	1.920	---	---	---	---	---	---	---	---	---
1989	2	7.70	732	---	---	---	1.1	2.070	---	---	---	---	---	---	---	---	---
1989	3	7.70	745	44	2.0	130	1.4	2.890	< 5.0	< 0.01	0.02	---	0.05	0.02	0.04	< 0.04	61
1989	4	7.5	689	---	---	---	1.5	1.64	---	---	---	---	---	---	---	---	---
1990	1	7.5	644	---	---	---	0.9	1.140	---	---	---	---	---	---	---	---	---
1990	2	7.5	690	30.5	1.9	121	2.3	1.300	< 0.50	< 0.010	< 0.010	---	0.24	< 0.010	0.032	< 0.040	56.4
1990	3	7.5	676	---	---	---		0.770	---	---	---	---	---	---	---	---	---
1990	4	7.5	712	---	---	---	1.1	0.514	---	---	---	---	---	---	---	---	---

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3) --- = NOT TESTED.

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
				[mg/l]													
********** WELL NO. 20 (LOWER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	7.48	804	30	0.3	144	1.3	0.19	< 0.1	< 0.01	< 0.01	---	0.15	< 0.005	---	< 0.01	100
1987	1	8.33	789	---	---	---	2.7	0.02	---	---	---	---	---	---	---	---	---
1987	2	7.63	770	---	---	---	1.5	0.43	---	---	---	---	---	---	---	---	---
1987	3	7.76	687	27	0.5	11	1.8	0.04	0.1	< 0.01	< 0.01	< 0.1	0.16	< 0.01	0.35	< 0.04	63
1987	4	7.74	720	---	---	---	1.9	< 0.005	---	---	---	---	---	---	---	---	---
1988	1	7.77	784	---	---	---	1.1	0.02	---	---	---	---	---	---	---	---	---
1988	2	7.76	753	---	---	---	1.5	0.023	---	---	---	---	---	---	---	---	---
1988	3	7.70	704	24	0.4	116	2.6	0.026	< 0.1	< 0.01	< 0.01	< 0.1	0.13	< 0.01	0.31	< 0.04	55
1988	4	7.80	721	---	---	---	1.6	< 0.02	---	---	---	---	---	---	---	---	---
1989	1	7.40	695	---	---	---	1.5	0.027	---	---	---	---	---	---	---	---	---
1989	2	7.60	638	---	---	---	0.9	0.015	---	---	---	---	---	---	---	---	---
1989	3	7.90	717	23	1.0	110	1.7	0.043	< 0.5	< 0.01	< 0.01	---	0.05	< 0.01	< 0.01	< 0.04	< 5
1989	4	8.1	654	---	---	---	1.5	< 0.030	---	---	---	---	---	---	---	---	---
1990	1	8.1	637	---	---	---	1.6	< 0.030	---	---	---	---	---	---	---	---	---
1990	2	7.7	660	21.4	1.1	104	3.1	< 0.030	< 0.50	< 0.010	< 0.010	---	0.13	< 0.010	0.58	< 0.040	48.2
1990	3	7.7	664	---	---	---	1.4	< 0.030	---	---	---	---	---	---	---	---	---
1990	4	7.7	717	---	---	---	1.6	< 0.030	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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3) --- = NOT TESTED.

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[mg/l]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 21 (UPPER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	7.26	796	30	2.2	141	1	3.5	< 0.1	< 0.01	< 0.01	---	0.12	0.006	---	< 0.01	58
1987	1	8.05	753	---	---	---	1.1	1.8	---	---	---	---	---	---	---	---	---
1987	2	7.56	744	---	---	---	0.9	1.4	---	---	---	---	---	---	---	---	---
1987	3	7.80	746	19	2.8	106	3.2	1.9	< 0.1	< 0.01	< 0.01	0.1	0.14	< 0.01	0.15	< 0.04	54
1987	4	7.61	753	---	---	---	0.2	1.9	---	---	---	---	---	---	---	---	---
1988	1	7.67	729	---	---	---	0.9	1.4	---	---	---	---	---	---	---	---	---
1988	2	7.65	749	---	---	---	0.7	1.3	---	---	---	---	---	---	---	---	---
1988	3	7.60	666	22	2.6	110	2.1	0.910	< 0.1	< 0.01	< 0.01	< 0.1	0.12	< 0.01	0.14	< 0.04	53
1988	4	7.80	682	---	---	---	1.1	1.300	---	---	---	---	---	---	---	---	---
1989	1	7.50	670	---	---	---	0.7	0.202	---	---	---	---	---	---	---	---	---
1989	2	7.60	585	---	---	---	0.9	0.680	---	---	---	---	---	---	---	---	---
1989	3	7.90	587	23	2.7	104	1.4	0.150	< 0.5	< 0.01	0.01	---	0.14	0.01	0.19	< 0.04	49
1989	4	7.7	665	---	---	---	1.3	1.58	---	---	---	---	---	---	---	---	---
1990	1	7.8	581	---	---	---	0.7	1.450	---	---	---	---	---	---	---	---	---
1990	2	7.9	591	19.0	3.1	85.7	1.2	0.677	< 0.50	< 0.010	< 0.010	---	0.17	< 0.010	< 0.010	< 0.040	48.6
1990	3	7.8	620	---	---	---		0.722	---	---	---	---	---	---	---	---	---
1990	4	7.8	679	---	---	---	1.2	1.090	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[---------- mg/l ----------]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 22 (UPPER FLOW ZONE) *********																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	7.79	741	30	2.1	114	1.6	0.773	0.1	< 0.01	< 0.01	---	0.17	< 0.005	---	0.01	54
1987	1	8.26	743	---	---	---	2.6	0.68	---	---	---	---	---	---	---	---	---
1987	2	7.71	736	---	---	---	1	0.44	---	---	---	---	---	---	---	---	---
1987	3	7.69	678	31	2.4	89	3	0.22	0.2	< 0.01	< 0.01	< 0.1	0.16	< 0.01	0.2	< 0.04	51
1987	4	7.75	718	---	---	---	1.2	0.37	---	---	---	---	---	---	---	---	---
1988	1	7.83	783	---	---	---	0.9	0.43	---	---	---	---	---	---	---	---	---
1988	2	7.65	750	---	---	---	1.3	0.36	---	---	---	---	---	---	---	---	---
1988	3	7.70	702	30	2.9	96	1.7	0.310	0.3	< 0.01	0.04	< 0.1	0.33	0.04	1.9	0.08	121
1988	4	7.90	673	---	---	---	1.8	0.250	---	---	---	---	---	---	---	---	---
1989	1	7.50	653	---	---	---	1.1	0.323	---	---	---	---	---	---	---	---	---
1989	2	7.70	604	---	---	---	1.3	0.230	---	---	---	---	---	---	---	---	---
1989	3	7.90	615	25	4.0	92	1.4	0.034	< 0.5	< 0.01	0.01	---	0.17	0.01	0.03	< 0.04	48
1989	4	7.8	650	---	---	---	1.5	0.265	---	---	---	---	---	---	---	---	---
1990	1	7.7	601	---	---	---	1.4	0.360	---	---	---	---	---	---	---	---	---
1990	2	7.8	633	20.5	2.5	83.0	1.5	0.300	< 0.50	< 0.010	< 0.010	---	0.17	< 0.010	0.024	< 0.040	46.5
1990	3	7.7	655	---	---	---	1.2	0.232	---	---	---	---	---	---	---	---	---
1990	4	7.7	705	---	---	---	1.7	0.206	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 1 of 4

[---------- mg/l ----------]

YEAR	QUARTER NO.	pH units (6-9)	SPECIFIC CONDUC-TANCE umhos/cm	CHLORIDE (250)	NITRATE AS N (10.0)	SULFATE (600)	TOTAL ORGANIC CARBON	TOTAL ORGANIC HALOGEN as Cl	TOTAL KJELDAHL NITROGEN as N	HEXA-VALENT CHROMIUM	TRI-VALENT CHROMIUM	AMMONIA NITROGEN as N	BORON (0.75)	TOTAL CHROMIUM (0.05)	MANGANESE (0.2)	NICKEL (0.2)	SODIUM
********** WELL NO. 23 (UPPER FLOW ZONE) ********* >>>>> WELL CONVERTED TO RECOVERY WELL IN 1989 <<<<<																	
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	6.96	1030	56	2.8	132	1.3	9.3	0.2	0.07	< 0.01	---	0.65	0.072	---	0.03	64
1987	1	7.92	994	---	---	---	11	3.6	---	---	---	---	---	---	---	---	---
1987	2	7.45	860	---	---	---	1	4.2	---	---	---	---	---	---	---	---	---
1987	3	7.53	792	40	2.8	98	2.1	0.74	0.4	< 0.01	< 0.01	0.2	0.58	0.02	0.015	< 0.04	56
1987	4	7.42	1440	---	---	---	4.9	12	---	---	---	---	---	---	---	---	---
1988	1	7.39	1480	---	---	---	2.0	9.8	---	---	---	---	---	---	---	---	---
1988	2	7.37	1220	---	---	---	2.7	4.03	---	---	---	---	---	---	---	---	---
1988	3	7.60	1080	110	2.6	115	6.7	8.420	0.5	0.06	0.55	< 0.1	1.5	0.61	0.097	0.23	65
1988	4	7.40	1110	---	---	---	3.0	7.040	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 2 of 4

ug/l

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 05 (UPPER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	160	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1984	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 25	---	---	---	---	< 5	< 5	< 5	< 10	< 5	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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008411

SPARTON TECHNOLOGY, INC.
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ug/l

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 06 (UPPER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	< 10	---	< 1000	< 1000	---	< 50	< 50	< 50	< 100	---	< 50	< 50	---	< 100	< 50	< 50	< 100	---
1984	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 300	< 300	---	< 15	< 15	< 15	< 30	---	< 15	< 15	---	< 30	< 15	< 15	< 30	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 120	---	---	---	---	< 25	< 25	< 25	< 50	< 25	< 25	< 25	---	< 50	< 25	< 25	< 50	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 35	---	---	---	---	< 7	< 7	< 7	< 14	< 7	< 7	< 7	---	< 14	< 7	< 7	< 14	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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SPARTON TECHNOLOGY, INC.
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ug/l

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 07 (UPPER FLOW ZONE) **********																			
1983	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1984	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 50	---	---	---	---	< 10	< 10	< 10	< 20	< 10	< 10	< 10	---	< 20	< 10	< 10	< 20	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 08 (UPPER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1984	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 83	---	---	---	---	< 17	< 17	< 17	< 33	< 17	< 17	< 17	---	< 33	< 17	< 17	< 33	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 25	---	---	---	---	< 5	< 5	< 5	< 10	< 5	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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GROUNDWATER MONITORING RESULTS
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ug/l

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 09 (UPPER FLOW ZONE) **********																			
1983	4	2300	---	< 100	< 100	---	20	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1984	4	33	---	< 100	< 100	---	16	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	57	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	7	< 5	< 5	< 10	---	< 5	< 5	---	< 5	< 5	28	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 3600	< 3600	---	< 180	< 180	< 180	< 360	---	< 180	< 180	---	< 360	< 180	< 180	< 360	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 1200	---	---	---	---	< 250	< 250	< 250	< 500	< 250	< 250	< 250	---	< 500	< 250	< 250	< 500	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 880	---	---	---	---	< 180	< 180	< 180	< 350	< 180	< 180	< 180	---	< 350	< 180	< 180	< 350	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	< 250	< 2500	< 2500	< 2500	< 120	< 120	< 120	< 120	< 250	< 120	< 120	< 120	< 120	< 250	< 120	< 120	< 250	< 120
1989	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	2	< 250	< 2500	< 2500	< 2500	< 120	< 120	< 120	< 120	< 250	< 120	< 120	< 120	< 120	< 250	< 120	< 120	< 250	< 120
1990	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 10 (LOWER FLOW ZONE) **********									>>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<										
1983	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1984	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	16000	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	590	---	---	---	---	< 100	< 100	< 100	< 200	< 100	< 100	< 100	---	< 200	< 100	< 100	< 200	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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GROUNDWATER MONITORING RESULTS
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 11 (LOWER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	< 10	---	< 1000	< 1000	---	< 50	< 50	< 50	< 100	---	< 50	< 50	---	< 100	< 50	< 50	< 100	---
1984	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 25	---	---	---	---	< 5	< 5	< 5	< 10	< 5	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 25	---	---	---	---	< 5	< 5	< 5	< 10	< 5	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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3) --- = NOT TESTED.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 12 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	3	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 850	---	---	---	---	< 170	< 170	< 170	< 340	< 170	< 170	< 170	---	< 340	< 170	< 170	< 340	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 13 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	15	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 250	---	---	---	---	< 50	< 50	< 50	< 100	< 50	< 50	< 50	---	< 100	< 50	< 50	< 100	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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GROUNDWATER MONITORING RESULTS
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 14 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	< 10	---	< 100	< 100	---	9	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	34	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 620	---	---	---	---	< 120	< 120	< 50	< 250	< 120	< 50	< 50	---	< 250	< 120	< 120	< 250	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 1200	---	---	---	---	< 250	< 250	< 250	< 500	< 250	< 250	< 250	---	< 500	< 250	< 250	< 500	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	< 250	< 2500	< 2500	< 2500	< 120	< 120	< 120	< 120	< 250	< 120	< 120	< 120	< 120	< 250	< 120	< 120	< 250	< 120
1989	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	2	< 200	< 2000	< 2000	< 2000	< 100	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 200	< 100	< 100	< 200	< 100
1990	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 15 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	< 10	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 600	< 600	---	< 30	< 30	< 30	< 60	---	< 30	< 30	---	< 60	< 30	< 30	< 60	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 120	---	---	---	---	< 25	< 25	< 25	< 50	< 25	< 25	< 25	---	< 50	< 25	< 25	< 50	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 75	---	---	---	---	< 15	< 15	< 15	< 30	< 15	< 15	< 15	---	< 30	< 15	< 15	< 30	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	< 20	< 200	< 200	< 200	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 20	< 10
1989	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	2	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
1990	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 16 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	17000	---	< 100	< 100	---	58	< 5	< 5	< 10	---	< 5	16	---	45	< 5	25	70	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 25000	< 25000	---	< 1300	< 1300	< 1300	< 2500	---	< 1300	< 1300	---	< 2500	< 1300	< 1300	< 2500	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 6200	---	---	---	---	< 1200	< 1200	< 1200	< 2500	< 1200	< 1200	< 1200	---	< 2500	< 1200	< 1200	< 2500	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 7800	---	---	---	---	< 1600	< 1600	< 1600	< 3100	< 1600	< 1600	< 1600	---	< 3100	< 1600	< 1600	< 3100	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	< 500	< 5000	< 5000	< 5000	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 500	< 250
1989	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	2	7900	<20000	< 20000	< 20000	< 1000	< 1000	< 1000	< 1000	< 2000	< 1000	< 1000	< 1000	< 1000	< 2000	< 1000	< 1000	< 2000	< 1000
1990	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 17 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	28	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 420	---	---	---	---	< 85	< 85	< 85	< 170	< 85	< 85	< 85	---	< 170	< 85	< 85	< 170	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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GROUNDWATER MONITORING RESULTS
PART 2 of 4

[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 18 (UPPER FLOW ZONE) ********** >>>>> WELL CONVERTED TO RECOVERY WELL IN 1989 <<<<<																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 4000	< 4000	---	< 200	< 200	< 200	< 400	---	< 200	< 200	---	< 400	< 200	< 200	< 400	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 1200	---	---	---	---	< 250	< 250	< 250	< 500	< 250	< 250	< 250	---	< 500	< 250	< 250	< 500	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 1200	---	---	---	---	< 250	< 250	< 250	< 500	< 250	< 250	< 250	---	< 500	< 250	< 250	< 500	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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3) --- = NOT TESTED.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 19 (LOWER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 4000	< 4000	---	< 200	< 200	< 200	< 400	---	< 200	< 200	---	< 400	< 200	< 200	< 400	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 1200	---	---	---	---	< 250	< 250	< 250	< 500	< 250	< 250	< 250	---	< 500	< 250	< 250	< 500	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 880	---	---	---	---	< 180	< 180	< 180	< 350	< 180	< 180	< 180	---	< 350	< 180	< 180	< 350	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	< 250	< 2500	< 2500	< 2500	< 120	< 120	< 120	< 120	< 250	< 120	< 120	< 120	< 120	< 250	< 120	< 120	< 250	< 120
1989	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	2	< 100	< 1000	< 1000	< 1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
1990	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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SPARTON TECHNOLOGY, INC.
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GROUNDWATER MONITORING RESULTS
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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 20 (LOWER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 100	< 100	---	< 5	< 5	< 5	< 10	---	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 25	---	---	---	---	< 5	< 5	< 5	< 10	< 5	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 25	---	---	---	---	< 5	< 5	< 5	< 10	< 5	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
1989	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	2	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
1990	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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[ug/l]

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 21 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 4000	< 4000	---	< 200	< 200	< 200	< 400	---	< 200	< 200	---	< 400	< 200	< 200	< 400	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 500	---	---	---	---	< 100	< 100	< 100	< 200	< 100	< 100	< 100	---	< 200	< 100	< 100	< 200	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 25	---	---	---	---	< 5	< 5	< 5	< 10	< 5	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	< 50	< 500	< 500	< 500	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 50	< 25
1989	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	2	< 70	< 700	< 700	< 700	< 35	< 35	< 35	< 35	< 70	< 35	< 35	< 35	< 35	< 70	< 35	< 35	< 70	< 35
1990	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 22 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 800	< 800	---	< 40	< 40	< 40	< 80	---	< 40	< 40	---	< 80	< 40	< 40	< 80	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 120	---	---	---	---	< 25	< 25	< 25	< 50	< 25	< 25	< 25	---	< 50	< 25	< 25	< 50	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 25	---	---	---	---	< 5	< 5	< 5	< 10	< 5	< 5	< 5	---	< 10	< 5	< 5	< 10	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	< 20	< 200	< 200	< 200	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 20	< 10
1989	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	2	< 25	< 250	< 250	< 250	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 25	< 12
1990	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
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ug/l

YEAR	QUARTER NO.	Acetone	Aceto-nitrile	Acrolein	Acrylo-nitrile	Allyl chloride	Benzene (10)	Bromo-dichloro-methane	Bromo-form	Bromo-methane	Carbon disulfide	Carbon tetra-chloride (10)	Chloro-benzene	Chloro-prene	Chloro-ethane	Chloro-dibromo methane	Chloro-form (100)	Chloro-methane	(DBCP) 1,2-Dibromo-3-chloro-propane
********** WELL NO. 23 (UPPER FLOW ZONE) **********											>>>>> WELL CONVERTED TO RECOVERY WELL IN 1989 <<<<<								
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	< 8000	< 8000	---	< 400	< 400	< 400	< 800	---	< 400	< 400	---	< 800	< 400	< 400	< 800	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 850	---	---	---	---	< 170	< 170	< 170	< 340	< 170	< 170	< 170	---	< 340	< 170	< 170	< 340	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	< 1800	---	---	---	---	< 350	< 350	< 350	< 700	< 350	< 350	< 350	---	< 700	< 350	< 350	< 700	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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3) --- = NOT TESTED.

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[---------- ug/l ----------]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 05 (UPPER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	---	---	---	< 10	7	< 5	< 5	18	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1984	4	---	---	---	< 10	< 5	< 5	< 5	7	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 5	< 5	< 5	< 5	< 25	< 5	< 5	---	< 5	---	< 10	---	---	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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3) --- = NOT TESTED

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 06 (UPPER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	---	---	---	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	---	< 50	---	< 10	---	---	---
1984	4	---	---	---	< 10	< 5	< 5	< 5	28	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	< 5	< 5	27	< 10	< 5	< 5	---	< 5	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	35	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	14	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	46	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 15	< 15	< 15	33	< 30	< 15	< 15	---	< 15	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	27	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	28	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 25	< 25	< 25	40	< 120	< 25	< 25	---	< 25	---	< 50	---	---	---
1987	4	---	---	---	---	---	---	---	40	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	21	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	11	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 7	< 7	< 7	7.9	< 35	< 7	< 7	---	< 7	---	< 14	---	---	---
1988	4	---	---	---	---	---	---	---	11	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	5.1	---	---	---	---	---	---	---	---	---	---

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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 07 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	< 10	< 5	< 5	< 5	17	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1984	4	---	---	---	< 10	< 5	< 5	< 5	110	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 10	< 10	< 10	34	< 50	< 10	< 10	---	< 10	---	< 20	---	---	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES : 1) WHERE STATE STANDARDS EXIST, THEY ARE SHOWN IN PARENTHESES IMMEDIATELY BELOW THE CHEMICAL NAME.
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3) --- = NOT TESTED

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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 08 (UPPER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	---	---	---	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1984	4	---	---	---	< 10	< 5	< 5	< 5	22000	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	< 5	< 5	13	< 10	< 5	< 5	---	< 5	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	8.4	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	13	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	10	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 5	< 5	< 5	9	< 10	< 5	< 5	---	< 5	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	2	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	4.2	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 17	< 17	< 17	< 17	< 83	< 17	< 17	---	< 17	---	< 33	---	---	---
1987	4	---	---	---	---	---	---	---	< 7	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 5	< 5	< 5	11	< 25	< 5	< 5	---	< 5	---	< 10	---	---	---
1988	4	---	---	---	---	---	---	---	6.7	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---

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3) --- = NOT TESTED

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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 09 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	< 10	130	< 5	< 5	2500	9100	< 5	< 5	---	13	---	170	---	---	---
1984	4	---	---	---	< 10	120	< 5	11	1200	5200	< 5	< 5	---	13	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	35	< 5	< 5	1300	1200	< 5	< 5	---	< 5	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	1300	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	1200	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	740	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 180	< 180	< 180	400	< 360	< 180	< 180	---	< 180	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	310	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	260	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 250	< 250	< 250	600	< 1200	< 250	< 250	---	< 250	---	< 500	---	---	---
1987	4	---	---	---	---	---	---	---	590	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	490	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	350	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 180	< 180	< 180	660	< 880	< 180	< 180	---	< 180	---	< 350	---	---	---
1988	4	---	---	---	---	---	---	---	410	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	340	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	320	---	---	---	---	---	---	---	---	---	---
1989	3	< 120	---	< 120	< 250	< 120	< 120	< 120	220	< 120	< 120	< 120	< 2500	< 120	< 120	< 250	< 120	< 2500	< 120
1989	4	---	---	---	---	---	---	---	200	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	180	---	---	---	---	---	---	---	---	---	---
1990	2	< 120	---	< 120	< 250	< 120	< 120	< 120	260	< 120	< 120	< 120	< 2500	< 120	< 120	< 250	< 120	< 2500	< 120
1990	3	---	---	---	---	---	---	---	190	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	120	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 10 (LOWER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	---	---	---	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1984	4	---	---	---	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	< 5	< 5	5	< 10	< 5	< 5	---	< 5	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	7	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	46	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	9.3	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 100	< 100	< 100	190	1900	< 100	< 100	---	< 100	---	< 200	---	---	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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3) --- = NOT TESTED

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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 11 (LOWER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																			
1983	4	---	---	---	< 100	< 50	< 50	< 50	< 50	420	< 50	< 50	---	< 50	---	< 10	---	---	---
1984	4	---	---	---	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	< 5	< 5	< 5	< 10	< 5	< 5	---	< 5	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	< 1	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	< 1	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	< 1	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 5	< 5	< 5	< 5	< 10	< 5	< 5	---	< 5	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	< 1	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	< 0.5	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 5	< 5	< 5	< 5	< 25	< 5	< 5	---	< 5	---	< 10	---	---	---
1987	4	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	< 16	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 5	< 5	< 5	< 5	< 25	< 5	< 5	---	< 5	---	< 10	---	---	---
1988	4	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 12 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	3	---	---	---	< 10	< 5	< 5	< 5	< 5	20	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 170	< 170	< 170	380	850	< 170	< 170	---	< 170	---	< 340	---	---	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 13 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	< 10	13	< 5	< 5	820	1700	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 50	< 50	< 50	120	< 250	< 50	< 50	---	< 50	---	< 100	---	---	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 14 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	< 10	17	< 5	< 5	1000	3600	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 5	< 5	< 5	310	< 10	< 5	5	---	< 5	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	230	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	65	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 120	< 120	< 120	< 120	< 620	< 120	< 120	---	< 120	---	< 250	---	---	---
1987	4	---	---	---	---	---	---	---	130	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	< 250	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	< 500	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 250	< 250	< 250	< 250	< 1200	< 250	< 250	---	< 250	---	< 500	---	---	---
1988	4	---	---	---	---	---	---	---	< 250	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	120	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	190	---	---	---	---	---	---	---	---	---	---
1989	3	< 120	---	< 120	< 250	< 120	< 120	< 120	160	< 120	< 120	< 120	< 2500	< 120	< 120	< 250	< 120	< 2500	< 120
1989	4	---	---	---	---	---	---	---	94	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	< 120	---	---	---	---	---	---	---	---	---	---
1990	2	< 100	---	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 2000	< 100	< 100	< 200	< 100	< 2000	< 100
1990	3	---	---	---	---	---	---	---	81	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	56	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 15 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	< 10	< 5	< 5	< 5	85	11	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 30	< 30	< 30	46	< 60	< 30	< 30	---	< 30	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	< 100	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	21	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 25	< 25	< 25	30	< 120	< 25	< 25	---	< 25	---	< 50	---	---	---
1987	4	---	---	---	---	---	---	---	28	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	16	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	< 10	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 15	< 15	< 15	< 15	< 75	< 15	< 15	---	< 15	---	< 30	---	---	---
1988	4	---	---	---	---	---	---	---	< 10	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	6.9	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	< 10	---	---	---	---	---	---	---	---	---	---
1989	3	< 10	---	< 10	< 20	< 10	< 10	< 10	11	< 10	< 10	< 10	< 200	< 10	< 10	< 20	< 10	< 200	< 10
1989	4	---	---	---	---	---	---	---	< 50	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	13	---	---	---	---	---	---	---	---	---	---
1990	2	< 5	---	< 5	< 10	< 5	< 5	< 5	11	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100	< 5
1990	3	---	---	---	---	---	---	---	< 25	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	< 8.5	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 16 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	< 10	3200	< 5	200	3100	49000	< 5	< 5	---	63	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	2200	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 1300	< 1300	< 1300	3500	16000	< 1300	< 1300	---	< 1300	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	2200	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	1900	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 1200	< 1200	< 1200	2200	< 6200	< 1200	< 1200	---	< 1200	---	< 2500	---	---	---
1987	4	---	---	---	---	---	---	---	1600	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	1400	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	1400	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 1600	< 1600	< 1600	1900	< 7800	< 1600	< 1600	---	< 1600	---	< 3100	---	---	---
1988	4	---	---	---	---	---	---	---	1600	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	1200	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	1000	---	---	---	---	---	---	---	---	---	---
1989	3	< 250	---	< 250	< 500	< 250	< 250	< 250	960	1100	< 250	< 250	< 5000	< 250	< 250	< 500	< 250	< 5000	< 250
1989	4	---	---	---	---	---	---	---	< 1200	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	< 1000	---	---	---	---	---	---	---	---	---	---
1990	2	< 1000	---	< 1000	< 2000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	< 1000	<20000	< 1000	< 1000	< 2000	< 1000	<20000	< 1000
1990	3	---	---	---	---	---	---	---	1200	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	< 1000	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 17 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	< 10	1900	< 5	19	260	17	< 5	< 5	---	< 5	---	< 10	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 85	< 85	< 85	430	< 420	< 85	< 85	---	< 85	---	< 170	---	---	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 18 (UPPER FLOW ZONE) ********** >>>>> WELL CONVERTED TO RECOVERY WELL IN 1989 <<<<<																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	650	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 200	< 200	< 200	390	< 400	< 200	< 200	---	< 200	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	400	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	290	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 250	< 250	< 250	480	< 1200	< 250	< 250	---	< 250	---	< 500	---	---	---
1987	4	---	---	---	---	---	---	---	340	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	320	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	< 500	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 250	< 250	< 250	770	< 1200	< 250	< 250	---	< 250	---	< 500	---	---	---
1988	4	---	---	---	---	---	---	---	360	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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3) --- = NOT TESTED

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COORS ROAD FACILITY
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 19 (LOWER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 200	< 200	< 200	320	5000	< 200	< 200	---	< 200	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	200	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	190	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 250	< 250	< 250	360	3100	< 250	< 250	---	< 250	---	< 500	---	---	---
1987	4	---	---	---	---	---	---	---	330	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	260	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 180	< 180	< 180	790	2700	< 180	< 180	---	< 180	---	< 350	---	---	---
1988	4	---	---	---	---	---	---	---	310	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	370	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	410	---	---	---	---	---	---	---	---	---	---
1989	3	< 120	---	< 120	< 250	< 120	< 120	< 120	300	1800	< 120	< 120	< 2500	< 120	< 120	< 250	< 120	< 2500	< 120
1989	4	---	---	---	---	---	---	---	150	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	89	---	---	---	---	---	---	---	---	---	---
1990	2	< 50	---	< 50	< 100	< 50	< 50	< 50	100	320	< 50	< 50	< 1000	< 50	< 50	< 100	< 50	< 1000	< 50
1990	3	---	---	---	---	---	---	---	68	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	48	---	---	---	---	---	---	---	--	---	---

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SPARTON TECHNOLOGY, INC.
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GROUNDWATER MONITORING RESULTS
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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromoethane (0.1)	Dibromomethane	trans-1,4-Dichloro-2-butene	Dichlorodifluoromethane	1,1-Dichloroethane (25)	1,2-Dichloroethane (10)	trans-1,2-Dichloroethene	1,1-Dichloroethene (5)	Dichloromethane (Methylene chloride) (100)	1,2-Dichloropropane	1,3-Dichloropropene	1,4-Dioxane	Ethylbenzene (750)	Ethylcyanide	2-Hexanone	Iodomethane	Isobutyl alcohol	Methacrylonitrile
********** WELL NO. 20 (LOWER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 5	< 5	< 5	< 5	< 10	< 5	< 5	---	< 5	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	< 1	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	1.8	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 5	< 5	< 5	< 5	< 25	< 5	< 5	---	< 5	---	< 10	---	---	---
1987	4	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 5	< 5	< 5	< 5	< 25	< 5	< 5	---	< 5	---	< 10	---	---	---
1988	4	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1989	3	< 5	---	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100	< 5
1989	4	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1990	2	< 5	---	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100	< 5
1990	3	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	< 5	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
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[---------- ug/l ----------]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 21 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 200	< 200	< 200	300	< 400	< 200	< 200	---	< 200	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	130	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	84	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 100	< 100	< 100	250	< 500	< 100	< 100	---	< 100	---	< 200	---	---	---
1987	4	---	---	---	---	---	---	---	200	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	150	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	88	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 5	< 5	< 5	100	< 25	< 5	< 5	---	< 5	---	< 10	---	---	---
1988	4	---	---	---	---	---	---	---	140	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	71	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	< 50	---	---	---	---	---	---	---	---	---	---
1989	3	< 25	---	< 25	< 50	< 25	< 25	< 25	37	< 25	< 25	< 25	< 500	< 25	< 25	< 50	< 25	< 500	< 25
1989	4	---	---	---	---	---	---	---	< 120	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	88	---	---	---	---	---	---	---	---	---	---
1990	2	< 35	---	< 35	< 70	< 35	< 35	< 35	< 35	< 35	< 35	< 35	< 700	< 35	< 35	< 70	< 35	< 700	< 35
1990	3	---	---	---	---	---	---	---	80	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	61	---	---	---	---	---	---	---	---	---	---

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[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 22 (UPPER FLOW ZONE) **********																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 40	< 40	< 40	200	< 80	< 40	< 40	---	< 40	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	110	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	100	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 25	< 25	< 25	78	< 120	< 25	< 25	---	< 25	---	< 50	---	---	---
1987	4	---	---	---	---	---	---	---	120	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	98	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	67	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 5	< 5	< 5	110	< 25	< 5	< 5	---	< 5	---	< 10	---	---	---
1988	4	---	---	---	---	---	---	---	62	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	50	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	42	---	---	---	---	---	---	---	---	---	---
1989	3	< 10	---	< 10	< 20	< 10	< 10	< 10	38	< 10	< 10	< 10	< 200	< 10	< 10	< 20	< 10	< 200	< 10
1989	4	---	---	---	---	---	---	---	49	---	---	---	---	---	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	45	---	---	---	---	---	---	---	---	---	---
1990	2	< 12	---	< 12	< 12	< 12	< 12	< 12	40	< 12	< 12	< 12	< 250	< 12	< 12	< 25	< 12	< 250	< 12
1990	3	---	---	---	---	---	---	---	50	---	---	---	---	---	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	38	---	---	---	---	---	---	---	---	---	---

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PART 3 of 4

[ug/l]

YEAR	QUARTER NO.	(EDB) 1,2-Dibromo-ethane (0.1)	Dibromo-methane	trans-1,4-Dichloro-2-butene	Dichloro-difluoro-methane	1,1-Dichloro-ethane (25)	1,2-Dichloro-ethane (10)	trans-1,2-Dichloro-ethene	1,1-Dichloro-ethene (5)	Dichloro-methane (Methylene chloride) (100)	1,2-Dichloro-propane	1,3-Dichloro-propene	1,4-Dioxane	Ethyl-benzene (750)	Ethyl-cyanide	2-Hexanone	Iodo-methane	Isobutyl alcohol	Meth-acrylo-nitrile
********** WELL NO. 23 (UPPER FLOW ZONE) ********** >>>>> WELL CONVERTED TO RECOVERY WELL IN 1989 <<<<<																			
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 400	< 400	< 400	1200	< 800	< 400	< 400	---	< 400	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	1000	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	620	---	---	---	---	---	---	---	---	---	---
1987	3	---	---	---	---	< 170	< 170	< 170	610	< 850	< 170	< 170	---	< 170	---	< 340	---	---	---
1987	4	---	---	---	---	---	---	---	1400	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	1800	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	1600	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	< 350	< 350	< 350	2400	< 1800	< 350	< 350	---	< 350	---	< 700	---	---	---
1988	4	---	---	---	---	---	---	---	900	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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3) --- = NOT TESTED

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
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[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 05 (UPPER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																
1983	4	< 10	---	---	---	< 5	< 5	45	79	< 5	170	< 10	---	---	< 10	< 5
1984	4	---	---	---	---	< 5	< 5	< 5	70	< 5	140	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 25	< 10	< 5	---	< 5	< 5	< 5	15	< 5	39	---	---	< 10	< 10	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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3) --- = NOT TESTED

