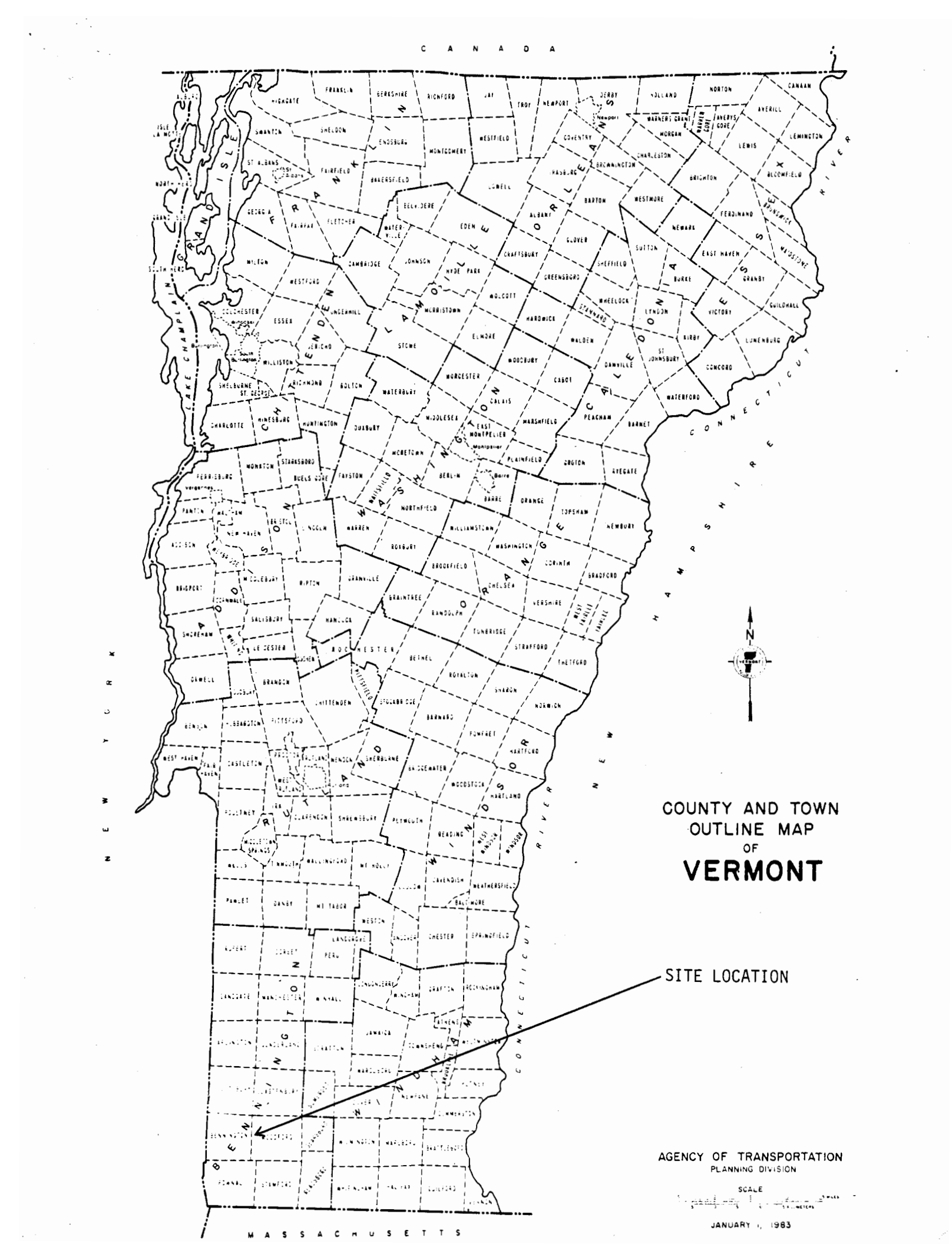
BURGESS ABANDONED HAZARDOUS WASTE DISPOSAL SITE
WOODFORD, VERMONT
DRAFT
MARCH 1985



COUNTY AND TOWN OUTLINE MAP OF VERMONT

AGENCY OF TRANSPORTATION
PLANNING DIVISION

SCALE

JANUARY 1, 1983

EXECUTIVE SUMMARY

Under Section 3012 of the Resource Conservation and Recovery Act, the Vermont Agency of Environmental Conservation's Hazardous Materials Management Program is developing an inventory of hazardous waste disposal sites. The inventory contains information, for each site, on the hazardous wastes present, potential pollutant dispersal pathways, the population and resources which might be affected, and the responsible party or parties. If the assessment of a site indicates that further action is appropriate, the site is inspected to better define the extent of the problem and to provide a data base sufficient to determine the next action. The site inspection involves the collection of site specific data on the hazardous substances present, pollutant dispersal pathways, types of receptors, and site management practices. The scope of the inspections vary depending on the nature of existing information and the specific site circumstances.

The Union Carbide Corporation's Bennington plant manufactures battery products for commercial and military uses. Under Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Union Carbide Corporation was required to notify the U.S. Environmental Protection Agency of its past hazardous waste disposal practices (refer to Attach-

ment A). The company's Health, Safety, and Environmental Affairs Dept. reported that an unknown quantity of organics, solvents, and heavy metals were disposed of in a landfill operated by the Burgess Construction Company, in the town of Woodford.

Necessary background information pertaining to the site has been collected and reviewed, and representatives of both Union Carbide Corporation and the Burgess Construction Company were interviewed in an attempt to fill information gaps. This information, together with the data provided by site inspections, indicates an obvious need for further evaluation of this uncontrolled hazardous waste disposal site. The Vermont Agency of Environmental Conservation, Union Carbide Corporation, and Burgess Construction Company are cooperating in the development of a site evaluation and monitoring program. This program is intended to privide a data base sufficient to determine potential remedial actions.

