State of New Mexico
Office of the Natural Resources Trustee

To Mary

GARY E. JOHNSON
Governor

Dr. William M. Turner, Trustee
Steven Cary, Deputy Director
Charles de Saillan, Counsel

BY TELEFACSIMILE

February 8, 1996

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NM ENVIRONMENT DEPARTMENT
OFFICE OF THE SECRETARY

Vincent Malott, Project Manager
Hazardous Waste Enforcement Branch (6EN-HX)
U.S. EPA Region 6
1445 Ross Avenue
Dallas, TX 75202-2733

Re: Sparton Technology Coors Road Facility - RCRA Statement of Basis

Dear Mr. Malott:

Enclosed is the written statement of the New Mexico Office of the Natural Resources Trustee in the above-referenced matter. Please include this letter and ONRT's Statement in the administrative record.

Perhaps the most important point to emphasize is that EPA should move rapidly to a decision that will result in prompt ground water restoration. Last week's public hearing provided persuasive evidence that the public also wants action. The record justifies such a decision, and the technologies are available to address this problem.

Sincerely,

Steven J. Cary
Deputy Director

cc: Norman Gaume, APWD
Curt Montman, AEHD
Richard Brusuelas, BCEHD
Charlie de Saillan, NMAGO
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STATEMENT OF THE OFFICE OF THE NATURAL RESOURCES TRUSTEE
Provided to the U. S. Environmental Protection Agency regarding Sparton Technology, Inc.

Steven J. Cary, Deputy Director
February 8, 1996

The New Mexico Office of the Natural Resources Trustee (ONRT) was established to protect natural resources in New Mexico. Pursuant to State law (Natural Resources Trustee Act, 75-7-1 through 5, NMSA 1978) ONRT is authorized to investigate injuries to natural resources resulting from hazardous substance releases, to determine the causes of those injuries, to determine liability for such injuries, to restore or replace any injured natural resources, and to recover the State's costs from liable parties. In carrying out these duties, ONRT seeks to ensure that the State's natural resources continue to benefit the citizens of New Mexico.

Ground water is one of New Mexico's most valuable natural resources. It provides drinking water to approximately 88% of New Mexico residents (1, p. 113) and to 100% of Bernalillo County residents (2). Supplies of potable ground water in the State and the County are finite and must be managed wisely. Ground water pollution problems threaten safe water supplies today because of past waste disposal practices. It is up to government agencies such as the EPA, and it is the duty of responsible corporate citizens, to see that such problems are solved promptly and do not continue to plague future generations.

We have reviewed the technical data related to ground water contamination caused by disposal of solvent wastes and metal plating wastes at the Sparton site. Ground water emanating from the site and far beyond the site boundary contains more than 2000 µg/l of trichloroethylene (TCE) (3, p. 8), more than 400 times the safe level of 5 µg/l for drinking water as established by EPA. Other contaminants significantly above health standards include trichloroethane, dichloroethane, and chromium. This is one of the two most serious ground water contamination cases in the Albuquerque area (2).

The laws of nature virtually guarantee that these contaminants dissolve in water, that ground water is always in motion, and that the ground water near the Sparton facility will continue to spread these contaminants throughout the Albuquerque water supply for generations, unless there is effective and prompt intervention. We estimate that approximately 1000 acre-feet of water (> 300 million gallons) already is tainted, and that the plume will contaminate more than 30 additional acre-feet of water (> 10 million gallons) for each additional year that the problem continues to be uncontained. There can be no doubt that this is an imminent and substantial endangerment to the environment and to the future water security of Albuquerque. Therefore, on December 11, 1995, ONRT issued a Declaration affirming ONRT's authority over the Sparton contaminant plume. This Declaration is submitted as Attachment A.

The administrative record for this case is replete with documents prepared by Sparton, and Sparton has used every conceivable opportunity to delay, obfuscate, and rationalize why nothing

should be done about this problem. The record also contains a brief report from the City of Albuquerque (4) refuting most of the important technical, scientific, and policy assertions made by Sparton. ONRT concurs fully with the City's interpretation of site information. ONRT maintains that the lateral extent and vertical depth of contamination have not been ascertained with a reasonable degree of certainty. Nevertheless, recently-released Sparton data from MW-61 (3, p. 8) strongly suggest that contamination is spreading rapidly to the northwest. Ground water flow, with contaminants in solution, exceeds 100 feet per year.