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetra-chloro-ethane	1,1,2,2-Tetra-chloro-ethane (10)	Tetra-chloro-ethene (20)	Toluene (750)	1,1,1-Tri-chloro-ethane (60)	1,1,2-Tri-chloro-ethane (10)	Tri-chloro-ethene (100)	Tri-chloro-fluoro-methane	1,2,3-Tri-chloro-propane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 06 (UPPER FLOW ZONE) **********											>>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<					
1983	4	< 10	---	---	---	< 50	< 50	< 50	< 50	< 50	560	< 100	---	---	< 100	< 5
1984	4	---	---	---	---	< 5	< 5	< 5	81	< 5	310	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	< 5	< 5	62	< 5	300	---	---	---	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	310	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	110	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	420	---	---	---	---	---
1986	4	---	---	---	---	< 15	< 15	< 15	140	< 15	390	---	---	---	< 30	---
1987	1	---	---	---	---	---	---	---	---	---	300	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	320	---	---	---	---	---
1987	3	< 120	< 50	< 25	---	< 25	< 25	< 25	130	< 25	540	---	---	< 50	< 50	---
1987	4	---	---	---	---	---	---	---	---	---	360	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	280	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	170	---	---	---	---	---
1988	3	< 35	< 14	< 7	---	< 7	< 7	< 7	21	< 7	52	---	---	< 14	< 14	< 7
1988	4	---	---	---	---	---	---	---	---	---	99	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	55	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 07 (UPPER FLOW ZONE) **********																
1983	4	< 10	---	---	---	< 5	< 5	5	14	< 5	83	< 10	---	---	< 10	< 5
1984	4	---	---	---	---	< 5	< 5	< 5	180	< 5	530	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 50	< 20	< 10	---	< 10	< 10	< 10	110	< 10	370	---	---	< 20	< 20	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 08 (UPPER FLOW ZONE) ********** >>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<																
1983	4	< 10	---	---	---	< 5	< 5	< 5	7	< 5	42	< 10	---	---	< 10	< 5
1984	4	---	---	---	---	< 5	< 5	< 5	82	< 5	250	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	< 5	< 5	39	< 5	190	---	---	---	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	100	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	160	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	150	---	---	---	---	---
1986	4	---	---	---	---	< 5	< 5	< 5	39	< 5	190	---	---	---	< 10	---
1987	1	---	---	---	---	---	---	---	---	---	84	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	69	---	---	---	---	---
1987	3	< 83	< 33	< 17	---	< 17	< 17	< 17	33	< 17	300	---	---	< 33	< 33	---
1987	4	---	---	---	---	---	---	---	---	---	150	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	45	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	93	---	---	---	---	---
1988	3	< 25	< 10	< 5	---	< 5	< 5	< 5		< 5	66	---	---	< 10	< 10	< 5
1988	4	---	---	---	---	---	---	---	---	---	190	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	82	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetra-chloro-ethane	1,1,2,2-Tetra-chloro-ethane (10)	Tetra-chloro-ethene (20)	Toluene (750)	1,1,1-Tri-chloro-ethane (60)	1,1,2-Tri-chloro-ethane (10)	Tri-chloro-ethene (100)	Tri-chloro-fluoro-methane	1,2,3-Tri-chloro-propane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 09 (UPPER FLOW ZONE) **********																
1983	4	< 10	---	---	---	< 5	54	1200	15000	< 5	21000	< 10	---	---	< 10	31
1984	4	---	---	---	---	< 5	60	290	6900	110	9600	< 10	---	---	< 10	22
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	28	23	6300	49	7300	---	---	---	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	6100	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	8300	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	5000	---	---	---	---	---
1986	4	---	---	---	---	< 180	< 180	< 180	2700	< 180	5000	---	---	---	< 360	---
1987	1	---	---	---	---	---	---	---	---	---	4500	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	3600	---	---	---	---	---
1987	3	< 1200	< 500	< 250	---	< 250	< 250	< 250	3300	< 250	6400	---	---	< 500	< 500	---
1987	4	---	---	---	---	---	---	---	---	---	7100	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	5500	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	4800	---	---	---	---	---
1988	3	< 880	< 350	< 180	---	< 180	< 180	< 180	1800	< 180	3300	---	---	< 350	< 350	< 180
1988	4	---	---	---	---	---	---	---	---	---	4200	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	4000	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	4400	---	---	---	---	---
1989	3	< 250	< 250	< 120	< 120	< 120	< 120	< 120	910	< 120	2500	< 120	< 120	< 250	< 250	< 120
1989	4	---	---	---	---	---	---	---	---	---	2300	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	2800	---	---	---	---	---
1990	2	< 250	< 250	< 120	< 120	< 120	< 120	< 120	890	< 120	2400	< 120	< 120	< 250	< 250	< 120
1990	3	---	---	---	---	---	---	---	---	---	2200	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	1600	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[---------- ug/l ----------]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetra-chloro-ethane	1,1,2,2-Tetra-chloro-ethane (10)	Tetra-chloro-ethene (20)	Toluene (750)	1,1,1-Tri-chloro-ethane (60)	1,1,2-Tri-chloro-ethane (10)	Tri-chloro-ethene (100)	Tri-chloro-fluoro-methane	1,2,3-Tri-chloro-propane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 10 (LOWER FLOW ZONE) **********									>>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<							
1983	4	< 10	---	---	---	< 5	< 5	< 5	8	< 5	27	< 10	---	---	< 10	< 5
1984	4	---	---	---	---	< 5	< 5	< 5	5	< 5	12	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	< 5	< 5	13	< 5	41	---	---	---	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	42	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	190	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	54	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 500	< 200	< 100	---	< 100	< 100	< 100	250	< 100	1400	---	---	< 200	< 200	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetra-chloro-ethane	1,1,2,2-Tetra-chloro-ethane (10)	Tetra-chloro-ethene (20)	Toluene (750)	1,1,1-Tri-chloro-ethane (60)	1,1,2-Tri-chloro-ethane (10)	Tri-chloro-ethene (100)	Tri-chloro-fluoro-methane	1,2,3-Tri-chloro-propane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 11 (LOWER FLOW ZONE) **********							>>>>> WELL PLUGGED & ABANDONED IN 1989 <<<<<									
1983	4	< 10	---	---	---	< 50	< 50	91	130	< 50	840	< 100	---	---	< 100	< 5
1984	4	---	---	---	---	< 5	< 5	< 5	< 5	< 5	< 5	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	< 5	< 5	< 5	< 5	< 5	7	---	---	---	< 10	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---		---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	12	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---		---	---	---	---	---
1986	4	---	---	---	---	< 5	< 5	< 5	< 5	< 5	< 5	---	---	---	< 10	---
1987	1	---	---	---	---	---	---	---	---	---		---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---
1987	3	< 25	< 10	< 5	---	< 5	< 5	< 5	< 5	< 5	< 5	---	---	< 10	< 10	---
1987	4	---	---	---	---	---	---	---	---	---	< 5	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	< 5	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	< 16	---	---	---	---	---
1988	3	< 25	< 10	< 5	---	< 5	< 5	< 5	< 5	< 5	< 5	---	---	< 10	< 10	< 5
1988	4	---	---	---	---	---	---	---	---	---	< 5	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	< 5	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
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[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 12 (UPPER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	3	---	---	---	---	< 5	< 5	< 5	< 5	< 5	61	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 850	< 340	< 170	---	< 170	< 170	< 170	1700	< 170	3700	---	---	< 340	< 340	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 13 (UPPER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	< 5	17	45	4600	< 5	6900	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 250	< 100	< 50	---	< 50	< 50	< 50	520	< 50	1300	---	---	< 100	< 100	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 14 (UPPER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	< 5	25	6	4100	< 5	12000	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 5	< 5	< 5	630	< 5	4900	---	---	---	< 10	---
1987	1	---	---	---	---	---	---	---	---	---	5000	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	1800	---	---	---	---	---
1987	3	< 620	< 250	< 120	---	< 120	< 120	< 120	170	< 120	2100	---	---	< 250	< 250	---
1987	4	---	---	---	---	---	---	---	---	---	2700	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	6200	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	5000	---	---	---	---	---
1988	3	< 1200	< 500	< 250	---	< 250	< 250	< 250	< 250	< 250	5200	---	---	< 500	< 500	< 250
1988	4	---	---	---	---	---	---	---	---	---	5600	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	3300	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	4900	---	---	---	---	---
1989	3	< 250	< 250	< 120	< 120	< 120	< 120	< 120	130	< 120	3000	< 120	< 120	< 250	< 250	< 120
1989	4	---	---	---	---	---	---	---	---	---	2200	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	2100	---	---	---	---	---
1990	2	< 200	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	1800	< 100	< 100	< 200	< 200	< 100
1990	3	---	---	---	---	---	---	---	---	---	2100	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	1500	---	---	---	---	---

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[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 15 (UPPER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	< 5	34	< 5	2200	< 5	4400	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 30	< 30	< 30	390	< 30	940	---	---	---	< 60	---
1987	1	---	---	---	---	---	---	---	---	---	630	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	580	---	---	---	---	---
1987	3	< 120	< 50	< 25	---	< 25	< 25	< 25	250	< 25	650	---	---	< 50	< 50	---
1987	4	---	---	---	---	---	---	---	---	---	480	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	370	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	< 10	---	---	---	---	---
1988	3	< 75	< 30	< 15	---	< 15	< 15	< 15	150	< 15	380	---	---	< 30	< 30	< 15
1988	4	---	---	---	---	---	---	---	---	---	250	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	180	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	200	---	---	---	---	---
1989	3	< 20	< 20	< 10	< 10	< 10	< 10	< 10	77	< 10	200	< 10	< 10	< 20	< 20	< 10
1989	4	---	---	---	---	---	---	---	---	---	260	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	190	---	---	---	---	---
1990	2	< 10	< 10	< 5	< 5	< 5	< 5	< 5	73	< 5	160	< 5	< 5	< 10	< 10	< 5
1990	3	---	---	---	---	---	---	---	---	---	230	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	140	---	---	---	---	---

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[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 16 (UPPER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	< 5	140	1600	5500	< 5	37000	< 10	---	---	< 10	116
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	20000	---	---	---	---	---
1986	4	---	---	---	---	< 1300	< 1300	< 1300	30000	< 1300	36000	---	---	---	< 2500	---
1987	1	---	---	---	---	---	---	---	---	---	21000	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	23000	---	---	---	---	---
1987	3	< 6200	< 2500	< 1200	---	< 1200	< 1200	< 1200	21000	< 1200	25000	---	---	< 2500	< 2500	---
1987	4	---	---	---	---	---	---	---	---	---	28000	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	26000	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	25000	---	---	---	---	---
1988	3	< 7800	< 3100	< 1600	---	< 1600	< 1600	< 1600	24000	< 1600	26000	---	---	< 3100	< 3100	< 1600
1988	4	---	---	---	---	---	---	---	---	---	22000	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	16000	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	14000	---	---	---	---	---
1989	3	< 500	< 500	< 250	< 250	< 250	< 250	< 250	10000	< 250	13000	< 250	< 250	< 500	< 500	< 250
1989	4	---	---	---	---	---	---	---	---	---	16000	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	13000	---	---	---	---	---
1990	2	< 2000	< 2000	< 1000	< 1000	< 1000	< 1000	< 1000	16000	< 1000	20000	< 1000	< 1000	< 2000	< 2000	< 1000
1990	3	---	---	---	---	---	---	---	---	---	19000	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	16000	---	---	---	---	---

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PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 17 (UPPER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	< 5	53	50	2300	< 5	4300	< 10	---	---	< 10	< 5
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1987	3	< 420	< 170	< 85	---	< 85	< 85	< 85	4000	< 85	4200	---	---	< 170	< 170	---
1987	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1988	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[---------- ug/l ----------]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetra-chloro-ethane	1,1,2,2-Tetra-chloro-ethane (10)	Tetra-chloro-ethene (20)	Toluene (750)	1,1,1-Tri-chloro-ethane (60)	1,1,2-Tri-chloro-ethane (10)	Tri-chloro-ethene (100)	Tri-chloro-fluoro-methane	1,2,3-Tri-chloro-propane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 18 (UPPER FLOW ZONE) ********** >>>>> WELL CONVERTED TO RECOVERY WELL IN 1989 <<<<<																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	5400	---	---	---	---	---
1986	4	---	---	---	---	< 200	< 200	< 200	3400	< 200	3600	---	---	---	< 400	---
1987	1	---	---	---	---	---	---	---	---	---	4000	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	3000	---	---	---	---	---
1987	3	< 1200	< 500	< 250	---	< 250	< 250	< 250	2900	< 250	4800	---	---	< 500	< 500	---
1987	4	---	---	---	---	---	---	---	---	---	4300	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	3500	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	3100	---	---	---	---	---
1988	3	< 1200	< 500	< 250	---	< 250	< 250	< 250	2200	< 250	3800	---	---	< 500	< 500	< 250
1988	4	---	---	---	---	---	---	---	---	---	4200	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 19 (LOWER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 200	< 200	< 200	280	< 200	3600	---	---	---	< 400	---
1987	1	---	---	---	---	---	---	---	---	---	2700	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	2900	---	---	---	---	---
1987	3	< 1200	< 500	< 250	---	< 250	< 250	< 250	340	< 250	4600	---	---	< 500	< 500	---
1987	4	---	---	---	---	---	---	---	---	---	3400	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	2900	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	< 5	---	---	---	---	---
1988	3	< 880	< 350	< 180	---	< 180	< 180	< 180	180	< 180	1800	---	---	< 350	< 350	< 180
1988	4	---	---	---	---	---	---	---	---	---	3600	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	3200	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	3700	---	---	---	---	---
1989	3	< 250	< 250	< 120	< 120	< 120	< 120	< 120	180	< 120	2400	< 120	< 120	< 250	< 250	< 120
1989	4	---	---	---	---	---	---	---	---	---	1500	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	880	---	---	---	---	---
1990	2	< 100	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	1000	< 50	< 50	< 100	< 100	< 50
1990	3	---	---	---	---	---	---	---	---	---	850	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	590	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 20 (LOWER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 5	< 5	< 5	< 5	< 5	17	---	---	---	< 10	---
1987	1	---	---	---	---	---	---	---	---	---	12	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	32	---	---	---	---	---
1987	3	< 25	< 10	< 5	---	< 5	< 5	< 5	< 5	< 5	35	---	---	< 10	< 10	---
1987	4	---	---	---	---	---	---	---	---	---	25	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	10	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	28	---	---	---	---	---
1988	3	< 25	< 10	< 5	---	< 5	< 5	< 5	< 5	< 5	19	---	---	< 10	< 10	< 5
1988	4	---	---	---	---	---	---	---	---	---	15	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	12	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	14	---	---	---	---	---
1989	3	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	20	< 5	< 5	< 10	< 10	< 5
1989	4	---	---	---	---	---	---	---	---	---	< 5	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	17	---	---	---	---	---
1990	2	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	21	< 5	< 5	< 10	< 10	< 5
1990	3	---	---	---	---	---	---	---	---	---	15	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	10	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[---------- ug/l ----------]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetra-chloro-ethane	1,1,2,2-Tetra-chloro-ethane (10)	Tetra-chloro-ethene (20)	Toluene (750)	1,1,1-Tri-chloro-ethane (60)	1,1,2-Tri-chloro-ethane (10)	Tri-chloro-ethene (100)	Tri-chloro-fluoro-methane	1,2,3-Tri-chloro-propane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 21 (UPPER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 200	< 200	< 200	3300	< 200	2300	---	---	---	< 400	---
1987	1	---	---	---	---	---	---	---	---	---	1700	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	1400	---	---	---	---	---
1987	3	< 500	< 200	< 100	---	< 100	< 100	< 100	2800	< 100	2100	---	---	< 200	< 200	---
1987	4	---	---	---	---	---	---	---	---	---	2000	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	1800	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	1100	---	---	---	---	---
1988	3	< 25	< 10	< 5	---	< 5	< 5	< 5	1900	< 5	1500	---	---	< 10	< 10	< 5
1988	4	---	---	---	---	---	---	---	---	---	1300	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	900	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	520	---	---	---	---	---
1989	3	< 50	< 50	< 25	< 25	< 25	< 25	< 25	450	< 25	460	< 25	< 25	< 50	< 50	< 25
1989	4	---	---	---	---	---	---	---	---	---	1100	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	1000	---	---	---	---	---
1990	2	< 70	< 70	< 35	< 35	< 35	< 35	< 35	370	< 35	400	< 35	< 35	< 70	< 70	< 35
1990	3	---	---	---	---	---	---	---	---	---	670	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	850	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
GROUNDWATER MONITORING RESULTS
PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane (10)	Tetrachloroethene (20)	Toluene (750)	1,1,1-Trichloroethane (60)	1,1,2-Trichloroethane (10)	Trichloroethene (100)	Trichlorofluoromethane	1,2,3-Trichloropropane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 22 (UPPER FLOW ZONE) **********																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 40	< 40	< 40	950	< 40	230	---	---	---	< 80	---
1987	1	---	---	---	---	---	---	---	---	---	170	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	270	---	---	---	---	---
1987	3	< 120	< 50	< 75	---	< 25	< 25	< 25	510	< 25	370	---	---	< 50	< 50	---
1987	4	---	---	---	---	---	---	---	---	---	240	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	150	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	230	---	---	---	---	---
1988	3	< 25	< 10	< 5	---	< 5	< 5	< 5	140	< 5	63	---	---	< 10	< 10	< 5
1988	4	---	---	---	---	---	---	---	---	---	120	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	110	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	150	---	---	---	---	---
1989	3	< 20	< 20	< 10	< 10	< 10	< 10	< 10	190	< 10	120	< 10	< 10	< 20	< 20	< 10
1989	4	---	---	---	---	---	---	---	---	---	91	---	---	---	---	---
1990	1	---	---	---	---	---	---	---	---	---	110	---	---	---	---	---
1990	2	< 25	< 25	< 12	< 12	< 12	< 12	< 12	210	< 12	130	< 12	< 12	< 25	< 25	< 12
1990	3	---	---	---	---	---	---	---	---	---	140	---	---	---	---	---
1990	4	---	---	---	---	---	---	---	---	---	83	---	---	---	---	---

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SPARTON TECHNOLOGY, INC.
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PART 4 of 4

[ug/l]

YEAR	QUARTER NO.	Methyl ethyl ketone	4-Methyl-2-pentanone	Styrene	1,1,1,2-Tetra-chloro-ethane	1,1,2,2-Tetra-chloro-ethane (10)	Tetra-chloro-ethene (20)	Toluene (750)	1,1,1-Tri-chloro-ethane (60)	1,1,2-Tri-chloro-ethane (10)	Tri-chloro-ethene (100)	Tri-chloro-fluoro-methane	1,2,3-Tri-chloro-propane	Vinyl acetate	Vinyl chloride (1)	Total xylenes (620)
********** WELL NO. 23 (UPPER FLOW ZONE) ********** >>>>> WELL CONVERTED TO RECOVERY WELL IN 1989 <<<<<																
1983	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1984	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1985	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1986	4	---	---	---	---	< 400	< 400	< 400	7300	< 400	7500	---	---	---	< 800	---
1987	1	---	---	---	---	---	---	---	---	---	6500	---	---	---	---	---
1987	2	---	---	---	---	---	---	---	---	---	3700	---	---	---	---	---
1987	3	< 850	< 340	< 170	---	< 170	< 170	< 170	3500	< 170	3900	---	---	< 340	< 340	---
1987	4	---	---	---	---	---	---	---	---	---	13000	---	---	---	---	---
1988	1	---	---	---	---	---	---	---	---	---	13000	---	---	---	---	---
1988	2	---	---	---	---	---	---	---	---	---	11000	---	---	---	---	---
1988	3	< 1800	< 700	< 350	---	< 350	< 350	< 350	3200	< 350	3900	---	---	< 700	< 700	< 350
1988	4	---	---	---	---	---	---	---	---	---	8000	---	---	---	---	---
1989	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1989	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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3) --- = NOT TESTED

ATTACHMENT 2

Contaminant Properties

CHEMICAL NAME
TRICHLOROETHYLENE

FORMULA
C2HCL3

SYNONYMS
TRICHLOROETHENE
DOW-TRI
NCI-C04546
CHLORYLEN
CECOLENE
TRILENE
TCE
UN 1710
ETHYLENE, TRICHLORO-
1-CHLORO-2,2-DICHLOROETHYLENE
1,1-DICHLORO-2-CHLOROETHYLENE
1,1,2-TRICHLOROETHYLENE
1,2,2-TRICHLOROETHYLENE
ETHYLENE TRICHLORIDE
ETHINYL TRICHLORIDE
TRICHLORETHYLENE
TRIAD
THRETHYLENE
TRETHYLENE
RCRA U228
OHS23850

PERMISSIBLE EXPOSURE LIMIT
50 PPM OSHA TWA; 200 PPM OSHA STEL
50 PPM ACGIH TWA: 200 PPM ACGIH STEL
25 PPM NIOSH RECOMMENDED 10 HR TWA
HUMAN INADEQUATE EVIDENCE FOR CARCINOGENICITY (IARC)
ANIMAL LIMITED EVIDENCE FOR CARCINOGENICITY (IARC)
PROBABLE HUMAN CARCINOGEN (EPA - CATEGORY B)
POSITIVE CARCINOGEN IN MICE; NEGATIVE CARCINOGEN IN RATS (NCI, 1976)
POSITIVE CARCINOGEN IN MICE; INADEQUATE STUDY IN RATS (NCI, 1984)
TERATOGENIC DATA (RTEC); MUTAGENIC DATA (RTEC)
AQUATIC TOXICITY RATING 1/Z (TLM96 100 - 1000 PPM)
LC RANGE, 96H (IN SEA WATER) - PLAICE 15 PPM
CERCLA HAZARD RATINGS - TOXICITY 1 - IGNITABILITY 1 - REACTIVITY 0 - PERSISTENCE 2

TOXICOLOGY: TRICHLOROETHYLENE IS AN EYE, MUCOUS MEMBRANE, AND PRIMARY SKIN IRRITANT AND CENTRAL NERVOUS SYSTEM DEPRESSANT.
ACUTE EXPOSURE DEPRESSES THE NERVOUS SYSTEM, AND MAY DAMAGE THE GASTRO-INTESTINAL TRACT, LIVER AND KIDNEYS. THE PRESENCE OF TETRACHLOROETHANE INCREASES IN COMMERCIAL GRADES INCREASES THE CELLULAR TOXICITY.
CHRONIC INHALATION OR ABSORPTION CAUSES CENTRAL NERVOUS SYSTEM EFFECTS, JOINT PAIN, DERMATITIS, AND POSSIBLY JAUNDICE. INGESTION OF ALCOHOL MAY INCREASE THE TOXICITY OF TRICHLOROETHYLENE.
TRICHLOROETHYLENE IS A MILD RESPIRATORY IRRITANT.
THE THRESHOLD LIMIT VALUE WAS ESTABLISHED TO PREVENT TOXIC EFFECTS.
IHL-HMN TCLO: 6900 MG/M3/10 MIN
IHL-HMN TCLO: 160 PPM/83 MIN
IHL-HMN TDLO: 812 MG/KG
IHL-MAN TCLO: 110 PPM/8 HR
IHL-MAN LCLO: 2900 PPM

ORL-HMN LDLO: 7 GM/KG

ORL-RAT LD50: 4920 MG/KG
ORL-MUS LD50: 2402 MG/KG
IHL-RAT LCLO: 8000 PPM/4 HR
IHL-CAT LCLO:32500 MG/M3/2 HR

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION
POTENTIAL CARCINOGEN
NIOSH

PHYSICAL DESCRIPTION
COLORLESS MOBILE LIQUID: CHLOROFORM-LIKE ODOR: PHOTOREACTIVE.

CHEMICAL AND PHYSICAL PROPERTIES
MOLECULAR WEIGHT: 131
BOILING POINT AT 1 ATM, F: 189 F
SOLUBILITY IN WATER, G/100 G WATER AT 20C: 0.1%
FLASH POINT, CLOSED CUP, F (OR OPEN CUP IF OC): 90 F *
VAPOR PRESSURE @ 20 C, MMHG: 58 MM
MELTING POINT, F: -99 F
UPPER EXPLOSIVE LIMIT IN AIR, % BY VOLUME: 90%
LOWER EXPLOSIVE LIMIT IN AIR, % BY VOLUME: 12.5%
AUTOIGNITION TEMPERATURE: 788 F
SPECIFIC GRAVITY: 1.4642
VAPOR DENSITY (AIR=1): 4.5
ODOR THRESHOLD: 20 PPM

INCOMPATIBILITIES
ACTIVE METALS
BARIUM
LITHIUM
SODIUM
MAGNESIUM
TITANIUM

PERSONAL PROTECTIVE EQUIPMENT
EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT NECESSARY TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE. FACE SHIELDS SHALL COMPLY WITH 29CFR1910.133(A)(2), (A)(4), (A)(5), AND (A)(6).

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ACGIH "GUIDELINES FOR THE SELECTION OF CHEMICAL PROTECTIVE CLOTHING" INDICATED THE FOLLOWING PROTECTIVE RATINGS FOR MATERIALS COMMONLY USED FOR PROTECTIVE CLOTHING. THESE RATINGS ARE BASED PRIMARILY ON QUANTITATIVE TEST RESULTS AND QUALITATIVE RESISTENCE INFORMATION. (THE RECOMMENDATIONS APPLY TO THE PURE SUBSTANCE ONLY: BREAKTHROUGH-TIME MAY VARY FOR MIXTURES.) (A "+" DESIGNATES A BLEND OF MATERIAL, WHILE A "/" DESIGNATES A COATED OR LAMINATED MATERIAL.)

TRICHLOROETHYLENE:

EXCELLENT/GOOD:
TEFLON

GOOD/FAIR:
CHLOROBUTYL
SILVERSHIELD

POOR/FAIR:
CHLORINATED POLYETHYLENE
VITON
NEOPRENE+STYRENE-BUTADIENE RUBBER

STYRENE-BUTADIENE RUBBER/NEOPRENE

POOR:
BUTYL RUBBER
NATURAL RUBBER
NEOPRENE
NITRILE + POLYVINYL CHLORIDE
NITRILE
POLYETHYLENE
POLYVINYL ALCOHOL
POLYVINYL CHLORIDE
NEOPRENE+NATURAL RUBBER
SARANEX
STYRENE-BUTADIENE RUBBER
NEOPRENE/NATURAL RUBBER

GOGGLES
EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE SPLASH-PROOF SAFETY GOGGLES WHICH COMPLY WITH 29CFR1910.133(A)(2)-(A)(6) WHERE THIS LIQUID MAY CONTACT THE EYES.

WASHING CHEMICALS FROM THE SKIN
EMPLOYERS SHALL ENSURE THAT EMPLOYEES WHOSE SKIN BECOMES WET WITH THIS SUBSTANCE PROMPTLY WASH OR SHOWER WITH SOAP OR MILD DETERGENT AND WATER TO REMOVE ANY CONTAMINANT FROM THE SKIN.

ROUTINE CHANGING OF WORK CLOTHING
NOT REQUIRED

CLOTHING REMOVAL FOLLOWING ACCIDENTAL CONTAMINATION
EMPLOYERS SHALL ENSURE THAT NON-IMPERVIOUS CLOTHING WHICH BECOMES WET WITH THIS SUBSTANCE BE REMOVED PROMPTLY AND NOT REWORN UNTIL THE SUBSTANCE IS REMOVED FROM THE CLOTHING.

SPECIFIC EMERGENCY PROVISIONS
NONE REQUIRED

RESPIRATOR SELECTION (UPPER LIMIT DEVICES PERMITTED)

ANY DETECTABLE CONC
- SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE-PIECE OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE
- SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE WITH AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN POSITIVE PRESSURE MODE

ESCAPE
- GAS MASK WITH AN ORGANIC VAPOR CANISTER (CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER)
- APPROPRIATE ESCAPE-TYPE SELF-CONTAINED BREATHING APPARATUS

FIREFIGHTING
- SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE-PIECE OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE

ROUTE OF ENTRY INTO BODY
- INHALATION
- INGESTION
- SKIN OR EYE CONTACT

SYMPTOMS
- HEADACHE
- VERTIGO
- VISUAL DISTURBANCE
- TREMORS
- SOMNOLENCE
- DERMATITIS
- NAUSEA
- VOMITING
- CARDIAC ARRHYTHMIA
- PARESTHESIA
- NARCOSIS
- ANESTHESIA
- LIVER DAMAGE
- IRRITABILITY
- CENTRAL NERVOUS SYSTEM DEPRESSION
- VENTRICULAR FIBRILLATION
- CARDIAC DEGENERATION
- CENTRAL NERVOUS SYSTEM DEGENERATION
- KIDNEY DAMAGE
- UNCONSCIOUSNESS
- JAUNDICE
- WHEEZING
- UNCONSCIOUSNESS
- DIZZINESS
- EXCITATION
- IRREGULAR PULSE
- ARTHRALGIA
- RESPIRATORY EDEMA
- WHEEZING
- WEIGHT LOSS
- ANOREXIA
- FATIGUE
- REPRODUCTIVE EFFECTS IN EXPERIMENTAL ANIMALS

FIRST AID PROCEDURES FOLLOWING EXPOSURE

IF THIS CHEMICAL GETS INTO THE EYES, WASH THE EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL GETS ON THE SKIN, REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL HAS BEEN INHALED, REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

WHEN THIS CHEMICAL HAS BEEN SWALLOWED AND PERSON IS CONSCIOUS, IMMEDIATELY GIVE PERSON LARGE QUANTITIES OF WATER. AFTER WATER HAS BEEN SWALLOWED, TRY TO GET THE PERSON TO VOMIT BY HAVING HIM TOUCH THE BACK OF HIS THROAT WITH HIS FINGER. DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT. GET MEDICAL ATTENTION IMMEDIATELY.

VOLATILE AND GASEOUS ANESTHETICS:

EMERGENCY TREATMENT - ESTABLISH AIRWAY AND MAINTAIN RESPIRATION. REMOVE ANESTHETIC BY FORCED VENTILATION.

FURTHER TREATMENT - MAINTAIN BLOOD PRESSURE BY INTRAVENOUS SALINE OR BLOOD TRANSFUSION. MAINTAIN BODY WARMTH. MAINTAIN ADEQUATE AIRWAY BY REMOVING SECRETIONS FROM TRACHEA BY CATHETER SUCTION. PREVENT HYPOXIA. IF HYPERTHERMIA OCCURS, LOWER BODY TEMPERATURE BY APPLICATION OF WET TOWELS. FOR MALIGNANT HYPERTHERMIA, GIVE DANTROLENE SODIUM, 1 MG/KG, EVERY FIFTEEN MINUTES, INTRAVENOUSLY TO A TOTAL OF 10 MG/KG, AND PROCAINAMIDE, 15 MG/KG, INTRAVENOUSLY, OVER TEN MINUTES. GIVE ICED NORMAL SALINE INTRAVENOUSLY AT A RATE OF 1 LITER EVERY TEN MINUTES FOR THIRTY MINUTES. LAVAGE STOMACH, URINARY BLADDER, RECTUM, AND PERITONEUM WITH ICED SALINE. TREAT ACIDOSIS WITH INTRAVENOUS SODIUM BICARBONATE. MONITOR SERUM TOTAL BASE, SERUM POTASSIUM, AND ARTERIAL PH AND TREAT APPROPIATELY. MAINTAIN URINE OUTPUT AT 1-2 LITERS DAILY WITH FUROSEMIDE AND MANNITOL. AFTER FIRST DAY, GIVE DANTROLENE, 1 MG/KG ORALY DAILY, FOR THREE DAYS.
(MEDICATION MUST BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL)
SPECIAL TREATMENT - TREAT LIVER DAMAGE.
(DREISBACH, HANDBOOK OF POISONING, 11TH ED.)

GASTRIC LAVAGE - GIVE PATIENT GLASS OF WATER PRIOR TO PASSING OF STOMACH TUBE. LAY PATIENT ON ONE SIDE, WITH HEAD LOWER THAN WAIST. IMMOBILIZE A STRUGGLING PATIENT WITH A SHEET OR BLANKET. MEASURE DISTANCE ON TUBE FROM MOUTH TO EPIGASTRIUM, MARK TUBE WITH INDELIBLE MARKING OR TAPE. REMOVE DENTURES AND OTHER FOREIGN OBJECTS FROM THE MOUTH. OPEN MOUTH, USE GAG IF NECESSARY. EXTEND HEAD BY LIFTING CHIN. PASS TUBE OVER TONGUE AND TOWARD BACK OF THROAT WITHOUT EXTENDING HEAD OR NECK. IF OBSTRUCTION IS MET BEFORE THE MARK ON TUBE REACHES LEVELS OF THE TEETH, DO NOT FORCE, BUT REMOVE TUBE AND REPEAT PROCEDURE UNTIL TUBE PASSES TO MARK. PLACE END OF TUBE IN GLASS OF WATER. IF TUBE IS OBSTRUCTED WHEN INTRODUCED ABOUT HALFWAY TO THE MARK, IT MAY HAVE ENTERED TRACHEA.

AFTER TUBE IS PLACED IN STOMACH, ASPIRATE FIRST TO REMOVE STOMACH CONTENTS BY IRRIGATION SYRINGE. SAVE STOMACH CONTENTS FOR EXAMINATION, AND REPEAT INTRODUCTION AND WITHDRAWL OF 100-300 ML WARM WATER UNTIL AT LEAST 3 LITERS OF CLEAR RETURN ARE OBTAINED. USE ACTIVATED CHARCOAL AT BEGINNING OF LAVAGE TO AID IN POISON INACTIVATION. LEAVE 50 GRAMS OF CHARCOAL SUSPENDED IN WATER IN THE STOMACH. IF INTRODUCTION AND REMOVAL OF LAVAGE FLUID BY GRAVITY REQUIRES MORE THAN FIVE MINUTES, ASSIST WITH ASEPTO SYRINGE. PREVENT ASPIRATION WITH CUFFED ENDOTRACHEAL TUBE. AVOID GIVING LARGE QUANTITIES OF WATER.

IF PATIENT COMATOSE, INTUBATE TRACHEA WITH CUFFED ENDOTRACHEAL TUBE. SUCCINYLCHLORINE MAY BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL TO EASE INSERTION OF TRACHEAL CATHETER PRIOR TO PASSAGE OF STOMACH TUBE. PROCEDURE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

PULMONAY EDEMA - RELIEVE ANXIETY. GIVE MORPHINE SULFATE, 10 MG, TO DECREASE RATE OF RAPID, INEFFICIENT RESPIRATION. GIVE 40% OXYGEN BY FACE MASK. USE INTERMITTENT POSITIVE-PRESSURE OXYGEN RESUSCITATOR FOR

ASSOCIATED BRONCHIAL CONSTRICTION. TREAT EDEMA CAUSED BY MORPHINE OR MORPHINE ANALOGS BY GIVING NALOXONE AND OXYGEN.
GENERAL MEASURES - DIURESIS WITH ETHACRYNIC ACID (EDECRIN), 25 MG ORALLY OR INTRAVENOUSLY, OR FLUROSEMIDE, 20-80 MG ORALLY OR INTRAVENOUSLY, IS HELPFUL BECAUSE IT REDUCES FLUID VOLUME. DO NOT INJECT AT A RATE FASTER THAN 10 MG/MIN. GIVE CORTICOSTEROID ANTI-INFLAMMATORY AGENT IN MAXIMUM DOSES. IF PULMONARY EDEMA IS THE RESULT OF HEART FAILURE, DIGITALIZE THE PATIENT.
PROCEDURE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

LIVER DAMAGE - DISCONTINUE ALL DRUGS AND CHEMICALS. MAINTAIN COMPLETE BED REST. AVOID ANESTHESIA OR SURGICAL PROCEDURES. AVOID DEHYDRATION OR OVERHYDRATION. IF VOMITING IS SEVERE AND ORAL FLUIDS ARE NOT RETAINED, REPLACE VOMITUS WITH AN EQUAL QUANTITY OF 5-10% DEXTROSE IN 0.3-0.5 N SALINE. ADMINISTER MAINTENANCE FLUIDS AND ELECTROLYTES AS NECESSARY, DEPENDING ON RENAL FUNCTION. RESUME ORAL FEEDINGS AS SOON AS THE PATIENT CAN TOLERATE THEM. CONTROL THE AMOUNT OF PROTEIN IN THE DIET IN ORDER TO CORRECT THE SERUM PROTEIN LEVEL. GIVE VITAMIN K, PHYTONADIONE, 2.5 MG DAILY. IF ANEMIA IS SEVERE, CONSIDER A BLOOD TRANSFUSION.
PROCEDURE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

ORGANS
RESPIRATORY SYSTEM
SKIN
HEART
LIVER
KIDNEYS
CENTRAL NERVOUS SYSTEM

STATUS OF REGULATORY ENFORCEMENT
OSHA STANDARD 29CFR1910.1200 HAZARD COMMUNICATION
REQUIRES CHEMICAL MANUFACTURERS AND IMPORTERS TO ASSESS THE HAZARDS OF CHEMICALS WHICH THEY PRODUCE OR IMPORT, AND ALL EMPLOYERS TO PROVIDE INFORMATION TO THEIR EMPLOYEES CONCERNING HAZARDOUS CHEMICALS BY MEANS OF A HAZARD COMMUNICATION PROGRAM, LABELS AND OTHER FORMS OF WARNING, MATERIAL SAFETY DATA SHEETS, AND INFORMATION AND TRAINING. REQUIRES DISTRIBUTORS TO TRANSMIT REQUIRED INFORMATION TO EMPLOYERS.
52FR31852 8/24/87

OSHA STANDARD 29CFR1910.1000 AIR CONTAMINANTS
TABLE Z-2

OSHA STANDARD 29CFR1910.94 VENTILATION

OSHA STANDARD 29CFR1910.134 RESPIRATORY PROTECTION

OSHA STANDARD 29CFR1910.20 ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

OSHA STANDARD 29CFR1910.132 PERSONAL PROTECTIVE EQUIPMENT

OSHA STANDARD 29CFR1910.141 SANITATION

OSHA STANDARD 29CFR1910.151 MEDICAL SERVICES AND FIRST AID

40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT ALLEGED TO HAVE BEEN CAUSED BY A SUBSTANCE OR MIXTURE. EPA MAY INSPECT AND REQUIRE REPORTING OF SUCH RECORDS.
48FR38178 08/22/83

OSHA STANDARD 29CFR1910.106 FLAMMABLE AND COMBUSTIBLE LIQUIDS
APPLIES TO THE HANDLING, STORAGE, AND USE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS WITH A FLASH POINT BELOW 200 F

SUBSTANCE LISTED TOXIC SUBSTANCES CONTROL ACT INVENTORY

SUBSTANCE LISTED AS TOXIC POLLUTANT UNDER CLEAN WATER ACT (CWA) SECTION 307(A)

40CFR116 DESIGNATION OF HAZARDOUS SUBSTANCE
DESIGNATED AS HAZARDOUS SUSBSTANCE IN ACCORDANCE WITH SECTION 311(B)(2)(A) OF THE CLEAN WATER ACT. INCLUDES ANY ISOMERS AND HYDRATES, AS WELL AS ANY SOLUTIONS AND MIXTURES CONTAINING THIS SUBSTANCE.