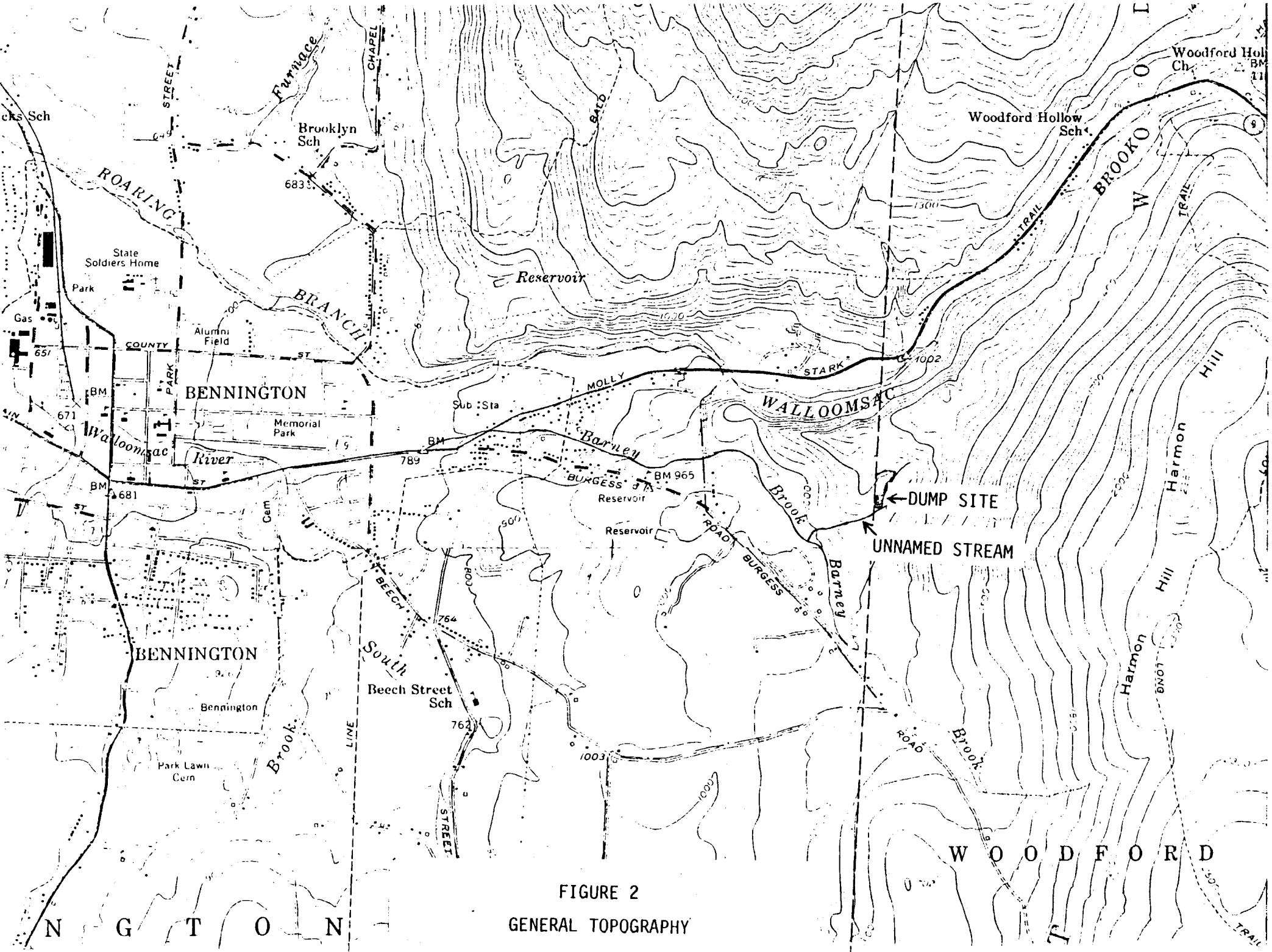


FIGURE 2

GENERAL TOPOGRAPHY

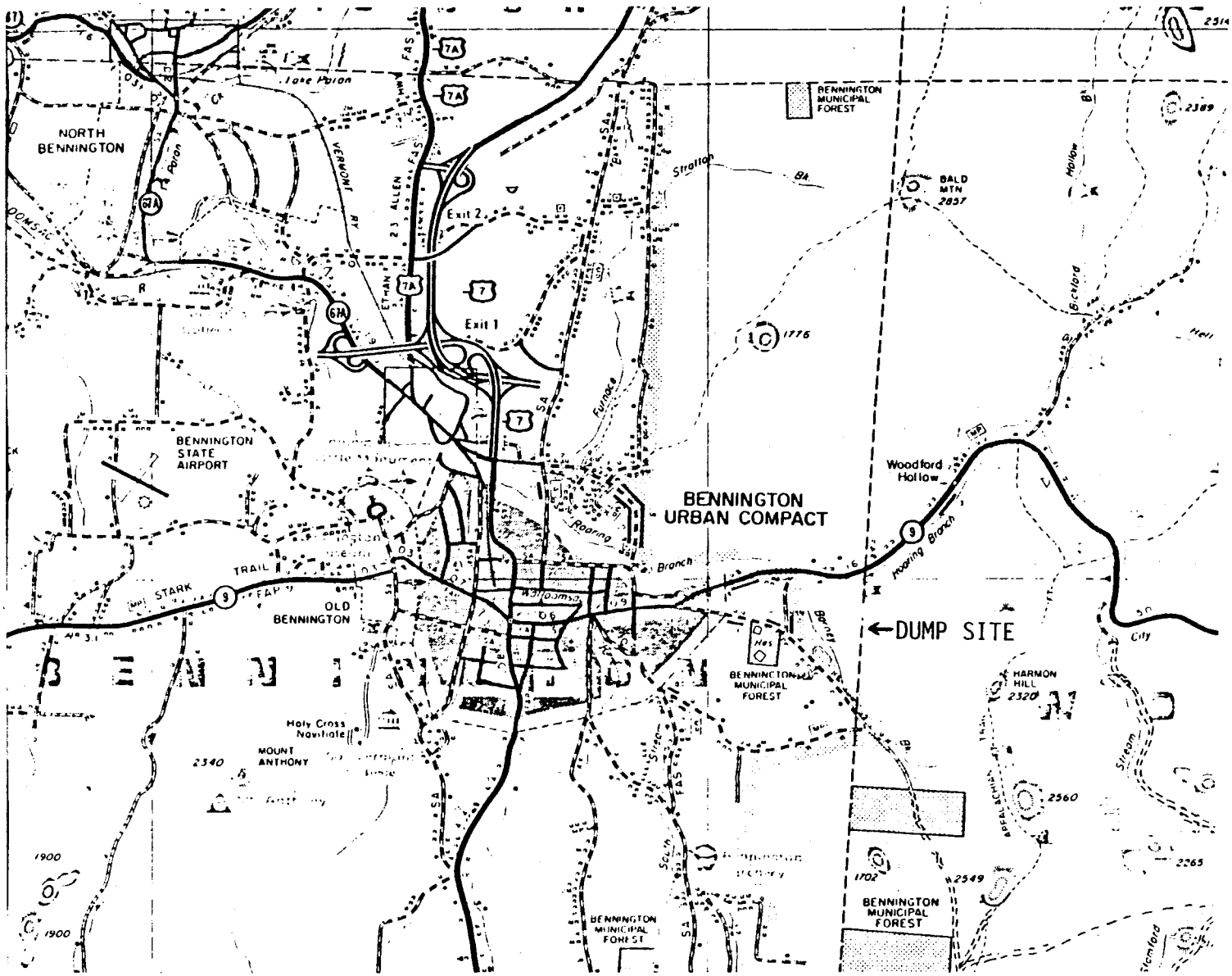


FIGURE 1

LOCATION OF DUMPSITE

SITE DESCRIPTION

The Burgess Construction Company is located along the northeast side of Burgess Road, approximately 1.1 miles southeast of the junction of Burgess Road and State Highway 9, in the eastern part of the town of Bennington. Approximately 0.5 mile to the northeast, just over the Woodford town line, is an open sand pit area operated by the Burgess Construction Company. The sand pit is part of a 60 acre parcel of land owned by Clyde Burgess, Sr. (now deceased) and Clyde Burgess, Jr. The abandoned disposal site is located at the southern edge of the open area at 42 degrees, 52 minutes, 38 seconds north latitude and 73 degrees, 9 minutes, 2 seconds west longitude. The site is accessible via a dirt road originating behind the Burgess Construction Company office.