According to Sparton, plume dimensions indicate that movement of the contaminant plume is driven primarily by diffusion. While diffusion is no doubt occurring in this plume, as it does in all plumes, its importance is dwarfed by advection and dispersion as forces distributing contaminants in the affected aquifer (4, pp. 4-7). Plume dimensions in this case are entirely consistent with dissolved contaminants moving via advection and influenced by dispersion as water moves through heterogenous earth materials. In any case, neither shape nor diffusion-dominance qualifies a contaminant plume for an exemption from RCRA cleanup requirements, as far as we know.

Sparton's claim that overall contaminant mass is decreasing also is not supported by all the data. Most wells may in fact show contaminant decreases, but this would be expected at a site where the point of contaminant release has numerous monitor wells and the plume destination has few monitor wells, as is the case with Sparton. Comparison of plume areas (not wells) where concentrations are increasing or decreasing would be more informative. The most accurate statement that can be made regarding this subject at this time is that contaminant mass in solution or in the aquifer cannot be determined because the horizontal and vertical extent of contamination are not known (4, pp. 6-7). Even if contaminant mass were demonstrably decreasing, that by itself would not justify a No-Further-Action strategy for remediation.

Based on our review of the RCRA Facility Investigation, the Corrective Measures Study, the Statement of Basis, the City of Albuquerque's technical review of that information (4) and additional information available for this site (3), ONRT recommends that EPA adopt Alternative 5, which includes Expanded Ground Water Recovery, Soil Vapor Extraction and Air Sparging (5). This alternative includes continuation of the existing on-site ground water extraction and treatment system, as well as expansion of off-site ground water monitoring to the extent needed to fully characterize the plume and its movements, and to permit design of the remedy. Of the options considered by EPA, Alternative 5 has the best combination of aggressive on-site source control and expedient off-site containment and remediation. It also is important that the wording of the selected remedy not become an obstacle to expedient restoration. The selected remedy should contain sufficient flexibility to allow better and more cost effective technologies to be employed if and when they become available, without allowing restoration to be delayed while other technologies are researched.

ONRT's views on the other alternatives are as follows. Site characterization data leave no doubt whatsoever that the contaminant plume is large and spreading, both horizontally and downward.

This contamination affects ground water that is needed and for many years has been planned to supply the future needs of the citizens of Albuquerque and Bernalillo County. Clearly the No Action Alternative 1 is an utterly unacceptable choice. We concur with the New Mexico Attorney General that selection of Alternative 1 would be inconsistent with the intent of RCRA and with subsequent EPA regulations and guidance (6).

Existing on-site ground water extraction and treatment efforts by Sparton pursuant to the earlier consent order involve such a small volume of water, such a shallow depth in the aquifer, and limited geographic extent that their contribution to cleanup may be negligible. Any remedial alternative that accepts only this status quo or relies primarily on natural attenuation or dilution over countless decades, such as Alternative 2, is utterly unacceptable. We concur with the New Mexico Attorney General that selection of Alternative 2 would be inconsistent with the intent of RCRA and with subsequent EPA regulations and guidance (6). We also question whether the ongoing, on-site extraction and treatment action is worth retaining in its current form. It may be better to decommission the current on-site action and use that equipment more constructively, perhaps reducing capital costs for the selected remedy.

Alternative 3 calls for simple off-site expansion of the ground water extraction and treatment program with no source control, and also is unacceptable. We agree that extraction and treatment of contaminated ground water that has migrated off-site is necessary, but that alone is not sufficient or even advisable. ONRT is concerned that this alternative does not specify expansion of ground water extraction efforts for the on-site portion of the plume. This may be an oversight, but it is clear that current on-site actions are ineffective and need to be enhanced as part of an overall site restoration effort. We also are concerned that this omission is incorporated by reference into Alternatives 4 through 7. Alternative 3 does not include aggressive source control, and that is why ONRT does not support Alternative 3. Source control is a necessary component of the selected remedy because it will greatly reduce the amount of contamination that enters ground water and leaves the site, thereby greatly reducing the length of time and the cost needed for complete restoration.