40CFR261 IDENTIFICATION AND LISTING OF HAZARDOUS WASTES

49CFR172.101 TABLES OF HAZARDOUS MATERIALS, THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING, AND OTHER REQUIREMENTS
DESIGNATED IN HAZARDOUS MATERIALS TABLES AS HAZARDOUS MATERIAL FOR THE PURPOSE OF TRANSPORTATION.

49CFR172.102 TABLES OF HAZARDOUS MATERIALS, THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING, AND OTHER REQUIREMENTS
DESIGNATED IN OPTIONAL HAZARDOUS MATERIALS TABLE WITH ALTERNATIVES TO CORRESPONDING REQUIREMENTS IN 49CFR172.101 FOR INTERNATIONAL SHIPMENTS AS AUTHORIZED BY 49CFR171.12.

SOURCE/EXPOSURE ASSESSMENT COMPLETED/PUBLISHED CLEAN AIR ACT (CAA)

CONTROL TECHNOLOGY DEVELOPMENT COMPLETED/PUBLISHED SAFE DRINKING WATER ACT (SDWA)

SOURCE/EXPOSURE ASSESSMENT COMPLETED/PUBLISHED CLEAN AIR ACT (CAA)

TEST METHOD DEVELOPMENT COMPLETED/PUBLISHED SAFE DRINKING WATER ACT (SDWA)

RISK ASSESSMENT IN DEVELOPMENT/PROGRESS SAFE DRINKING WATER ACT (SDWA)

REGULATION PROMULGATED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR260

TECHNICAL ASSISTANCE DATA COMPLETED/PUBLISHED CLEAN WATER ACT (CWA) SECTION 311

PREREGULATORY ASSESSMENT COMPLETED/PUBLISHED CLEAN WATER ACT (CWA)

40CFR117 DETERMINATION OF REPORTABLE QUANTITIES FOR HAZARDOUS SUBSTANCES
QUANTITIES, AS LISTED IN TABLE 302.4 40CFR302, THAT MAY BE HARMFUL AND WHICH THE DISCHARGE IS A VIOLATION OF THE CLEAN WATER ACT SECTION 311(B)(3) AND REQUIRES NOTICE AS SET FORTH IN SECTIONS 103(A) AND 103(B) OF CERCLA.

SUBSTANCE LISTED HAZARDOUS
STATE OF CALIFORNIA ADMINISTRATIVE CODE
TITLE 22. SOCIAL SECURITY
DIVISION 4. ENVIRONMENTAL HEALTH
CHAPTER 30. MINIMUM STANDARDS FOR MANAGEMENT OF HAZARDOUS AND EXTREMELY HAZARDOUS WASTES

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.31 EPA HAZARDOUS WASTE NO. F001: SPENT HALOGENATED SOLVENTS USED IN DEGREASING AND STILL BOTTOMS FROM THE RECOVERY OF SPENT SOLVENTS AND SPENT SOLVENT MIXTURES. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.31 EPA HAZARDOUS WASTE NO. F002: SPENT HALOGENATED SOLVENT AND STILL BOTTOMS FROM RECOVERY OF THIS SPENT SOLVENT OR SOLVENT MIXTURE. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
CFR261.32 EPA HAZARDOUS WASTE NO. K030: COLUMN BOTTOMS OR HEAVY ENDS FROM THE COMBINED PRODUCTION OF TRICHLOROETHYLENE AND PERCHLOROETHYLENE. (T)

NATIONAL TOXICOLOGY PROGRAM (NTP) DATA INADEQUATE TO DETERMINE CARCINOGENICITY OF THIS SUBSTANCE IN MALE F344/N RATS

NATIONAL TOXICOLOGY PROGRAM (NTP) HAS DETERMINED THIS SUBSTANCE NOT CARCINOGENIC FOR FEMALE F344/N RATS

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.31 EPA HAZARDOUS WASTE NO. F024: WASTES, INCLUDING BUT NOT LIMITED TO, DISTILLATION RESIDUES, HEAVY ENDS, TARS, AND REACTOR CLEAN-OUT WASTES FROM THE PRODUCTION OF CHLORINATED ALIPHATIC HYDROCARBONS, HAVING CARBON CONTENT FROM 1-5, UTILIZING FREE RADICAL CATALYZED PROCESSES. (THIS LISTING DOES NOT INCLUDE LIGHT ENDS, SPENT FILTERS AND FILTER AIDS, SPENT DESSICANTS, WASTEWATER, WASTEWATER TREATMENT SLUDGES, SPENT CATALYSTS, AND WASTES LISTED IN 40CFR261.32). (T)

NATIONAL TOXICOLOGY PROGRAM (NTP) HAS DETERMINED THIS SUBSTANCE CARCINOGENIC FOR B6C3F1 MICE OF EITHER SEX

40CFR122, APPENDIX D - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT APPLICATION TESTING REQUIREMENTS
TABLE II - ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GS/MS)
48FR14153 04/01/83

40CFR372 SARA TITLE III SECTION 313 TOXIC CHEMICAL RELEASE REPORTING:

40CFR141.50 NATIONAL PRIMARY DRINKING WATER REGULATIONS
MAXIMUM CONTAMINANT LEVEL FOR TRICHLOROETHYLENE: 0.005 MG/L
EFFECTIVE DATE: 01/09/89
52FR25691 07/08/87

SUBSTANCE LISTED BY THE NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 1983, CHAPTER 315, N.J.S.A. 34: A-1. EMPLOYERS COVERED: SIC CODES 20-39, 46-49, 51, 75, 76, 80, 82, AND 84.

SUBSTANCE LISTED UNDER THE STATE OF FLORIDA TOXIC SUBSTANCES IN THE WORKPLACE RIGHT TO KNOW LAW, CHAPTER 442 OF THE FLORIDA STATUTES.

SUBSTANCE LISTED UNDER THE STATE OF WEST VIRGINIA DIRECTOR OF HEALTH LEGISLATIVE RULES FOR HAZARDOUS SUBSTANCES, CHAPTER16, ARTICLE 31, SECTION 4(A).

SUBSTANCE LISTED UNDER THE STATE OF CALIFORNIA HAZARDOUS SUBSTANCES INFORMATION AND TRAINING ACT, CALIFORNIA LABOR CODE, DIVISION 5, CHAPTER 2.5

SUBSTANCE LISTED UNDER THE STATE OF PENNSYLVANIA WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 734, NO. 159.

SUBSTANCE LISTED UNDER THE STATE OF ILLINOIS TOXIC SUBSTANCES DISCLOSURE TO EMPLOYEES ACT, TITLE 56, CHAPTER I, SUBCHAPTER B, SECTION 205.

THIS SUBSTANCE TESTED FOR MUTAGENESIS/GENETIC TOXICITY BY THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)

THIS SUBSTANCE TESTED FOR CARCINOGENESIS BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA)

THIS SUBSTANCE TESTED FOR REPRODUCTIVE/DEVELOPMENTAL TOXICITY BY THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE ON FIRST THIRD WASTES LAND DISPOSAL RESTRICTIONS.
EFFECTIVE DATE: 8/8/88
53FR31138 8/17/88
40CFR268.33

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.32 EPA HAZARDOUS WASTE NO. K086: SOLVENT WASHES AND SLUDGES, CAUSTIC WASHES AND SLUDGES, OR WATER WASHES AND SLUDGES FROM CLEANING TUBS AND EQUIPMENT USED IN THE FORMULATON OF INK FROM PIGMENTS, DRIERS, SOAPS, AND STABILIZERS CONTAINING CHROMIUM AND LEAD.(T)

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE PROHIBITING UNDERGROUND INJECTION OF SPENT SOLVENT WASTE UNLESS THE SOLVENT WASTE IS A SOLVENT-WATER MIXTURE OR SOLVENT-CONTAINING SLUDGE CONTAINING <1% OF TOTAL HAZARDOUS WASTES NUMBERS F001-F005.
EFFECTIVE DATE: 8/8/88
ALL SPENT WASTES NUMBERS F001-F005 CONTAINING <1% TOTAL F001-F005 SOLVENT CONSTITUENTS ARE PROHIBITED FROM UNDERGROUND INJECTION.
EFFECTIVE DATE: 8/8/90
53FR30908
40CFR148.10

UNDER THE CALIFORNIA AIR TOXICS HOT SPOTS INFORMATION AND ASSESSMENT ACT OF 1987, OPERATORS OF FACILITIES WHICH RELEASE, OR HAVE THE POTENTIAL TO RELEASE, SPECIFIED QUANTITIES OF THIS SUBSTANCE MUST SUBMIT TO THE APPROPRIATE LOCAL AIR POLLUTION CONTROL DISTRICTS, OR AIR QUALITY MANAGEMENT DISTRICTS, COMPREHENSIVE EMISSIONS INVENTORY PLANS AND HEALTH RISK ASSESSMENTS ADOPTED BY THE CALIFORNIA AIR RESOURCES BOARD (ARB).
EFFECTIVE DATE: 1/1/88
AB 2588, CHAPTER 1252

THIS SUBSTANCE LISTED IN CALIFORNIA AS A CARCINOGEN UNDER PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. REGULATION REQUIRES EMPLOYERS BEGINNING APRIL 1, 1989, TO WARN WORKERS, CONSUMERS AND THE PUBLIC WHEN THEY ARE EXPOSED TO THIS CHEMICAL AT A LEVEL DEEMED BY THE STATE TO POSE A SIGNIFICANT RISK. WARNING METHODS MAY INCLUDE PRODUCT OR SHELF LABELS, SIGNS OR MEDIA ANNOUNCEMENTS. BEGINNING DECEMBER 1, 1989, THIS CHEMICAL CANNOT BE DISCHARGED OR RELEASED INTO ANY KNOWN SOURCE OF DRINKING WATER.

THIS SUBSTANCE SUBJECT TO REQUIREMENTS OF CANADA'S WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS). THE REGULATIONS REQUIRE SUPPLIERS OF HAZARDOUS MATERIALS TO PROVIDE ADEQUATE LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS'S) AS CONDITIONS OF SALE AND IMPORTATION. EMPLOYERS MUST PROVIDE LABELS, MSDS'S AND WORKER EDUCATION PROGRAMS IN THE WORKPLACE.
EFFECTIVE DATE: 10/31/88

CERCLA PRIORITY GROUP I SUBSTANCE
53FR41280

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) - TABLE 2-14 DANGEROUS GOODS LIST; THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING AND OTHER REQUIREMENTS.
DESIGNATED AS A DANGEROUS GOOD FOR THE PURPOSE OF AIR TRANSPORATION.

THIS SUBSTANCE TESTED FOR REPRODUCTIVE/DEVELOPMENTAL TOXICITY BY THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)

40CFR370 SARA TITLE III SECTION 311 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART B - REPORTING REQUIREMENTS

40CFR370 SARA TITLE III SECTION 312 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART D - INVENTORY FORMS

40CFR60.488 SUBSTANCE LISTED AS CHEMICAL PRODUCED BY AFFECTED FACILITIES UNDER THE CLEAN AIR ACT (CAA) SECTION 111.

40CFR148 SUBJECT TO EPA RULE PROHIBITING UNDERGROUND INJECTION OF THIS HAZARDOUS WASTE.
EFFECTIVE DATE: 6/7/89
54FR25416 6/14/89

40CFR148 SUBJECT TO EPA RULE PROHIBITING UNDERGROUND INJECTION OF THIS HAZARDOUS WASTE.
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

EFFECTIVE DATE: 6/8/89
53FR26594 6/23/89

29CFR1910.1450 SUBJECT TO OSHA STANDARD REGULATING OCCUPATIONAL EXPOSURE TO HAZARDOUS CHEMICALS IN LABORATORIES.
EFFECTIVE DATE: 5/1/90
55FR3300 1/31/90

33CFR160.211 AND 213 U.S. COAST GUARD REQUIRES 24 HOURS ADVANCE NOTICE TO CAPTAIN OF THE PORT WHEN THIS SUBSTANCE IS SCHEDULED TO ARRIVE AT OR DEPART FROM PORT.

46CFR151.01-10(B) CARGOES REGULATED BY THE COAST GUARD UNDER SUBCHAPTER O - CERTAIN BULK DANGEROUS CARGOES

40CFR61.01(B) NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS SUBPART A - GENERAL PROVISIONS

40CFR302 CERCLA SECTION 102 DESIGNATION, REPORTABLE QUANTITIES AND NOTIFICATION
REPORTABLE QUANTITY (RQ): 100 LB. (45.4 KG)

40CFR268 LAND DISPOSAL RESTRICTIONS

MEDICAL SURVEILLANCE REQUIRED
GENERAL MEDICAL HISTORY
40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS
48FR38187 08/22/83
48FR39225 08/30/83 (EFFECTIVE DATE CORRECTION)
RESPIRATORY HISTORY
PRE-PLACEMENT AND ANNUAL EXAMS
WITH EMPHASIS ON:
RENAL AND LIVER FUNCTIONS
BLOOD CHEMISTRY
COMPLETE BLOOD COUNT
WITH EMPHASIS ON:
PULMONARY FUNCTIONS
WITH EMPHASIS ON:
CENTRAL NERVOUS SYSTEM TESTS, PERIPHERAL NEUROPATHY
WITH EMPHASIS ON:
ELECTROCARDIOGRAM
WITH EMPHASIS ON:
SKIN EXAM
VISION TEST
URINALYSIS
ATTENTION TO SMOKING, ALCOHOL, MEDICATION, AND EXPOSURE TO CARCINOGENS

WITH EMPHASIS ON:
14 BY 17 CHEST P.A. X-RAY
ACGIH BIOLOGICAL EXPOSURE INDICES FOR TRICHLOROETHYLENE:

300 MG/L TRICHLOROACETIC ACID AND TRICHLOROETHANOL IN URINE / TIMING -- END OF WORKWEEK AND END OF SHIFT
320 MG/G CREAT. TRICHLOROACETIC ACID AND TRICHLOROETHANOL IN URINE/ TIMING -- END OF WORKWEEK AND END OF SHIFT
4 MG/L FREE TRICHLOROETHANOL IN BLOOD / TIMING -- END OF SHIFT AND END OF WORKWEEK
0.5 PPM TRICHLOROETHYLENE IN END-EXHALED AIR / TIMING -- PRIOR TO SHIFT AND END OF WORKWEEK

CERTIFICATIONS
HEALTH STATUS CLASSIFICATION

OSHA RESPIRATOR CERTIFICATION 29CFR1910.134

DEPARTMENT OF TRANSPORTATION IF OPERATES HEAVY EQUIPMENT

NUCLEAR REG. 0041

EMPLOYEE HAZARDOUS MATERIALS EDUCATION RECEIPT

EMPLOYEE MEDICAL RECORDS RECEIPT

TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS. CONTACT: CHARLES L. ELKINS, OFFICE OF TOXIC SUBSTANCES, EPA (202) 382-3813.

MEDICAL WARNING REQUIRED FOR MEDICAL EXAM REFUSAL SIGNED BY EMPLOYEE

SPECIAL DIAGNOSTIC TESTS
URINE TRICHLOROETHYLENE METABOLITES >20 MG/DAY

LEAKS AND SPILL PROCEDURES
REPORTABLE QUANTITY (RQ) 100 LB. (45.4 KG)
A REPORTABLE QUANTITY OF ONE HUNDRED POUNDS APPLIES TO THIS SUBSTANCE ESTABLISHED BY SECTIONS 101(14) AND 102(B) OR ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA). SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THAT SUBSTANCE IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER (800) 424-8802; IN THE WASHINGTON, D.C. METROPOLITAN AREA (202) 426-2675.
40CFR302

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DEPARTMENT OF TRANSPORTATION HAZARD CLASS
49CFR172.101 HAZARDOUS MATERIALS TABLE

ORM-A

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS
49CFR172.101 AND 49CFR172 SUBPART E:

NONE

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INTERNATIONAL MARITIME ORGANIZATION HAZARD CLASS
49CFR172.102 OPTIONAL HAZARDOUS MATERIALS TABLE

CLASS 6.1-POISONOUS (TOXIC) SUBSTANCE

INTERNATIONAL MARITIME ORGANIZATION LABELING SPECIFICATIONS FOR
DOMESTIC AND EXPORT SHIPMENTS
49CFR172.102

ST. ANDREWS CROSS

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FOLLOWING INFORMATION RECOMMENDED FOR THE EMERGENCY HANDLING OF
HAZARDOUS MATERIALS

IF MATERIAL ON FIRE OR INVOLVED IN FIRE:
* USE SUITABLE AGENT FOR TYPE OF SURROUNDING FIRE TO EXTINGUISH FIRE (MATERIAL ITSELF DOES NOT BURN OR BURNS WITH DIFFICULTY)

IF MATERIAL IS NOT ON FIRE AND IS NOT INVOLVED IN FIRE:
* DO NOT ALLOW MATERIAL TO CONTAMINATE WATER SOURCES AND SEWERS
* CONTAIN FLOW WITH DIKES AS NECESSARY

PERSONNEL PROTECTION:
* KEEP UPWIND
* WEAR BOOTS, PROTECTIVE GLOVES AND GAS TIGHT GOGGLES
* WASH CONTAMINATED SKIN WITH COPIOUS AMOUNTS OF WATER OR SOAP AND WATER
* AVOID BREATHING DUST/VAPORS/FUMES FROM MATERIAL

LAND SPILL:
* DIG A HOLDING AREA SUCH AS A PIT, POND, OR LAGOON TO CONTAIN LIQUID OR SOLID MATERIAL
* AVOID SKIN CONTACT WITH MATERIAL
* USE CEMENT POWDER OR FLY ASH TO ABSORB LIQUID MASS

WATER SPILL:
* IF DISSOLVED, APPLY ACTIVATED CARBON AT 10 TIMES SPILLED AMOUNT IN THE REGION OF 10 PPM OR GREATER CONCENTRATION
* USE SUCTION HOSES TO REMOVE TRAPPED MATERIAL
* REMOVE IMMOBILIZED MASSES OF POLLUTION AND PRECIPITATES WITH MECHANICAL DREDGES OR LIFTS

AIR SPILL:
* KNOCK DOWN VAPORS WITH WATER SPRAY
* COMBUSTION PRODUCTS INCLUDE CORROSIVE OR TOXIC VAPORS

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FOLLWING INFORMATION FROM DEPARTMENT OF TRANSPORTATION/U.S. COAST GUARD
"CHEMICAL RESPONSE INFORMATION SYSTEM", REGARDING WATER SPILLS:

PORT WHEN THIS SUBSTANCE IS SCHEDULED TO ARRIVE AT PORT WHEN TRANSPORTED IN BULK QUANTITY
* SUBSTANCE SINKS IN WATER
* RESTRICT ACCESS OF GENERAL PUBLIC WHEN APPRECIABLE DANGER ARISES FROM SPILL
* RESTRICT HUMAN USE WHEN SUBSTANCE INVOLVED
* RESTRICT FARM USE WHEN SUBSTANCE SPILLED IN WATER USED FOR IRRIGATION OR ANIMALS
* CONTAIN SURFACE SLICKS
* PUMP SINKING LIQUID OR FINELY DIVIDED SOLIDS
* HIGHLY VOLATILE, AVOID INHALATION, VAPORS OR DUST ARE IRRITATING OR TOXIC
* HIGHLY CORROSIVE, AVOID DIRECT CONTACT, CONTACT WITH SKIN OR EYES CAN CAUSE IRRITATION OR BURNS
* BURNING NOT RECOMMENDED, FIRE DIFFICULT TO CONTROL AND/OR POISONOUS GAS IS FORMED

THIS SUBSTANCE LISTED IN CALIFORNIA AS A CARCINOGEN UNDER PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. LISTED CHEMICALS CANNOT BE DISCHARGED OR RELEASED INTO WATER OR ONTO OR INTO LAND WHERE THERE IS ANY POSSIBILITY OF PASSING INTO ANY SOURCE OF DRINKING WATER.

WASTE

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OBSERVE ALL FEDERAL, STATE OR LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. CONTACT LOCAL AND/OR STATE ENVIRONMENTAL AUTHORITIES TO INSURE PROPER COMPLIANCE.

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THIS SUBSTANCE MEETS THE DEFINITION OF A HAZARDOUS WASTE AS DEFINED BY THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) (40CFR260) AND IS SUBJECT TO THE FOLLOWING CONSIDERATIONS:

40CFR260 HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

PROVIDES DEFINITIONS OF TERMS, GENERAL STANDARDS, AND OVERVIEW INFORMATION APPLICABLE TO 40CFR PARTS 260-265

40CFR261 IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

IDENTIFIES THOSE SOLID WASTES WHICH ARE SUBJECT TO REGULATION AS HAZARDOUS WASTES UNDER 40CFR PARTS 262-265, 270, 271, AND 124 AND WHICH ARE SUBJECT TO THE NOTIFICATION REQUIREMENTS OF SECTION 3010 OF THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) AND IDENTIFIES ONLY SOME OF THE MATERIALS WHICH ARE HAZARDOUS WASTES UNDER SECTIONS 3007 AND 7003 OF RCRA

THIS COMPOUND, DEPENDING ON THE CHARACTERISTIC, CONCENTRATION
AND/OR SOURCE OF THE WASTE, MAY BE REGULATED UNDER THE FOLLOW-

REPORTABLE QUANTITY (RQ) (IF APPLICABLE):
40CFR261.24 TOXICITY CHARACTERISTIC
EPA HAZARDOUS WASTE NUMBER D040
TRICHLOROETHYLENE
MAXIMUM CONCENTRAION 0.5 MG/L

40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F001
40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F002
REPORTABLE QUANTITY (RQ) : 10 LBS.
A REPORTABLE QUANTITY OF 10 LBS. APPLIES TO THIS HAZARDOUS WASTE FROM NON-SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.31. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F024
REPORTABLE QUANTITY (RQ) : 1 LB.
A REPORTABLE QUANTITY OF 1 LB. APPLIES TO THIS HAZARDOUS WASTE FROM NON-SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.31. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K018
40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K019
40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K020
REPORTABLE QUANTITY (RQ) : 1 LB.
A REPORTABLE QUANTITY OF 1 LB. APPLIES TO THIS HAZARDOUS WASTE FROM SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.32. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OR A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR261.33 DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUES, AND SPILL RESIDUES THEREOF
EPA HAZARDOUS WASTE NUMBER U228
TRICHLOROETHYLENE

40CFR262 STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

40CFR263 STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

ESTABLISHES STANDARDS WHICH APPLY TO PERSONS TRANSPORTING HAZARDOUS WASTE WITHIN THE UNITED STATES IF THE TRANSPORTATION REQUIRES A MANIFEST UNDER 40CFR262

40CFR264 STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS WHICH DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE

40CFR265 INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS WHICH DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE DURING THE PERIOD OF INTERIM STATUS

40CFR267 INTERIM STANDARDS FOR OWNERS AND OPERATORS OF NEW HAZARDOUS WASTE LAND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS THAT DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE FOR NEW LAND DISPOSAL FACILITIES

40CFR270 EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

ESTABLISHES PROVISIONS FOR THE HAZARDOUS WASTE PERMIT PROGRAM UNDER SUBTITLE C OF THE SOLID WASTE DISPOSAL ACT, AS AMENDED BY THE RESOURCE CONSERVATION AND RECOVERY ACT

40CFR271 REQUIREMENT FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

SPECIFIES THE PROCEDURES EPA WILL FOLLOW IN APPROVING, REVISING, AND WITHDRAWING APPROVAL OF STATE PROGRAMS AND THE REQUIREMENTS STATE PROGRAMS MUST MEET TO BE APPROVED BY THE ADMINISTRATION UNDER SECTION 3006(B) OF RCRA

40CFR268 LAND DISPOSAL RESTRICTIONS

IDENTIFIES HAZARDOUS WASTES THAT ARE RESTRICTED FROM LAND DISPOSAL AND DEFINES THOSE LIMITED CIRCUMSTANCES UNDER WHICH AN OTHERWISE PROHIBITED WASTE MAY CONTINUE TO BE LAND DISPOSED.

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 8/8/88
53FR30908 8/16/88

EFFECTIVE DATE: 8/8/90
53FR30908 8/16/88

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 6/7/89
54FR25416 6/14/89

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

CAS NUMBER
79-01-6

REGISTRY TOXIC CHEMICALS NUMBER
KX4550000

BULLETINS
NEGATIVE RESULTS FOR CARCINOGENICITY OF TRICHLOROETHYLENE IN MICE.
J. CANCER RES. CLIN. ONCOL. 1984, 107(3), 149-156.

SPECIAL INFORMATION
* TRICHLOROETHYLENE IS PRACTICALLY NONFLAMMABLE; IGNITION WILL OCCUR ONLY UNDER SPECIAL CONDITIONS.

TYPE WHAT INFORMATION YOU REQUIRE
/ALL/, SPECIFIC INFORMATION (BY 4-LETTER COMMAND, /HELP/, OR /NONE/.

TRICHLORETHYLENE - NO MORE HITS IN DATABASE.

ENTER NAME, KEYWORD, SYMPTOM, STLA, NAMELIST, HELP, OR QUIT.

ENTER WHICH OHS SERVICE YOU WISH TO ACCESS:
> TO ACCESS HAZARDLINE, TYPE /HAZARD/
> TO ACCESS ENVIRONMENTAL HEALTH NEWS, TYPE /EHN/
> TO ACCESS MATERIAL SAFETY DATA SHEET, TYPE /MSDS/
> TO EXIT THE SYSTEM, TYPE /LOGOFF/
PRESS RETURN KEY AFTER ENTERING COMMAND.

LOGGED OFF LINE # 01 DATE = 07/02/90 TIME = 13-55-23
LOGOFF COMPLETED - GOODBYE FOR NOW!!!!

1,1,1-TRICHLOROETHANE IS A SYNONYM OF METHYL CHLOROFORM
TYPE WHAT INFORMATION YOU REQUIRE
/ALL/, SPECIFIC INFORMATION (BY 4-LETTER COMMAND, /HELP/, OR /NONE/.

CHEMICAL NAME
METHYL CHLOROFORM

FORMULA
C2H3CL3

SYNONYMS
1,1,1-TRICHLOROETHANE
AEROTHENE TT
NCI-C04626
SOLVENT 111
CHLOROETHENE NU
CHLOROTHENE
INHIBISOL
UN 2831
ETHANE, 1,1,1-TRICHLORO-
CHLOROETHENE
CHLOROFORM, METHYL
CHLOROTHANE NU
METHYLTRICHLOROMETHANE
METHYLCHLOROFORM
TRICHLOROMETHYLMETHANE
TRICHLOROETHANE
CHLOROTHENE VG
RCRA U266
STCC 4941176
OHS14370

PERMISSIBLE EXPOSURE LIMIT
350 PPM OSHA TWA; 450 PPM OSHA STEL
350 PPM ACGIH TWA; 450 PPM ACGIH STEL
350 PPM NIOSH RECOMMENDED 15 MIN CEILING
REPRODUCTIVE EFFECTS DATA (RTECS)
MUTAGENIC DATA (RTECS)
AQUATIC TOXICITY RATING 2 (TLM96 10-100 MG/L)
FATHEAD MINNOW 52.8 MG/L
CERCLA HAZARD RATINGS - TOXICITY 2 - IGNITABILITY 1 - REACTIVITY 0
PERSISTENCE 3

TOXICOLOGY: METHYL CHLOROFORM IS A SKIN, EYE AND MUCOUS MEMBRANE IRRITANT. IT IS SLIGHTLY TOXIC BY INHALATION, SKIN ABSORPTION AND INGESTION. METHYL CHLOROFORM IS A CENTRAL NERVOUS SYSTEM DEPRESSANT. POISONING MAY ALSO AFFECT THE HEART AND POSSIBLY THE LIVER AND KIDNEYS. EXCESSIVE CONCENTRATIONS OF 10,000 PPM MAY CAUSE DEATH DUE TO RESPIRATORY OR CARDIAC FAILURE. ASPIRATION MAY RESULT IN PULMONARY EDEMA OR CHEMICAL PNEUMONITIS.

THE ODOR OF METHYL CHLOROFORM CAN BE DETECTED BETWEEN 44 AND 100 PPM, THIS IS CONSIDERED TO BE AN ADEQUATE WARNING PROPERTY. THE THRESHOLD LIMIT VALUE WAS SET TO PREVENT ANESTHETIC EFFECTS AND OBJECTIONS TO ODOR.

PERSONS WITH PRE-EXISTING SKIN DISORDERS, LIVER DISEASE OR CARDIOVASCULAR DISEASE MAY BE AT INCREASED RISK FROM EXPOSURE. ALCOHOL MAY ENHANCE BOTH CARDIAC AND HEPATIC TOXICITY. EPINEPHRINE

IHL-MAN	LCLO: 27 GM/M3/10M	IHL-MAN	TCLO: 350 PPM
IHL-MAN	TCLO: 200 PPM/4H	IHL-HMN	TCLO: 920 PPM
ORL-HMN	TDLO: 670 MG/KG	ORL-RAT	LD50: 10,300 MG/KG
ORL-MUS	LD50: 11,240 MG/KG	ORL-RBT	LD50: 5660 MG/KG
ORL-DOG	LD50: 750 MG/KG	ORL-GPG	LD50: 9470 MG/KG
IHL-RAT	LC50: 18,000 PPM/4H	IHL-MUS	LC50: 3911 PPM/2H
IHL-CAT	LC50: 24,400 MG/M3	SKN-RBT	LD50: 15,800 MG/KG(EPA,1984)

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION
1000 PPM
OSHA/NIOSH

PHYSICAL DESCRIPTION
CLEAR, COLORLESS LIQUID WITH A MILD CHLOROFORM LIKE ODOR.

CHEMICAL AND PHYSICAL PROPERTIES
MOLECULAR WEIGHT: 133.4
BOILING POINT AT 1 ATM, F: 165 F (74 C)
SOLUBILITY IN WATER, G/100 G WATER AT 20C: 0.078 @ 25 C
FLASH POINT, CLOSED CUP, F (OR OPEN CUP IF OC): NOT AVAILABLE
VAPOR PRESSURE @ 20 C, MMHG: 100 MMHG
MELTING POINT, F: -26 F (-32 C)
UPPER EXPLOSIVE LIMIT IN AIR, % BY VOLUME: 12.5%
LOWER EXPLOSIVE LIMIT IN AIR, % BY VOLUME: 7.5%
AUTOIGNITION TEMPERATURE: 998 F (537 C)
SPECIFIC GRAVITY: 1.3390
VAPOR DENSITY (AIR=1): 4.55
ODOR THRESHOLD: 44-100 PPM

INCOMPATIBILITIES
METHYL CHLOROFORM (1,1,1-TRICHLOROETHANE)
ACETONE: EXOTHERMIC REACTION
ALKALI (STRONG): POSSIBLE VIOLENT REACTION
ALUMINUM AND ALLOYS: MAY DECOMPOSE VIOLENTLY
BARIUM: FIRE AND EXPLOSION HAZARD
MAGNESIUM: VIOLENT DECOMPOSITION WITH EVOLUTION OF HYDROGEN CHLORIDE
METALS (POWDERED): FIRE AND EXPLOSION HAZARD
NITROGEN TETROXIDE: FORMS EXPLOSIVE MIXTURE
OXIDIZERS (STRONG): POSSIBLE VIOLENT REACTION
OXYGEN (GAS): POSSIBLE EXPLOSION WHEN HEATED @ 100 C
OXYGEN (LIQUID): POSSIBLE VIOLENT EXPLOSION
POTASH: FORMS FLAMMABLE OR EXPLOSIVE PRODUCT
POTASSIUM AND ALLOYS: FORMS SHOCK SENSITIVE MIXTURE
POTASSIUM HYDROXIDE: FORMATION OF SPONTANEOUSLY FLAMMABLE PRODUCT
RUBBER, PLASTICS AND COATINGS: MAY BE ATTACKED
SODIUM AND ALLOYS: FIRE AND EXPLOSION HAZARD
SODIUM HYDROXIDE: FORMS SPONTANEOUSLY FLAMMABLE PRODUCT
SODIUM-POTASSIUM ALLOY: POSSIBLE EXPLOSION
TIN AND ALLOYS: INCOMPATIBLE
ZINC AND ALLOYS: INCOMPATIBLE

PERSONAL PROTECTIVE EQUIPMENT
FOLLOWING INFORMATION FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS":

EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT NECESSARY TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE. FACE SHIELDS SHALL COMPLY WITH 29CFR1910.133(A)(2), (A)(4), (A)(5), AND (A)(6).

GOGGLES

FOLLOWING INFORMATION FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS":

EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE SPLASH-PROOF SAFETY GOGGLES WHICH COMPLY WITH 29CFR1910.133(A)(2)_(A)(6) WHERE THIS LIQUID MAY CONTACT THE EYES.

WASHING CHEMICALS FROM THE SKIN

FOLLOWING INFORMATION FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS":

EMPLOYERS SHALL ENSURE THAT EMPLOYEES WHOSE SKIN BECOMES WET WITH THIS SUBSTANCE PROPMTLY WASH OR SHOWER TO REMOVE ANY CONTAMINANT FROM THE SKIN.

ROUTINE CHANGING OF WORK CLOTHING

NO SPECIFIC REQUIREMENT. IF INDICATED BY THE NATURE OF THE CONTAMINANT AND THE EXTENT OF EXPOSURE, CHANGE INTO UNCONTAMINATED CLOTHING BEFORE LEAVING THE WORK PREMISES.

CLOTHING REMOVAL FOLLOWING ACCIDENTAL CONTAMINATION

FOLLOWING INFORMATION FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS":

EMPLOYERS SHALL ENSURE THAT NON-IMPERVIOUS CLOTHING WHICH BECOMES CONTAMINATED WITH THIS SUBSTANCE BE REMOVED PROMPTLY AND NOT REWORN UNTIL THE SUBSTANCE IS REMOVED FROM THE CLOTHING.