The disposal site is located in the physiographic region known as the Valley of Vermont, between the Taconic Mountains to the west and the Green Mountains to the east. The site is located on a fairly level (0-5% slope) glacial outwash area at an elevation of approximately 1080' above mean sea level. The land surface slopes gradually southwestward toward Barney Brook and Burgess Road. East of the site is a hillside sloping steeply upward for approximately 1.0 mile to the summit of Harmon Hill.

North of the site, the land surface slopes gradually upward for approximately 0.3 mile before abruptly descending for another 0.1 mile to the Walloomsac River.

The site is within the Walloomsac River drainage basin. Drainage flows westward through Bennington and on into New York. An unnamed stream flows immediately adjacent to the eastern and southern edge of the disposal site. This stream originates northeast of the site in woodlands on the western slopes of Harmon Hill. Approximately 1300' southwest of the site, the stream empties into Barney Brook, which in turn, joins the Walloomsac River approximately 1.7 miles to the west. These surface waters are classified by the VT Dept. of Water Resources as Class B (suitable for bathing and recreation, irrigation and agricultural uses; good fish habitat; good aesthetic value, acceptable for public water supply with filtration and disinfection). According to the VT Dept. of Health, these waters are not presently used as public drinking water supplies.

The area in the immediate vicinity of the site is an open sand pit. The open area is surrounded on the north, east, and south sides by forested land, most of which is part of the Green Mountain National Forest (U.S. Forest Service). To the west is forest and open land owned by the Burgess Company, followed by Burgess Road and Barney Road. There are several homes located

along these roads, within 0.5 mile of the disposal site. The Walloomsac River and State Highway 9 are located approximately 0.4 mile to the north. The center of the city of Bennington is approximately 2.0 miles west of the disposal site.

SITE HISTORY

The general open area was reportedly used by the Burgess family business as a sand pit, salvage yard, and dump since the 1940's. Under an agreement with Clyde Burgess, Sr., Union Carbide Corporation's Bennington plant used the Burgess site to dispose of process waste from the manufacture of battery products from 1971 to 1976. Union Carbide also reportedly used the site between 1956 and 1971 to dispose of approximately one 55 gallon drum per week of lead sludge.

As necessary, accumulated wastes were transported to the disposal site in 55-gallon drums and tank trucks. Liquid wastes were poured directly into the two unlined lagoons, and solid wastes were discarded adjacent to the lagoons. An estimated 24 million pounds of wastes (approximately 96% water) were disposed of at the site in this manner.

Union Carbide terminated use of the Burgess site in October 1976 at the request of the VT Agency of Environmental Conservation. The company initiated a preliminary sampling program in the vicinity of the disposal site, but sampling methods and locations were unclear, and results are inconclusive. There was no formal closure of the disposal site. The area is not fenced off. The site has not been adequately assessed for potential environ-

mental or health hazards.

There has been substantial communication relative to the concerns about the use of the site for hazardous waste disposal. Following is a chronological listing of the correspondence associated with the Burgess site on file with the VT Agency of Environmental Conservation.

CORRESPONDENCE SUMMARY

1) Farnham, W. June 27, 1969. Memo to R. LaRosa, VT AEC. Concerning disposal of Union Carbide's lead sludge at the Burgess site. VT AEC, Montpelier, Vermont.

2) Albert, William. July 2, 1969. Letter to J. Richards, VT DOH. Notifying VT DOH of Union Carbide's lead disposal at the Burgess site. VT AEC, Montpelier, Vermont.

3) Fyles, F. August 4, 1975. Memo to R. Valentinetti, VT AEC. Concerning the use of the Burgess site for disposal of U.C.'s industrial waste and the need for engineering plans. VT AEC, Montpelier, Vermont.

4) Valentinetti, R. April 5, 1976. Letter to W. Danisch, U.C. Advising U.C. of the need for an evaluation and engineering plans for the Burgess site to assure compliance with VT regulations. VT AEC, Montpelier, Vermont.

5) Marsh, D. June 1, 1976. Memo to Bennington file, VT AEC. Concerning a meeting with U.C. to discuss alternatives to the use of the Burgess site for disposal of industrial waste. VT AEC, Montpelier, Vermont.

6) Marsh, D. June 21, 1976. Memo to Bennington file, VT AEC. Concerning an inspection of the Burgess site. VT AEC, Montpelier, Vermont.

7) Danisch, W. August 25, 1976. Letter to D. Marsh, VT AEC. Providing results of analysis of samples collected June 21, 1976, and advising of intent to terminate use of Burgess site. VT AEC, Montpelier, Vermont.

8) Marsh, D. August 30,1976. Letter to B. Hofman, U.C. Concerning results of analysis of samples collected June 21, 1976, and advising U.C. to terminate use of the Burgess site. VT AEC, Montpelier, Vermont.

9) Marsh, D. September 2, 1976. Memo to Bennington file, VT AEC. Concerning confirmation of U.C.'s agreement to discontinue use of the Burgess site. VT

AEC, Montpelier, Vermont.

10) Telzrow, T. September 3, 1976. Memo to W. Danisch, U.C. Concerning procedure for closure of the Burgess site. VT AEC, Montpelier, Vermont.

11) Danisch, W. September 9, 1976. Letter to C. Burgess, Burgess Bros. Inc. Requesting that Burgess not fill in the two waste lagoons at the Burgess site. VT AEC, Montpelier, Vermont.

12) Nichols, R. November 30, 1978. Letter to R. Meloni, U.C. Requesting information on waste types and quantifies disposed of by U.C. at the Burgess site. VT AEC, Montpelier, Vermont.

13) Nichols, R. March 23, 1979. Letter to R. Meloni, U.C. Concerning confidentiality of U.C.'s waste description. VT AEC, Montpelier, Vermont.

14) Danielson, G. April 20, 1979. Letter to R. Nichols, VT AEC. Concerning a statement to be placed in town of Woodford land records, preventing residential development of Burgess site. VT AEC, Montpelier, Vermont.

15) Union Carbide Waste Summary. May 3, 1979. Notice to VT AEC. General summary of U.C.'s waste types and quantities disposed of at the Burgess site. VT AEC, Montpelier, Vermont.

16) Klein, W. May 4, 1979. Newspaper article, Bennington Banner. Summary of Union Carbide's use of the Burgess site for industrial waste disposal. VT AEC, Montpelier, Vermont.

17) Danielson, G. May 9, 1979. Letter to R. Nichols, VT AEC. Stating U.C.'s approval of the Bennington Banner article. VT AEC, Montpelier, Vermont.

18) Jacobs, T. May 9, 1979. Letter to R. Nichols, VT AEC. Requesting information relative to approval criteria for disposal of U.C.'s industrial waste at the Burgess site. VT AEC, Montpelier, Vermont.

19) Nichols, R. May 17, 1979. Letter to T. Jacobs, Woodford town attorney. Providing information on approval criteria relative to U.C.'s use of the Burgess

site. VT AEC, Montpelier, Vermont.