Alternatives 4 and 5 both call for source control measures, employing technologies that have proven useful at analogous sites in New Mexico and elsewhere. Soil Vapor Extraction (Alternative 4) is the bare minimum technology that EPA should require for on-site source control; it should work as well at Sparton as it has at other similar sites in the Albuquerque area. Air Sparging (Alternative 5) is another on-site source reduction measure that can be implemented for a reasonable cost. Attachment B provides some detailed information about use of Air Sparging in Bernalillo County, and the potential for benefits at this site. It has proven effective at many sites (Attachment B), especially when used in conjunction with Soil Vapor Extraction, as is proposed in Alternative 5. Given its low cost relative to the cost of many years of extraction and treatment treat, it seems sensible to give Air Sparging a try. If, after a reasonable trial period, EPA, State and local officials agree that it is ineffective, then it should be discontinued.

Alternative 6 proposes to enhance ground water cleanup by using water to flush contaminants

from the soil. ONRT is concerned that soil flushing may exacerbate the problem. It is still unknown exactly how much contamination remains in the ground beneath the site, or exactly where it may be located. Remaining contaminants probably include unlocated bodies of pure waste solvents which could be mobilized through a water-based flushing procedure and could escape containment, thereby enlarging the problem and making it more difficult and more costly to remediate.

Alternative 7 calls for in situ bioremediation, which seems speculative at this time. Given the projected high cost and uncertain benefits, ONRT does not recommend site-wide implementation of this alternative. EPA should consider pilot testing of this technology, however. If in-situ bioremediation is found to be effective for certain conditions found at the site, then it may be appropriate to find a place for it in the overall effort.

To summarize our views of the Alternatives, ONRT recommends that EPA select Alternative 5 with minor modifications. Technologies that we know will work should be implemented immediately; these include ground water extraction and treatment, and Soil Vapor Extraction. The selected remedy also should identify air sparging, soil flushing, and bioremediation as technologies to be tested at the site on a trial basis and, if successful, to be incorporated into the restoration effort wherever they can expedite the goal. EPA should also be open to application of other technologies that may prove useful, without delaying remedy implementation. The expanded ground water extraction and treatment component of Alternative 5 should explicitly include enhancement of on-site ground water remediation as well.

The historically slow pace of redress of contamination at this site, combined with ongoing commercial and residential development of land overlying the contaminant plume, are complicating the eventual tasks of extracting, treating and disposing of water. These tasks all require land for structures, facilities and equipment. Site investigations to date still have not identified the full horizontal extent of the contaminant plume, so it is not clear exactly where the best locations may be for the facilities that will be needed. As vacant land west of Sparton is subdivided and built up, the range of practical siting options becomes narrower. EPA must act as expeditiously as possible so that the most cost-effective and most technically feasible alternatives are not precluded by this land development process, and that disruption to new residents is minimized.

Another reason to act expeditiously is the possibility that municipal access to the aquifer in the area might be restricted for the duration of the remedy. Municipal water supply wells would cause significant cones of depression in the water table, and competition between those wells and remediation wells could be a problem for the remedy. The part of the aquifer that may be off limits for production might therefore be far greater than the simple plume footprint. It could extend thousands of feet beyond the plume itself in order to maintain a hydrodynamically stable area within which to manage the contaminant plume. The larger the plume gets, the greater the area that could be unavailable for City use.

As one step toward expeditious implementation of a remedy, EPA should formally ask Sparton to immediately implement the ground water monitoring that is included in Alternatives 2 through 7. Sparton's prompt installation of these monitoring wells, without waiting for the end of the remedy selection process, would allow restoration to begin sooner and would reduce final restoration costs.

Finally, it is imperative that EPA select and implement the remedy as quickly as prudence allows. The long history of delay and obfuscation by Sparton, combined with the daily increasing cost of restoration, leave no justification for taking more than the minimum time necessary to get restoration underway. Furthermore, we request that ONRT be included in deliberations leading to selection and implementation of the final remedy. If by July 1, 1996, an enforceable ground water restoration agreement acceptable to ONRT is not in place, then we will take actions that we deem appropriate under applicable State authority.