SPECIFIC EMERGENCY PROVISIONS

NO SPECIFIC REQUIREMENT. IF INDICATED BY THE NATURE OF THE SUBSTANCE AND THE PROBABILITY OF EXPOSURE, PROVIDE AN EYE WASH AND FACILITIES FOR QUICK DRENCHING OF THE BODY WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

RESPIRATOR SELECTION (UPPER LIMIT DEVICES PERMITTED)

1000 PPM

- SUPPLIED-AIR RESPIRATOR
- SELF-CONTAINED BREATHING APPARATUS

ESCAPE

- GAS MASK WITH AN ORGANIC VAPOR CANISTER (CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER)
- APPROPRIATE ESCAPE-TYPE SELF-CONTAINED BREATHING APPARATUS

FIREFIGHTING

- SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE-PIECE OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE
- SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE WITH AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN POSITIVE PRESSURE MODE

ROUTE OF ENTRY INTO BODY
- INHALATION
- SKIN ABSORPTION
- INGESTION
- SKIN OR EYE CONTACT

SYMPTOMS
- SKIN IRRITATION
- EYE IRRITATION
- MUCOUS MEMBRANE IRRITATION
- RESPIRATORY IRRITATION
- HEADACHE
- INCOORDINATION
- LASSITUDE
- ATAXIA
- ANESTHESIA
- UNCONSCIOUSNESS
- NAUSEA
- VOMITING
- DROWSINESS
- CONVULSIONS
- CONJUNCTIVITIS
- DERMATITIS
- HYPOTENSION
- BRADYCARDIA
- CENTRAL NERVOUS SYSTEM DEPRESSION
- DIARRHEA
- GASTROINTESTINAL DISTURBANCES
- ABDOMINAL PAIN
- DIZZINESS
- MENTAL DULLNESS
- MYOCARDIAL SENSITIZATION
- PULMONARY EDEMA
- PNEUMONITIS
- KIDNEY DAMAGE
- LIVER DAMAGE
- COMA
- RESPIRATORY FAILURE
- CARDIAC FAILURE
- REPRODUCTIVE EFFECTS IN EXPERIMENTAL ANIMALS

FIRST AID PROCEDURES FOLLOWING EXPOSURE

IF THIS CHEMICAL GETS INTO THE EYES, WASH THE EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL GETS ON THE SKIN, REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL HAS BEEN INHALED, REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

IF SUBSTANCE IS INGESTED, REMOVE BY GASTRIC LAVAGE OR EMETIC WHEN

ACTIVATED CHARCOAL. DO NOT PERFORM GASTRIC LAVAGE OR EMESIS ON AN UNCONSCIOUS PERSON. MAINTAIN BLOOD PRESSURE AND RESPIRATION. GIVE OXYGEN IF RESPIRATION IS DEPRESSED. (DREISBACH, HANDBOOK OF POISONING, 12TH ED.) TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY. MEDICAL TREATMENT SHOULD BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL.

ORGANS
EYES
SKIN
CENTRAL NERVOUS SYSTEM
CARDIOVASCULAR SYSTEM
KIDNEYS
LIVER

STATUS OF REGULATORY ENFORCEMENT

****

FEDERAL REGULATIONS

****

OSHA STANDARD 29CFR1910.1200 HAZARD COMMUNICATION
REQUIRES CHEMICAL MANUFACTURERS AND IMPORTERS TO ASSESS THE HAZARDS OF CHEMICALS WHICH THEY PRODUCE OR IMPORT, AND ALL EMPLOYERS TO PROVIDE INFORMATION TO THEIR EMPLOYEES CONCERNING HAZARDOUS CHEMICALS BY MEANS OF A HAZARD COMMUNICATION PROGRAM, LABELS AND OTHER FORMS OF WARNING, MATERIAL SAFETY DATA SHEETS, AND INFORMATION AND TRAINING. REQUIRES DISTRIBUTORS TO TRANSMIT REQUIRED INFORMATION TO EMPLOYERS.
52FR31852 8/24/87

OSHA STANDARD 29CFR1910.1000 AIR CONTAMINANTS
TABLE Z-1

OSHA STANDARD 29CFR1910.94 VENTILATION

OSHA STANDARD 29CFR1910.134 RESPIRATORY PROTECTION

OSHA STANDARD 29CFR1910.20 ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

OSHA STANDARD 29CFR1910.132 PERSONAL PROTECTIVE EQUIPMENT

OSHA STANDARD 29CFR1910.141 SANITATION

OSHA STANDARD 29CFR1910.151 MEDICAL SERVICES AND FIRST AID

OSHA STANDARD 29CFR1910.133 EYE AND FACE PROTECTION

29CFR1910.1450 SUBJECT TO OSHA STANDARD REGULATING OCCUPATIONAL EXPOSURE TO HAZARDOUS CHEMICALS IN LABORATORIES.
EFFECTIVE DATE: 5/1/90
55FR3300 1/31/90

40CFR60.488 SUBSTANCE LISTED AS CHEMICAL PRODUCED BY AFFECTED FACILITIES UNDER THE CLEAN AIR ACT (CAA) SECTION 111.

40CFR61.01(B) NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
SUBPART A - GENERAL PROVISIONS

40CFR116 DESIGNATION OF HAZARDOUS SUBSTANCE
DESIGNATED AS HAZARDOUS SUSBSTANCE IN ACCORDANCE WITH SECTION 311(B)(2)(A) OF THE CLEAN WATER ACT. INCLUDES ANY ISOMERS AND HYDRATES, AS WELL AS ANY SOLUTIONS AND MIXTURES CONTAINING THIS SUBSTANCE.

40CFR122, APPENDIX D - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT APPLICATION TESTING REQUIREMENTS
TABLE II - ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GS/MS)
48FR14153 04/01/83

40CFR141.50 NATIONAL PRIMARY DRINKING WATER REGULATIONS
MAXIMUM CONTAMINANT LEVEL FOR METHYL CHLOROFORM: 0.20 MG/L
EFFECTIVE DATE: 01/09/89
52FR25691 07/08/87

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE PROHIBITING UNDERGROUND INJECTION OF SPENT SOLVENT WASTE UNLESS THE SOLVENT WASTE IS A SOLVENT-WATER MIXTURE OR SOLVENT-CONTAINING SLUDGE CONTAINING <1% OF TOTAL HAZARDOUS WASTES NUMBERS F001-F005.
EFFECTIVE DATE: 8/8/88
ALL SPENT WASTES NUMBERS F001-F005 CONTAINING <1% TOTAL F001-F005 SOLVENT CONSTITUENTS ARE PROHIBITED FROM UNDERGROUND INJECTION.
EFFECTIVE DATE: 8/8/90
53FR30908
40CFR148.10

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE PROHIBITING UNDERGROUND INJECTION OF HALOGENATED ORGANIC COMPOUNDS AT CONCENTRATIONS GREATER THAN OR EQUAL TO 10,000 MG/KG.
EFFECTIVE DATE: 8/8/88
53FR30908 8/16/88
40CFR148.12

40CFR148 SUBJECT TO EPA RULE PROHIBITING UNDERGROUND INJECTION OF THIS HAZARDOUS WASTE.
EFFECTIVE DATE: 6/7/89
54FR25416 6/14/89

40CFR148 SUBJECT TO EPA RULE PROHIBITING UNDERGROUND INJECTION OF THIS HAZARDOUS WASTE.
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

REGULATION PROMULGATED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR260

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.31 EPA HAZARDOUS WASTE NO. F024: WASTES, INCLUDING BUT NOT LIMITED TO, DISTILLATION RESIDUES, HEAVY ENDS, TARS, AND REACTOR CLEAN-OUT WASTES FROM THE PRODUCTION OF CHLORINATED ALIPHATIC HYDROCARBONS, HAVING CARBON CONTENT FROM 1-5, UTILIZING FREE RADICAL CATALYZED PROCESSES. (THIS LISTING DOES NOT INCLUDE LIGHT ENDS, SPENT FILTERS AND FILTER AIDS, SPENT DESSICANTS, WASTEWATER, WASTEWATER TREATMENT SLUDGES, SPENT CATALYSTS, AND WASTES LISTED IN 40CFR261.32). (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.31 EPA HAZARDOUS WASTE NO. F001: SPENT HALOGENATED

OF SPENT SOLVENTS AND SPENT SOLVENT MIXTURES. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.31 EPA HAZARDOUS WASTE NO. F002: SPENT HALOGENATED SOLVENT AND STILL BOTTOMS FROM RECOVERY OF THIS SPENT SOLVENT OR SOLVENT MIXTURE. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.31 EPA HAZARDOUS WASTE NO. F025: CONDENSED LIGHT ENDS, SPENT FILTERS AND FILTER AIDS, AND SPENT DESICCANT WASTES FROM THE PRODUCTION OF CERTAIN CHLORINATED ALIPHATIC HYDROCARBONS, BY FREE RADICAL CATALYZED PROCESS. THESE CHLORINATED ALIPHATIC HYDROCARBONS ARE THOSE HAVING CARBON CHAIN LENGTHS RANGING FROM ONE TO AND INCLUDING FIVE, WITH VARYING AMOUNTS AND POSITIONS OF CHLORINE SUBSTITUTION. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.32 EPA HAZARDOUS WASTE NO. K028: SPENT CATALYST FROM THE HYDROCHLORINATOR REACTOR IN THE PRODUCTION OF 1,1,1-TRI-CHLOROETHANE. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.32 EPA HAZARDOUS WASTE NO. K018: HEAVY ENDS FROM THE FRACTIONATION COLUMN IN ETHYL CHLORIDE PRODUCTON. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.32 EPA HAZARDOUS WASTE NO. K029: WASTE FROM THE PRODUCT STEAM STRIPPER IN THE PRODUCTION OF 1,1,1-TRICHLOROETHANE. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.32 EPA HAZARDOUS WASTE NO. K019: HEAVY ENDS FROM THE DISTILLATION OF ETHYLENE DICHLORIDE IN ETHYLENE CHLORIDE PRODUCTION. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.32 EPA HAZARDOUS WASTE NO. K086: SOLVENT WASHES AND SLUDGES, CAUSTIC WASHES AND SLUDGES, OR WATER WASHES AND SLUDGES FROM CLEANING TUBS AND EQUIPMENT USED IN THE FORMULATON OF INK FROM PIGMENTS, DRIERS, SOAPS, AND STABILIZERS CONTAINING CHROM-IUM AND LEAD.(T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.32 EPA HAZARDOUS WASTE NO. K095: DISTILLATION BOTTOMS FROM THE PRODUCTION OF 1,1,1-TRICHLOROETHANE.

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
40CFR261.32 EPA HAZARDOUS WASTE NO. K096: HEAVY ENDS FROM THE HEAVY ENDS COLUMN FROM THE PRODUCTION OF 1,1,1-TRICHLOROETHANE.

40CFR261 IDENTIFICATION AND LISTING OF HAZARDOUS WASTES

40CFR268 LAND DISPOSAL RESTRICTIONS

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE ON FIRST THIRD WASTES LAND DISPOSAL RESTRICTIONS.
EFFECTIVE DATE: 8/8/88
53FR31138 8/17/88
40CFR268.33

40CFR302 CERCLA SECTION 102 DESIGNATION, REPORTABLE QUANTITIES AND

REPORTABLE QUANTITY (RQ): 1000 LB. (454 KG)

40CFR370 SARA TITLE III SECTION 311 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART B - REPORTING REQUIREMENTS

40CFR370 SARA TITLE III SECTION 312 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART D - INVENTORY FORMS

40CFR372 SARA TITLE III SECTION 313 TOXIC CHEMICAL RELEASE REPORTING: COMMUNITY RIGHT-TO-KNOW

40CFR712 THIS SUBSTANCE IDENTIFIED IN THE PRELIMINARY ASSESSMENT INFORMATION RULE (PAIR). MANUFACTURERS AND IMPORTERS WHO PRODUCE THIS SUBSTANCE ARE REQUIRED TO SUBMIT PRODUCTION VOLUME, END USE AND EXPOSURE DATA TO THE ENVIRONMENTAL PROTECTION AGENCY (EPA).

40CFR716 THIS SUBSTANCE LISTED IN THE HEALTH AND SAFETY DATA REPORTING RULE UNDER SECTION 8(D) OF THE TOXIC SUBSTANCES CONTROL ACT (TSCA) REQUIRING PAST, CURRENT AND PROSPECTIVE MANUFACTURERS, IMPORTERS AND PROCESSORS TO SUBMIT TO EPA COPIES AND LISTS OF UNPUBLISHED HEALTH AND SAFETY STUDIES ON THE LISTED CHEMICALS THAT THEY MANUFACTURE, IMPORT OR PROCESS.

40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT ALLEGED TO HAVE BEEN CAUSED BY A SUBSTANCE OR MIXTURE. EPA MAY INSPECT AND REQUIRE REPORTING OF SUCH RECORDS.
48FR38178 08/22/83

40CFR799 SUBPART B SUBJECT TO SPECIFIC CHEMICAL TEST RULES.

40CFR799.5000 SUBJECT TO TESTING CONSENT ORDERS

49CFR172.101 TABLES OF HAZARDOUS MATERIALS, THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING, AND OTHER REQUIREMENTS
DESIGNATED IN HAZARDOUS MATERIALS TABLES AS HAZARDOUS MATERIAL FOR THE PURPOSE OF TRANSPORTATION.

49CFR172.102 TABLES OF HAZARDOUS MATERIALS, THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING, AND OTHER REQUIREMENTS
DESIGNATED IN OPTIONAL HAZARDOUS MATERIALS TABLE WITH ALTERNATIVES TO CORRESPONDING REQUIREMENTS IN 49CFR172.101 FOR INTERNATIONAL SHIPMENTS AS AUTHORIZED BY 49CFR171.12.

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) - TABLE 2-14 DANGEROUS GOODS LIST; THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING AND OTHER REQUIREMENTS.
DESIGNATED AS A DANGEROUS GOOD FOR THE PURPOSE OF AIR TRANSPORATION.

33CFR160.211 AND 213 U.S. COAST GUARD REQUIRES 24 HOURS ADVANCE NOTICE TO CAPTAIN OF THE PORT WHEN THIS SUBSTANCE IS SCHEDULED TO ARRIVE AT OR DEPART FROM PORT.

WATER QUALITY CRITERIA COMPLETED/PUBLISHED CLEAN WATER ACT

SUBSTANCE LISTED TOXIC SUBSTANCES CONTROL ACT INVENTORY

SUBSTANCE LISTED AS TOXIC POLLUTANT UNDER CLEAN WATER ACT (CWA) SECTION 307(A)

THE ENVIRONMENTAL PROTECTION AGENCY HAS ISSUED A FINAL RULE PROMULGATING REGULATIONS UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), AS AMENDED BY THE HAZARDOUS AND SOLID WASTES AMENDMENTS OF 1984, RESTRICTING LAND DISPOSAL OF CERTAIN "CALIFORNIA LIST" WASTES. HAZARDOUS WASTES CONTAINING HALOGENATED ORGANIC COMPOUNDS IN TOTAL CONCENTRATIONS GREATER THAN OR EQUAL TO 1000 MG/KG ARE PROHIBITED FROM LAND DISPOSAL.
EFFECTIVE DATE: 7/8/87
(52FR25760 7/8/87)

LIST "C" CHEMICAL
FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) REGISTERED ACTIVE INGREDIENT WHICH MUST BE REREGISTERED IN ACCORDANCE WITH NEW STANDARDS FOR REGISTRATION.
54FR30847 7/24/89

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STATE REGULATIONS
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UNDER THE CALIFORNIA AIR TOXICS HOT SPOTS INFORMATION AND ASSESSMENT ACT OF 1987, OPERATORS OF FACILITIES WHICH RELEASE, OR HAVE THE POTENTIAL TO RELEASE, SPECIFIED QUANTITIES OF THIS SUBSTANCE MUST SUBMIT TO THE APPROPRIATE LOCAL AIR POLLUTION CONTROL DISTRICTS, OR AIR QUALITY MANAGEMENT DISTRICTS, COMPREHENSIVE EMISSIONS INVENTORY PLANS AND HEALTH RISK ASSESSMENTS ADOPTED BY THE CALIFORNIA AIR RESOURCES BOARD (ARB).
EFFECTIVE DATE: 1/1/88
AB 2588, CHAPTER 1252

SUBSTANCE LISTED UNDER THE STATE OF CALIFORNIA HAZARDOUS SUBSTANCES INFORMATION AND TRAINING ACT, CALIFORNIA LABOR CODE, DIVISION 5, CHAPTER 2.5

SUBSTANCE LISTED BY THE NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 1983, CHAPTER 315, N.J.S.A. 34: A-1. EMPLOYERS COVERED: SIC CODES 20-39, 46-49, 51, 75, 76, 80, 82, AND 84.

SUBSTANCE LISTED UNDER THE STATE OF FLORIDA TOXIC SUBSTANCES IN THE WORKPLACE RIGHT TO KNOW LAW, CHAPTER 442 OF THE FLORIDA STATUTES.

SUBSTANCE LISTED UNDER THE STATE OF WEST VIRGINIA DIRECTOR OF HEALTH LEGISLATIVE RULES FOR HAZARDOUS SUBSTANCES, CHAPTER16, ARTICLE 31, SECTION 4(A).

SUBSTANCE LISTED UNDER THE STATE OF PENNSYLVANIA WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 734, NO. 159.

SUBSTANCE LISTED UNDER THE STATE OF ILLINOIS TOXIC SUBSTANCES DISCLOSURE TO EMPLOYEES ACT, TITLE 56, CHAPTER I, SUBCHAPTER B, SECTION 205.

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INTERNATIONAL REGULATIONS
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THIS SUBSTANCE SUBJECT TO REQUIREMENTS OF CANADA'S WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS). THE REGULATIONS REQUIRE SUPPLIERS OF HAZARDOUS MATERIALS TO PROVIDE ADEQUATE LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS'S) AS CONDITIONS OF SALE AND IMPORTATION. EMPLOYERS MUST PROVIDE LABELS, MSDS'S AND WORKER EDUCATION PROGRAMS IN THE WORKPLACE.
EFFECTIVE DATE: 10/31/88

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ADDITIONAL INFORMATION
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CERCLA PRIORITY GROUP III SUBSTANCE
53FR41280

THIS SUBSTANCE TESTED FOR CARCINOGENESIS BY THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)

THIS SUBSTANCE TESTED FOR SUBCHRONIC TOXICITY BY THE AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR)

TECHNICAL REPORTS ON HOLD BY THE NATIONAL TOXICOLOGY PROGRAM (NTP).

CHEMICAL ASSIGNED TO LABORATORY FOR TOXICOLOGY STUDY BY THE NATIONAL TOXICOLOGY PROGRAM (NTP).

40CFR268 LAND DISPOSAL RESTRICTIONS

MEDICAL SURVEILLANCE REQUIRED
EKG RECOMMENDED IF EMPLOYEE TO WEAR FULL-FACE RESPIRATOR
GENERAL MEDICAL HISTORY
40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS
48FR38187 08/22/83
48FR39225 08/30/83 (EFFECTIVE DATE CORRECTION)
PHYSICIAN EXAMINATION
INDUSTRIAL EXPOSURE HISTORY
PRE-PLACEMENT AND ANNUAL EXAMS
MEDICAL WARNING FOR REFUSAL OF MEDICAL EXAMINATION

OSHA:
SKIN EXAM
LIVER FUNCTION
CARDIOVASCULAR DISEASE

OTHER MEDICAL SURVEILLANCE RECOMMENDED:

CENTRAL NERVOUS SYSTEM EXAMINATION
ACGIH BIOLOGICAL EXPOSURE INDICES FOR METHYL CHLOROFORM:
40 PPM METHYL CHLOROFORM IN END-EXHALED AIR / TIMING -- PRIOR TO LAST

END OF WORKWEEK

10 MG/L TRICHLOROACETIC ACID IN URINE / TIMING -- END OF WORKWEEK
30 MG/L TOTAL TRICHLOROETHANOL IN URINE / TIMING -- END OF SHIFT AT END OF WORKWEEK
1 MG/L TOTAL TRICHLOROETHANOL IN BLOOD / TIMING -- END OF SHIFT AT END OF WORKWEEK

CERTIFICATIONS

HEALTH STATUS CLASSIFICATION

NO FEDERAL AGENCY REQUIREMENT, BUT DUE TO HAZARDOUS NATURE OF SUBSTANCE, ADVISE FOLLOWING:

OSHA RESPIRATOR CERTIFICATION 29CFR1910.134

DEPARTMENT OF TRANSPORTATION IF OPERATES HEAVY EQUIPMENT

EMPLOYEE HAZARDOUS MATERIALS EDUCATION RECEIPT

EMPLOYEE MEDICAL RECORDS RECEIPT

TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS. CONTACT: CHARLES L. ELKINS, OFFICE OF TOXIC SUBSTANCES, EPA (202) 382-3813.

MEDICAL WARNING REQUIRED FOR MEDICAL EXAM REFUSAL SIGNED BY EMPLOYEE

SPECIAL DIAGNOSTIC TESTS

IF SYMPTOMS OF CENTRAL NERVOUS SYSTEM OCCUR, OBTAIN BLOOD GLUCOSE AND RECTAL TEMPERATURE. PERFORM COMPLETE NEUROLOGIC EXAMINATION AND ANY OTHER SPECIFIC NEUROLOGIC TESTS AS APPLICABLE
SERUM GLUTAMIC-PYRUVIC TRANSAMINASE (SGPT)
SERUM GLUTAMIC-OXALOACETIC TRANSAMINASE (SGOT)
INFRARED SPECTROSCOPY OR GAS CHROMATOGRAPHY TO TEST EXPIRED AIR.
URINARY UROBILINOGEN

LEAKS AND SPILL PROCEDURES

REPORTABLE QUANTITY (RQ) 1000 LB. (454 KG)
A REPORTABLE QUANTITY OF ONE THOUSAND POUNDS APPLIES TO THIS SUBSTANCE ESTABLISHED BY SECTIONS 101(14) AND 102(B) OR ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESOPNSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA). SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OF FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THAT SUBSTANCE IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER (800) 424-8802; IN THE WASHINGTON, D.C. METROPOLITAN AREA (202) 426-2675.
40CFR302

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DEPARTMENT OF TRANSPORTATION HAZARD CLASS
49CFR172.101 HAZARDOUS MATERIALS TABLE

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS
49CFR172.101 AND 49CFR172 SUBPART E:

NONE

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INTERNATIONAL MARITIME ORGANIZATION HAZARD CLASS
49CFR172.102 OPTIONAL HAZARDOUS MATERIALS TABLE

CLASS 6.1-POISONOUS (TOXIC) SUBSTANCE

INTERNATIONAL MARITIME ORGANIZATION LABELING SPECIFICATIONS FOR
DOMESTIC AND EXPORT SHIPMENTS
49CFR172.102

ST. ANDREWS CROSS

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FOLLOWING INFORMATION RECOMMENDED FOR THE EMERGENCY HANDLING OF
HAZARDOUS MATERIALS

IF MATERIAL ON FIRE OR INVOLVED IN FIRE:
* USE FLOODING QUANTITIES OF WATER TO COOL ALL AFFECTED CONTAINERS
* WATER SHOULD BE APPLIED FROM AS FAR A DISTANCE AS POSSIBLE
* USE SUITABLE AGENT FOR TYPE OF SURROUNDING FIRE TO EXTINGUISH FIRE (MATERIAL ITSELF DOES NOT BURN OR BURNS WITH DIFFICULTY)
* CONTAIN RUN-OFF WATER TO AVOID CONTAMINATION OF SEWERS AND WATER SOURCES

IF MATERIAL IS NOT ON FIRE AND IS NOT INVOLVED IN FIRE:
* DO NOT ALLOW MATERIAL TO CONTAMINATE WATER SOURCES AND SEWERS
* ATTEMPT TO STOP LEAK IF WITHOUT HAZARD
* CONTROL VAPORS WITH WATER SPRAY

PERSONNEL PROTECTION:
* AVOID BREATHING DUST/VAPORS/FUMES FROM MATERIAL
* WEAR FULL PROTECTIVE CLOTHING (FIREMANS GEAR INADEQUATE)
* WEAR SELF-CONTAINED BREATHING APPARATUS WHEN FIGHTING FIRES INVOLVING THIS MATERIAL
* WASH CONTAMINATED SKIN WITH COPIOUS AMOUNTS OF WATER OR SOAP AND WATER
* AVOID SKIN CONTACT WITH MATERIAL

LAND SPILL:
* DIG A HOLDING AREA SUCH AS A PIT, POND, OR LAGOON TO CONTAIN LIQUID OR SOLID MATERIAL
* DIKE FLOW OF SPILLED MATERIAL USING SOIL OR SANDBAGS OR FOAMED BARRIERS SUCH AS POLYURETHANE OR CONCRETE
* USE CEMENT POWDER OR FLY ASH TO ABSORB LIQUID MASS

WATER SPILL:
* LIMIT SPILL MOTION WITH NATURAL BARRIERS OR OIL SPILL CONTROL BOOMS
* USE NATURAL DEEP WATER POCKETS, EXCAVATED LAGOONS, OR SAND BAG BARRIERS TO TRAP MATERIAL AT BOTTOM

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FOLLWING INFORMATION FROM DEPARTMENT OF TRANSPORTATION/U.S. COAST GUARD "CHEMICAL RESPONSE INFORMATION SYSTEM", REGARDING WATER SPILLS:

* RESTRICT ACCESS OF GENERAL PUBLIC WHEN APPRECIABLE DANGER ARISES FROM SPILL
* CONTAIN SURFACE SLICKS
* PUMP SINKING LIQUID OR FINELY DIVIDED SOLIDS
* HIGHLY VOLATILE, AVOID INHALATION, VAPORS OR DUST ARE IRRITATING OR TOXIC
* HIGHLY CORROSIVE, AVOID DIRECT CONTACT, CONTACT WITH SKIN OR EYES CAN CAUSE IRRITATION OR BURNS
* BURNING NOT RECOMMENDED, FIRE DIFFICULT TO CONTROL AND/OR POISONOUS GAS IS FORMED

* U.S. COAST GUARD REQUIRES 24 HOUR ADVANCE NOTICE TO CAPTAIN OF THE PORT WHEN THIS SUBSTANCE IS SCHEDULED TO ARRIVE AT PORT WHEN TRANSPORTED IN BULK QUANTITY

LISTED BY U.S. COAST GUARD UNDER CARGO COMPATIBILITY GROUP HALOGENATED HYDROCARBONS, INCOMPATIBLE WITH CAUSTICS

OCCUPATIONAL SPILL:
SHUT OFF IGNITION SOURCES. STOP LEAK IF YOU CAN DO IT WITHOUT RISK. FOR SMALL LIQUID SPILLS, TAKE UP WITH SAND, EARTH OR OTHER ABSORBANT MATERIAL. FOR LARGER SPILLS, DIKE FAR AHEAD OF SPILL FOR LATER DISPOSAL. NO SMOKING, FLAMES OR FLARES IN HAZARD AREA. KEEP UNNECESSARY PEOPLE AWAY.

WASTE

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OBSERVE ALL FEDERAL, STATE OR LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. CONTACT LOCAL AND/OR STATE ENVIRONMENTAL AUTHORITIES TO INSURE PROPER COMPLIANCE.

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THIS SUBSTANCE MEETS THE DEFINITION OF A HAZARDOUS WASTE AS DEFINED BY THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) (40CFR260) AND IS SUBJECT TO THE FOLLOWING CONSIDERATIONS:

40CFR260 HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

PROVIDES DEFINITIONS OF TERMS, GENERAL STANDARDS, AND OVERVIEW INFORMATION APPLICABLE TO 40CFR PARTS 260-265

40CFR261 IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

IDENTIFIES THOSE SOLID WASTES WHICH ARE SUBJECT TO REGULATION AS HAZARDOUS WASTES UNDER 40CFR PARTS 262-265, 270, 271, AND 124 AND WHICH ARE SUBJECT TO THE NOTIFICATION REQUIREMENTS OF SECTION 3010 OF THE

OF RCRA

40CFR261.33 DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUES, AND SPILL RESIDUES THEREOF
EPA HAZARDOUS WASTE NUMBER U226
1,1,1-TRICHLOROETHANE

40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K096
REPORTABLE QUANTITY (RQ) : 100 LBS.
A REPORTABLE QUANTITY OF 100 LBS. APPLIES TO THIS HAZARDOUS WASTE FROM SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.32. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (200) 426-2675.

40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K073
REPORTABLE QUANTITY (RQ) : 10 LBS.
A REPORTABLE QUANTITY OF 10 LBS. APPLIES TO THIS HAZARDOUS WASTE FROM SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.32. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K019
40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K020
40CFFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K028
40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K029
REPORTABLE QUANTITY (RQ) : 1 LB.
A REPORTABLE QUANTITY OF 1 LB. APPLIES TO THIS HAZARDOUS WASTE FROM SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.32. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OR A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F001
40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES

A REPORTABLE QUANTITY OR 1000 LBS. APPLIES TO THIS HAZARDOUS WASTE FROM NON-SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.31. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F024
REPORTABLE QUANTITY (RQ) : 1 LB.
A REPORTABLE QUANTITY OF 1 LB. APPLIES TO THIS HAZARDOUS WASTE FROM NON-SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.31. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR262 STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

ESTABLISHES STANDARDS FOR GENERATORS OF HAZARDOUS WASTE

40CFR263 STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

ESTABLISHES STANDARDS WHICH APPLY TO PERSONS TRANSPORTING HAZARDOUS WASTE WITHIN THE UNITED STATES IF THE TRANSPORTATION REQUIRES A MANIFEST UNDER 40CFR262

40CFR264 STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS WHICH DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE

40CFR265 INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS WHICH DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE DURING THE PERIOD OF INTERIM STATUS

40CFR267 INTERIM STANDARDS FOR OWNERS AND OPERATORS OF NEW HAZARDOUS WASTE LAND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS THAT DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE FOR NEW LAND DISPOSAL FACILITIES

40CFR270 EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

ESTABLISHES PROVISIONS FOR THE HAZARDOUS WASTE PERMIT PROGRAM UNDER SUBTITLE C OF THE SOLID WASTE DISPOSAL ACT, AS AMENDED BY THE RESOURCE CONSERVATION AND RECOVERY ACT

40CFR271 REQUIREMENT FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

SPECIFIES THE PROCEDURES EPA WILL FOLLOW IN APPROVING, REVISING, AND WITHDRAWING APPROVAL OF STATE PROGRAMS AND THE REQUIREMENTS STATE PROGRAMS MUST MEET TO BE APPROVED BY THE ADMINISTRATION UNDER SECTION 3006(B) OF RCRA

40CFR268 LAND DISPOSAL RESTRICTIONS

IDENTIFIES HAZARDOUS WASTES THAT ARE RESTRICTED FROM LAND DISPOSAL AND DEFINES THOSE LIMITED CIRCUMSTANCES UNDER WHICH AN OTHERWISE PROHIBITED WASTE MAY CONTINUE TO BE LAND DISPOSED.

THE ENVIRONMENTAL PROTECTION AGENCY HAS ISSUED A FINAL RULE PROMULGATING REGULATIONS UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), AS AMENDED BY THE HAZARDOUS AND SOLID WASTES AMENDMENTS OF 1984, RESTRICTING LAND DISPOSAL OF CERTAIN "CALIFORNIA LIST" WASTES. HAZARDOUS WASTES CONTAINING HALOGENATED ORGANIC COMPOUNDS IN TOTAL CONCENTRATIONS GREATER THAN OR EQUAL TO 1000 MG/KG ARE PROHIBITED FROM LAND DISPOSAL.
EFFECTIVE DATE: 7/8/87
(52FR25760 7/8/87)

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 8/8/88
53FR30908 8/16/88

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 8/8/90
53FR30908 8/16/88

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 6/7/89
54FR25416 6/14/89

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

CAS NUMBER
71-55-6

REGISTRY TOXIC CHEMICALS NUMBER
KJ2975000

BULLETINS
EPA IS PUTTING CURRENT USERS OF METHYL CHLOROFORM ON NOTICE THAT A FREEZE AND/OR REDUCTION IN THE PRODUCTION AND CONSUMPTION OF THE SUBSTANCE IMPLEMENTED BY THE MONTREAL PROTOCOL MAY BE FORTHCOMING.
54FR15228 4/17/89

SPECIAL INFORMATION

HYDROGEN CHLORIDE).
TYPE WHAT INFORMATION YOU REQUIRE
/ALL/, SPECIFIC INFORMATION (BY 4-LETTER COMMAND, /HELP/, OR /NONE/.

1,1,1-TRICHLOROETHANE - NO MORE HITS IN DATABASE.

ENTER NAME, KEYWORD, SYMPTOM, STLA, NAMELIST, HELP, OR QUIT.

ENTER WHICH OHS SERVICE YOU WISH TO ACCESS:
> TO ACCESS HAZARDLINE, TYPE /HAZARD/
> TO ACCESS ENVIRONMENTAL HEALTH NEWS, TYPE /EHN/
> TO ACCESS MATERIAL SAFETY DATA SHEET, TYPE /MSDS/
> TO EXIT THE SYSTEM, TYPE /LOGOFF/
PRESS RETURN KEY AFTER ENTERING COMMAND.

LOGGED OFF LINE # 01 DATE = 07/02/90 TIME = 16-56-04
LOGOFF COMPLETED - G

UNSUPPORTED FUNCTION

UNSUPPORTED FUNCTION
** Inactivity Timeout - Disconnected. **

CHEMICAL NAME
METHYLENE CHLORIDE

FORMULA
CH2CL2

SYNONYMS
DICHLOROMETHANE
METHYLENE DICHLORIDE
NCI-C50102
SOLAESTHIN
R 30
UN 1593
METHANE, DICHLORO-
AEROTHENE MM
DCM
FREON 30
METHANE DICHLORIDE
METHYLENE BICHLORIDE
NARKOTIL
SOLMETHINE
RCRA U080
OHS14930

PERMISSIBLE EXPOSURE LIMIT
500 PPM OSHA TWA: 1000 PPM OSHA CEILING: 2000 PPM OSHA 5 MINUTE PEAK
50 PPM ACGIH TWA
ACGIH A2-SUSPECT HUMAN CARCINOGEN
LOWEST FEASIBLE LIMIT NIOSH RECOMMENDEC EXPOSURE CRITERIA
HUMAN INADEQUATE EVIDENCE FOR CARCINOGENICITY (IARC)
ANIMAL SUFFICIENT EVIDENCE FOR CARCINOGENICITY (IARC)
ANTICIPATED HUMAN CARCINOGEN (NTP)
PROBABLE HUMAN CARCINOGEN (EPA - CATEGORY B)
MUTAGENIC DATA (RTECS)
AQUATIC TOXICITY RATING 1/Z (TLM96 100 - 1000 PPM)
LC RANGE, 96H - PLAICE >120 PPM
CERCLA HAZARD RATINGS - TOXICITY 2 - IGNITABILITY 0 - REACTIVITY 1 - PERSISTENCE 2

TOXICOLOGY: ACUTE INHALATION OR INGESTION CAUSES MILD CENTRAL NERVOUS SYSTEM DEPRESSION. THE PRIMARY TOXIC EFFECT IS NARCOSIS. OTHER TOXIC EFFECTS ARE PULMONARY EDEMA, ENCEPHALOPATHY AND HEMOLYSIS. METHYLENE CHLORIDE IRRITATES THE EYES, SKIN AND RESPIRATORY TRACT. NO SYSTEMIC EFFECTS HAVE BEEN REPORTED IN HUMANS, ALTHOUGH EXCESSIVE CONCENTRATIONS HAVE CAUSED LIVER AND KIDNEY DAMAGE IN ANIMALS.
THE THRESHOLD LIMIT VALUE WAS ESTABLISHED TO PREVENT CARBOXYHEMOGLOBIN FORMATION.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION
POTENTIAL CARCINOGEN
NIOSH

PHYSICAL DESCRIPTION
COLORLESS, VOLATILE LIQUID; PENETRATING ETHER-LIKE ODOR.

CHEMICAL AND PHYSICAL PROPERTIES
MOLECULAR WEIGHT: 85
BOILING POINT AT 1 ATM, F: 104F
SOLUBILITY IN WATER, G/100 G WATER AT 20C: SLIGHT

VAPOR PRESSURE @ 20 C, MMHG: 330MM
MELTING POINT, F: -142F
UPPER EXPLOSIVE LIMIT IN AIR, % BY VOLUME: UNAVAILABLE
LOWER EXPLOSIVE LIMIT IN AIR, % BY VOLUME: 12%
AUTOIGNITION TEMPERATURE: 1033 F
SPECIFIC GRAVITY: 1.335
VAPOR DENSITY (AIR=1): 2.9
ODOR THRESHOLD: 200 PPM

INCOMPATIBILITIES
STRONG OXIDIZERS
CAUSTICS
ACTIVE METALS
SODIUM
POTASSIUM
MAGNESIUM
ALUMINUM POWDER
NITRIC ACID
LITHIUM
METALS
POTASSIUM TERT-BUTOXIDE
SODIUM-POTASSIUM ALLOY
DINITROGEN PENTAOXIDE
DINITROGEN TETRAOXIDE

PERSONAL PROTECTIVE EQUIPMENT
FOLLOWING INFORMATION FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS":

EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT NECESSARY TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE. FACE SHIELDS SHALL COMPLY WITH 29CFR1910.133(A)(2), (A)(4), (A)(5), AND (A)(6).