20) Walker, W. August 3, 1979. Letter to R. Patterson, U.C. Evaluating the potential for groundwater pollution from the U.C. waste lagoon at the Burgess site. VT AEC, Montpelier, Vermont.

21) Reed, S. August 19, 1981. Memo to A. Nash, U.C. Results of analysis of samples collected 5/28/81. VT AEC, Montpelier, Vermont

22) Reed, S. January 18, 1982. Memo to A. Nash, U.C. Results of analysis of samples collected 10/12/81. VT AEC, Montpelier, Vermont.

23) Malter, J. February 11, 1982. Letter to C. Burgess, Burgess Bros. Inc. Requesting information on hazardous wastes potentially dumped at the Burgess site since 1976. VT AEC, Montpelier, Vermont.

24) Nichols, R. June 16, 1982. Letter to C. Burgess, Burgess Bros. Inc. Requesting Burgess to initiate an evaluation and monitoring program at the a.C. waste disposal site. VT AEC, Montpelier, Vermont.

25) Reed, S. July 9, 1982. Memo to A. Nash, U.C. Results of analysis of samples collected 6/10/82. VT AEC, Montpelier, Vermont.

26) Nichols, R. July 28, 1982. Letter to C. Burgess, Burgess Bros. Inc. Requesting Burgess to initiate the evaluation and monitoring program outlined in the 6/16/82 letter. VT AEC, Montpelier, Vermont.

27) Nichols, R. August 31, 1982. Memo to J. Malter, VT AEC. Recommending issuance of an administrative order requiring C. Burgess to initiate the evalu ation and monitoring program outlined in the 6/16/82 letter. VT AEC, Montpelier, Vermont.

28) Valentinetti, R. November 15, 1982. Memo to R. Nichols, VT AEC. Requesting information relative to initiating an evaluation and monitoring program at the Burgess site. VT AEC, Montpelier, Vermont.

29) Moye, T. January 20, 1984. Memo to Burgess site file, VT AEC. Concerning a meeting at the U.C. plant in Bennington to discuss U.C.'s involvement in an

evaluation of the Burgess site. VT AEC, Montpelier, Vermont.

30) Moye, T. February 3, 1984. Letter to A. Nash, U.C. Requesting information regarding U.C.'s past hazardous waste disposal practices. VT AEC, Montpelier, Vermont.

31) Moye, T. February 23, 1984. Memo to R. Valentinetti, VT AEC. Concerning an inspection of the Burgess site. VT AEC, Montpelier, Vermont.

32) Moye, T. March 9, 1984. Letter to A. Nash, U.C. Notifying U.C. of the 2/21/84 inspection of the Burgess site, providing a guideline for evaluating the site, and requesting information regarding U.C.'s past hazardous waste disposal practices. VT AEC, Montpelier, Vermont.

33) Moye, T. May 11, 1984. Memo to Burgess site file, VT AEC. Concerning a phone call from A. Nash, U.C., indicating U.C.'s willingness to participate in an evaluation of the Burgess site, and proposing a meeting to discuss the evaluation. VT AEC, Montpelier, Vermont.

34) Moye, T. June 22, 1984. Memo to Burgess site file, VT AEC. Concerning a meeting of the VT AEC, Burgess Construction Co., Union Carbide Corp., and Geraghty and Miller to discuss the evaluation of the Burgess site. VT AEC, Montpelier, Vermont.

35) Moye, T. August 13, 1984. Memo to Burgess site file, VT AEC. Concerning the sampling of private water supplies in the vicinity of the Burgess site. VT AEC, Montpelier, Vermont.

36) Moye, T. September 4, 1984. Memo to Burgess site file, VT AEC. Concerning the progress of the site assessment. VT AEC, Montpelier, Vermont

37) Moye, T. September 12, 1984. Memo to K. Stone, VT Dept. of Health. Concerning the results of private water supply sampling in the vicinity of the Burgess site. VT AEC, Montpelier, Vermont.

38) Moye, T. October 25, 1984. Memo to Burgess site file, VT AEC. Concerning a phone call from A. Nash,

U.C., indicating communication problems between the Burgess Construction Company and Union Carbide Corp. VT AEC, Montpelier, Vermont.

39) Moye, T. October 31, 1984. Letter to W. Ladue, VT Dept. of Health. Requesting sample results from Morgan Spring. VT AEC, Montpelier, Vermont.

40) Valentinetti, R. January 24, 1985. Letter to C. Burgess Jr., Burgess Construction Co. Requesting that Burgess notify the VT AEC relative to their position regarding the Burgess site evaluation. VT AEC, Montpelier, Vermont.

41) Garrity, P. January 31, 1985. Letter to M. McDonough, Town of Bennington. Concerning the Water Augmentation Study, Morgan Spring Facility Improvement, and the potential impact of the Burgess site. VT AEC, Montpelier, Vermont.

42) Sauer, J. February 4, 1985. Letter to L. Rounds, U.C. Bennington. Concerning the Burgess Bros., Inc. financial commitment to the site evaluation. VT AEC, Montpelier, Vermont.

43) Rounds, L. February 13, 1985. Letter to J. Sauer, Burgess Bros., Inc. Outlining the commitment from Burgess Bros., Inc. requested by Union Carbide Corp. VT AEC, Montpelier, Vermont.

44) Sauer, J. February 14, 1985. Letter to L. Rounds, U.C. Bennington. Agreeing to Union Carbide's requests relative to the site evaluation. VT AEC, Montpelier, Vermont.

45) Garabedian, H. February 28, 1985. Memo to Burgess site file, VT AEC. Concerning the agreements between Burgess Bros., Inc. and Union Carbide Corp. relative to the site evaluation. VT AEC, Montpelier, Vermont.

46) Moye, T. March 6, 1985. Memo to Burgess site file, VT AEC. Concerning a meeting between VT AEC Water Supply Section, VT AEC Hazardous Materials Management Program, VT Dept. of Health, Town of Bennington, and Town of Bennington's consulting engineer, relative to the Morgan Spring, Bennington. VT AEC, Montpelier, Vermont.

WATER SUPPLIES

Water is supplied to approximately 13,000 people in the Bennington area by the Bennington Water Department. The water is stored in an above-ground tank located several miles northwest of the site. The water system at present utilizes two supply sources. The primary source is an impoundment on Bolles Brook (located several miles northeast of the site) and would not be affected by the site. The secondary source is Morgan Spring, located approximately 1.5 miles west of the site. The Vermont Agency of Environmental Conservation's Groundwater Management Section has delineated an aquifer protection area (Bennington A.P.A.#1, Figure 3) around this supply source.

Site inspections have provided evidence that contaminants are reaching the unnamed stream which flows adjacent to the eastern and southern boundaries of the disposal site. This stream joins Barney Brook approximately 1300' southwest of the disposal site. Barney Brook in turn, flows along the southern boundary of A.P.A.#1 for approximately one mile before joining the Walloomsac River.