Thank you for the opportunity to present comments. We look forward to expeditious selection of the remedy and to discussions on remedy implementation.

REFERENCES

1 New Mexico Water Quality Control Commission. 1994. Water Quality and Water Pollution Control in New Mexico. Santa Fe.

2 Norman Gaume, PE, Albuquerque Public Works Department, personal communication, February 1, 1996.

3 January 26, 1996, memorandum from J. Wakefield (Sparton Technology, Inc.) to Ron Kern (NMED), Vince Malott (USEPA), and Rob Pine (NMED).

4 CH2M HILL. January 1996. Review of Ground-Water Contamination at Sparton Technology Inc.'s Coors Road Facility. Prepared for the City of Albuquerque Public Works Department, Water Resources Program.

5 U.S. Environmental Protection Agency. RCRA Statement of Basis. Sparton Technology Coors Road Facility.

6 Letter from Tom Udall, New Mexico Attorney General, to Vincent Malott, USEPA. February 8, 1996.

ATTACHMENT A

DECLARATION

DECLARATION

I, William M. Turner, being the duly appointed Natural Resources Trustee for the State of New Mexico, acting pursuant to my common law and statutory duties to care for, protect and preserve the natural resources of the state of New Mexico as an ordinary and prudent man would do his own property do hereby find as a matter of fact that:

1. There exists within the ground water of projected Sections 7 and 18 of Township 11 North, Range 3 East (NMPM) of the Town of Alameda Land Grant, a significant amount of trichlorethylene and other chemical compounds that are known or suspected to be carcinogenic or otherwise toxic to humans, and

2. These compounds are hazardous substances within the meaning of the federal Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §101(14), and hazardous waste constituents within the meaning of the federal Resource Conservation and Recovery Act, 42 U.S.C. §§ 6903(5), 6924(u), and 6928(h), and

3. The concentrations of these compounds exceed both the Federal Maximum Concentration Limits and the State of New Mexico Standards as established by the New Mexico Water Quality Control Commission, and

4. The body of ground-water contaminated by these compounds is currently estimated to be at least three-thousand feet long, one-thousand feet wide, and 100 feet deep within the water-bearing zone more or less, and

5. If left unabated, the contaminated water has the potential of contaminating significantly more ground water, and

6. The ground water of the Albuquerque Ground Water Basin is the primary source of community supply, and

7. I have examined all available technical information in light of my professional expertise in the area of ground-water hydrology, aqueous geochemistry, ground-water hydrodynamics, and ground-water mass transport.

Therefore, I, William M. Turner, acting within my common law and statutory powers and immunities, hereby:

1. Conclude that significant injuries have occurred to the natural resources of the State of New Mexico and that the State of New Mexico is entitled to damages for such injuries. I further conclude that a significant threat of additional injury to the natural resources of the State of New Mexico exists; and

2. Declare that an imminent and substantial endangerment to public health or the environment exists within the meaning of 42 U.S.C. §§ 6972 and 6973 and must be addressed expeditiously; and

3. Declare that the above referenced site falls within my authority as Natural Resources Trustee for purposes of enforcing the State's rights pursuant to 75-7-4(B) (NMSA, 1986) and in fulfillment of my public trust duties pursuant to the intent of natural resource restoration as set forth in 75-7-5(B)(1) (NMSA, 1986) to:

(a) protect the public welfare, health, and safety of the People of New Mexico; and

(b) restore the contaminated ground water; and

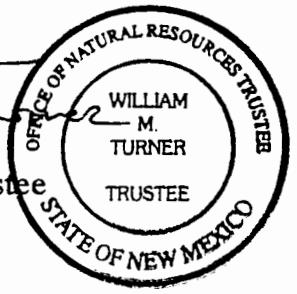
(c) assess and collect damages.

Therefore I, William M. Turner, do hereby set my hand as evidence of my official act, this 11th day of December, 1995.