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ACGIH "GUIDELINES FOR THE SELECTION OF CHEMICAL PROTECTIVE CLOTHING" INDICATED THE FOLLOWING PROTECTIVE RATINGS FOR MATERIALS COMMONLY USED FOR PROTECTIVE CLOTHING. THESE RATINGS ARE BASED PRIMARILY ON QUANTITATIVE TEST RESULTS AND QUALITATIVE RESISTENCE INFORMATION. (THE RECOMMENDATIONS APPLY TO THE PURE SUBSTANCE ONLY; BREAKTHROUGH-TIME MAY VARY FOR MIXTURES.) (A "+" DESIGNATES A BLEND OF MATERIAL, WHILE A "/" DESIGNATES A COATED OR LAMINATED MATERIAL.)
METHYLENE CHLORIDE:
EXCELLENT/GOOD:
NONE INDICATED

GOOD/FAIR:
VITON
NEOPRENE
SILVERSHIELD

POOR/FAIR:
CHLORINATED POLYETHYLENE
NITRILE+POLYVINYL CHLORIDE
TEFLON
POLYVINYL ALCOHOL
VITON
BUTYL NEOPRENE

POOR:

BUTYL RUBBER

NATURAL RUBBER
NEOPRENE
NITRILE
POLYETHYLENE
POLYVINYL CHLORIDE
NEOPRENE+NATURAL RUBBER
VITON/CHLOROBUTYL
NEOPRENE/NATURAL RUBBER

GOGGLES
FOLLOWING INFORMATION FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS":

WASHING CHEMICALS FROM THE SKIN
FOLLOWING INFORMATION FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS":

EMPLOYERS SHALL ENSURE THAT EMPLOYEES WHOSE SKIN BECOMES WET WITH THIS SUBSTANCE PROMPTLY WASH OR SHOWER WITH SOAP OR MILD DETERGENT AND WATER TO REMOVE ANY CONTAMINANT FROM THE SKIN.

ROUTINE CHANGING OF WORK CLOTHING
NOT REQUIRED

CLOTHING REMOVAL FOLLOWING ACCIDENTAL CONTAMINATION
FOLLOWING INFORMATION FROM NIOSH/OSHA "OCCUPATIONAL HEALTH GUIDELINES FOR CHEMICAL HAZARDS":

EMPLOYERS SHALL ENSURE THAT NON-IMPERVIOUS CLOTHING WHICH BECOMES WET WITH THIS SUBSTANCE BE REMOVED PROMPTLY AND NOT REWORN UNTIL THE SUBSTANCE IS REMOVED FROM THE CLOTHING.

SPECIFIC EMERGENCY PROVISIONS
NONE REQUIRED

RESPIRATOR SELECTION (UPPER LIMIT DEVICES PERMITTED)

ANY DETECTABLE CONC
- SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE-PIECE OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE
- SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE WITH AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN POSITIVE PRESSURE MODE

ESCAPE
- GAS MASK WITH AN ORGANIC VAPOR CANISTER (CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER)
- APPROPRIATE ESCAPE-TYPE SELF-CONTAINED BREATHING APPARATUS

FIREFIGHTING
- SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACE-PIECE OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE

ROUTE OF ENTRY INTO BODY
- INHALATION
- INGESTION
- SKIN OR EYE CONTACT

SYMPTOMS
- FATIGUE
- WEAKNESS
- SLEEPINESS
- LIGHTHEADEDNESS
- NUMBNESS EXTREMITIES
- HEADACHE
- EYE IRRITATION
- SKIN IRRITATION
- NAUSEA
- ANGINA
- CENTRAL NERVOUS SYSTEM DEPRESSION
- PERIPHERAL NEUROPATHY
- ERYTHEMA
- NARCOSIS
- ACIDOSIS
- HEMOLYSIS
- UNCONSCIOUSNESS
- RESPIRATORY EDEMA
- HEMATURIA
- ENCEPHALOPATHY
- INCOORDINATION
- PNEUMONIA
- COMATOSE
- HYPOTHERMIA
- LIVER DAMAGE IN EXPERIMENTAL ANIMALS
- KIDNEY DAMAGE IN EXPERIMENTAL ANIMALS

FIRST AID PROCEDURES FOLLOWING EXPOSURE

INHALATION OF METHYLENE CHLORIDE:

EMERGENCY TREATMENT - REMOVE FROM EXPOSURE. GIVE ARTIFICIAL RESPIRATION. REMOVE CONTAMINATED CLOTHING. DO NOT GIVE STIMULANTS.

FURTHER TREATMENT - TREAT PULMONARY EDEMA.
(DREISBACH, HANDBOOK OF POISONING, 11TH ED.)

PULMONAY EDEMA - RELIEVE ANXIETY. GIVE MORPHINE SULFATE, 10 MG, TO DECREASE RATE OF RAPID, INEFFICIENT RESPIRATION. GIVE 40% OXYGEN BY FACE MASK. USE INTERMITTENT POSITIVE-PRESSURE OXYGEN RESUSCITATOR FOR SHORT PERIODS. GIVE AMINOPHYLLINE, 0.5 G, INTRAVENOUSLY, TO RELIEVE ASSOCIATED BRONCHIAL CONSTRICTION. TREAT EDEMA CAUSED BY MORPHINE OR MORPHINE ANALOGS BY GIVING NALOXONE AND OXYGEN.
GENERAL MEASURES - DIURESIS WITH ETHACRYNIC ACID (EDECRIN), 25 MG ORALLY OR INTRAVENOUSLY, OR FLUROSEMIDE, 20-80 MG ORALLY OR INTRAVENOUSLY, IS HELPFUL BECAUSE IT REDUCES FLUID VOLUME. DO NOT INJECT AT A RATE FASTER THAN 10 MG/MIN. GIVE CORTICOSTEROID ANTI-INFLAMMATORY AGENT IN MAXIMUM DOSES. IF PULMONARY EDEMA IS THE RESULT OF HEART FAILURE, DIGITALIZE THE PATIENT.
PROCEDURE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

IMMEDIATELY GIVE PERSON LARGE QUANTITIES OF WATER. AFTER WATER HAS BEEN SWALLOWED, TRY TO GET THE PERSON TO VOMIT BY HAVING HIM TOUCH THE BACK OF HIS THROAT WITH HIS FINGER. DO NOT MAKE AN UNCONSCIOUS PERSON VOMIT. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTED METHYLENE CHLORIDE:
EMERGENCY TREATMENT - REMOVE BY GASTRIC LAVAGE OR EMESIS USING ACTIVATED CHARCOAL.
FURTHER TREATMENT - TREAT HEMOLYTIC REACTION. GIVE HYDROCORTISON, 200 MG, EVERY FOUR HOURS.
SPECIAL TREATMENT - TREAT ASPIRATION PNEUMONIA WITH ANTIBIOTICS. GIVE BLOOD TRANSFUSIONS IF GASTROINTESTINAL HEMORRHAGE IS EXCESSIVE. TREAT ACIDOSIS AND PULMONARY EDEMA.
(MEDICATION MUST BE GIVEN BY QUALIFIED MEDICAL PERSONNEL)
(DREISBACH, HANDBOOK OF POISONING, 11TH ED.)

GASTRIC LAVAGE - GIVE PATIENT GLASS OF WATER PRIOR TO PASSING OF STOMACH TUBE. LAY PATIENT ON ONE SIDE, WITH HEAD LOWER THAN WAIST. IMMOBILIZE A STRUGGLING PATIENT WITH A SHEET OR BLANKET. MEASURE DISTANCE ON TUBE FROM MOUTH TO EPIGASTRIUM, MARK TUBE WITH INDELIBLE MARKING OR TAPE. REMOVE DENTURES AND OTHER FOREIGN OBJECTS FROM THE MOUTH. OPEN MOUTH, USE GAG IF NECESSARY. EXTEND HEAD BY LIFTING CHIN. PASS TUBE OVER TONGUE AND TOWARD BACK OF THROAT WITHOUT EXTENDING HEAD OR NECK. IF OBSTRUCTION IS MET BEFORE THE MARK ON TUBE REACHES LEVELS OF THE TEETH, DO NOT FORCE, BUT REMOVE TUBE AND REPEAT PROCEDURE UNTIL TUBE PASSES TO MARK. PLACE END OF TUBE IN GLASS OF WATER. IF TUBE IS OBSTRUCTED WHEN INTRODUCED ABOUT HALFWAY TO THE MARK, IT MAY HAVE ENTERED TRACHEA.
AFTER TUBE IS PLACED IN STOMACH, ASPIRATE FIRST TO REMOVE STOMACH CONTENTS BY IRRIGATION SYRINGE. SAVE STOMACH CONTENTS FOR EXAMINATION, AND REPEAT INTRODUCTION AND WITHDRAWL OF 100-300 ML WARM WATER UNTIL AT LEAST 3 LITERS OF CLEAR RETURN ARE OBTAINED. USE ACTIVATED CHARCOAL AT BEGINNING OF LAVAGE TO AID IN POISON INACTIVATION. LEAVE 50 GRAMS OF CHARCOAL SUSPENDED IN WATER IN THE STOMACH. IF INTRODUCTION AND REMOVAL OF LAVAGE FLUID BY GRAVITY REQUIRES MORE THAN FIVE MINUTES, ASSIST WITH ASEPTO SYRINGE. PREVENT ASPIRATION WITH CUFFED ENDOTRACHEAL TUBE. AVOID GIVING LARGE QUANTITIES OF WATER.
IF PATIENT COMATOSE, INTUBATE TRACHEA WITH CUFFED ENDOTRACHEAL TUBE. SUCCINYLCHLORINE MAY BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL TO EASE INSERTION OF TRACHEAL CATHETER PRIOR TO PASSAGE OF STOMACH TUBE. PROCEDURE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

ACTIVATED CHARCOAL - GIVE ACTIVATED CHARCOAL WITHIN THE FIRST FEW MINUTES OF POISONING. GIVE PORTIONS EQUIVALENT TO ABOUT 5 ML FOR EACH KILOGRAM OF BODY WEIGHT, ORALLY OR BY GASTRIC LAVAGE. REMOVE BY SUCTION OR EMESIS, AND REPEAT THE PROCEDURE UNTIL A TOTAL OF 100 GM OF CHARCOAL HAS BEEN INTRODUCED AND RECOVERED. EACH GRAM OF ACTIVATED CHARCOAL WILL ADSORB 100-1000 MG OF POISON. DO NOT MIX CHARCOAL WITH OTHER AGENTS TO INCREASE PALATABILITY.
GASTRIC LAVAGE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

HEMOLYTIC REACTION - IN THE PRESENCE OF HEMOGLOBINURIA WITH NORMAL KIDNEY FUNCTION, MAINTAIN URINE OUTPUT AT 2-3 ML/KG/HOUR. FUROSEMIDE, 20-80 MG ORALLY OR INTRAVENOUSLY EVERY 4-8 HOURS, MAY BE HELPFUL. ALKALINIZE THE URINE BY GIVING SODIUM BICARBONATE, 1-2 MEQ/KG EVERY 12 HOURS. MONITOR CENTRAL VENOUS PRESSURE AND ELECTROLYTES. MANNITOL ADMINISTRATION HAS BEEN USED TO MAINTAIN URINE OUTPUT.

MAY PREVENT RENAL FAILURE.
IN THE PRESENCE OF METHEMOGLOBINEMIA WITH HEMOLYSIS, TREAT METHEMOGLOBINEMIA BY GIVING METHYLENE BLUE, 1 MG/KG.
PROCEDURE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

ACIDOSIS - MAINTAIN ADEQUATE AIRWAY; GIVE ARTIFICIAL RESPIRATION; TREAT ANURIA.
(DREISBACH, HANDBOOK OF POISONING, 11TH ED.)

ACUTE RENAL FAILURE - TREAT SHOCK. FOR HEMOLYTIC REACTIONS, GIVE SODIUM BICARBONATE, 5 G EVERY 1-2 HOURS AS NECESSARY TO MAINTAIN AN ALKALINE URINE.GET MEDICAL ATTENTION IMMEDIATELY.
(MEDICATION MUST BE GIVEN BY QUALIFIED MEDICAL PERSONNEL)
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.)

PULMONAY EDEMA - RELIEVE ANXIETY. GIVE MORPHINE SULFATE, 10 MG, TO DECREASE RATE OF RAPID, INEFFICIENT RESPIRATION. GIVE 40% OXYGEN BY FACE MASK. USE INTERMITTENT POSITIVE-PRESSURE OXYGEN RESUSCITATOR FOR SHORT PERIODS. GIVE AMINOPHYLLINE, 0.5 G, INTRAVENOUSLY, TO RELIEVE ASSOCIATED BRONCHIAL CONSTRICTION. TREAT EDEMA CAUSED BY MORPHINE OR MORPHINE ANALOGS BY GIVING NALOXONE AND OXYGEN.
GENERAL MEASURES - DIURESIS WITH ETHACRYNIC ACID (EDECRIN), 25 MG ORALLY OR INTRAVENOUSLY, OR FLUROSEMIDE, 20-80 MG ORALLY OR INTRAVENOUSLY, IS HELPFUL BECAUSE IT REDUCES FLUID VOLUME. DO NOT INJECT AT A RATE FASTER THAN 10 MG/MIN. GIVE CORTICOSTEROID ANTI-INFLAMMATORY AGENT IN MAXIMUM DOSES. IF PULMONARY EDEMA IS THE RESULT OF HEART FAILURE, DIGITALIZE THE PATIENT.
PROCEDURE MUST BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
(DREISBACH, HANDBOOK OF POISONING, 12TH ED.).

ORGANS
CENTRAL NERVOUS SYSTEM
CARDIOVASCULAR SYSTEM
SKIN
RESPIRATORY SYSTEM
EYES

STATUS OF REGULATORY ENFORCEMENT
OSHA STANDARD 29CFR1910.1200 HAZARD COMMUNICATION
REQUIRES CHEMICAL MANUFACTURERS AND IMPORTERS TO ASSESS THE HAZARDS OF CHEMICALS WHICH THEY PRODUCE OR IMPORT, AND ALL EMPLOYERS TO PROVIDE INFORMATION TO THEIR EMPLOYEES CONCERNING HAZARDOUS CHEMICALS BY MEANS OF A HAZARD COMMUNICATION PROGRAM, LABELS AND OTHER FORMS OF WARNING, MATERIAL SAFETY DATA SHEETS, AND INFORMATION AND TRAINING. REQUIRES DISTRIBUTORS TO TRANSMIT REQUIRED INFORMATION TO EMPLOYERS.
52FR31852 8/24/87

OSHA STANDARD 29CFR1910.1000 AIR CONTAMINANTS
TABLE Z-2

OSHA STANDARD 29CFR1910.94 VENTILATION

OSHA STANDARD 29CFR1910.134 RESPIRATORY PROTECTION

OSHA STANDARD 29CFR1910.20 ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

OSHA STANDARD 29CFR1910.132 PERSONAL PROTECTIVE EQUIPMENT

OSHA STANDARD 29CFR1910.141 SANITATION

OSHA STANDARD 29CFR1910.151 MEDICAL SERVICES AND FIRST AID

OSHA STANDARD 29CFR1910.133 EYE AND FACE PROTECTION

40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT ALLEGED TO HAVE BEEN CAUSED BY A SUBSTANCE OR MIXTURE. EPA MAY INSPECT AND REQUIRE REPORTING OF SUCH RECORDS.
48FR38178 08/22/83

SUBSTANCE LISTED TOXIC SUBSTANCES CONTROL ACT INVENTORY

SUBSTANCE LISTED AS TOXIC POLLUTANT UNDER CLEAN WATER ACT (CWA) SECTION 307(A)

40CFR116 DESIGNATION OF HAZARDOUS SUBSTANCE
DESIGNATED AS HAZARDOUS SUSBSTANCE IN ACCORDANCE WITH SECTION 311(B)(2)(A) OF THE CLEAN WATER ACT. INCLUDES ANY ISOMERS AND HYDRATES, AS WELL AS ANY SOLUTIONS AND MIXTURES CONTAINING THIS SUBSTANCE.

40CFR261 IDENTIFICATION AND LISTING OF HAZARDOUS WASTES

49CFR172.101 TABLES OF HAZARDOUS MATERIALS, THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING, AND OTHER REQUIREMENTS
DESIGNATED IN HAZARDOUS MATERIALS TABLES AS HAZARDOUS MATERIAL FOR THE PURPOSE OF TRANSPORTATION.

49CFR172.102 TABLES OF HAZARDOUS MATERIALS, THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING, AND OTHER REQUIREMENTS
DESIGNATED IN OPTIONAL HAZARDOUS MATERIALS TABLE WITH ALTERNATIVES TO CORRESPONDING REQUIREMENTS IN 49CFR172.101 FOR INTERNATIONAL SHIPMENTS AS AUTHORIZED BY 49CFR171.12.

TOXIC SUBSTANCE CONTROL ACT (TSCA) SECTION 8(E) INITIAL EVALUATION OF SUBSTANTIAL RISK SUBMITTED TO EPA

TECHNICAL ASSISTANCE DATA COMPLETED/PUBLISHED CLEAN WATER ACT (CWA) SECTION 311

TECHNICAL ASSISTANCE DATA COMPLETED/PUBLISHED FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

REGULATION PROMULGATED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR260

CONTROL TECHNOLOGY DEVELOPMENT COMPLETED/PUBLISHED CLEAN WATER ACT (CWA)

SUMMARY REVIEW COMPLETED/PUBLISHED TOXIC SUBSTANCES CONTROL ACT (TSCA)

PREREGULATORY ASSESSMENT IN DEVELOPMENT/PROGRESS SAFE DRINKING WATER ACT (SWDA)

SOURCE/EXPOSURE ASSESSMENT COMPLETED/PUBLISHED CLEAN AIR ACT (CAA)

ANALYTICAL METHODS DEVELOPMENT COMPLETED/PUBLISHED CLEAN AIR ACT (CAA)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.31 EPA HAZARDOUS WASTE NO. F001: SPENT HALOGENATED SOLVENTS USED IN DEGREASING AND STILL BOTTOMS FROM THE RECOVERY OF SPENT SOLVENTS AND SPENT SOLVENT MIXTURES. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.31 EPA HAZARDOUS WASTE NO. F002: SPENT HALOGENATED SOLVENT AND STILL BOTTOMS FROM RECOVERY OF THIS SPENT SOLVENT OR SOLVENT MIXTURE. (T)

WATER QUALITY CRITERIA COMPLETED/PUBLISHED CLEAN WATER ACT (CWA) SECTION 304(A) 45CFR231

WATER QUALITY CRITERIA DOCUMENT COMPLETED/PUBLISHED CLEAN WATER ACT (CWA) SECTION 304(A)

REGULATION IN DEVELOPMENT/PROGRESS COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) SECTION 101

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.32 EPA HAZARDOUS WASTE NO. K009: DISTILLATION BOTTOMS FROM THE PRODUCTION OF ACETALDEHYDE FROM ETHYLENE. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.32 EPA HAZARDOUS WASTE NO. K010: DISTILLATION SIDE CUTS FROM THE PRODUCTION OF ACETALDEHYDE FROM ETHYLENE. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.31 EPA HAZARDOUS WASTE NO. F024: WASTES, INCLUDING BUT NOT LIMITED TO, DISTILLATION RESIDUES, HEAVY ENDS, TARS, AND REACTOR CLEAN-OUT WASTES FROM THE PRODUCTION OF CHLORINATED ALIPHATIC HYDROCARBONS, HAVING CARBON CONTENT FROM 1-5, UTILIZING FREE RADICAL CATALYZED PROCESSES. (THIS LISTING DOES NOT INCLUDE LIGHT ENDS, SPENT FILTERS AND FILTER AIDS, SPENT DESSICANTS, WASTEWATER, WASTEWATER TREATMENT SLUDGES, SPENT CATALYSTS, AND WASTES LISTED IN 40CFR261.32). (T)

15CFR399.2, SUPPLEMENT 1 - COMMODITY INTERPRETATION 24: CHEMICALS VALIDATED LICENSE REQUIRED FOR EXPORT TO LIBIA, NORTH KOREA, VIETNAM, KAMPUCHEA, OR CUBA

EPA HAS PROPOSED THAT MANUFACTURERS AND PROCESSORS OF DICHLOROMETHANE TEST THE CHEMICAL FOR HEALTH AND ENVIRONMENTAL EFFECTS 46FR30300 06/05/81

40CFR122, APPENDIX D - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT APPLICATION TESTING REQUIREMENTS
TABLE II - ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GS/MS)
48FR14153 04/01/83

40CFR372 SARA TITLE III SECTION 313 TOXIC CHEMICAL RELEASE REPORTING: COMMUNITY RIGHT-TO-KNOW

ALL COMMUNITY AND NON-TRANSIENT, NON-COMMUNITY WATER SYSTEMS SHALL MONITOR THE LEVEL OF CONTAMINATION BY THIS SUBSTANCE.

POPULATION SERVED:	MONITORING MUST BEGIN BY:
>10,000	JANUARY 1, 1988
3300-10,000	JANUARY 1, 1989
<3300	JANUARY 1, 1991

52FR25715 7/8/87

THE ENVIRONMENTAL PROTECTION AGENCY HAS ISSUED A FINAL RULE PROMULGATING REGULATIONS UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), AS AMENDED BY THE HAZARDOUS AND SOLID WASTES AMENDMENTS OF 1984, RESTRICTING LAND DISPOSAL OF CERTAIN "CALIFORNIA LIST" WASTES. HAZARDOUS WASTES CONTAINING HALOGENATED ORGANIC COMPOUNDS IN TOTAL CONCENTRATIONS GREATER THAN OR EQUAL TO 1000 MG/KG ARE PROHIBITED FROM LAND DISPOSAL.
EFFECTIVE DATE: 7/8/87
(52FR25760 7/8/87)

SUBSTANCE LISTED BY THE NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 1983, CHAPTER 315, N.J.S.A. 34: A-1. EMPLOYERS COVERED: SIC CODES 20-39, 46-49, 51, 75, 76, 80, 82, AND 84.

THE CONSUMER PRODUCT SAFETY COMMISSION HAS ISSUED A STATEMENT OF INTERPRETATION AND ENFORCEMENT POLICY REGARDING LABELING REQUIREMENTS FOR THE FOLLOWING CLASSES OF HOUSEHOLD PRODUCTS WHICH CONTAIN METHYLENE CHLORIDE. THESE PRODUCTS MAY EXPOSE CONSUMERS TO SIGNIFICANT AMOUNTS OF METHYLENE CHLORIDE VAPOR, A LIKELY HUMAN CARCINOGEN, AND ARE THUS CONSIDERED HAZARDOUS SUBSTANCES.

(1). PAINT STRIPPERS
(2). ADHESIVE REMOVERS
(3). SPRAY SHOE POLISH
(4). ADHESIVES AND GLUES
(5). PAINT THINNERS
(6). GLASS FROSTING AND ARTIFICIAL SNOW
(7). WATER REPELLANTS
(8). WOOD STAINS AND VARNISHES
(9). SPRAY PAINTS
(10). CLEANING FLUIDS AND DEGREASERS
(11). AEROSOL SPRAY PAINT FOR AUTOMOBILES
(12). AUTOMOBILE SPRAY PRIMERS
(13). PRODUCTS SOLD AS METHYLENE CHLORIDE

SUBSTANCE LISTED UNDER THE STATE OF FLORIDA TOXIC SUBSTANCES IN THE WORKPLACE RIGHT TO KNOW LAW, CHAPTER 442 OF THE FLORIDA STATUTES.

SUBSTANCE LISTED UNDER THE STATE OF WEST VIRGINIA DIRECTOR OF HEALTH LEGISLATIVE RULES FOR HAZARDOUS SUBSTANCES, CHAPTER16, ARTICLE 31, SECTION 4(A).

SUBSTANCE LISTED UNDER THE STATE OF PENNSYLVANIA WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 734, NO. 159.

SUBSTANCE LISTED UNDER THE STATE OF ILLINOIS TOXIC SUBSTANCES DISCLOSURE TO EMPLOYEES ACT, TITLE 56, CHAPTER I, SUBCHAPTER B, SECTION 205.

THIS SUBSTANCE TESTED FOR MUTAGENESIS/GENETIC TOXICITY BY THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)

40CFR712 THIS SUBSTANCE IDENTIFIED IN THE PRELIMINARY ASSESSMENT INFORMATION RULE (PAIR). MANUFACTURERS AND IMPORTERS WHO PRODUCE THIS SUBSTANCE ARE REQUIRED TO SUBMIT PRODUCTION VOLUME, END USE AND EXPOSURE

TWO YEAR STUDIES: QUALITY ASSESSMENT IN PROGRESS BY THE NATIONAL TOXICOLOGY PROGRAM (NTP).

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE ON FIRST THIRD WASTES LAND DISPOSAL RESTRICTIONS.
EFFECTIVE DATE: 8/8/88
53FR31138 8/17/88
40CFR268.33

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.32 EPA HAZARDOUS WASTE NO. K086: SOLVENT WASHES AND SLUDGES, CAUSTIC WASHES AND SLUDGES, OR WATER WASHES AND SLUDGES FROM CLEANING TUBS AND EQUIPMENT USED IN THE FORMULATON OF INK FROM PIGMENTS, DRIERS, SOAPS, AND STABILIZERS CONTAINING CHROMIUM AND LEAD.(T)

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE PROHIBITING UNDERGROUND INJECTION OF SPENT SOLVENT WASTE UNLESS THE SOLVENT WASTE IS A SOLVENT-WATER MIXTURE OR SOLVENT-CONTAINING SLUDGE CONTAINING <1% OF TOTAL HAZARDOUS WASTES NUMBERS F001-F005.
EFFECTIVE DATE: 8/8/88
ALL SPENT WASTES NUMBERS F001-F005 CONTAINING <1% TOTAL F001-F005 SOLVENT CONSTITUENTS ARE PROHIBITED FROM UNDERGROUND INJECTION.
EFFECTIVE DATE: 8/8/90
53FR30908
40CFR148.10

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE PROHIBITING UNDERGROUND INJECTION OF HALOGENATED ORGANIC COMPOUNDS AT CONCENTRATIONS GREATER THAN OR EQUAL TO 10,000 MG/KG.
EFFECTIVE DATE: 8/8/88
53FR30908 8/16/88
40CFR148.12

UNDER THE CALIFORNIA AIR TOXICS HOT SPOTS INFORMATION AND ASSESSMENT ACT OF 1987, OPERATORS OF FACILITIES WHICH RELEASE, OR HAVE THE POTENTIAL TO RELEASE, SPECIFIED QUANTITIES OF THIS SUBSTANCE MUST SUBMIT TO THE APPROPRIATE LOCAL AIR POLLUTION CONTROL DISTRICTS, OR AIR QUALITY MANAGEMENT DISTRICTS, COMPREHENSIVE EMISSIONS INVENTORY PLANS AND HEALTH RISK ASSESSMENTS ADOPTED BY THE CALIFORNIA AIR RESOURCES BOARD (ARB).
EFFECTIVE DATE: 1/1/88
AB 2588, CHAPTER 1252

THIS SUBSTANCE LISTED IN CALIFORNIA AS A CARCINOGEN UNDER PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. REGULATION REQUIRES EMPLOYERS BEGINNING APRIL 1, 1989, TO WARN WORKERS, CONSUMERS AND THE PUBLIC WHEN THEY ARE EXPOSED TO THIS CHEMICAL AT A LEVEL DEEMED BY THE STATE TO POSE A SIGNIFICANT RISK. WARNING METHODS MAY INCLUDE PRODUCT OR SHELF LABELS, SIGNS OR MEDIA ANNOUNCEMENTS. BEGINNING DECEMBER 1, 1989, THIS CHEMICAL CANNOT BE DISCHARGED OR RELEASED INTO ANY KNOWN SOURCE OF DRINKING WATER.

THIS SUBSTANCE SUBJECT TO REQUIREMENTS OF CANADA'S WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS). THE REGULATIONS REQUIRE SUPPLIERS OF HAZARDOUS MATERIALS TO PROVIDE ADEQUATE LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS'S) AS CONDITIONS OF SALE AND IMPORTATION. EMPLOYERS

WORKPLACE.
EFFECTIVE DATE: 10/31/88

CERCLA PRIORITY GROUP I SUBSTANCE
53FR41280

40CFR716 THIS SUBSTANCE LISTED IN THE HEALTH AND SAFETY DATA REPORTING RULE UNDER SECTION 8(D) OF THE TOXIC SUBSTANCES CONTROL ACT (TSCA) REQUIRING PAST, CURRENT AND PROSPECTIVE MANUFACTURERS, IMPORTERS AND PROCESSORS TO SUBMIT TO EPA COPIES AND LISTS OF UNPUBLISHED HEALTH AND SAFETY STUDIES ON THE LISTED CHEMICALS THAT THEY MANUFACTURE, IMPORT OR PROCESS.

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) - TABLE 2-14
DANGEROUS GOODS LIST; THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING AND OTHER REQUIREMENTS.
DESIGNATED AS A DANGEROUS GOOD FOR THE PURPOSE OF AIR TRANSPORATION.

THIS SUBSTANCE TESTED FOR BIOCHEMICAL/CELLULAR/TISSUE EFFECTS BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA)

THIS SUBSTANCE TESTED FOR CARCINOGENESIS BY THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)

40CFR370 SARA TITLE III SECTION 311 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART B - REPORTING REQUIREMENTS

40CFR370 SARA TITLE III SECTION 312 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART D - INVENTORY FORMS

40CFR60.488 SUBSTANCE LISTED AS CHEMICAL PRODUCED BY AFFECTED FACILITIES UNDER THE CLEAN AIR ACT (CAA) SECTION 111.

40CFR148 SUBJECT TO EPA RULE PROHIBITING UNDERGROUND INJECTION OF THIS HAZARDOUS WASTE.
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

40CFR268 SUBJECT TO EPA LAND DISPOSAL RESTRICTIONS
EFFECTIVE DATE: 6/8/89
53FR26594 6/23/89

40CFR268 SUBJECT TO EPA LAND DISPOSAL RESTRICTIONS EXCEPT WHEN INJECTED UNDERGROUND.
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

40CFR148 SUBJECT TO EPA RULE PROHIBITING UNDERGROUND INJECTION OF THIS HAZARDOUS WASTE.
EFFECTIVE DATE: 6/8/91
54FR26594 6/23/89

LIST "C" CHEMICAL
FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) REGISTERED ACTIVE INGREDIENT WHICH MUST BE REREGISTERED IN ACCORDANCE WITH NEW STANDARDS FOR REGISTRATION.
54FR30847 7/24/89

29CFR1910.1450 SUBJECT TO SUBPART STANDARD REGULATING OCCUPATIONAL EXPOSURE TO HAZARDOUS CHEMICALS IN LABORATORIES.
EFFECTIVE DATE: 5/1/90
55FR3300 1/31/90

33CFR160.211 AND 213 U.S. COAST GUARD REQUIRES 24 HOURS ADVANCE NOTICE TO CAPTAIN OF THE PORT WHEN THIS SUBSTANCE IS SCHEDULED TO ARRIVE AT OR DEPART FROM PORT.

46CFR151.01-10(B) CARGOES REGULATED BY THE COAST GUARD UNDER SUBCHAPTER O - CERTAIN BULK DANGEROUS CARGOES

THIS SUBSTANCE TESTED FOR MUTAGENESIS/GENETIC TOXICITY BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA)

THIS SUBSTANCE TESTED FOR SYSTEMIC/ORGAN TOXICITY BY THE ENVIRNMENTAL PROTECTION AGENCY (EPA)

40CFR61.01(B) NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS SUBPART A - GENERAL PROVISIONS

40CFR268 LAND DISPOSAL RESTRICTIONS

MEDICAL SURVEILLANCE REQUIRED
EKG RECOMMENDED IF EMPLOYEE TO WEAR FULL-FACE RESPIRATOR
GENERAL MEDICAL HISTORY
40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS
48FR38187 08/22/83
48FR39225 08/30/83 (EFFECTIVE DATE CORRECTION)
PHYSICIAN EXAMINATION
INDUSTRIAL EXPOSURE HISTORY
PRE-PLACEMENT AND ANNUAL EXAMS
MEDICAL WARNING FOR REFUSAL OF MEDICAL EXAMINATION
RESPIRATORY HISTORY
COMPLETE BLOOD COUNT
BLOOD CHEMISTRY
14 BY 17 CHEST P.A. X-RAY
URINALYSIS
VISION TEST
SPECIAL ATTENTION TO SKIN
LIVER FUNCTION
KIDNEY FUNCTION
CARDIOVASCULAR DISEASE
DIFFERENTIAL BLOOD CELL MORPHOLOGY
CARBOXYHEMOGLOBIN DETERMINATION WHEN EXPOSED
CENTRAL NERVOUS SYSTEM EXAMINATION
PULMONARY FUNCTIONS
CHRONIC RESPIRATORY DISEASE
COMPLETE BLOOD COUNT
RENAL AND LIVER FUNCTIONS
MEDICAL WARNING FOR REFUSAL OF MEDICAL EXAMINATION

CERTIFICATIONS

HEALTH STATUS CLASSIFICATION

OSHA RESPIRATOR CERTIFICATION 29CFR1910.134

DEPARTMENT OF TRANSPORTATION IF OPERATES HEAVY EQUIPMENT

NUCLEAR REG. 0041

EMPLOYEE HAZARDOUS MATERIALS EDUCATION RECEIPT

EMPLOYEE MEDICAL RECORDS RECEIPT

TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS. CONTACT: CHARLES L. ELKINS, OFFICE OF TOXIC SUBSTANCES, EPA (202) 382-3813.

MEDICAL WARNING REQUIRED FOR MEDICAL EXAM REFUSAL SIGNED BY EMPLOYEE

SPECIAL DIAGNOSTIC TESTS

BLOOD CHEMISTRY

IF SYMPTOMS OF CENTRAL NERVOUS SYSTEM OCCUR, OBTAIN BLOOD GLUCOSE AND RECTAL TEMPERATURE. PERFORM COMPLETE NEUROLOGIC EXAMINATION AND ANY OTHER SPECIFIC NEUROLOGIC TESTS AS APPLICABLE

URINE HEMOGLOBIN

PLASMA BICARBONATE

BLOOD LACTIC ACID

LEAKS AND SPILL PROCEDURES

REPORTABLE QUANTITY (RQ) 1000 LB. (454 KG)

A REPORTABLE QUANTITY OF ONE THOUSAND POUNDS APPLIES TO THIS SUBSTANCE ESTABLISHED BY SECTIONS 101(14) AND 102(B) OR ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESOPNSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA). SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OF FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THAT SUBSTANCE IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER (800) 424-8802; IN THE WASHINGTON, D.C. METROPOLITAN AREA (202) 426-2675.

40CFR302

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DEPARTMENT OF TRANSPORTATION HAZARD CLASS
49CFR172.101 HAZARDOUS MATERIALS TABLE

ORM-A

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS
49CFR172.101 AND 49CFR172 SUBPART E:

NONE

INTERNATIONAL MARITIME ORGANIZATION HAZARD CLASS
49CFR172.102 OPTIONAL HAZARDOUS MATERIALS TABLE

CLASS 6.1-POISONOUS (TOXIC) SUBSTANCE

INTERNATIONAL MARITIME ORGANIZATION LABELING SPECIFICATIONS FOR
DOMESTIC AND EXPORT SHIPMENTS
49CFR172.102

ST. ANDREWS CROSS

****

FOLLOWING INFORMATION RECOMMENDED FOR THE EMERGENCY HANDLING OF
HAZARDOUS MATERIALS

IF MATERIAL ON FIRE OR INVOLVED IN FIRE:
* USE SUITABLE AGENT FOR TYPE OF SURROUNDING FIRE TO EXTINGUISH FIRE (MATERIAL ITSELF DOES NOT BURN OR BURNS WITH DIFFICULTY)
* APPLY FLOODING QUANTITIES OF WATER AS FOG
* USE ALCOHOL FOAM OR CO2 OR DRY CHEMICAL EXTINGUISHERS

IF MATERIAL IS NOT ON FIRE AND IS NOT INVOLVED IN FIRE:
* KEEP AWAY FROM SPARKS, FLAMES AND OTHER SOURCES OF IGNITION
* DO NOT ALLOW MATERIAL TO CONTAMINATE WATER SOURCES AND SEWERS

PERSONNEL PROTECTION:
* AVOID BREATHING DUST/VAPORS/FUMES FROM MATERIAL
* KEEP UPWIND
* AVOID SKIN CONTACT WITH MATERIAL
* WEAR BOOTS, PROTECTIVE GLOVES AND GAS TIGHT GOGGLES
* DO NOT HANDLE BROKEN PACKAGES WITHOUT PROTECTIVE EQUIPMENT
* WASH CONTAMINATED SKIN WITH COPIOUS AMOUNTS OF WATER OR SOAP AND WATER
* WEAR SELF-CONTAINED BREATHING APPARATUS WHEN FIGHTING FIRES INVOLVING THIS MATERIAL
* IF CONTACT WITH MATERIAL ANTICIPATED, WEAR FULL PROTECTIVE CLOTHING

THIS SUBSTANCE LISTED IN CALIFORNIA AS A CARCINOGEN UNDER PROPOSITION 65, THE SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986. LISTED CHEMICALS CANNOT BE DISCHARGED OR RELEASED INTO WATER OR ONTO OR INTO LAND WHERE THERE IS ANY POSSIBILITY OF PASSING INTO ANY SOURCE OF DRINKING WATER.