The concentration and eventual fate of contaminants reaching Barney Brook, and the hydraulic connection between Barney Brook and Morgan Spring are presently unknown. Further evaluation is

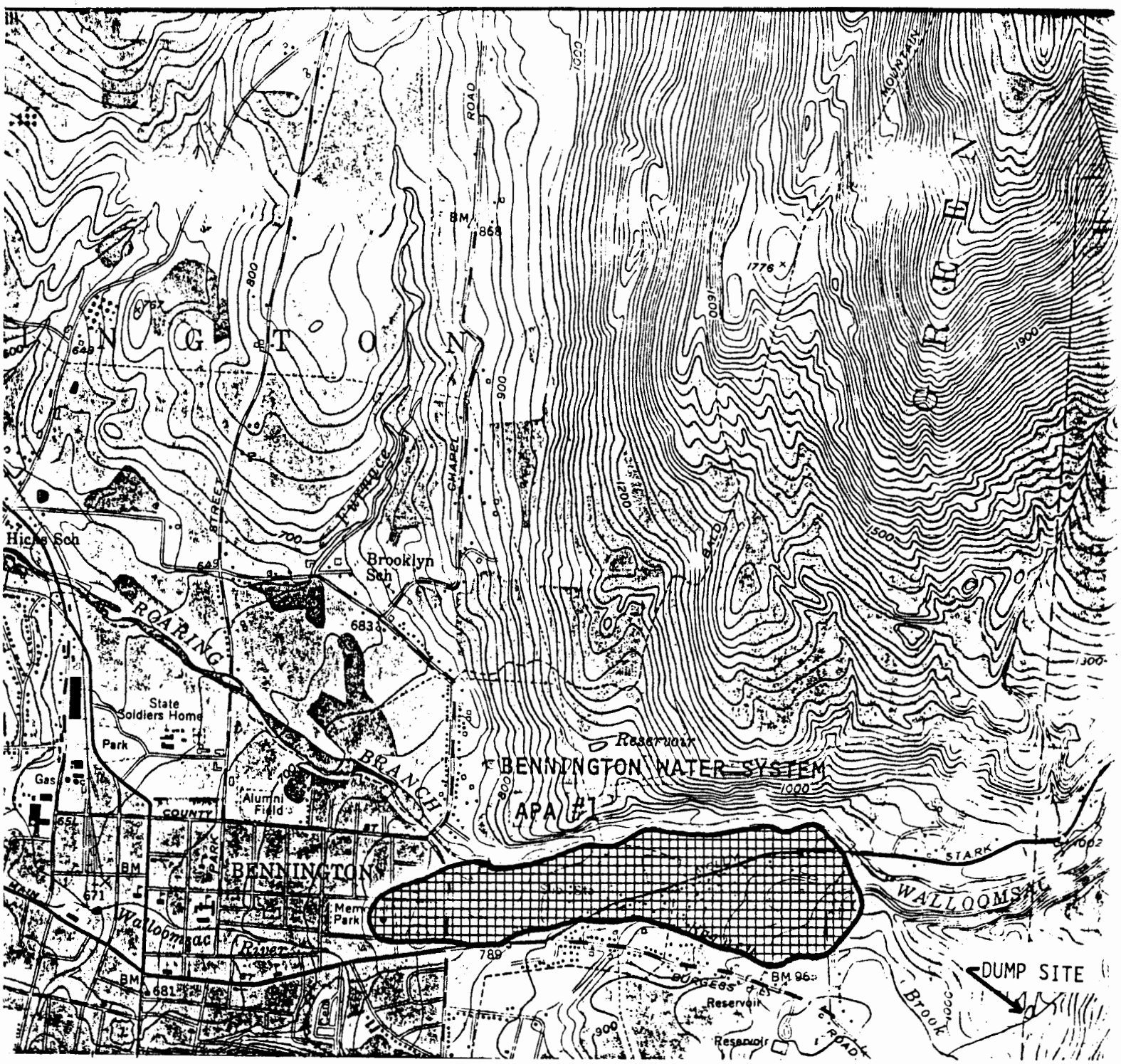


FIGURE 3

BENNINGTON AQUIFER PROTECTION AREA
1

necessary to determine the potential impact of the disposal site on Morgan Spring.

The majority of homes within 0.5 miles of the disposal site obtain water from the Bennington Water Department supply. However, two homes have individual water supplies consisting of shallow dug wells or drilled wells (see Figure 3A). Water samples were collected from these wells on 8/9/84 by VT AEC personnel, and analyzed for volatile organic compounds and selected heavy metals.