SIGNED:

William M. Turner

William M. Turner, Trustee



ATTACHMENT B

AIR SPARGING - SUPPLEMENTAL INFORMATION
Prepared by the Office of the Natural Resources Trustee

There is a low risk of any adverse outcomes if Air Sparging is used at the site. For example, there is no floating product that might be spread by mounding of ground water. Similarly, there are no subsurface confined spaces that might collect vapors and create health risks.

Site geology is generally favorable for Air Sparging. Specifically, there is no confined aquifer present, and intrinsic permeability exceeds 10^{-9} sq. cm. Zones of lower permeability exist beneath the site and will be difficult to treat, but such zones will pose a challenge for any technology, including soil flushing, SVE, as well as pump and treat. In soils, the diffusivity of a gas far exceeds the diffusivity of a liquid, so volatile contaminants should be easier to extract via air than by water because one can move more pore volumes of air than water in any given time. Moreover, sparge points can be installed directly into low permeability units to drive contaminants out. There is a risk is that clay lenses may divert vapors laterally beyond the limits of the recovery system. However, clay units are probably so discontinuous that they pose little risk of long range diversion away from the site. Moreover, SVE wells can be installed so as to maximize containment of fugitive vapors. Pilot testing of this technology should be preceded by studies of the extent and integrity of low permeability zones, perhaps through inexpensive surface geophysical methods.

Contaminant chemistry is generally favorable for Air Sparging. For example, TCE has a low boiling point (189°F at 1 atm) and high vapor pressure (58 mm at 0°C). On the down side, the Henry's Law constant of TCE (about 10^{-2}) favors dissolution rather than volatilization of TCE. Nevertheless, the high TCE concentrations at the core of the plume should still permit significant recovery of TCE vapor. Furthermore, the high soil diffusivity of air may counterbalance the low Henry's Law constant of TCE; moving large volumes of air with small TCE concentrations TCE may be more effective than moving small volumes of water with higher TCE concentrations.

There are several benefits of using Air Sparging in conjunction with SVE. It would reduce the volume and duration of dissolution of TCE into the aquifer, thereby reducing the time and costs needed for extraction and treatment. It is relatively inexpensive to employ and is easily teamed with SVE. Its potential benefits exceed costs. Installation of air sparging and efforts to overcome relatively minor site-specific obstacles should be cost effective in the long run.

Air Sparging is currently in use removing non-halogenated VOCs at no fewer than 23 UST sites in Bernalillo County. A list of these sites is given in Table 1 of this Attachment and the sites are mapped on Figure 1 of this Attachment. Widespread application of this technology in the Rio Grande valley, where geologic conditions are regionally consistent, strongly suggests that air sparging can be made to work at the Sparton site as well. The other principal factor is the chemistry of the contaminants, and TCE seems reasonably amenable to Air Sparging.

Table 1. List of UST cleanups in Bernalillo County utilizing air sparging.

Name	Location
ATEX Arenal	Arenal & Isleta Blvd. SW
ATEX 149	1125 Alameda Blvd.
ATEX 213	3501 Isleta Blvd. SW
ATEX 218	937 Isleta Blvd. SW
Barelas Bridge	800 Bridge Blvd. SW
Bass	Lakeview & Isleta Blvd. SW
Big Chief	9700 2nd St. NW
Brewer Gascard	1816 4th St. NW
Carroll Venture	920 1st St. NW
Circle K 589	3041 Isleta Blvd. SW
Circle K 615	4001 4th St. NW
Climate Roofing	2700 Isleta Blvd. SW
Corrales Chevron	3745 Corrales Rd.
EverReady Lomas	400 Lomas NE
Fina Oil	304 Lomas NE
Peerless Tyre	5801 4th St.
Phil's Auto	701 Isleta Blvd. SW
Sullivan Stable	9521 Rio Grande Blvd.
Super Valu 2nd St.	5600 2nd St. NW
U-Pump-It	7408 Central SW
Vickers 2492	6724 2nd St. NW
Vickers 2494	2523 4th St. NW