WASTE

****

OBSERVE ALL FEDERAL, STATE OR LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. CONTACT LOCAL AND/OR STATE ENVIRONMENTAL AUTHORITIES TO INSURE PROPER COMPLIANCE.

****
EPA HAZARDOUS WASTE NUMBER U080
DICHLOROMETHANE

THIS SUBSTANCE MEETS THE DEFINITION OF A HAZARDOUS WASTE AS DEFINED BY THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) (40CFR260) AND IS SUBJECT TO THE FOLLOWING CONSIDERATIONS:

40CFR260 HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

PROVIDES DEFINITIONS OF TERMS, GENERAL STANDARDS, AND OVERVIEW INFORMATION APPLICABLE TO 40CFR PARTS 260-265

40CFR261 IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

IDENTIFIES THOSE SOLID WASTES WHICH ARE SUBJECT TO REGULATION AS HAZARDOUS WASTES UNDER 40CFR PARTS 262-265, 270, 271, AND 124 AND WHICH ARE SUBJECT TO THE NOTIFICATION REQUIREMENTS OF SECTION 3010 OF THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) AND IDENTIFIES ONLY SOME OF THE MATERIALS WHICH ARE HAZARDOUS WASTES UNDER SECTIONS 3007 AND 7003 OF RCRA

THIS COMPOUND, DEPENDING ON THE CHARACTERISTIC, CONCENTRATION
AND/OR SOURCE OF THE WASTE, MAY BE REGULATED UNDER THE FOLLOW-
ING WASTE NUMBER(S) AND, IN TURN, SUBJECT TO THE CORRESPONDING
REPORTABLE QUANTITY (RQ) (IF APPLICABLE):
40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F001
40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F002
REPORTABLE QUANTITY (RQ) : 10 LBS.
A REPORTABLE QUANTITY OF 10 LBS. APPLIES TO THIS HAZARDOUS WASTE FROM NON-SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.31. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K009
40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K010
REPORTABLE QUANTITY (RQ) : 10 LBS.
A REPORTABLE QUANTITY OF 10 LBS. APPLIES TO THIS HAZARDOUS WASTE FROM SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.32. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR262 STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

40CFR263 STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

ESTABLISHES STANDARDS WHICH APPLY TO PERSONS TRANSPORTING HAZARDOUS WASTE WITHIN THE UNITED STATES IF THE TRANSPORTATION REQUIRES A MANIFEST UNDER 40CFR262

40CFR264 STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS WHICH DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE

40CFR265 INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS WHICH DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE DURING THE PERIOD OF INTERIM STATUS

40CFR267 INTERIM STANDARDS FOR OWNERS AND OPERATORS OF NEW HAZARDOUS WASTE LAND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS THAT DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE FOR NEW LAND DISPOSAL FACILITIES

40CFR270 EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

ESTABLISHES PROVISIONS FOR THE HAZARDOUS WASTE PERMIT PROGRAM UNDER SUBTITLE C OF THE SOLID WASTE DISPOSAL ACT, AS AMENDED BY THE RESOURCE CONSERVATION AND RECOVERY ACT

40CFR271 REQUIREMENT FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

SPECIFIES THE PROCEDURES EPA WILL FOLLOW IN APPROVING, REVISING, AND WITHDRAWING APPROVAL OF STATE PROGRAMS AND THE REQUIREMENTS STATE PROGRAMS MUST MEET TO BE APPROVED BY THE ADMINISTRATION UNDER SECTION 3006(B) OF RCRA

40CFR268 LAND DISPOSAL RESTRICTIONS

IDENTIFIES HAZARDOUS WASTES THAT ARE RESTRICTED FROM LAND DISPOSAL AND DEFINES THOSE LIMITED CIRCUMSTANCES UNDER WHICH AN OTHERWISE PROHIBITED WASTE MAY CONTINUE TO BE LAND DISPOSED.

THE ENVIRONMENTAL PROTECTION AGENCY HAS ISSUED A FINAL RULE PROMULGATING REGULATIONS UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), AS AMENDED BY THE HAZARDOUS AND SOLID WASTES AMENDMENTS OF 1984, RESTRICTING LAND DISPOSAL OF CERTAIN "CALIFORNIA LIST" WASTES. HAZARDOUS WASTES CONTAINING HALOGENATED ORGANIC COMPOUNDS IN TOTAL CONCENTRATIONS

EFFECTIVE DATE: 7/8/87
(52FR25760 7/8/87)

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 8/8/88
53FR30908 8/16/88

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 8/8/90
53FR30908 8/16/88

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

CAS NUMBER
75-09-2

REGISTRY TOXIC CHEMICALS NUMBER
PA8050000

BULLETINS

SPECIAL INFORMATION
TYPE WHAT INFORMATION YOU REQUIRE
/ALL/, SPECIFIC INFORMATION (BY 4-LETTER COMMAND, /HELP/, OR /NONE/.

METHYLENE CHLORIDE - NO MORE HITS IN DATABASE.

ENTER NAME, KEYWORD, SYMPTOM, STLA, NAMELIST, HELP, OR QUIT.

ENTER WHICH OHS SERVICE YOU WISH TO ACCESS:
> TO ACCESS HAZARDLINE, TYPE /HAZARD/
> TO ACCESS ENVIRONMENTAL HEALTH NEWS, TYPE /EHN/
> TO ACCESS MATERIAL SAFETY DATA SHEET, TYPE /MSDS/
> TO EXIT THE SYSTEM, TYPE /LOGOFF/
PRESS RETURN KEY AFTER ENTERING COMMAND.

LOGGED OFF LINE # 01 DATE = 07/02/90 TIME = 16-13-19
** Inactivity Timeout - Disconnected. **
** Connect Pending, Please Wait... (or Hit <Return> Key to Abort.) **
CONNECTED TO HAZARDLINE 07/02/90 16:15:24
ENTER)LOGON COMMAND AND** Inactivity Timeout - Disconnected. **

VINYLIDENE CHLORIDE

FORMULA
C2H2CL2

SYNONYMS
1,1-DICHLOROETHYLENE
1,1-DCE
SCONATEX
VDC
NCI-C54262
VINYLIDINE CHLORIDE
UN 1303
1,1-DICHLOROETHENE
ETHYLENE, 1,1-DICHLORO-
ETHENE, 1,1-DICHLORO-
VINYLIDENE CHLORIDE(II)
RCRA U078
OHS25070

PERMISSIBLE EXPOSURE LIMIT
1 PPM OSHA TWA
5 PPM ACGIH TWA; 20 PPM ACGIH STEL
HUMAN INADEQUATE EVIDENCE FOR CARCINOGENICITY (IARC)
ANIMAL LIMITED EVIDENCE FOR CARCINOGENICITY (IARC)
POSSIBLE HUMAN CARCINOGEN (EPA - CATEGORY C)
REPRODUCTIVE EFFECTS DATA (RTEC)
MUTAGENIC DATA (RTEC)
AQUATIC TOXICITY RATING 1/Z (TLM96 100 - 1000 PPM)
NO DATA LOCATED - RATED BY THE NATIONAL ACADEMY OF SCIENCES
CERCLA HAZARD RATINGS - TOXICITY 3 - IGNITABILITY 3 - REACTIVITY 2 -
PERSISTANCE 1

TOXICOLOGY: VINYLIDINE CHLORIDE IS A TOXIC EYE, SKIN, AND MUCOUS MEMBRANE IRRITANT, CENTRAL NERVOUS SYSTEM DEPRESSANT, NEPHROTOXIN, AND HEPATOXIN.

INGESTION OR INHALATION CAUSES COUGHING, DIZZINESS, DROWSINESS, AND UNCONSCIOUSNESS. ALCOHOLIC BEVERAGES ENHANCE THE TOXIC EFFECTS.

VINYLIDENE CHLORIDE PRODUCES MALIGNANT TUMORS IN MICE AND RATS, SOME OF WHICH ARE SIMILAR TO THOSE PRODUCED BY VINYL CHLORIDE.

THE THRESHOLD LIMIT VALUE IS BELIEVED LOW ENOUGH TO PREVENT OVERT TOXICITY IN EXPOSED WORKERS.

IHL-HMN TCLO: 25 PPM
IHL-RAT LCLO:10000 PPM/24 HR
IHL-MUS LC50: 98 PPM/22 HR
ORL-RAT LD50: 200 MG/KG
ORL-DOG LDLO: 5750 MG/KG
IVN-DOG LDLO: 225 MG/KG
SCU-RBT LDLO: 3700 MG/KG

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONCENTRATION
NONE SPECIFIED

PHYSICAL DESCRIPTION
COLORLESS LIQUID. MILD, SWEET ODOR RESEMBLING THAT OF CHLOROFORM.

CHEMICAL AND PHYSICAL PROPERTIES
MOLECULAR WEIGHT: 97
BOILING POINT AT 1 ATM, F: 89 F

FLASH POINT, CLOSED CUP, F (OR OPEN CUP IF OC): 3 F
VAPOR PRESSURE @ 20 C, MMHG: 591 MM @ 25 C
MELTING POINT, F: -188 F
UPPER EXPLOSIVE LIMIT IN AIR, % BY VOLUME: 16.0%
LOWER EXPLOSIVE LIMIT IN AIR, % BY VOLUME: 7.3%
AUTOIGNITION TEMPERATURE: 1058 F
VAPOR DENSITY (AIR=1): 3.4

INCOMPATIBILITIES
STRONG OXIDIZERS
STRONG ACIDS
STRONG BASES

PERSONAL PROTECTIVE EQUIPMENT
EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT NECESSARY TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE. FACE SHIELDS SHALL COMPLY WITH 29CFR1910.133(A)(2), (A)(4), (A)(5), AND (A)(6).

EMPLOYERS SHALL ENSURE THAT CLOTHING WET WITH THIS SUBSTANCE IS PLACED IN CLOSED CONTAINERS FOR STORAGE UNTIL IT CAN BE DISCARDED OR UNTIL THE EMPLOYER PROVIDES FOR THE REMOVAL OF THE CONTAMINANT FROM THE CLOTHING. IF THE CLOTHING IS TO BE LAUNDERED OR OTHERWISE CLEANED TO REMOVE THE CONTAMINANT, THE EMPLOYER SHALL INFORM THE PERSON PERFORMING THE CLEANING OPERATION OF THE HAZARDOUS PROPERTIES OF THE SUBSTANCE.

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ACGIH "GUIDELINES FOR THE SELECTION OF CHEMICAL PROTECTIVE CLOTHING" INDICATED THE FOLLOWING PROTECTIVE RATINGS FOR MATERIALS COMMONLY USED FOR PROTECTIVE CLOTHING. THESE RATINGS ARE BASED PRIMARILY ON QUANTITATIVE TEST RESULTS AND QUALITATIVE RESISTENCE INFORMATION. (THE RECOMMENDATIONS APPLY TO THE PURE SUBSTANCE ONLY; BREAKTHROUGH-TIME MAY VARY FOR MIXTURES.) (A "+" DESIGNATES A BLEND OF MATERIAL, WHILE A "/" DESIGNATES A COATED OR LAMINATED MATERIAL.)
VINYLIDENE CHLORIDE:
EXCELLENT/GOOD:
NONE INDICATED

FAIR/GOOD:
CHLORINATED POLYETHYLENE

GOGGLES
EMPLOYERS SHALL PROVIDE AND ENSURE THAT EMPLOYEES USE SPLASH-PROOF SAFETY GOGGLES WHICH COMPLY WITH 29CFR1910.133(A)(2)-(A)(6) WHERE THIS LIQUID MAY CONTACT THE EYES.

WASHING CHEMICALS FROM THE SKIN
EMPLOYERS SHALL ENSURE THAT EMPLOYEES WHOSE SKIN BECOMES WET WITH THIS SUBSTANCE PROPMTLY WASH OR SHOWER TO REMOVE ANY CONTAMINANT FROM THE SKIN.

ROUTINE CHANGING OF WORK CLOTHING
NOT REQUIRED

CLOTHING REMOVAL FOLLOWING ACCIDENTAL CONTAMINATION
EMPLOYERS SHALL ENSURE THAT ANY CLOTHING WHICH BECOMES WET WITH THIS FLAMMABLE LIQUID BE REMOVED IMMEDIATELY AND NOT REWORN UNTIL THE SUBSTANCE IS REMOVED FROM THE CLOTHING.

EMPLOYERS SHALL ENSURE THAT EMPLOYEES DO NOT EAT OR SMOKE IN AREAS WHERE THIS SUBSTANCE IS HANDLED, PROCESSED OR STORED.

RESPIRATOR SELECTION (UPPER LIMIT DEVICES PERMITTED)

10 PPM
- TYPE 'C' SUPPLIED-AIR RESPIRATOR
- SUPPLIED-AIR RESPIRATOR
  WITH HALF-MASK
  OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE
- AUXILIARY SELF-CONTAINED BREATHING APPARATUS
- CHEMICAL CARTRIDGE RESPIRATOR
  WITH AN ORGANIC VAPOR CANISTER
  PROVIDING PROTECTION AGAINST SPECIFIC COMPOUND OF CONCERN

25 PPM
- POWERED AIR-PURIFYING RESPIRATOR
  WITH A FULL FACE-PIECE, HELMENT, OR HOOD
  PROVIDING PROTECTION AGAINST SPECIFIC COMPOUND OF CONCERN
- GAS MASK
  (CHIN-STYLE OR FRONT- OR BACK-MOUNTED CANISTER)
  PROVIDING PROTECTION AGAINST SPECIFIC COMPOUND OF CONCERN

100 PPM
- TYPE 'C' SUPPLIED-AIR RESPIRATOR
- SUPPLIED-AIR RESPIRATOR
  WITH A FULL FACE-PIECE
- AUXILIARY SELF-CONTAINED BREATHING APPARATUS
- SELF-CONTAINED BREATHING APPARATUS
  WITH A FULL FACE-PIECE
  OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE
- TYPE 'C' SUPPLIED-AIR RESPIRATOR
- SUPPLIED-AIR RESPIRATOR
  WITH A FULL FACE-PIECE
  OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE

1000 PPM
- TYPE 'C' SUPPLIED-AIR RESPIRATOR
- SUPPLIED-AIR RESPIRATOR
  WITH A FULL FACE-PIECE
- AUXILIARY SELF-CONTAINED BREATHING APPARATUS
- TYPE 'C' SUPPLIED-AIR RESPIRATOR
- SUPPLIED-AIR RESPIRATOR
  WITH HALF-MASK
- AUXILIARY SELF-CONTAINED BREATHING APPARATUS

>3600 PPM
- SELF-CONTAINED BREATHING APPARATUS
  WITH A FULL FACE-PIECE
  OPERATED IN PRESSURE-DEMAND, POSITIVE-PRESSURE, OR CONTINUOUS-FLOW MODE

FIREIFGHTING

WITH A FULL FACE-PIECE
OPERATED IN PRESSURE-DEMAND OR POSITIVE-PRESSURE MODE

ROUTE OF ENTRY INTO BODY
- INHALATION
- INGESTION
- SKIN OR EYE CONTACT

SYMPTOMS
- SKIN IRRITATION
- MUCOUS MEMBRANE IRRITATION
- CONJUNCTIVITIS
- WEIGHT LOSS
- NARCOSIS
- CENTRAL NERVOUS SYSTEM DEPRESSION
- MAMMARY ADENOCARCINOMA
- DERMATITIS
- CARDIAC ARRHYTHMIA
- RESPIRATORY EDEMA
- LIVER DAMAGE
- KIDNEY DAMAGE
- EYE IRRITATION
- SKIN IRRITATION
- REPRODUCTIVE EFFECTS IN EXPERIMENTAL ANIMALS

FIRST AID PROCEDURES FOLLOWING EXPOSURE

IF THIS CHEMICAL GETS INTO THE EYES, WASH THE EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL GETS ON THE SKIN, REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASH AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

IF THIS CHEMICAL HAS BEEN INHALED, REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTED HALOGENATED HYDROCARBONS:
IF THE PERSON IS CONSCIOUS AND NOT CONVULSING, INDUCE EMESIS BY GIVING SYRUP OF IPECAC (KEEPING THE HEAD BELOW THE HIPS TO PREVENT ASPIRATION), FOLLOWED BY WATER. REPEAT IN 20 MINUTES IF NOT EFFECTIVE INITIALLY. IN PATIENTS WITH DEPRESSED RESPIRATION OR IF EMESIS IS NOT PRODUCED, PERFORM GASTRIC LAVAGE CAUTIOUSLY. (DREISBACH, HANDBOOK OF POISONING, 12TH ED.). TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GASTRIC LAVAGE SHOULD BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

ORGANS
- EYES
- SKIN

RESPIRATORY SYSTEM
CENTRAL NERVOUS SYSTEM
RESPIRATORY SYSTEM
KIDNEYS
LIVER

STATUS OF REGULATORY ENFORCEMENT

OSHA STANDARD 29CFR1910.1200 HAZARD COMMUNICATION
REQUIRES CHEMICAL MANUFACTURERS AND IMPORTERS TO ASSESS THE HAZARDS OF CHEMICALS WHICH THEY PRODUCE OR IMPORT, AND ALL EMPLOYERS TO PROVIDE INFORMATION TO THEIR EMPLOYEES CONCERNING HAZARDOUS CHEMICALS BY MEANS OF A HAZARD COMMUNICATION PROGRAM, LABELS AND OTHER FORMS OF WARNING, MATERIAL SAFETY DATA SHEETS, AND INFORMATION AND TRAINING. REQUIRES DISTRIBUTORS TO TRANSMIT REQUIRED INFORMATION TO EMPLOYERS.
52FR31852 8/24/87

OSHA STANDARD 29CFR1910.1000 AIR CONTAMINANTS
TABLE Z-1

OSHA STANDARD 29CFR1910.94 VENTILATION

OSHA STANDARD 29CFR1910.134 RESPIRATORY PROTECTION

OSHA STANDARD 29CFR1910.20 ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

OSHA STANDARD 29CFR1910.132 PERSONAL PROTECTIVE EQUIPMENT

OSHA STANDARD 29CFR1910.141 SANITATION

OSHA STANDARD 29CFR1910.151 MEDICAL SERVICES AND FIRST AID

OSHA STANDARD 29CFR1910.133 EYE AND FACE PROTECTION

40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT ALLEGED TO HAVE BEEN CAUSED BY A SUBSTANCE OR MIXTURE. EPA MAY INSPECT AND REQUIRE REPORTING OF SUCH RECORDS.
48FR38178 08/22/83

SUBSTANCE LISTED TOXIC SUBSTANCES CONTROL ACT INVENTORY

40CFR116 DESIGNATION OF HAZARDOUS SUBSTANCE
DESIGNATED AS HAZARDOUS SUSBSTANCE IN ACCORDANCE WITH SECTION 311(B)(2)(A) OF THE CLEAN WATER ACT. INCLUDES ANY ISOMERS AND HYDRATES, AS WELL AS ANY SOLUTIONS AND MIXTURES CONTAINING THIS SUBSTANCE.

49CFR172.101 TABLES OF HAZARDOUS MATERIALS, THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING, AND OTHER REQUIREMENTS
DESIGNATED IN HAZARDOUS MATERIALS TABLES AS HAZARDOUS MATERIAL FOR THE PURPOSE OF TRANSPORTATION.

49CFR172.102 TABLES OF HAZARDOUS MATERIALS, THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS, LABEL, PACKAGING, AND OTHER REQUIREMENTS
DESIGNATED IN OPTIONAL HAZARDOUS MATERIALS TABLE (UNDER N.O.S.

49CFR172.101 FOR INTERNATIONAL SHIPMENTS.

TECHNICAL ASSISTANCE DATA COMPLETED/PUBLISHED CLEAN WATER ACT (CWA) SECTION 311

40CFR117 DETERMINATION OF REPORTABLE QUANTITIES FOR HAZARDOUS SUBSTANCES
QUANTITIES, AS LISTED IN TABLE 302.4 40CFR302, THAT MAY BE HARMFUL AND WHICH THE DISCHARGE IS A VIOLATION OF THE CLEAN WATER ACT SECTION 311(B)(3) AND REQUIRES NOTICE AS SET FORTH IN SECTIONS 103(A) AND 103(B) OF CERCLA.

SOURCE/EXPOSURE ASSESSMENT COMPLETED/PUBLISHED CLEAN AIR ACT (CAA)

REGULATION PROMULGATED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR260

SUBSTANCE LISTED HAZARDOUS
STATE OF CALIFORNIA ADMINISTRATIVE CODE
TITLE 22. SOCIAL SECURITY
DIVISION 4. ENVIRONMENTAL HEALTH
CHAPTER 30. MINIMUM STANDARDS FOR MANAGEMENT OF HAZARDOUS AND EXTREMELY HAZARDOUS WASTES

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.32 EPA HAZARDOUS WASTE NO. K020: HEAVY ENDS FROM THE DISTILLATION OF VINYL DICHLORIDE IN VINYL CHLORIDE MONOMER PRODUCTION. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.32 EPA HAZARDOUS WASTE NO. K019: HEAVY ENDS FROM THE DISTILLATION OF ETHYLENE DICHLORIDE IN ETHYLENE CHLORIDE PRODUCTION. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.32 EPA HAZARDOUS WASTE NO. K029: WASTE FROM THE PRODUCT STEAM STRIPPER IN THE PRODUCTION OF 1,1,1-TRICHLOROETHANE. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.32 EPA HAZARDOUS WASTE NO. K073: CHLORINATED HYDRO-CARBON WASTE FROM THE PURIFICATION STEP OF THE DIAPHRAM CELL PROCESS USING GRAPHITE ANODES IN CHLORINE PRODUCTION. (T)

SUBSTANCE LISTED RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) 40CFR261.31 EPA HAZARDOUS WASTE NO. F024: WASTES, INCLUDING BUT NOT LIMITED TO, DISTILLATION RESIDUES, HEAVY ENDS, TARS, AND REACTOR CLEAN-OUT WASTES FROM THE PRODUCTION OF CHLORINATED ALIPHATIC HYDROCARBONS, HAVING CARBON CONTENT FROM 1-5, UTILIZING FREE RADICAL CATALYZED PROCESSES. (THIS LISTING DOES NOT INCLUDE LIGHT ENDS, SPENT FILTERS AND FILTER AIDS, SPENT DESSICANTS, WASTEWATER, WASTEWATER TREATMENT SLUDGES, SPENT CATALYSTS, AND WASTES LISTED IN 40CFR261.32). (T)

15CFR399.2, SUPPLEMENT 1 - COMMODITY INTERPRETATION 24: CHEMICALS VALIDATED LICENSE REQUIRED FOR EXPORT TO LIBIA, NORTH KOREA, VIETNAM, KAMPUCHEA, OR CUBA

TOXIC SUBSTANCE CONTROL ACT (TSCA) SECTION 8(E) INITIAL

40CFR372 SARA TITLE III SECTION 313 TOXIC CHEMICAL RELEASE REPORTING: COMMUNITY RIGHT-TO-KNOW

40CFR141.50 NATIONAL PRIMARY DRINKING WATER REGULATIONS
MAXIMUM CONTAMINANT LEVEL FOR VINYLIDENE CHLORIDE: 0.007 MG/L
EFFECTIVE DATE: 01/09/89
52FR25691 07/08/87

THE ENVIRONMENTAL PROTECTION AGENCY HAS ISSUED A FINAL RULE PROMULGATING REGULATIONS UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), AS AMENDED BY THE HAZARDOUS AND SOLID WASTES AMENDMENTS OF 1984, RESTRICTING LAND DISPOSAL OF CERTAIN "CALIFORNIA LIST" WASTES. HAZARDOUS WASTES CONTAINING HALOGENATED ORGANIC COMPOUNDS IN TOTAL CONCENTRATIONS GREATER THAN OR EQUAL TO 1000 MG/KG ARE PROHIBITED FROM LAND DISPOSAL.
EFFECTIVE DATE: 7/8/87
(52FR25760 7/8/87)

SUBSTANCE LISTED BY THE NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 1983, CHAPTER 315, N.J.S.A. 34: A-1. EMPLOYERS COVERED: SIC CODES 20-39, 46-49, 51, 75, 76, 80, 82, AND 84.

SUBSTANCE LISTED UNDER THE STATE OF FLORIDA TOXIC SUBSTANCES IN THE WORKPLACE RIGHT TO KNOW LAW, CHAPTER 442 OF THE FLORIDA STATUTES.

SUBSTANCE LISTED UNDER THE STATE OF WEST VIRGINIA DIRECTOR OF HEALTH LEGISLATIVE RULES FOR HAZARDOUS SUBSTANCES, CHAPTER16, ARTICLE 31, SECTION 4(A).

SUBSTANCE LISTED UNDER THE STATE OF CALIFORNIA HAZARDOUS SUBSTANCES INFORMATION AND TRAINING ACT, CALIFORNIA LABOR CODE, DIVISION 5, CHAPTER 2.5

SUBSTANCE LISTED UNDER THE STATE OF PENNSYLVANIA WORKER AND COMMUNITY RIGHT TO KNOW ACT, P.L. 734, NO. 159.

SUBSTANCE LISTED UNDER THE STATE OF ILLINOIS TOXIC SUBSTANCES DISCLOSURE TO EMPLOYEES ACT, TITLE 56, CHAPTER I, SUBCHAPTER B, SECTION 205.

THIS SUBSTANCE TESTED FOR MUTAGENESIS/GENETIC TOXICITY BY THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)

THIS SUBSTANCE TESTED FOR SYSTEMIC/ORGAN TOXICITY BY THE NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES (NIDDKD)

SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) RULE PROHIBITING UNDERGROUND INJECTION OF HALOGENATED ORGANIC COMPOUNDS AT CONCENTRATIONS GREATER THAN OR EQUAL TO 10,000 MG/KG.
EFFECTIVE DATE: 8/8/88
53FR30908 8/16/88
40CFR148.12

UNDER THE CALIFORNIA AIR TOXICS HOT SPOTS INFORMATION AND ASSESSMENT ACT OF 1987, OPERATORS OF FACILITIES WHICH RELEASE, OR HAVE THE POTENTIAL TO RELEASE, SPECIFIED QUANTITIES OF THIS SUBSTANCE MUST SUBMIT TO THE APPROPRIATE LOCAL AIR POLLUTION CONTROL DISTRICTS, OR AIR QUALITY MANAGEMENT DISTRICTS, COMPREHENSIVE EMISSIONS INVENTORY PLANS AND HEALTH RISK ASSESSMENTS ADOPTED BY THE CALIFORNIA AIR RESOURCES BOARD (ARB).

AB 2588, CHAPTER 1252

THIS SUBSTANCE SUBJECT TO REQUIREMENTS OF CANADA'S WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS). THE REGULATIONS REQUIRE SUPPLIERS OF HAZARDOUS MATERIALS TO PROVIDE ADEQUATE LABELS AND MATERIAL SAFETY DATA SHEETS (MSDS'S) AS CONDITIONS OF SALE AND IMPORTATION. EMPLOYERS MUST PROVIDE LABELS, MSDS'S AND WORKER EDUCATION PROGRAMS IN THE WORKPLACE.
EFFECTIVE DATE: 10/31/88

CERCLA PRIORITY GROUP II SUBSTANCE
53FR41280

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) - TABLE 2-14 DANGEROUS GOODS LIST; THEIR DESCRIPTION, PROPER SHIPPING NAME, CLASS. LABEL, PACKAGING AND OTHER REQUIREMENTS.
DESIGNATED AS A DANGEROUS GOOD FOR THE PURPOSE OF AIR TRANSPORATION.

40CFR370 SARA TITLE III SECTION 311 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART B - REPORTING REQUIREMENTS

40CFR370 SARA TITLE III SECTION 312 HAZARDOUS CHEMICAL REPORTING: COMMUNITY RIGHT-TO-KNOW
SUBPART D - INVENTORY FORMS

40CFR60.488 SUBSTANCE LISTED AS CHEMICAL PRODUCED BY AFFECTED FACILITIES UNDER THE CLEAN AIR ACT (CAA) SECTION 111.

40CFR148 SUBJECT TO EPA RULE PROHIBITING UNDERGROUND INJECTION OF THIS HAZARDOUS WASTE.
EFFECTIVE DATE: 6/7/89
54FR25416 6/14/89

40CFR148 SUBJECT TO EPA RULE PROHIBITING UNDERGROUND INJECTION OF THIS HAZARDOUS WASTE.
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

40CFR268 SUBJECT TO EPA LAND DISPOSAL RESTRICTIONS
EFFECTIVE DATE: 6/8/89
53FR26594 6/23/89

29CFR1910.1450 SUBJECT TO OSHA STANDARD REGULATING OCCUPATIONAL EXPOSURE TO HAZARDOUS CHEMICALS IN LABORATORIES.
EFFECTIVE DATE: 5/1/90
55FR3300 1/31/90

33CFR160.211 AND 213 U.S. COAST GUARD REQUIRES 24 HOURS ADVANCE NOTICE TO CAPTAIN OF THE PORT WHEN THIS SUBSTANCE IS SCHEDULED TO ARRIVE AT OR DEPART FROM PORT.

46CFR151.01-10(B) CARGOES REGULATED BY THE COAST GUARD UNDER SUBCHAPTER O - CERTAIN BULK DANGEROUS CARGOES

40CFR61.01(B) NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
SUBPART A - GENERAL PROVISIONS

40CFR302 CERCLA SECTION 102 DESIGNATION, REPORTABLE QUANTITIES AND

REPORTABLE QUANTITY (RQ): 100 LB. (45.4 KG)

40CFR268 LAND DISPOSAL RESTRICTIONS

MEDICAL SURVEILLANCE REQUIRED

NO EXAM REQUIRED UNLESS EMPLOYEE TO WEAR FULL FACE-PIECE RESPIRATOR
ATTENTION TO SMOKING, ALCOHOL, MEDICATION, AND EXPOSURE TO CARCINOGENS
GENERAL MEDICAL HISTORY
40CFR717 RECORDS AND REPORTS OF ALLEGATIONS THAT CHEMICAL SUBSTANCES CAUSE SIGNIFICANT ADVERSE REACTIONS TO HEALTH OR THE ENVIRONMENT
TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO EMPLOYEE HEALTH FOR 30 YEARS
48FR38187 08/22/83
48FR39225 08/30/83 (EFFECTIVE DATE CORRECTION)
RESPIRATORY HISTORY
PRE-PLACEMENT AND ANNUAL EXAMS
PHYSICIAN EXAMINATION
INDUSTRIAL EXPOSURE HISTORY
VISION TEST

HISTORY OF HEPATITIS, BLOOD TRANSFUSIONS, HOSPITALIZATION
BLOOD CHEMISTRY
COMPLETE BLOOD COUNT
CHRONIC RESPIRATORY DISEASE
LIVER FUNCTION
ELECTROCARDIOGRAM
URINALYSIS

14 BY 17 CHEST P.A. X-RAY
ALKALINE PHOSPHATASE
GGTP
SGOT
SGPT
DIRECT BILIRUBIN
DIRECT BILIRUBIN
LDH

CERTIFICATIONS

NUCLEAR REG. 0041

HEALTH STATUS CLASSIFICATION

OSHA RESPIRATOR CERTIFICATION 29CFR1910.134

DEPARTMENT OF TRANSPORTATION IF OPERATES HEAVY EQUIPMENT

EMPLOYEE HAZARDOUS MATERIALS EDUCATION RECEIPT

EMPLOYEE MEDICAL RECORDS RECEIPT

TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 8(C) RULE REQUIRES MANUFACTURERS AND CERTAIN PROCESSORS OF CHEMICAL SUBSTANCES AND MIXTURES TO KEEP RECORDS OF SIGNIFICANT ADVERSE REACTIONS TO

TOXIC SUBSTANCES, EPA (202) 382-3813.

MEDICAL WARNING REQUIRED FOR MEDICAL EXAM REFUSAL SIGNED
BY EMPLOYEE

SPECIAL DIAGNOSTIC TESTS
NONE IN COMMON USE

LEAKS AND SPILL PROCEDURES
REPORTABLE QUANTITY (RQ) 100 LB. (45.4 KG)
A REPORTABLE QUANTITY OF ONE HUNDRED POUNDS APPLIES TO THIS SUBSTANCE ESTABLISHED BY SECTIONS 101(14) AND 102(B) OR ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA). SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY FOR THAT SUBSTANCE IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER (800) 424-8802; IN THE WASHINGTON, D.C. METROPOLITAN AREA (202) 426-2675.
40CFR302

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DEPARTMENT OF TRANSPORTATION HAZARD CLASS
49CFR172.101 HAZARDOUS MATERIALS TABLE

FLAMMABLE LIQUID

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS
49CFR172.101 AND 49CFR172 SUBPART E:

FLAMMABLE LIQUID

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INTERNATIONAL MARITIME ORGANIZATION HAZARD CLASS
49CFR172.102 OPTIONAL HAZARDOUS MATERIALS TABLE

(INHIBITED)
CLASS 3.1-INFLAMMABLE LIQUIDS

INTERNATIONAL MARITIME ORGANIZATION LABELING SPECIFICATIONS FOR
DOMESTIC AND EXPORT SHIPMENTS
49CFR172.102

FLAMMABLE LIQUID

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FOLLOWING INFORMATION RECOMMENDED FOR THE EMERGENCY HANDLING OF
HAZARDOUS MATERIALS

IF MATERIAL ON FIRE OR INVOLVED IN FIRE:
* EXTINGUISH FIRE ONLY IF FLOW CAN BE STOPPED
* APPLY FLOODING QUANTITIES OF WATER AS FOG

* USE FLOODING QUANTITIES OF WATER TO COOL ALL AFFECTED CONTAINERS
* WATER SHOULD BE APPLIED FROM AS FAR A DISTANCE AS POSSIBLE
* USE ALCOHOL FOAM OR CO2 OR DRY CHEMICAL EXTINGUISHERS

IF MATERIAL IS NOT ON FIRE AND IS NOT INVOLVED IN FIRE:
* KEEP AWAY FROM SPARKS, FLAMES AND OTHER SOURCES OF IGNITION
* DO NOT ALLOW MATERIAL TO CONTAMINATE WATER SOURCES AND SEWERS
* CONTAIN FLOW WITH DIKES AS NECESSARY
* ATTEMPT TO STOP LEAK IF WITHOUT HAZARD
* CONTROL VAPORS WITH WATER SPRAY

PERSONNEL PROTECTION:
* AVOID BREATHING DUST/VAPORS/FUMES FROM MATERIAL
* KEEP UPWIND
* AVOID SKIN CONTACT WITH MATERIAL
* WEAR BOOTS, PROTECTIVE GLOVES AND GAS TIGHT GOGGLES
* WASH CONTAMINATED SKIN WITH COPIOUS AMOUNTS OF WATER OR SOAP AND WATER
* DO NOT HANDLE BROKEN PACKAGES WITHOUT PROTECTIVE EQUIPMENT

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FOLLWING INFORMATION FROM DEPARTMENT OF TRANSPORTATION/U.S. COAST GUARD "CHEMICAL RESPONSE INFORMATION SYSTEM", REGARDING WATER SPILLS:

* U.S. COAST GUARD REQUIRES 24 HOUR ADVANCE NOTICE TO CAPTAIN OF THE PORT WHEN THIS SUBSTANCE IS SCHEDULED TO ARRIVE AT PORT WHEN TRANSPORTED IN BULK QUANTITY
* SUBSTANCE SINKS IN WATER
* RESTRICT ACCESS OF GENERAL PUBLIC WHEN APPRECIABLE DANGER ARISES FROM SPILL
* RESTRICT IGNITION SOURCES WHEN SUBSTANCE INVOLVED
* RESTRICT HUMAN USE WHEN SUBSTANCE INVOLVED
* PUMP SINKING LIQUID OR FINELY DIVIDED SOLIDS
* REMOVE IMMOBILIZED MASSES OF POLLUTION AND PRECIPITATES WITH MECHANICAL DREDGES OR LIFTS
* HIGHLY VOLATILE, AVOID INHALATION, VAPORS OR DUST ARE IRRITATING OR TOXIC
* HIGHLY CORROSIVE, AVOID DIRECT CONTACT, CONTACT WITH SKIN OR EYES CAN CAUSE IRRITATION OR BURNS
* BURNING NOT RECOMMENDED, FIRE DIFFICULT TO CONTROL AND/OR POISONOUS GAS IS FORMED

LISTED BY U.S. COAST GUARD UNDER CARGO COMPATIBILITY GROUP VINYL HALIDES, INCOMPATIBLE WITH ORGANIC ACIDS AND CAPROLACTAM SOLUTION

WASTE

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OBSERVE ALL FEDERAL, STATE OR LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. CONTACT LOCAL AND/OR STATE ENVIRONMENTAL AUTHORITIES TO INSURE PROPER COMPLIANCE.