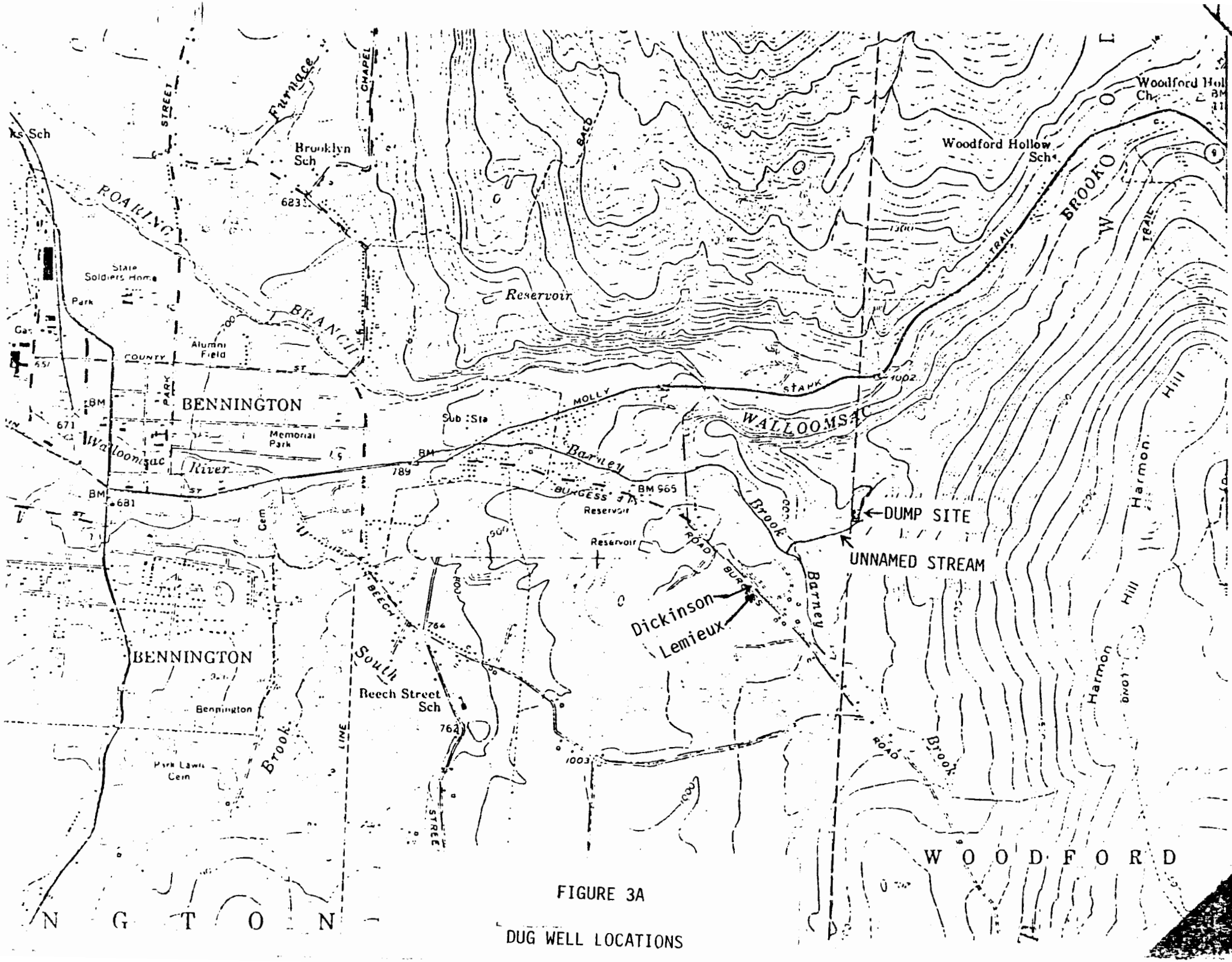


FIGURE 3A

DUG WELL LOCATIONS

The analytical results for metals indicate concentrations below existing standards, with the exception of lead at the Dickinson residence. The concentration of total lead in the sample from this well exceeds the existing standard (National Primary Drinking Water Regulations) by 7 ppb. At present, this lead concentration is considered to be unrelated to the disposal of hazardous materials at the Burgess site for the following reasons. 1.) The direction of shallow groundwater flow in the vicinity of the well is probably eastward toward Barney Brook (which is between the Burgess site and the well). 2.) No volatile organic compounds were detected in the water samples from the well. Organics were detected in water samples collected at the Burgess site. 3.) Lead concentration in the water sample from the Lemieux residence was significantly lower. No organics were detected in this water supply. 4.) The lead concentration in the water sample from the Dickinson residence could be attributed to a number of causes, including the distribution system at the residence.

The Vermont Department of Health has been notified of the problem and has accepted responsibility for further investigation at the Dickinson residence.

Dickinson Well

Analysis	Results	Unit of Measure
EPA Method 601	0	ug/l
EPA Method 602	0	ug/l
METALS		
Total Lead	57	ug/l
Total Nickel	9	ug/l
Total Zinc	938	ug/l

Lemieux Well

EPA Method 601	0	ug/l
EPA Method 602	0	ug/l
METALS		
Total Lead	20	ug/l
Total Nickel	3	ug/l
Total Zinc	18	ug/l

GROUNDWATER

Surficial geologic materials in the area include sands and gravels of glaciolacustrine and glaciofluvial origin. Significant migration of contaminated groundwater could occur, due to the permeable nature of these materials. The actual areal and vertical extent of groundwater contamination is unknown.

Dug wells within 0.5 mile of the disposal site obtain water from the sand and gravel aquifer, and indicate a relatively high water table.

In the immediate vicinity of the disposal site, shallow groundwater flows southward toward the unnamed stream. Deeper regional groundwater flow may be northwestward toward the Walloomsac River. However, specific groundwater flow rates and directions within both the surficial materials and the underlying bedrock are unknown due to the lack of site specific data.

HAZARDOUS SUBSTANCES

Based on production and waste generation records, Union Carbide estimated that approximately four million pounds of wastes per year (approximately 96 percent of which was water) were disposed of at the Burgess site from 1971 to 1976. An unknown quantity of what was referred to as "lead sludge" from the Union Carbide plant was reportedly disposed of at the Burgess site between 1956 and 1971.

The major quantity of hazardous substances reportedly disposed of at the site were contained in wash-water generated during the manufacture of battery products. These substances include heavy metals, caustics, solvents, oils and acids. Other materials disposed of include gels or sludges and solids such as scrap cells and military energizers. Hazardous substances contained in these materials include heavy metals, manganese dioxide, ammonium and zinc chlorides, and acids.

The wastes disposed of at the site contain hazardous substances which include toxic, ignitable, corrosive, reactive, and carcinogenic or potentially carcinogenic substances. The following table lists the hazardous substances known to have been disposed of at the site, the primary hazard associated with each substance, and the estimated total amount of each substance dis-

posed of at the site.

TABLE 1

SUBSTANCE	ESTIMATED AMOUNT* DISPOSED OF 1971-1976	PERCENT OF TOTAL	HAZARD
Sodium and potassium hydroxides	605,000 lbs.	2.6	Toxic, corrosive
Zinc	109,000 lbs.	.47	Toxic
Solvents - trichloroethene - tetrachloroethene - xylene	63,000 lbs.	.27	Toxic, potentially carcinogenic, flammable, reactive
Manganese dioxide	42,000 lbs.	.18	Reactive
Ammonium chloride	12,000 lbs.	.05	Toxic
Mercury	7,000 lbs.	.03	Toxic
Zinc chloride	7,000 lbs.	.03	Toxic
Lead	2,000 lbs.	.01	Toxic
Nickel chloride	2,000 lbs.	.01	Toxic, carcinogenic
Lubricating oil	2,000 lbs.	.01	Toxic
Fluoboric acid	2,000 lbs.	.01	Toxic, corrosive

* Union Carbide Corporation has estimated that 23,261,322 lbs. of waste (16,639 lbs/day X 233 days/year X 6 years) was disposed of at the Burgess site during the period 1971 through 1976. The company estimates that 96.17% of this waste was water, and that .16% was inert material such as glass, paper, and plastic. The remaining materials (3.67%) are those which are listed above.

SITE INSPECTION

The disposal site was inspected on 2/21/84 and again on 4/4/84 by VT AEC personnel. The purpose of the initial site inspection was to determine the specific location of the disposal site, to scan the site for any obvious evidence of contamination, and to estimate the potential for environmental damage. The purpose of the second site visit was to confirm sample results from the first site visit, and to expand sampling parameters and locations.

At the time of inspection, the general open area was being used by the Burgess Construction Company as a sand pit, salvage yard, and dump. Paper and plastic wastes were being dumped and partially covered with sand. Other wastes included metal, wood, stone, brick and concrete. Salvageable materials consisted primarily of scrap metal and wood. An unnamed stream flows adjacent to the base of the slope, along the eastern and southern edge of the open area. At several locations, leachate was seeping out of the toe of the slope and into the stream.

The open lagoon used for the disposal of Union Carbide's waste was discovered at the southern edge of the open area. The oval shaped lagoon measures approximately 75' long, 20' wide, and 8' deep. A second lagoon, also used for the disposal of Union

Carbide's waste was reported to be just north of the first, but had been filled in. Liquid wastes were reportedly poured directly into the open lagoons and allowed to percolate through the fine sandy soil.

Approximately 50' to the south, and downhill from the open lagoon, leachate was seeping out of the toe of the slope and into the stream. This leachate outbreak, directly downslope from the lagoon, extends laterally along the toe of the slope for approximately 150'. Vegetation in this area is blackened and dead or distressed. The seepage emerging from the slope presumably marks the point at which the local groundwater table intersects the sloping land surface. During the first site visit, two leachate samples were collected. Results of the analysis of these samples indicates the presence of significant levels (parts per million) of halogenated and non-halogenated organic compounds (Refer to Figure 4 for sample locations, and to Table 2 for specific sample analyses and results.)