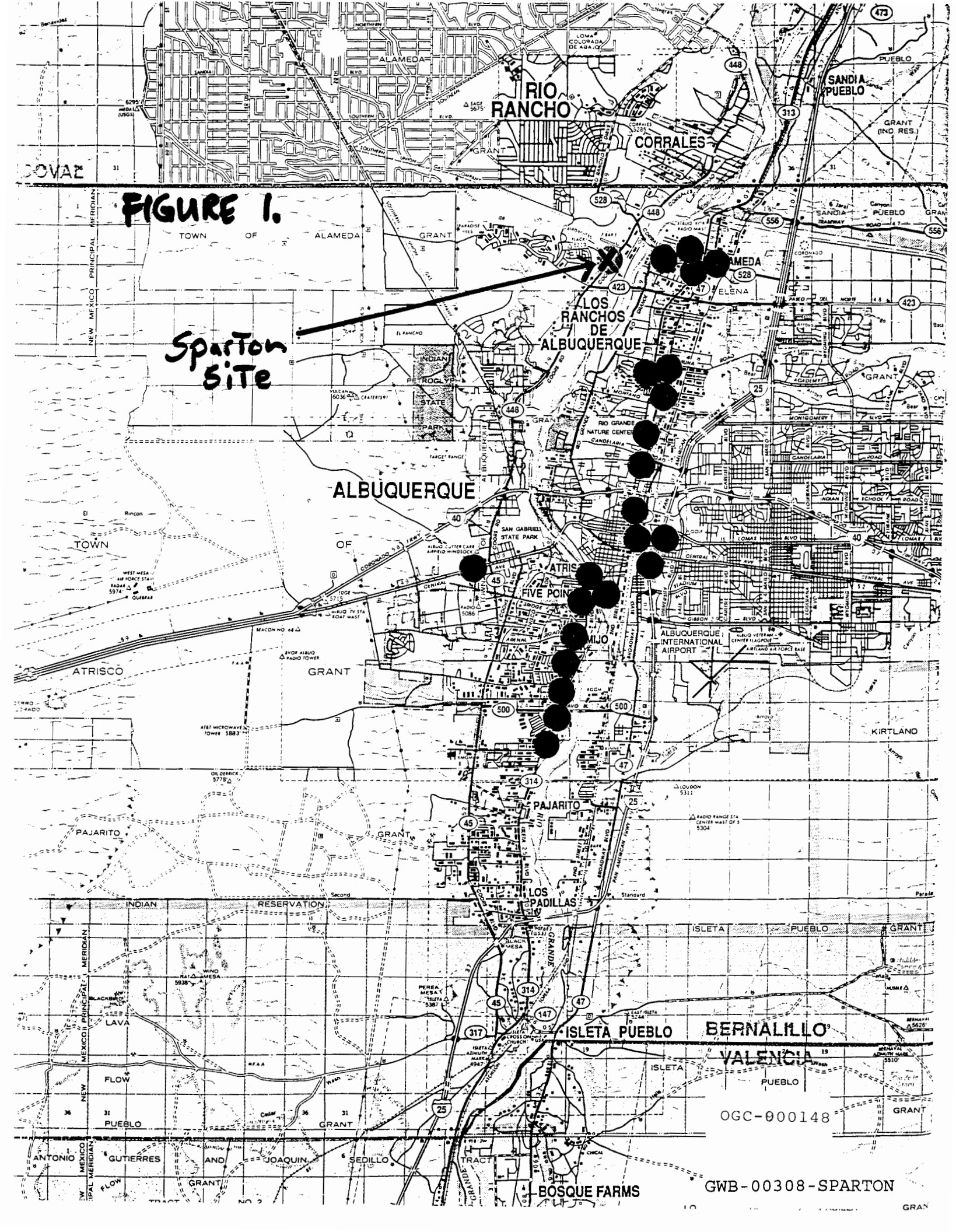


FIGURE 1.
Sparton Site
RIO RANCHO
CORRALES
SANDIA PUEBLO
ALAMEDA
LOS RANCHOS DE ALBUQUERQUE
ALBUQUERQUE
ATRISCO
PAJARITO
LOS PADILLAS
ISLETA PUEBLO
BERNALILLO
VALENCIA
BOSQUE FARMS
KIRTLAND
ALBUQUERQUE INTERNATIONAL AIRPORT
OGC-000148
GWB-00308-SPARTON