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SUBSTANCE IS GAS AT NORMAL PRESSURE AND TEMPERATURE BELOW 95 F. CLASSIFIED AS SOLID AND/OR HAZARDOUS WASTE ONLY IF CONTAINED.

THIS SUBSTANCE MEETS THE DEFINITION OF A HAZARDOUS WASTE AS DEFINED BY

SUBJECT TO THE FOLLOWING CONSIDERATIONS:

40CFR260 HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

PROVIDES DEFINITIONS OF TERMS, GENERAL STANDARDS, AND OVERVIEW INFORMATION APPLICABLE TO 40CFR PARTS 260-265

40CFR261 IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

IDENTIFIES THOSE SOLID WASTES WHICH ARE SUBJECT TO REGULATION AS HAZARDOUS WASTES UNDER 40CFR PARTS 262-265, 270, 271, AND 124 AND WHICH ARE SUBJECT TO THE NOTIFICATION REQUIREMENTS OF SECTION 3010 OF THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) AND IDENTIFIES ONLY SOME OF THE MATERIALS WHICH ARE HAZARDOUS WASTES UNDER SECTIONS 3007 AND 7003 OF RCRA

THIS COMPOUND, DEPENDING ON THE CHARACTERISTIC, CONCENTRATION
AND/OR SOURCE OF THE WASTE, MAY BE REGULATED UNDER THE FOLLOWING WASTE NUMBER(S) AND, IN TURN, SUBJECT TO THE CORRESPONDING REPORTABLE QUANTITY (RQ) (IF APPLICABLE):

40CFR261.24 TOXICITY CHARACTERISTIC
EPA HAZARDOUS WASTE NUMBER D029
1,1-DICHLOROETHYLENE
MAXIMUM CONCENTRATION 0.7 MG/L

40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F024
REPORTABLE QUANTITY (RQ) : 1 LB.
A REPORTABLE QUANTITY OF 1 LB. APPLIES TO THIS HAZARDOUS WASTE FROM NON-SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.31. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OF A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202) 426-2675.

40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K019
40CFR261.31 HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER F020
40CFR261.32 HAZARDOUS WASTES FROM SPECIFIC SOURCES
EPA HAZARDOUS WASTE NUMBER K029
REPORTABLE QUANTITY (RQ) : 1 LB.
A REPORTABLE QUANTITY OF 1 LB. APPLIES TO THIS HAZARDOUS WASTE FROM SPECIFIC SOURCES ADJUSTED UNDER SECTION 102(A) OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) OF 1980 IDENTIFIED IN 40CFR261.32. SECTIONS 103(A) AND 103(B) REQUIRE THAT PERSONS IN CHARGE OR A VESSEL OR FACILITY FROM WHICH A HAZARDOUS SUBSTANCE HAS BEEN RELEASED IN A QUANTITY EQUAL TO OR GREATER THAN THE REPORTABLE QUANTITY IMMEDIATELY NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802; OR IN THE METROPOLITAN WASHINGTON, D.C. AREA (202)

40CFR261.33 DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUES, AND SPILL RESIDUES THEREOF
EPA HAZARDOUS WASTE NUMBER U078
1,1-DICHLOROETHYLENE

40CFR262 STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

ESTABLISHES STANDARDS FOR GENERATORS OF HAZARDOUS WASTE

40CFR263 STANDARDS APPLICABLE TO TRANSPORTERS OF HAZARDOUS WASTE

ESTABLISHES STANDARDS WHICH APPLY TO PERSONS TRANSPORTING HAZARDOUS WASTE WITHIN THE UNITED STATES IF THE TRANSPORTATION REQUIRES A MANIFEST UNDER 40CFR262

40CFR264 STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS WHICH DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE

40CFR265 INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS WHICH DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE DURING THE PERIOD OF INTERIM STATUS

40CFR267 INTERIM STANDARDS FOR OWNERS AND OPERATORS OF NEW HAZARDOUS WASTE LAND DISPOSAL FACILITIES

ESTABLISHES MINIMUM NATIONAL STANDARDS THAT DEFINE THE ACCEPTABLE MANAGEMENT OF HAZARDOUS WASTE FOR NEW LAND DISPOSAL FACILITIES

40CFR270 EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

ESTABLISHES PROVISIONS FOR THE HAZARDOUS WASTE PERMIT PROGRAM UNDER SUBTITLE C OF THE SOLID WASTE DISPOSAL ACT, AS AMENDED BY THE RESOURCE CONSERVATION AND RECOVERY ACT

40CFR271 REQUIREMENT FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

SPECIFIES THE PROCEDURES EPA WILL FOLLOW IN APPROVING, REVISING, AND WITHDRAWING APPROVAL OF STATE PROGRAMS AND THE REQUIREMENTS STATE PROGRAMS MUST MEET TO BE APPROVED BY THE ADMINISTRATION UNDER SECTION 3006(B) OF RCRA

THE ENVIRONMENTAL PROTECTION AGENCY HAS ISSUED A FINAL RULE PROMULGATING REGULATIONS UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), AS

RESTRICTING LAND DISPOSAL OF CERTAIN "CALIFORNIA LIST" WASTES. HAZARDOUS WASTES CONTAINING HALOGENATED ORGANIC COMPOUNDS IN TOTAL CONCENTRATIONS GREATER THAN OR EQUAL TO 1000 MG/KG ARE PROHIBITED FROM LAND DISPOSAL.
EFFECTIVE DATE: 7/8/87
(52FR25760 7/8/87)

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 8/8/88
53FR30908 8/16/88

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 8/8/90
53FR30908 8/16/88

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 6/7/89
54FR25416 6/14/89

40CFR148 UNDERGROUND INJECTION RESTRICTIONS
EFFECTIVE DATE: 6/8/89
54FR26594 6/23/89

CAS NUMBER
75-35-4

REGISTRY TOXIC CHEMICALS NUMBER
KV9275000

BULLETINS

SPECIAL INFORMATION
TYPE WHAT INFORMATION YOU REQUIRE
/ALL/, SPECIFIC INFORMATION (BY 4-LETTER COMMAND, /HELP/, OR /NONE/.

VINYLIDENE CHLORIDE - NO MORE HITS IN DATABASE.

ENTER NAME, KEYWORD, SYMPTOM, STLA, NAMELIST, HELP, OR QUIT.

ENTER WHICH OHS SERVICE YOU WISH TO ACCESS:
> TO ACCESS HAZARDLINE, TYPE /HAZARD/
> TO ACCESS ENVIRONMENTAL HEALTH NEWS, TYPE /EHN/
> TO ACCESS MATERIAL SAFETY DATA SHEET, TYPE /MSDS/
> TO EXIT THE SYSTEM, TYPE /LOGOFF/
PRESS RETURN KEY AFTER ENTERING COMMAND.

LOGGED OFF LINE # 01 DATE = 07/02/90 TIME = 17-25-50
LOGOFF COMPLETED - GOODBYE FOR NOW!!!!
** Inactivity Timeout - Disconnected. **
** Connect Pending, Please Wait... (or Hit <Return> Key to Abort.) **
CONNECTED TO HAZARDLINE 07/02/90 17:27:55
ENTER)LOGON COMMAND AND AC** Inactivity Timeout - Disconnected. **
** Connect Pending, Please Wait... (or Hit <Return> Key to Abort.) **
CONNECTED TO HAZARDLINE 07/02/90 17:29:59
ENTER)LOGON COMMAND AND ACCOUNT NUMBER, PRESS /RETURN/
** Inactivity Timeout - Disconnected. **
** Connect Pending, Please Wait... (or Hit <Return> Key to Abort.) **
CONNECTED TO HAZARDLINE 07/02/90 17:32:05
ENTER)LOGON COMMAND AND ACCOUNT NUMBER, PRESS /RETURN/

ATTACHMENT 3

Plume Delineation Database

RFI MONITORING WELL SUMMARY

WELL NUMBER	ZONE *	MEASURING PT. ELEVATION	DEPTH TO TOP OF SCREEN (FT.)	DEPTH TO BOTTOM OF SCREEN (FT.)	ELEVATION TO TOP OF SCREEN (FT.,MSL)	ELEVATION TO BOTTOM OF SCREEN (FT.,MSL)	LENGTH OF SCREEN (FT.)
9	UPZ	5044.11	62.5	67.5	4981.61	4976.61	5.0
13	UPZ	5043.25	60.0	70.0	4983.25	4973.25	10.0
14	UPZ	5041.91	61.5	71.5	4980.41	4970.41	10.0
15	UPZ	5047.49	60.0	70.0	4987.49	4977.49	10.0
29	ULPZ	5044.51	103.0	113.0	4941.51	4931.51	10.0
30	ULPZ	5044.70	97.0	107.0	4947.70	4937.70	10.0
31	ULPZ	5043.53	96.0	106.0	4947.53	4937.53	10.0
32	LLPZ	5048.05	108.0	118.0	4940.05	4930.05	10.0
33	UPZ	5044.29	63.0	73.0	4981.29	4971.29	10.0
34	UPZ	5034.49	56.5	66.5	4977.99	4967.99	10.0
35	UPZ	5042.50	63.2	73.2	4979.30	4969.30	10.0
36	UPZ	5059.35	82.3	92.3	4977.05	4967.05	10.0
37	UPZ	5091.66	115.0	125.0	4976.66	4966.66	10.0
38	LLPZ	5044.32	126.5	136.5	4917.82	4907.82	10.0
39	LLPZ	5044.06	123.0	133.0	4921.06	4911.06	10.0
40	LLPZ	5043.35	117.0	127.0	4926.35	4916.35	10.0
41	ULPZ	5046.77	92.0	97.0	4954.77	4949.77	5.0
42	ULPZ	5057.33	105.0	115.0	4952.33	4942.33	10.0
43	LLPZ	5057.74	127.0	137.0	4930.74	4920.74	10.0
44	ULPZ	5058.71	106.0	116.0	4952.71	4942.71	10.0
45	ULPZ	5090.11	143.0	153.0	4947.11	4937.11	10.0
46	ULPZ	5118.98	170.0	180.0	4948.98	4938.98	10.0
47	UPZ	5155.83	180.0	195.0	4975.83	4960.83	15.0
48	UPZ	5168.31	192.0	207.0	4976.31	4961.31	15.0
49	3rdPZ	5043.67	137.7	147.7	4905.97	4895.97	10.0
50	UPZ	5211.51	235.0	250.0	4976.51	4961.51	15.0
51	UPZ	5058.86	75.0	85.0	4983.86	4973.86	10.0
52	UPZ	5165.81	190.8	206.0	4975.01	4959.81	15.2
53	UPZ	5164.24	189.8	204.0	4974.44	4960.24	14.2
55	LLPZ	5168.61	255.0	265.0	4913.61	4903.61	10.0
56	ULPZ	5168.61	220.0	230.0	4948.61	4938.61	10.0
57	UPZ	5103.54	126.0	141.0	4977.54	4962.54	15.0
58	UPZ	5168.89	194.0	209.0	4974.89	4959.89	15.0
59	ULPZ	5059.18	104.5	115.0	4954.68	4944.18	10.5
60	ULPZ	5133.62	185.0	195.0	4948.62	4938.62	10.0
61	UPZ	5133.98	158.0	173.0	4975.98	4960.98	15.0
62	UPZ	5075.00	95.0	110.0	4980.00	4965.00	15.0
63	UPZ	5065.74	83.0	98.0	4982.74	4967.74	15.0
64	ULPZ	5097.84	138.8	149.0	4959.04	4948.84	10.2
PZ-1	UPZ	5144.22	182.7	198.0	4961.52	4946.22	15.3

(*) UPZ = UPPER FLOW ZONE
ULPZ = UPPER LOWER FLOW ZONE
LLPZ = LOWER LOWER FLOW ZONE
3rdPZ = THIRD FLOW ZONE

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

SUMMARY OF GENERAL INORGANIC ANALYSES

SAMPLE ID	DATE SAMPLED	CHLORIDE mg/l (250)	FLUORIDE mg/l (1.6)	AMMONIA as N mg/l (---)	NITRATE as N mg/l (10)	SULFATE mg/l (600)	TOTAL KJELDAHL NITROGEN as N mg/l (---)
MW-13	02/14/89	24	0.3	0.1	2.2	104	0.3
MW-13	03/13/89	25	0.4	< 0.1	2.6	100	< 0.1
MW-14	02/15/89	91	0.2	< 0.1	18	124	0.4
MW-14	03/14/89	94	0.3	< 0.1	22	133	< 0.1
MW-15	02/16/89	48	0.4	< 0.1	5.2	122	0.4
MW-15	03/15/89	36	0.4	< 0.1	4.5	120	< 0.1
MW-29	02/15/89	26	0.3	< 0.1	2.0	107	0.2
MW-29	03/13/89	25	0.3	< 0.1	1.9	106	< 0.1
MW-30	02/14/89	28	0.3	< 0.1	4.6	122	< 0.1
MW-30	03/14/89	28	0.4	< 0.1	4.4	120	< 0.1
MW-31	02/13/89	31	0.3	< 0.1	3.5	133	< 0.1
MW-31	03/15/89	31	0.3	< 0.1	3.3	126	< 0.1
MW-32	02/16/89	107	< 0.1	< 0.1	0.7	127	0.3
MW-32	03/16/89	88	0.3	< 0.1	0.7	121	< 0.1
MW-33	02/14/89	177	0.9	3.5	< 0.1	263	4.7
MW-33	03/14/89	176	1.1	6.2	< 0.1	261	6.5
MW-34	08/16/89	11	0.5	< 0.1	1.1	105	< 0.5
MW-34	08/28/89	12	0.4	< 0.1	12	130	< 0.5
MW-34	08/28/89	12	0.4	< 0.1	12	130	< 0.5
MW-35	08/15/89	24	0.6	< 0.1	68	204	< 0.5
MW-35	08/28/89	25	0.3	< 0.1	24	220	< 0.5
MW-36	08/15/89	19	0.4	< 0.1	22	171	< 0.5
MW-36	08/28/89	23	0.3	< 0.1	13	111	< 0.5

NOTE : State Standards, where they exist, are shown in parentheses.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

SUMMARY OF GENERAL INORGANIC ANALYSES

SAMPLE ID	DATE SAMPLED	CHLORIDE mg/l (250)	FLUORIDE mg/l (1.6)	AMMONIA as N mg/l (---)	NITRATE as N mg/l (10)	SULFATE mg/l (600)	TOTAL KJELDAHL NITROGEN as N mg/l (---)
MW-37	08/15/89	23	0.6	< 0.1	1.2	122	0.8
MW-37	08/28/89	21	0.9	< 0.1	1.5	140	< 0.5
MW-38	11/06/89	12	0.3	< 0.1	0.4	71	< 0.5
MW-38	11/20/89	12	0.4	< 0.1	0.3	71	< 0.5
MW-39	11/06/89	25	0.3	< 0.1	0.3	106	< 0.5
MW-39	11/20/89	21	0.3	< 0.1	< 0.1	93	< 0.5
MW-40	11/07/89	24	0.3	< 0.1	0.9	119	< 0.5
MW-40	11/21/89	24	0.3	< 0.1	0.8	120	< 0.5
MW-41	11/07/89	54	0.2	< 0.1	3.2	128	< 0.5
MW-41	11/20/89	44	0.2	< 0.1	3.3	122	< 0.5
MW-42	12/12/89	22	0.3	< 0.1	2.5	96	< 0.5
MW-42	12/21/89	20	0.3	< 0.1	2.5	92	< 0.5
MW-43	12/12/89	28	0.2	< 0.1	0.6	110	< 0.5
MW-43	12/21/89	26	0.2	< 0.1	0.6	105	< 0.5
MW-44	01/04/90	9	0.4	< 0.1	1.9	71	< 0.5
MW-44	01/16/90	9	0.3	< 0.1	1.9	72	< 0.5

NOTE : State Standards, where they exist, are shown in parentheses.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

SUMMARY OF GENERAL INORGANIC ANALYSES

SAMPLE ID	DATE SAMPLED	CHLORIDE mg/l (250)	FLUORIDE mg/l (1.6)	AMMONIA as N mg/l (---)	NITRATE as N mg/l (10)	SULFATE mg/l (600)	TOTAL KJELDAHL NITROGEN as N mg/l (---)
MW-45	01/04/90	39	0.3	< 0.1	3.9	120	< 0.5
MW-45	01/17/90	41	0.2	< 0.1	4.0	119	< 0.5
MW-46	01/04/90	31	0.4	< 0.1	2.2	102	< 0.5
MW-46	01/17/90	31	0.4	< 0.1	2.3	100	< 0.5
MW-47	01/03/90	27	0.4	< 0.1	4.0	116	< 0.5
MW-47	01/16/90	27	0.3	< 0.1	3.8	115	< 0.5
MW-48	01/03/90	32	0.4	< 0.1	2.5	120	< 0.5
MW-48	01/16/90	32	0.3	< 0.1	2.5	123	< 0.5
MW-48	08/20/90	38.0	0.28	< 0.10	2.3	130	< 0.50
MW-48	09/04/90	37.0	0.29	< 0.10	2.3	128	< 0.50
MW-49	01/25/90	19	0.3	< 0.1	0.7	107	< 0.5
MW-49	01/31/90	19.7	0.25	< 0.1	0.62	103	< 0.5
MW-51	04/25/90	19.7	0.35	< 0.1	4.0	87.3	< 0.5
MW-51	05/07/90	19.9	0.37	< 0.1	3.7	88.1	< 0.5
MW-55	08/21/90	19.5	0.36	< 0.10	1.9	81.2	< 0.50
MW-55	09/04/90	20.1	0.39	< 0.10	2.0	82.7	< 0.50

NOTE : State Standards, where they exist, are shown in parentheses.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

SUMMARY OF GENERAL INORGANIC ANALYSES

SAMPLE ID	DATE SAMPLED	CHLORIDE mg/l (250)	FLUORIDE mg/l (1.6)	AMMONIA as N mg/l (---)	NITRATE as N mg/l (10)	SULFATE mg/l (600)	TOTAL KJELDAHL NITROGEN as N mg/l (---)
MW-56	08/20/90	22.5	0.55	< 0.10	2.1	102	< 0.50
MW-56	09/05/90	23.8	< 0.10	< 0.10	2.1	96.8	< 0.50
MW-58	10/05/90	19.0	0.33	0.11	2.4	87.9	< 0.50
MW-58	10/15/90	19.9	0.36	< 0.10	2.4	93.8	< 0.50
MW-59	10/04/90	18.7	0.27	< 0.10	3.9	106	< 0.50
MW-59	10/15/90	18.4	0.25	< 0.10	3.1	106	< 0.50
MW-60	10/04/90	18.4	0.47	< 0.10	1.5	95.2	3.9
MW-60	10/15/90	19.6	0.47	< 0.10	1.4	96.9	< 0.50
MW-61	10/04/90	21.0	0.27	< 0.10	2.5	115	< 0.50
MW-61	10/15/90	21.6	0.35	< 0.10	1.8	120	< 0.50
MW-62	10/04/90	7.8	0.23	< 0.10	0.49	84.2	< 0.50
MW-62	10/15/90	8.1	0.22	< 0.10	2.6	88.5	< 0.50
MW-63	10/04/90	15.2	0.26	< 0.10	2.8	117	< 0.50
MW-63	10/15/90	15.7	0.29	< 0.10	2.7	119	< 0.50
MW-64	10/08/90	19.6	0.25	< 0.10	3.3	122	< 0.50
MW-64	10/15/90	20.2	0.29	< 0.10	3.2	126	< 0.50

NOTE : State Standards, where they exist, are shown in parentheses.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

SUMMARY OF METALS ANALYSES

mg/l

SAMPLE ID	DATE SAMPLED	ANTIMONY (---)	ARSENIC (0.1)	BARIUM (1)	BERYLLIUM (---)	BORON (0.75)	CADMIUM (0.01)	CHROMIUM (0.05)	COBALT (---)	COPPER (---)	LEAD (0.05)	MANGANESE (0.2)	MERCURY (0.002)	NICKEL (---)	SELENIUM (0.05)	SILVER (0.05)	THALLIUM (---)	TIN (---)	VANADIUM (---)	ZINC (---)
MW-13	02/14/89	< 0.05	< 0.003	0.067	< 0.001	0.78	< 0.005	< 0.01	< 0.01	< 0.006	0.003	0.19	< 0.0001	< 0.04	0.005	< 0.005	< 0.02	< 0.03	< 0.01	0.07
MW-13	03/13/89	< 0.05	< 0.006	0.054	< 0.001	0.64	< 0.005	< 0.01	< 0.01	0.008	< 0.002	0.15	< 0.0001	< 0.04	0.006	< 0.005	< 0.004	< 0.04	< 0.01	0.02
MW-14	02/15/89	< 0.05	< 0.003	0.23	< 0.001	0.95	< 0.005	0.75	< 0.01	< 0.006	< 0.002	< 0.005	< 0.0001	< 0.04	0.005	< 0.005	< 0.08	< 0.03	< 0.01	< 0.01
MW-14	03/14/89	< 0.05	< 0.003	0.17	< 0.001	1.2	< 0.005	0.90	< 0.01	< 0.006	< 0.002	0.008	< 0.0001	< 0.04	0.008	< 0.005	< 0.08	< 0.03	< 0.01	< 0.01
MW-15	02/16/89	< 0.05	0.006	0.11	< 0.001	0.12	< 0.005	< 0.01	< 0.01	< 0.006	< 0.004	< 0.005	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.04	< 0.03	< 0.01	< 0.01
MW-15	03/15/89	< 0.05	0.007	0.097	< 0.001	0.12	0.007	< 0.01	< 0.01	< 0.006	< 0.002	< 0.005	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.008	< 0.03	< 0.01	< 0.01
MW-29	02/15/89	< 0.05	0.006	0.18	< 0.001	0.13	< 0.005	< 0.01	< 0.01	< 0.006	< 0.004	0.81	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.02	< 0.03	< 0.01	< 0.01
MW-29	03/13/89	< 0.05	0.008	0.16	< 0.001	0.13	< 0.005	< 0.01	< 0.01	0.019	< 0.002	0.74	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.004	< 0.04	< 0.01	0.01
MW-30	02/14/89	< 0.05	0.005	0.079	< 0.001	0.20	< 0.005	0.09	< 0.01	< 0.006	< 0.004	0.15	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.02	< 0.03	< 0.01	0.01
MW-30	03/14/89	< 0.05	0.004	0.086	< 0.001	0.18	< 0.005	0.06	< 0.01	< 0.006	< 0.002	0.21	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.04	< 0.03	< 0.01	< 0.01
MW-31	02/13/89	< 0.05	< 0.006	0.065	< 0.001	0.17	< 0.005	< 0.01	< 0.001	< 0.006	< 0.002	0.017	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.02	< 0.03	< 0.01	< 0.01
MW-31	03/15/89	< 0.05	< 0.003	0.057	< 0.001	0.16	0.006	< 0.01	< 0.01	< 0.006	< 0.002	0.011	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.008	< 0.03	< 0.01	< 0.01
MW-32	02/16/89	< 0.05	0.004	0.18	< 0.001	0.51	< 0.005	0.02	< 0.01	< 0.006	< 0.004	1.3	0.0002	< 0.04	< 0.002	< 0.005	< 0.04	< 0.03	< 0.01	< 0.01
MW-32	03/16/89	< 0.05	< 0.003	0.15	< 0.001	0.46	0.006	0.03	< 0.01	< 0.006	< 0.002	1.1	< 0.0001	< 0.04	< 0.002	< 0.005	< 0.008	< 0.03	< 0.01	< 0.01
MW-33	02/14/89	< 0.05	0.004	0.062	< 0.001	7.7	< 0.005	0.14	0.01	< 0.006	< 0.002	2.4	< 0.0001	0.62	< 0.002	< 0.005	< 0.04	< 0.03	< 0.01	0.02
MW-33	03/14/89	< 0.05	0.004	0.061	< 0.001	7.1	< 0.005	< 0.01	0.01	< 0.006	< 0.002	2.3	< 0.0001	0.51	0.003	< 0.005	< 0.08	< 0.03	< 0.01	< 0.01
MW-34	08/16/89	< 0.05	0.014	3.0	0.005	0.13	< 0.005	0.55	0.05	0.08	0.062	8.5	< 0.0002	0.23	< 0.01	< 0.01	< 0.01	< 0.07	0.16	0.48
MW-34	08/28/89	< 0.05	< 0.005	0.28	< 0.002	0.16	< 0.005	0.09	< 0.01	0.02	0.007	1.4	< 0.0002	0.04	< 0.005	< 0.01	< 0.005	< 0.005	0.01	0.14
MW-35	08/15/89	< 0.05	0.010	0.64	< 0.002	0.22	< 0.005	0.25	0.02	0.05	0.033	3.3	< 0.0002	0.14	< 0.01	< 0.01	< 0.05	< 0.07	0.05	0.32
MW-35	08/28/89	< 0.05	< 0.005	0.15	< 0.002	0.23	< 0.005	0.02	< 0.01	0.01	0.005	0.42	0.0007	< 0.04	0.019	0.01	< 0.01	< 0.05	0.01	0.09
MW-36	08/15/89	< 0.05	0.031	1.2	0.008	0.21	< 0.005	0.26	0.02	0.07	0.37	3.9	< 0.0002	0.15	< 0.02	< 0.01	< 0.05	< 0.07	0.09	0.50
MW-36	08/28/89	< 0.05	< 0.005	0.10	< 0.002	0.20	< 0.005	0.07	< 0.01	< 0.01	0.009	0.07	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.10

008541

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

SUMMARY OF METALS ANALYSES

SAMPLE ID	DATE SAMPLED	ANTIMONY (---)	ARSENIC (0.1)	BARIUM (1)	BERYLLIUM (---)	BORON (0.75)	CADMIUM (0.01)	CHROMIUM (0.05)	COBALT (---)	COPPER (---)	LEAD (0.05)	MANGANESE (0.2)	MERCURY (0.002)	NICKEL (---)	SELENIUM (0.05)	SILVER (0.05)	THALLIUM (---)	TIN (---)	VANADIUM (---)	ZINC (---)
		mg/l																		
MW-37	08/15/89	< 0.05	0.034	0.54	0.007	0.23	< 0.005	0.23	0.01	0.06	0.15	2.0	< 0.0002	0.14	< 0.02	< 0.01	< 0.05	< 0.07	0.11	0.67
MW-37	08/28/89	< 0.05	0.012	0.03	< 0.002	0.17	0.006	0.05	< 0.01	< 0.01	< 0.01	0.05	< 0.0002	< 0.04	< 0.005	0.01	< 0.005	< 0.05	0.06	0.07
MW-38	11/06/89	< 0.05	< 0.005	0.13	< 0.002	0.13	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	0.27	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.76
MW-38	11/20/89	< 0.05	< 0.005	0.12	< 0.002	0.11	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.42	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.54
MW-39	11/06/89	< 0.05	< 0.005	0.14	< 0.002	0.12	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	0.38	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.35
MW-39	11/20/89	< 0.05	< 0.005	0.14	< 0.002	0.12	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.64	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.02	< 0.05	< 0.01	0.15
MW-40	11/07/89	< 0.05	< 0.01	0.12	< 0.002	0.14	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.02	< 0.0002	< 0.04	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	0.66
MW-40	11/21/89	< 0.05	< 0.01	0.12	< 0.002	0.15	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.37
MW-41	11/07/89	< 0.05	< 0.005	0.06	< 0.002	0.14	< 0.005	0.02	< 0.01	< 0.01	< 0.005	0.13	< 0.0002	< 0.04	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	0.03
MW-41	11/20/89	< 0.05	< 0.005	0.06	< 0.002	0.14	< 0.005	0.02	< 0.01	< 0.01	< 0.005	0.14	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.05	< 0.05	< 0.01	0.02
MW-42	12/12/89	< 0.05	< 0.005	0.07	< 0.002	0.10	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01
MW-42	12/21/89	< 0.05	< 0.01	0.07	< 0.002	0.11	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01
MW-43	12/12/89	< 0.05	< 0.005	0.17	< 0.002	0.11	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.45	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.15
MW-43	12/21/89	< 0.05	0.008	0.16	< 0.002	0.12	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.48	< 0.0002	< 0.04	< 0.01	< 0.01	< 0.02	< 0.05	< 0.01	< 0.01
MW-44	01/04/90	< 0.05	< 0.005	0.09	< 0.002	0.10	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.05	< 0.01	0.01
MW-44	01/16/90	< 0.05	< 0.01	0.10	< 0.002	0.11	< 0.005	0.27	< 0.01	< 0.01	< 0.005	0.02	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01
MW-45	01/04/90	< 0.05	< 0.005	0.06	< 0.002	0.33	< 0.005	0.53	< 0.01	< 0.01	< 0.01	0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.06

NOTE : State standards, where they exist, are shown in parentheses.

008542

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

SUMMARY OF METALS ANALYSES

SAMPLE ID	DATE SAMPLED	ANTIMONY (---)	ARSENIC (0.1)	BARIUM (1)	BERYLLIUM (---)	BORON (0.75)	CADMIUM (0.01)	CHROMIUM (0.05)	COBALT (---)	COPPER (---)	LEAD (0.05)	MANGANESE (0.2)	MERCURY (0.002)	NICKEL (---)	SELENIUM (0.05)	SILVER (0.05)	THALLIUM (---)	TIN (---)	VANADIUM (---)	ZINC (---)
		[mg/l																		]
MW-45	01/17/90	< 0.05	< 0.005	0.06	< 0.002	0.36	< 0.005	0.57	< 0.01	0.02	0.024	0.01	< 0.0002	< 0.04	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	0.05
MW-46	01/04/90	< 0.05	0.005	0.11	< 0.002	0.10	< 0.005	0.11	< 0.01	0.07	< 0.005	0.21	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	1.2
MW-46	01/17/90	< 0.05	< 0.005	0.15	< 0.002	0.13	< 0.005	0.17	< 0.01	0.13	0.024	0.08	< 0.0002	< 0.04	< 0.01	< 0.01	< 0.005	< 0.05	0.01	0.43
MW-47	01/03/90	< 0.05	0.006	0.06	< 0.002	0.09	< 0.005	0.25	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.05	< 0.01	< 0.01
MW-47	01/16/90	< 0.05	0.006	0.05	< 0.002	0.11	< 0.005	0.27	< 0.01	< 0.01	< 0.005	< 0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01
MW-48	01/03/90	< 0.05	0.006	0.07	< 0.002	0.08	< 0.005	0.14	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.01
MW-48	01/16/90	< 0.05	< 0.01	0.06	< 0.002	0.36	< 0.005	0.16	< 0.01	< 0.01	< 0.005	< 0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	0.01
MW-48	08/20/90	< 0.060	< 0.010	0.060	< 0.002	0.11	< 0.005	0.32	< 0.010	< 0.020	< 0.010	< 0.010	< 0.0002	< 0.040	< 0.005	< 0.010	< 0.010	< 0.10	< 0.010	< 0.020
MW-48	09/04/90	< 0.060	< 0.005	0.043	< 0.002	< 0.10	< 0.005	0.26	< 0.010	< 0.020	< 0.005	< 0.010	< 0.0002	< 0.040	< 0.005	< 0.010	< 0.005	< 0.10	< 0.010	< 0.020
MW-49	01/25/90	< 0.05	< 0.005	0.13	< 0.002	0.14	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.08	< 0.0002	< 0.04	< 0.01	< 0.01	< 0.005	< 0.05	< 0.01	0.02
MW-49	01/31/90	< 0.05	0.0058	0.14	< 0.002	0.13	< 0.005	< 0.01	< 0.01	< 0.01	< 0.005	0.086	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.05	< 0.01	0.012
MW-51	04/25/90	< 0.05	< 0.005	0.071	< 0.002	0.11	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	0.15	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.05	< 0.01	< 0.01
MW-51	05/07/90	< 0.05	< 0.01	0.079	< 0.002	0.14	< 0.005	0.062	< 0.01	< 0.01	< 0.005	0.41	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.05	< 0.01	< 0.01
MW-55	08/21/90	< 0.060	< 0.010	0.062	< 0.002	< 0.10	< 0.005	< 0.010	< 0.010	< 0.020	< 0.005	< 0.010	< 0.0002	< 0.040	< 0.005	< 0.010	< 0.010	< 0.10	< 0.010	0.079
MW-55	09/04/90	< 0.060	< 0.005	0.049	< 0.002	< 0.10	< 0.005	< 0.010	< 0.010	< 0.020	0.0072	< 0.010	< 0.0002	< 0.040	< 0.005	< 0.010	< 0.005	< 0.10	< 0.010	0.033
MW-56	08/20/90	< 0.060	< 0.010	0.039	< 0.002	0.13	< 0.005	0.028	< 0.010	< 0.020	< 0.005	< 0.010	< 0.0002	< 0.040	< 0.005	< 0.010	< 0.010	< 0.10	0.020	0.076
MW-56	09/05/90	< 0.060	< 0.005	0.030	< 0.002	< 0.10	< 0.005	0.049	< 0.010	< 0.020	0.0091	< 0.010	< 0.0002	< 0.040	< 0.005	< 0.010	< 0.005	< 0.10	0.014	0.027

NOTE : State standards, where they exist, are shown in parentheses.