During the second site visit, observations of the site conditions were essentially the same. Leachate samples were collected from two locations within the leachate outbreak adjacent to the lagoon. Results of the analysis of these samples indicates the presence of significant levels (parts per million) of heavy metals and halogenated organic compounds. Stream samples

were collected from three locations: 1) upstream of the entire open area, 2) adjacent to the open area but above the lagoon-leachate area, and 3) downstream of the lagoon-leachate area. No organic compounds were detected in the samples collected upstream of the entire open area. Trace amounts of two halogenated organic compounds were detected in the samples collected adjacent to the open area. Concentrations in the hundreds of parts per billion range of three halogenated organic compounds were detected in the samples collected downstream of the lagoon-leachate area. Results of the analysis of these samples indicates a significant increase in the concentration of halogenated organic compounds in stream water below the lagoon-leachate area (Refer to Figure 4 for sample locations and to Table 2 for specific sample analyses and results).

Although the site is remote, there is no site security. The area is not fenced off, and is accessible to both humans and animals.

Site inspection and sample collection and analysis provide evidence of significant soil, surface water, and groundwater contamination immediately adjacent to the lagoon. Although management practices have resulted in environmentally unsound conditions in the general open area, the primary environmental and health hazard at the site is the contamination associated with

past use of the lagoons. Further evaluation is necessary to determine the full extent of this contamination.

TABLE 2

(REFER TO FIGURE 4 FOR SAMPLE LOCATIONS)

Sample Location: S1
Collection Date: 2/21/84

EPA METHOD 601 TESTS	RESULT	UNIT OF MEASURE
Methylene Chloride	46	ug/l
1,1-Dichloroethene	54	ug/l
Trans-1,2-Dichloroethene	5711	ug/l
1,2 Dichloroethane	86	ug/l
1,1,1-Trichloroethane	19	ug/l
Tetrachloroethene	1541	ug/l
Additional unidentified chemicals present.		
EPA METHOD 602 TESTS		
Benzene	2849	ug/l
Toluene	1625	ug/l

Collection Date: 4/4/84

EPA METHOD 601 TESTS	RESULT	UNIT OF MEASURE
Methylene Chloride	935	ug/l
1,1-Dichloroethene	79	ug/l
Trans-1,2-Dichloroethene	12100	ug/l
1,2-Dichloroethane	288	ug/l
1,2-Trichloroethane	383	ug/l
Trichloroethene	54100	ug/l
Tetrachloroethene	15500	ug/l
Additional unidentified chemicals present.		
METALS	RESULT	UNIT OF MEASURE
Total Lead	12100	ug/l
Total Mercury	17	ug/l
Total Iron	110000	ug/l
Total Nickel	33200	ug/l
Total Zinc	2440	ug/l

TABLE 2 (cont'd)

Sample Location: S2
Collection Date: 4/4/84

EPA METHOD 601 TESTS	RESULT	UNIT OF MEASURE
Trans-1,2-Dichloroethene	113	ug/l
Trichloroethene	202	ug/l
Tetrachloroethene	105	ug/l
Additional unidentified chemicals present.		

METALS	RESULT	UNIT OF MEASURE
Total Lead	8	ug/l
Total Mercury	0	ug/l
Total Iron	532	ug/l
Total Nickel	8	ug/l
Total Zinc	15	ug/l

Sample Location: S3
Collection Date: 4/4/84

EPA METHOD 601 TESTS	RESULT	UNIT OF MEASURE
Methylene Chloride	734	ug/l
1,1-Dichloroethene	111	ug/l
Trans-1,2-Dichloroethene	4700	ug/l
Trichloroethene	112000	ug/l
Tetrachloroethene	26800	ug/l
Additional unidentified chemicals present.		

TABLE 2 (cont'd)

Sample Location: S4
Collection Date: 4/4/84

EPA METHOD 601 TESTS	RESULT	UNIT OF MEASURE
Trans-1,2-Dichloroethene	13	ug/l
Trichloroethene	5	ug/l
METALS	**RESULT**	**UNIT OF MEASURE**
Total Lead	12	ug/l
Total Mercury	0	ug/l
Total Iron	183	ug/l
Total Nickel	2	ug/l
Total Zinc	14	ug/l

Sample Location: S5
Collection Date: 4/4/84

EPA METHOD 601 TESTS	RESULT	UNIT OF MEASURE
	0	ug/l
METALS	**RESULT**	**UNIT OF MEASURE**
Total Lead	<4	ug/l
Total Mercury	0	ug/l
Total Iron	43	ug/l
Total Nickel	<2	ug/l
Total Zinc	12	ug/l

CONCLUSIONS

1) Information obtained through file review, interviews, and on-site inspection indicates that Union Carbide Corporation disposed of approximately 24 million pounds of wastes containing hazardous substances at the Burgess disposal site.

2) The hazardous substances were contained in process waste from the manufacture of battery products, and contain substances which are toxic, persistent, carcinogenic or potentially carcinogenic, flammable, and corrosive.

3) Direct observation and laboratory analysis from the site inspections provided evidence of contaminated soil, groundwater, and surface water at the disposal site.

4) There is no site security at the identified disposal site. The area is not fenced off, and is accessible to both humans and animals.

5) The site has not been adequately monitored for potential environmental or health hazards.

6) Surface water flows immediately adjacent to the disposal site. This unnamed stream is a tributary to Barney Brook, which in turn, joins the Walloomsac River. These waters are classified by the VT Dept. of Water Resources as Class B.

7) Surficial geologic materials in the vicinity of the disposal site include sands and gravels. Significant migration of contaminated groundwater could occur, due to the permeable nature of these materials. The actual areal and vertical extent of groundwater contamination is unknown. Specific groundwater flow rates and directions in the general area are unknown due to the lack of site specific geologic information.

8) There are several homes located along Burgess Road and Barney Road within 0.5 mile of the disposal site. Two of these homes have individual water supplies consisting of shallow dug wells. Laboratory analysis of samples collected from these water supplies indicated that these supplies are presently unaffected by the disposal site. A hydrogeologic investigation is necessary to properly evaluate the potential impact of the disposal site on these water supplies.

9) Surface water draining from the disposal site flows along the southern boundary of Bennington Aquifer Protection Area #1. This A.P.A. is associated with Morgan Spring, a secondary supply source for the Bennington Water Dept. The concentration and eventual fate of contaminants reaching this A.P.A. are presently unknown. Further evaluation is necessary to determine the potential impact of the disposal site on Morgan Spring.

RECOMMENDATIONS

Based on the foregoing information, a potential environmental and health hazard may exist at the Burgess abandoned hazardous waste disposal site. An in-depth evaluation and monitoring program must be designed and implemented to determine the magnitude and extent of contamination resulting from the site.

GROUNDWATER

The greatest potential threat at the site appears to be contamination of groundwater. A groundwater evaluation and monitoring program must be designed and implemented in order to detect and evaluate existing or potential groundwater contamination.