008543

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

SUMMARY OF METALS ANALYSES

mg/l

SAMPLE ID	DATE SAMPLED	ANTIMONY (---)	ARSENIC (0.1)	BARIUM (1)	BERYLLIUM (---)	BORON (0.75)	CADMIUM (0.01)	CHROMIUM (0.05)	COBALT (---)	COPPER (---)	LEAD (0.05)	MANGANESE (0.2)	MERCURY (0.002)	NICKEL (---)	SELENIUM (0.05)	SILVER (0.05)	THALLIUM (---)	TIN (---)	VANADIUM (---)	ZINC (---)
MW-58	10/05/90	< 0.06	< 0.005	0.081	< 0.002	< 0.10	< 0.005	< 0.01	< 0.010	< 0.02	< 0.005	< 0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.10	0.011	< 0.02
MW-58	10/15/90	< 0.06	< 0.01	0.058	< 0.002	< 0.10	< 0.005	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.0002	< 0.04	< 0.01	< 0.01	< 0.005	< 0.10	< 0.01	< 0.025
MW-59	10/04/90	< 0.06	< 0.005	0.086	< 0.002	0.12	< 0.005	< 0.01	< 0.010	< 0.02	< 0.005	0.014	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.10	< 0.01	< 0.02
MW-59	10/15/90	< 0.06	< 0.01	0.082	< 0.002	0.11	< 0.005	< 0.01	< 0.01	< 0.02	< 0.01	0.011	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.10	< 0.10	< 0.01	0.025
MW-60	10/04/90	< 0.06	< 0.005	0.067	< 0.002	0.15	< 0.005	< 0.01	< 0.010	< 0.02	0.0072	0.029	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.10	< 0.01	0.090
MW-60	10/15/90	< 0.06	< 0.01	0.068	< 0.002	< 0.10	< 0.005	< 0.01	< 0.01	< 0.02	< 0.01	0.029	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.01	< 0.10	< 0.01	0.042
MW-61	10/04/90	< 0.06	0.012	0.058	< 0.002	0.11	< 0.005	< 0.01	< 0.010	< 0.02	< 0.005	0.013	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.10	< 0.01	0.020
MW-61	10/15/90	< 0.06	< 0.01	0.051	< 0.002	0.10	< 0.005	< 0.01	< 0.01	< 0.02	< 0.005	< 0.01	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.05	< 0.10	< 0.01	< 0.025
MW-62	10/04/90	< 0.06	< 0.005	0.069	< 0.002	0.14	< 0.005	0.012	< 0.010	< 0.02	< 0.005	0.11	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.01	< 0.01	< 0.02
MW-62	10/15/90	< 0.06	< 0.01	0.071	< 0.002	0.13	< 0.005	< 0.01	< 0.01	< 0.02	< 0.005	0.074	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.10	< 0.10	< 0.01	< 0.025
MW-63	10/04/90	< 0.06	0.005	0.077	< 0.002	0.12	< 0.005	< 0.01	< 0.010	< 0.02	< 0.005	0.049	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.10	< 0.01	0.026
MW-63	10/15/90	< 0.06	0.0075	0.057	< 0.002	0.11	< 0.005	< 0.01	< 0.01	< 0.02	< 0.005	0.026	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.05	< 0.10	< 0.01	< 0.025
MW-64	10/08/90	< 0.06	< 0.005	0.080	< 0.002	0.12	< 0.005	< 0.01	< 0.010	< 0.02	0.0053	0.024	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.10	< 0.01	< 0.02
MW-64	10/15/90	< 0.06	< 0.01	0.076	< 0.002	0.11	< 0.005	< 0.01	< 0.01	< 0.02	< 0.005	0.029	< 0.0002	< 0.04	< 0.005	< 0.01	< 0.005	< 0.10	< 0.01	< 0.025

NOTE : State standards, where they exist, are shown in parentheses.

008544

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
Part 1 of 3

(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	ACETONE (---)	ACETO-NITRILE (---)	ACROLEIN (---)	ACRYLO-NITRILE (---)	ALLYL CHLORIDE (---)	BENZENE (10)	BROMO-DICHLORO-METHANE (---)	BROMO-FORM (---)	BROMO-METHANE (---)	CARBON DISULFIDE (---)	CARBON TETRA-CHLORIDE (10)	CHLORO-BENZENE (---)	CHLORO-PRENE (---)	CHLORO-ETHANE (---)	CHLORO-DIBROMO-METHANE (---)	CHLORO-FORM (100)	CHLORO-METHANE (---)	1,2-DIBROMO-3-CHLORO-PROPANE (---)
MW-13	02/14/89	< 75	< 300	< 300	< 300	< 15	< 15	< 15	< 15	< 30	< 15	< 15	< 15	< 15	< 30	< 15	< 15	< 30	< 15
MW-13	03/13/89	< 82	< 330	< 330	< 330	< 16	< 16	< 16	< 16	< 33	< 16	< 16	< 16	< 16	< 33	< 16	< 16	< 33	< 16
MW-14	02/15/89	< 250	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-14	03/14/89	< 420	<1700	<1700	<1700	< 85	< 85	< 85	< 85	< 170	< 85	< 85	< 85	< 85	< 170	< 85	< 85	< 170	< 85
MW-15	02/16/89	< 42	< 170	< 170	< 170	< 8.5	< 8.5	< 8.5	< 8.5	< 17	< 8.5	< 8.5	< 8.5	< 8.5	< 17	< 8.5	< 8.5	< 17	< 8.5
MW-15	03/15/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-29	02/22/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-29	03/13/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-30	02/14/89	< 50	< 200	< 200	< 200	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 20	< 10
MW-30	03/14/89	< 62	< 250	< 250	< 250	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 25	< 12
MW-31	02/13/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-31	03/15/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-32	02/16/89	<2500	<10000	<10000	<10000	< 500	< 500	< 500	< 500	<1000	< 500	< 500	< 500	< 500	<1000	< 500	< 500	<1000	< 500
MW-32	03/16/89	140	< 100	< 100	< 100	< 5.0	9.1	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	35	< 10	< 5.0
MW-33	02/14/89	<1200	<5000	<5000	<5000	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 500	< 250
MW-33	03/14/89	<1200	<5000	<5000	<5000	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 500	< 250
MW-34	08/16/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-34	08/28/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-35	08/15/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-35	08/28/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-36	08/15/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-36	08/28/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

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(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	ACETONE (---)	ACETO-NITRILE (---)	ACROLEIN (---)	ACRYLO-NITRILE (---)	ALLYL CHLORIDE (---)	BENZENE (10)	BROMO-DICHLORO-METHANE (---)	BROMO-FORM (---)	BROMO-METHANE (---)	CARBON DISULFIDE (---)	CARBON TETRA-CHLORIDE (10)	CHLORO-BENZENE (---)	CHLORO-PRENE (---)	CHLORO-ETHANE (---)	CHLORO-DIBROMO-METHANE (---)	CHLORO-FORM (100)	CHLORO-METHANE (---)	1,2-DIBROMO-3-CHLORO-PROPANE (---)
MW-13	02/14/89	< 75	< 300	< 300	< 300	< 15	< 15	< 15	< 15	< 30	< 15	< 15	< 15	< 15	< 30	< 15	< 15	< 30	< 15
MW-13	03/13/89	< 82	< 330	< 330	< 330	< 16	< 16	< 16	< 16	< 33	< 16	< 16	< 16	< 16	< 33	< 16	< 16	< 33	< 16
MW-14	02/15/89	< 250	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-14	03/14/89	< 420	<1700	<1700	<1700	< 85	< 85	< 85	< 85	< 170	< 85	< 85	< 85	< 85	< 170	< 85	< 85	< 170	< 85
MW-15	02/16/89	< 42	< 170	< 170	< 170	< 8.5	< 8.5	< 8.5	< 8.5	< 17	< 8.5	< 8.5	< 8.5	< 8.5	< 17	< 8.5	< 8.5	< 17	< 8.5
MW-15	03/15/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-29	02/22/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-29	03/13/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-30	02/14/89	< 50	< 200	< 200	< 200	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 20	< 10
MW-30	03/14/89	< 62	< 250	< 250	< 250	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 25	< 12
MW-31	02/13/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-31	03/15/89	< 25	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-32	02/16/89	<2500	<10000	<10000	<10000	< 500	< 500	< 500	< 500	<1000	< 500	< 500	< 500	< 500	<1000	< 500	< 500	<1000	< 500
MW-32	03/16/89	140	< 100	< 100	< 100	< 5.0	9.1	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	35	< 10	< 5.0
MW-33	02/14/89	<1200	<5000	<5000	<5000	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 500	< 250
MW-33	03/14/89	<1200	<5000	<5000	<5000	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 500	< 250
MW-34	08/16/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-34	08/28/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-35	08/15/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-35	08/28/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-36	08/15/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0
MW-36	08/28/89	< 10	< 100	< 100	< 100	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 10	< 5.0

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

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(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	ACETONE (---)	ACETO-NITRILE (---)	ACROLEIN (---)	ACRYLO-NITRILE (---)	ALLYL CHLORIDE (---)	BENZENE (10)	BROMO-DICHLORO-METHANE (---)	BROMO-FORM (---)	BROMO-METHANE (---)	CARBON DISULFIDE (---)	CARBON TETRA-CHLORIDE (10)	CHLORO-BENZENE (---)	CHLORO-PRENE (---)	CHLORO-ETHANE (---)	CHLORO-DIBROMO-METHANE (---)	CHLORO-FORM (100)	CHLORO-METHANE (---)	1,2-DIBROMO-3-CHLORO-PROPANE (---)
MW-37	08/15/89	< 100	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-37	08/28/89	< 100	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-38	11/06/89	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-38	11/20/89	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-39	11/06/89	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-39	11/20/89	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-40	11/07/89	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-40	11/21/89	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-41	11/07/89	< 100	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-41	11/20/89	< 100	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-42	12/12/89	< 100	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-42	12/21/89	< 120	<1200	<1200	<1200	< 60	< 60	< 60	< 60	< 120	< 60	< 60	< 60	< 60	< 120	< 60	< 60	< 120	< 60
MW-43	12/12/89	< 25	< 250	< 250	< 250	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 25	< 12
MW-43	12/21/89	< 20	< 200	< 200	< 200	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 10	< 10	< 20	< 10	< 10	< 20	< 10
MW-44	01/04/90	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-44	01/16/90	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5

NOTE : State standards, where they exist, are shown in parentheses.

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

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(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	ACETONE (---)	ACETO-NITRILE (---)	ACROLEIN (---)	ACRYLO-NITRILE (---)	ALLYL CHLORIDE (---)	BENZENE (10)	BROMO-DICHLORO-METHANE (---)	BROMO-FORM (---)	BROMO-METHANE (---)	CARBON DISULFIDE (---)	CARBON TETRA-CHLORIDE (10)	CHLORO-BENZENE (---)	CHLORO-PRENE (---)	CHLORO-ETHANE (---)	CHLORO-DIBROMO-METHANE (---)	CHLORO-FORM (100)	CHLORO-METHANE (---)	1,2-DIBROMO-3-CHLORO-PROPANE (---)
MW-45	01/04/90	< 200	<2000	<2000	<2000	< 100	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 200	< 100	< 100	< 200	< 100
MW-45	01/17/90	< 100	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-46	01/04/90	< 500	<5000	<5000	<5000	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 250	< 250	< 500	< 250	< 250	< 500	< 250
MW-46	01/17/90	< 200	<2000	<2000	<2000	< 100	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 200	< 100	< 100	< 200	< 100
MW-47	01/03/90	< 50	< 500	< 500	< 500	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 50	< 25
MW-47	01/16/90	29	< 250	< 250	< 250	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 12	< 12	< 25	< 12	< 12	< 25	< 12
MW-47	06/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-48	01/03/90	< 100	<1000	<1000	<1000	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 50
MW-48	01/16/90	50	< 500	< 500	< 500	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 50	< 25	< 25	< 50	< 25
MW-48	06/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-48	08/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-48	08/20/90	110	<2000	<1000	<1000	< 100	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 100
MW-48	09/04/90	< 100	<2000	<1000	<1000	< 100	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 100	< 50	< 50	< 100	< 100
MW-49	01/25/90	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-49	01/31/90	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-50	04/18/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-51	04/25/90	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5

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(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	ACETONE (---)	ACETO-NITRILE (---)	ACROLEIN (---)	ACRYLO-NITRILE (---)	ALLYL CHLORIDE (---)	BENZENE (10)	BROMO-DICHLORO-METHANE (---)	BROMO-FORM (---)	BROMO-METHANE (---)	CARBON DISULFIDE (---)	CARBON TETRA-CHLORIDE (10)	CHLORO-BENZENE (---)	CHLORO-PRENE (---)	CHLORO-ETHANE (---)	CHLORO-DIBROMO-METHANE (---)	CHLORO-FORM (100)	CHLORO-METHANE (---)	1,2-DIBROMO-3-CHLORO-PROPANE (---)
MW-51	04/27/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-51	05/07/90	< 10	< 100	< 100	< 100	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 5
MW-52	06/05/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-52	06/07/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-53	06/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-55	08/21/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-55	08/21/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-55	09/04/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-56	08/20/90	23	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-56	08/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-56	09/05/90	18	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-57	08/31/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-58	09/13/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-58	10/05/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-58	10/15/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-59	09/21/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-59	10/04/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10

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(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	ACETONE (---)	ACETO-NITRILE (---)	ACROLEIN (---)	ACRYLO-NITRILE (---)	ALLYL CHLORIDE (---)	BENZENE (10)	BROMO-DICHLORO-METHANE (---)	BROMO-FORM (---)	BROMO-METHANE (---)	CARBON DISULFIDE (---)	CARBON TETRA-CHLORIDE (10)	CHLORO-BENZENE (---)	CHLORO-PRENE (---)	CHLORO-ETHANE (---)	CHLORO-DIBROMO-METHANE (---)	CHLORO-FORM (100)	CHLORO-METHANE (---)	1,2-DIBROMO-3-CHLORO-PROPANE (---)
MW-59	10/15/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-60	10/01/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-60	10/04/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-60	10/15/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-61	10/04/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-61	10/04/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-61	10/15/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-62	10/04/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-62	10/04/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-62	10/15/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-63	10/04/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-63	10/04/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-63	10/15/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-64	10/08/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
MW-64	10/08/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-64	10/15/90	< 10	< 200	< 100	< 100	< 10	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 10	< 5	< 5	< 10	< 10
PZ-1	04/25/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTE : State standards, where they exist, are shown in parentheses.

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
Part 2 of 3

(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	1,2-DIBROMO-METHANE (---)	DIBROMO-METHANE (---)	TRANS-1,4-DICHLORO-2-BUTENE (---)	DICHLORO-DI-FLOURO-METHANE (---)	1,1-DI-CHLORO-ETHANE (25)	1,2-DI-CHLORO-ETHANE (10)	TRANS-1,2-DICHLORO-ETHENE (---)	1,1-DI-CHLORO-ETHENE (5)	METHYLENE CHLORIDE (100)	1,2-DI-CHLORO PROPANE (---)	CIS-1,3-DI-CHLORO-PROPENE (---)	TRANS-1,3-DI-CHLORO-PROPENE (---)	1,4-DIOXANE (---)	ETHYL BENZENE (750)	ETHYL CYANIDE (---)	2-HEXANONE (100)	IODO-METHANE (---)	ISOBUTYL ALCOHOL (---)
MW-13	02/14/89	< 15	< 15	< 15	< 30	< 15	< 15	< 15	47	< 75	< 15	< 15	< 15	< 300	< 15	< 15	< 30	< 15	< 300
MW-13	03/13/89	< 16	< 16	< 16	< 33	< 16	< 16	< 16	48	< 82	< 16	< 16	< 16	< 330	< 16	< 16	< 33	< 16	< 330
MW-14	02/15/89	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 250	< 50	< 50	< 50	<1000	< 50	< 50	< 100	< 50	<1000
MW-14	03/14/89	< 85	< 85	< 85	< 170	< 85	< 85	< 85	150	< 420	< 85	< 85	< 85	<1700	< 85	< 85	< 170	< 85	<1700
MW-15	02/16/89	< 8.5	< 8.5	< 8.5	< 17	< 8.5	< 8.5	< 8.5	10	< 42	< 8.5	< 8.5	< 8.5	< 170	< 8.5	< 8.5	< 17	< 8.5	< 170
MW-15	03/15/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	11	< 25	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-29	02/22/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-29	03/13/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-30	02/14/89	< 10	< 10	< 10	< 20	< 10	< 10	< 10	19	100	< 10	< 10	< 10	< 200	< 10	< 10	< 20	< 10	< 200
MW-30	03/14/89	< 12	< 12	< 12	< 25	< 12	< 12	< 12	19	110	< 12	< 12	< 12	< 250	< 12	< 12	< 25	< 12	< 250
MW-31	02/13/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-31	03/15/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 25	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-32	02/16/89	< 500	< 500	< 500	<1000	< 500	< 500	< 500	< 500	12000	< 500	< 500	< 500	<10000	< 500	< 500	<1000	< 500	<10000
MW-32	03/16/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	340	8600	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-33	02/14/89	< 250	< 250	< 250	< 500	< 250	< 250	< 250	750	<1200	< 250	< 250	< 250	<5000	< 250	< 250	< 500	< 250	<5000
MW-33	03/14/89	< 250	< 250	< 250	< 500	< 250	< 250	< 250	730	<1200	< 250	< 250	< 250	<5000	< 250	< 250	< 500	< 250	<5000
MW-34	08/16/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	6.6	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-34	08/28/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-35	08/15/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	5.9	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-35	08/28/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-36	08/15/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	5.3	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100
MW-36	08/28/89	< 5.0	< 5.0	< 5.0	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 100	< 5.0	< 5.0	< 10	< 5.0	< 100

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
Part 2 of 3

(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	1,2-DIBROMO-METHANE (---)	DIBROMO-METHANE (---)	TRANS-1,4-DICHLORO-2-BUTENE (---)	DICHLORO-DI-FLOURO-METHANE (---)	1,1-DI-CHLORO-ETHANE (25)	1,2-DI-CHLORO-ETHANE (10)	TRANS-1,2-DICHLORO-ETHENE (---)	1,1-DI-CHLORO-ETHENE (5)	METHYLENE CHLORIDE (100)	1,2-DI-CHLORO PROPANE (---)	CIS-1,3-DI-CHLORO-PROPENE (---)	TRANS-1,3-DI-CHLORO-PROPENE (---)	1,4-DIOXANE (---)	ETHYL BENZENE (750)	ETHYL CYANIDE (---)	2-HEXANONE (100)	IODO-METHANE (---)	ISOBUTYL ALCOHOL (---)
MW-37	08/15/89	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	61	< 50	< 50	< 50	<1000	< 50	< 50	< 100	< 50	<1000
MW-37	08/28/89	< 50	< 50	< 50	< 100	< 50	< 50	< 50	67	< 50	< 50	< 50	< 50	<1000	< 50	< 50	< 100	< 50	<1000
MW-38	11/06/89	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-38	11/20/89	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-39	11/06/89	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-39	11/20/89	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-40	11/07/89	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-40	11/21/89	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-41	11/07/89	< 50	< 50	< 50	< 100	< 50	< 50	< 50	150	< 50	< 50	< 50	< 50	<1000	< 50	< 50	< 100	< 50	<1000
MW-41	11/20/89	< 50	< 50	< 50	< 100	< 50	< 50	< 50	110	< 50	< 50	< 50	< 50	<1000	< 50	< 50	< 100	< 50	<1000
MW-42	12/12/89	< 50	< 50	< 50	< 100	< 50	< 50	< 50	140	< 50	< 50	< 50	< 50	<1000	< 50	< 50	< 100	< 50	<1000
MW-42	12/21/89	< 60	< 60	< 60	< 120	< 60	< 60	< 60	130	< 60	< 60	< 60	< 60	<1200	< 60	< 60	< 120	< 60	<1200
MW-43	12/12/89	< 12	< 12	< 12	< 25	< 12	< 12	< 12	55	< 12	< 12	< 12	< 12	< 250	< 12	< 12	< 25	< 12	< 250
MW-43	12/21/89	< 10	< 10	< 10	< 20	< 10	< 10	< 10	46	< 10	< 10	< 10	< 10	< 200	< 10	< 10	< 20	< 10	< 200
MW-44	01/04/90	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-44	01/16/90	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100

NOTE : State standards, where they exist, are shown in parentheses.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
Part 2 of 3

(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	1,2-DIBROMO-METHANE (---)	DIBROMO-METHANE (---)	TRANS-1,4-DICHLORO-2-BUTENE (---)	DICHLORO-DI-FLOURO-METHANE (---)	1,1-DI-CHLORO-ETHANE (25)	1,2-DI-CHLORO-ETHANE (10)	TRANS-1,2-DICHLORO-ETHENE (---)	1,1-DI-CHLORO-ETHENE (5)	METHYLENE CHLORIDE (100)	1,2-DI-CHLORO PROPANE (---)	CIS-1,3-DI-CHLORO-PROPENE (---)	TRANS-1,3-DI-CHLORO-PROPENE (---)	1,4-DIOXANE (---)	ETHYL BENZENE (750)	ETHYL CYANIDE (---)	2-HEXANONE (100)	IODO-METHANE (---)	ISOBUTYL ALCOHOL (---)
MW-45	01/04/90	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	<2000	< 100	< 100	< 200	< 100	<2000
MW-45	01/17/90	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	<1000	< 50	< 50	< 100	< 50	<1000
MW-46	01/04/90	< 250	< 250	< 250	< 500	< 250	< 250	< 250	< 250	< 250	< 250	< 250	< 250	<5000	< 250	< 250	< 500	< 250	<5000
MW-46	01/17/90	< 100	< 100	< 100	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	<2000	< 100	< 100	< 200	< 100	<2000
MW-47	01/03/90	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 500	< 25	< 25	< 50	< 25	< 500
MW-47	01/16/90	< 12	< 12	< 12	< 25	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 250	< 12	< 12	< 25	< 12	< 250
MW-47	06/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-48	01/03/90	< 50	< 50	< 50	< 100	< 50	< 50	< 50	< 50	70	< 50	< 50	< 50	<1000	< 50	< 50	< 100	< 50	<1000
MW-48	01/16/90	< 25	< 25	< 25	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 500	< 25	< 25	< 50	< 25	< 500
MW-48	06/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-48	08/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-48	08/20/90	< 100	< 50	< 50	< 200	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	<5000	< 50	< 50	< 100	< 50	<2000
MW-48	09/04/90	< 100	< 50	< 50	< 200	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	<5000	< 50	< 50	< 100	< 50	<2000
MW-49	01/25/90	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-49	01/31/90	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-50	04/18/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-51	04/25/90	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100

NOTE : State standards, where they exist, are shown in parentheses.

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
Part 2 of 3

(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	1,2-DIBROMO-METHANE (---)	DIBROMO-METHANE (---)	TRANS-1,4-DICHLORO-2-BUTENE (---)	DICHLORO-DI-FLOURO-METHANE (---)	1,1-DI-CHLORO-ETHANE (25)	1,2-DI-CHLORO-ETHANE (10)	TRANS-1,2-DICHLORO-ETHENE (---)	1,1-DI-CHLORO-ETHENE (5)	METHYLENE CHLORIDE (100)	1,2-DI-CHLORO PROPANE (---)	CIS-1,3-DI-CHLORO-PROPENE (---)	TRANS-1,3-DI-CHLORO-PROPENE (---)	1,4-DIOXANE (---)	ETHYL BENZENE (750)	ETHYL CYANIDE (---)	2-HEXANONE (100)	IODO-METHANE (---)	ISOBUTYL ALCOHOL (---)
MW-51	04/27/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-51	05/07/90	< 5	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 100	< 5	< 5	< 10	< 5	< 100
MW-52	06/05/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-52	06/07/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-53	06/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-55	08/21/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-55	08/21/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-55	09/04/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-56	08/20/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-56	08/20/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-56	09/05/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-57	08/31/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-58	09/13/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-58	10/05/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-58	10/15/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-59	09/21/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-59	10/04/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200

NOTE : State standards, where they exist, are shown in parentheses.

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
Part 2 of 3

(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	1,2-DIBROMO-METHANE (---)	DIBROMO-METHANE (---)	TRANS-1,4-DICHLORO-2-BUTENE (---)	DICHLORO-DI-FLOURO-METHANE (---)	1,1-DI-CHLORO-ETHANE (25)	1,2-DI-CHLORO-ETHANE (10)	TRANS-1,2-DICHLORO-ETHENE (---)	1,1-DI-CHLORO-ETHENE (5)	METHYLENE CHLORIDE (100)	1,2-DI-CHLORO PROPANE (---)	CIS-1,3-DI-CHLORO-PROPENE (---)	TRANS-1,3-DI-CHLORO-PROPENE (---)	1,4-DIOXANE (---)	ETHYL BENZENE (750)	ETHYL CYANIDE (---)	2-HEXANONE (100)	IODO-METHANE (---)	ISOBUTYL ALCOHOL (---)
MW-59	10/15/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-60	10/01/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-60	10/04/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-60	10/15/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-61	10/04/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-61	10/04/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-61	10/15/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-62	10/04/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	6.8	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-62	10/04/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-62	10/15/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	7.2	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-63	10/04/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-63	10/04/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-63	10/15/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-64	10/08/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
MW-64	10/08/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-64	10/15/90	< 10	< 5	< 5	< 20	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 500	< 5	< 5	< 10	< 5	< 200
PZ-1	04/25/90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTE : State standards, where they exist, are shown in parentheses.

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
Part 3 of 3

(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	METH-ACRYLO-NITRILE (---)	METHYL ETHYL KETONE (---)	4-METHYL-2-PENTANONE (---)	STYRENE (---)	1,1,1,2-TETRA-CHLORO-ETHANE (---)	1,1,2,2-TETRA-CHLORO-ETHANE (10)	TETRA-CHLORO-ETHENE (20)	TOLUENE (750)	1,1,1-TRI-CHLORO-ETHANE (60)	1,1,2-TRI-CHLORO-ETHANE (10)	TRI-CHLORO-ETHENE (100)	TRI-CHLORO-FLUORO-METHANE (---)	1,2,3-TRI-CHLORO-PROPANE (---)	VINYL ACETATE (---)	VINYL CHLORIDE (1)	TOTAL XYLENES (620)
MW-13	02/14/89	< 15	< 75	< 30	< 15	< 15	< 15	< 15	< 15	250	< 15	610	< 15	< 15	< 30	< 30	< 15
MW-13	03/13/89	< 16	< 82	< 33	< 16	< 16	< 16	< 16	< 16	220	< 16	650	< 16	< 16	< 33	< 33	< 16
MW-14	02/15/89	< 50	< 250	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	1100	< 50	< 50	< 100	< 100	< 50
MW-14	03/14/89	< 85	< 420	< 170	< 85	< 85	< 85	< 85	< 85	150	< 85	3700	< 85	< 85	< 170	< 170	< 85
MW-15	02/16/89	< 8.5	< 42	< 17	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	80	< 8.5	210	< 8.5	< 8.5	< 17	< 17	< 8.5
MW-15	03/15/89	< 5.0	< 25	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	75	< 5.0	210	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-29	02/22/89	< 5.0	< 25	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.7	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-29	03/13/89	< 5.0	< 25	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.4	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-30	02/14/89	< 10	< 50	< 20	< 10	< 10	< 10	< 10	< 10	11	< 10	320	< 10	< 10	< 20	< 20	< 10
MW-30	03/14/89	< 12	< 62	< 25	< 12	< 12	< 12	< 12	< 12	< 12	< 12	320	< 12	< 12	< 25	< 25	< 12
MW-31	02/13/89	< 5.0	< 25	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	120	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-31	03/15/89	< 5.0	< 25	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	120	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-32	02/16/89	< 500	<2500	<1000	< 500	< 500	< 500	< 500	< 500	< 500	< 500	4800	< 500	< 500	<1000	<1000	< 500
MW-32	03/16/89	< 5.0	< 25	< 10	< 5.0	< 5.0	< 5.0	20	33	300	< 5.0	3400	< 5.0	< 5.0	< 10	< 10	9.6
MW-33	02/14/89	< 250	<1200	< 500	< 250	< 250	< 250	< 250	< 250	2500	< 250	7500	< 250	< 250	< 500	< 500	< 250
MW-33	03/14/89	< 250	<1200	< 500	< 250	< 250	< 250	< 250	< 250	2500	< 250	7000	< 250	< 250	< 500	< 500	< 250
MW-34	08/16/89	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-34	08/28/89	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-35	08/15/89	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-35	08/28/89	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-36	08/15/89	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	7.9	< 5.0	< 5.0	< 10	< 10	< 5.0
MW-36	08/28/89	< 5.0	< 10	< 10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	11	< 5.0	< 5.0	< 10	< 10	< 5.0

SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
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(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	METH-ACRYLO-NITRILE (---)	METHYL ETHYL KETONE (---)	4-METHYL-2-PENTANONE (---)	STYRENE (---)	1,1,1,2-TETRA-CHLORO-ETHANE (---)	1,1,2,2-TETRA-CHLORO-ETHANE (10)	TETRA-CHLORO-ETHENE (20)	TOLUENE (750)	1,1,1-TRI-CHLORO-ETHANE (60)	1,1,2-TRI-CHLORO-ETHANE (10)	TRI-CHLORO-ETHENE (100)	TRI-CHLORO-FLUORO-METHANE (---)	1,2,3-TRI-CHLORO-PROPANE (---)	VINYL ACETATE (---)	VINYL CHLORIDE (1)	TOTAL XYLENES (620)
MW-37	08/15/89	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	1100	< 50	< 50	< 100	< 100	< 50
MW-37	08/28/89	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	1800	< 50	< 50	< 100	< 100	< 50
MW-38	11/06/89	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-38	11/20/89	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	5.7	< 5	< 10	< 10	< 5
MW-39	11/06/89	< 5	< 10	< 10	< 5	< 5	< 5	< 5	5.3	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-39	11/20/89	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-40	11/07/89	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	5.4	< 5	< 10	< 10	< 5
MW-40	11/21/89	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-41	11/07/89	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	310	< 50	1100	< 50	< 50	< 100	< 100	< 50
MW-41	11/20/89	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	290	< 50	960	< 50	< 50	< 100	< 100	< 50
MW-42	12/12/89	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	200	< 50	1100	< 50	< 50	< 100	< 100	< 50
MW-42	12/21/89	< 60	< 120	< 120	< 60	< 60	< 60	< 60	< 60	200	< 60	1200	< 60	< 60	< 120	< 120	< 60
MW-43	12/12/89	< 12	< 25	< 25	< 12	< 12	< 12	< 12	< 12	100	< 12	270	< 12	< 12	< 25	< 25	< 12
MW-43	12/21/89	< 10	< 20	< 20	< 10	< 10	< 10	< 10	< 10	86	< 10	160	< 10	< 10	< 20	< 20	< 10
MW-44	01/04/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-44	01/16/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5

NOTE : State standards, where they exist, are shown in parentheses.

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
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(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	METH-ACRYLO-NITRILE (---)	METHYL ETHYL KETONE (---)	4-METHYL-2-PENTANONE (---)	STYRENE (---)	1,1,1,2-TETRA-CHLORO-ETHANE (---)	1,1,2,2-TETRA-CHLORO-ETHANE (10)	TETRA-CHLORO-ETHENE (20)	TOLUENE (750)	1,1,1-TRI-CHLORO-ETHANE (60)	1,1,2-TRI-CHLORO-ETHANE (10)	TRI-CHLORO-ETHENE (100)	TRI-CHLORO-FLUORO-METHANE (---)	1,2,3-TRI-CHLORO-PROPANE (---)	VINYL ACETATE (---)	VINYL CHLORIDE (1)	TOTAL XYLENES (620)
MW-45	01/04/90	< 100	< 200	< 200	< 100	< 100	< 100	< 100	< 100	< 100	< 100	1400	< 100	< 100	< 200	< 200	< 100
MW-45	01/17/90	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	1400	< 50	< 50	< 100	< 100	< 50
MW-46	01/04/90	< 250	< 500	< 500	< 250	< 250	< 250	< 250	< 250	< 250	< 250	4200	< 250	< 250	< 500	< 500	< 250
MW-46	01/17/90	< 100	< 200	< 200	< 100	< 100	< 100	< 100	< 100	100	< 100	2300	< 100	< 100	< 200	< 200	< 100
MW-47	01/03/90	< 25	< 50	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	310	< 25	< 25	< 50	< 50	< 25
MW-47	01/16/90	< 12	< 25	< 25	< 12	< 12	< 12	< 12	< 12	< 12	< 12	330	< 12	< 12	< 25	< 25	< 12
MW-47	06/20/90	---	---	---	---	---	---	---	---	---	---	220	---	---	---	---	---
MW-48	01/03/90	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	820	< 50	< 50	< 100	< 100	< 50
MW-48	01/16/90	< 25	< 50	< 50	< 25	< 25	< 25	< 25	< 25	< 25	< 25	830	< 25	< 25	< 50	< 50	< 25
MW-48	06/20/90	---	---	---	---	---	---	---	---	---	---	820	---	---	---	---	---
MW-48	08/20/90	---	---	---	---	---	---	---	---	---	---	600	---	---	---	---	---
MW-48	08/20/90	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	1100	< 50	< 50	< 100	< 100	< 50
MW-48	09/04/90	< 50	< 100	< 100	< 50	< 50	< 50	< 50	< 50	< 50	< 50	930	< 50	< 50	< 100	< 100	< 50
MW-49	01/25/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	12	< 5	< 10	< 10	< 5
MW-49	01/31/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	6.9	< 5	< 10	< 10	< 5
MW-50	04/18/90	---	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---
MW-51	04/25/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	8.5	< 5	< 5	< 10	< 10	< 5

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
Part 3 of 3

(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	METH-ACRYLO-NITRILE (---)	METHYL ETHYL KETONE (---)	4-METHYL-2-PENTANONE (---)	STYRENE (---)	1,1,1,2-TETRA-CHLORO-ETHANE (---)	1,1,2,2-TETRA-CHLORO-ETHANE (10)	TETRA-CHLORO-ETHENE (20)	TOLUENE (750)	1,1,1-TRI-CHLORO-ETHANE (60)	1,1,2-TRI-CHLORO-ETHANE (10)	TRI-CHLORO-ETHENE (100)	TRI-CHLORO-FLUORO-METHANE (---)	1,2,3-TRI-CHLORO-PROPANE (---)	VINYL ACETATE (---)	VINYL CHLORIDE (1)	TOTAL XYLENES (620)
MW-51	04/27/90	---	---	---	---	---	---	---	---	---	---	6.2	---	---	---	---	---
MW-51	05/07/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	6.7	< 5	< 5	< 10	< 10	< 5
MW-52	06/05/90	---	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---
MW-52	06/07/90	---	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---
MW-53	06/20/90	---	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---
MW-55	08/21/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	13	< 5	< 5	< 10	< 10	< 5
MW-55	08/21/90	---	---	---	---	---	---	---	---	---	---	9.2	---	---	---	---	---
MW-55	09/04/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	12	< 5	< 5	< 10	< 10	< 5
MW-56	08/20/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	50	< 5	< 5	< 10	< 10	< 5
MW-56	08/20/90	---	---	---	---	---	---	---	---	---	---	29	---	---	---	---	---
MW-56	09/05/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	98	< 5	< 5	< 10	< 10	< 5
MW-57	08/31/90	---	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---
MW-58	09/13/90	---	---	---	---	---	---	---	---	---	---	20	---	---	---	---	---
MW-58	10/05/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	22	< 5	< 5	< 10	< 10	< 5
MW-58	10/15/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	22	< 5	< 5	< 10	< 10	< 5
MW-59	09/21/90	---	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---
MW-59	10/04/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5

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SPARTON TECHNOLOGY, INC.
COORS ROAD FACILITY
ALBUQUERQUE, NEW MEXICO

APPENDIX IX VOLATILE ORGANIC ANALYSES SUMMARY
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(all concentrations in micrograms per liter (ug/l))

SAMPLE ID	DATE SAMPLED	METH-ACRYLO-NITRILE (---)	METHYL ETHYL KETONE (---)	4-METHYL-2-PENTANONE (---)	STYRENE (---)	1,1,1,2-TETRA-CHLORO-ETHANE (---)	1,1,2,2-TETRA-CHLORO-ETHANE (10)	TETRA-CHLORO-ETHENE (20)	TOLUENE (750)	1,1,1-TRI-CHLORO-ETHANE (60)	1,1,2-TRI-CHLORO-ETHANE (10)	TRI-CHLORO-ETHENE (100)	TRI-CHLORO-FLUORO-METHANE (---)	1,2,3-TRI-CHLORO-PROPANE (---)	VINYL ACETATE (---)	VINYL CHLORIDE (1)	TOTAL XYLENES (620)
MW-59	10/15/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-60	10/01/90	---	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---
MW-60	10/04/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-60	10/15/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-61	10/04/90	---	---	---	---	---	---	---	---	---	---	< 1.0	---	---	---	---	---
MW-61	10/04/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-61	10/15/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-62	10/04/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	11	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-62	10/04/90	---	---	---	---	---	---	---	---	---	---	2.2	---	---	---	---	---
MW-62	10/15/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	12	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-63	10/04/90	---	---	---	---	---	---	---	---	---	---	< 1.0	---	---	---	---	---
MW-63	10/04/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-63	10/15/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-64	10/08/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
MW-64	10/08/90	---	---	---	---	---	---	---	---	---	---	< 1.0	---	---	---	---	---
MW-64	10/15/90	< 5	< 10	< 10	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 10	< 10	< 5
PZ-1	04/25/90	---	---	---	---	---	---	---	---	---	---	< 1	---	---	---	---	---

NOTE : State standards, where they exist, are shown in parentheses.

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