The following specific objectives should be met as a minimum:

1) define the vertical and areal extent of groundwater contamination,
2) estimate rate and direction of contaminant movement,
3) determine aquifer characteristics,
4) determine the extent of interaquifer movement of contaminants,
5) monitor contaminant concentrations,
6) develop a data base for designing and implementing potential remedial actions.

Since hydrogeologic conditions are site specific, it is impossible to pre-determine sampling point locations. However, a basic guideline for installing monitor wells at the disposal site is:

1) location of one background well (or well cluster) upgradient of the disposal site so that it will not be affected by potential or existing contaminated groundwater.

2) location of one well (or well cluster) immediately adjacent to the downgradient edge of the disposal site.

3) location of one line of three wells (or well clusters) downgradient of the disposal site, situated at an angle perpendicular to groundwater flow.

This method should indicate the initial extent of the problem and will help determine the need for and location of subsequent monitor wells. Soil and groundwater samples should be collected during installation of monitor wells to obtain the most complete picture of contaminant distribution. It should be emphasized that the basic design of the monitoring network at the site will require modification according to geologic and hydrologic conditions.

SOILS

Soil samples should be collected from the unsaturated zone beneath the disposal site to determine the depth of contamination, and the degree of contaminant attenuation. Soil samples should be collected from the saturated zone to indicate the concentration of contaminants sorbed on aquifer solids which release pollutants to the surrounding groundwater.

SURFACE WATER

The stream flowing adjacent to the disposal site should be sampled downstream of, adjacent to, and upstream of the site. Bottom sediments from the stream should also be sampled.

AIR

An assessment of ambient air quality should be made at the site and both upwind and downwind of the site.

SAMPLING

Sampling parameters should be determined from knowledge and records of hazardous substances disposed of at the site, and should include heavy metals and both halogenated and aromatic organic compounds. Additional parameters may be added pending more complete knowledge or records of hazardous wastes disposed of at

the site and their potential impacts. Sampling frequency should be determined by the initial sampling results. Procedures for sample collection and analysis must be acceptable to the Vermont Agency of Environmental Conservation.

DESIGN

The disposal site evaluation and monitoring program must be designed to meet the specific needs of the site. The program must provide statistically valid quantitative information on environmental contamination using sound scientific engineering principles and methods. The proposed program with documentation of the methods for evaluation and monitoring must be submitted to the Vermont Agency of Environmental Conservation's Hazardous Materials Management Program for review and approval prior to its implementation.

REFERENCES

1) Aerial Photography Files, Dept. of Water Resources and Environmental Engineering, Vermont Agency of Environmental Conservation, 1984

2) Bennington Aquifer Protection Area Town File, Groundwater Management Section, Dept. of Water Resources and Environmental Engineering, Vermont Agency of Environmental Conservation, 1984

3) Czaplinski, R. Dept. of Water Resources and Environmental Engineering, Vermont Agency of Environmental Conservation, 1984

4) Galipeau, L. Bennington Town Listers Office, personal communication, 1984

5) Hazardous Materials Management Program Files, Dept. of Water Resources and Environmental Engineering, Vermont Agency of Environmental Conservation, 1984

6) Morse, T. Bennington Water Dept., personal communication, 1984

7) O'Neil, A. Woodford Town Clerk, personal communication, 1984

8) Sargent, H. Vermont Dept. of Health, personal communication, 1984

9) Well Log Files, Groundwater Management Section, Dept. of Water Resources and Environmental Engineering, Vermont Agency of Environmental Conservation, 1984

10) Wildlife Management and Natural Area Files, Vermont Fish and Game Dept., Vermont Agency of Environmental Conservation, 1984

UNION CARBIDE CORPORATION 270 PARK AVENUE, NEW YORK, N.Y. 10017
Health, Safety & Environmental
Affairs Department

June 9, 1981

U.S. EPA Region 1
Sites Notification
Boston, MA 02203

JUN 12 1981

Dear Sir:

Enclosed are notification forms submitted by Union Carbide Corporation pursuant to the requirements of Section 103(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("Superfund"), and in accordance with the "interim interpretative notice and policy statement" issued by EPA on April 15, 1981 (46 Fed. Reg. 22144 et seq.). Union Carbide is making this submission on behalf of itself and its subsidiaries that are subject to the § 103(c) notification requirements.

Subject to exceptions and limitations in § 103(c) and the EPA notice of April 15, Union Carbide is notifying EPA of the existence of the following classes of hazardous waste facilities: (1) facilities presently owned and/or operated by Union Carbide; (2) facilities formerly owned and/or operated by Union Carbide, at the time of hazardous waste treatment, storage, or disposal; (3) facilities selected by Union Carbide and to which Union Carbide itself transported hazardous waste; (4) facilities selected by Union Carbide and to which independent contractors transported the waste and Union Carbide verified that the waste reached the selected destination; and (5) facilities of independent owners or operators who also accepted Union Carbide's wastes for transport to their own facilities.

Union Carbide believes that the scope of this notification exceeds its obligations under § 103(c). We are submitting the extra information, however, in an effort to comply with the spirit as well as the letter of Superfund. As the Agency fully recognizes in its April 15 notice, the time period provided by the statutory deadline for submitting information under § 103(c) is very short, particularly for a corporation as large as Union Carbide. Within the applicable time limits, however, Union Carbide has mounted a considerable effort to review records and interview employees in an attempt to submit comprehensive information.

Very truly yours,

F. M. Charles

F. M. Charles
Corporate Director -
Environmental Affairs

/dms

EPA Notification of Hazardous Waste Site

United States Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

ATTACHMENT A

00001012

48 0041

Vol

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Union Carbide Corporation
Street: 270 Park Avenue
City: New York State: NY Zip Code: 10017

B Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Burgess Brothers Landfill
Street: Route 9 (East about 4-5 miles)
City: Bennington County: State: VT Zip Code: 05201

VTD003965415

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Parker, Dr. H.M., Technical Mgr.
Phone: (212) 551-4515 Environmental Affairs

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1971 To (Year): 1976

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste: Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. [X] Organics
2. [ ] Inorganics
3. [X] Solvents
4. [ ] Pesticides
5. [X] Heavy metals
6. [ ] Acids
7. [ ] Bases
8. [ ] PCBs
9. [ ] Mixed Municipal Waste
10. [ ] Unknown
11. [ ] Other (Specify)

Source of Waste: Place an X in the appropriate boxes.

1. [ ] Mining
2. [ ] Construction
3. [ ] Textiles
4. [ ] Fertilizer
5. [ ] Paper/Printing
6. [ ] Leather Tanning
7. [ ] Iron/Steel Foundry
8. [X] Chemical, General
9. [ ] Plating/Polishing
10. [ ] Military/Ammunition
11. [ ] Electrical Conductors
12. [ ] Transformers
13. [ ] Utility Companies
14. [ ] Sanitary/Refuse
15. [ ] Photofinish
16. [ ] Lab/Hospital
17. [ ] Unknown
18. [ ] Other (Specify)

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

UNCONTROLLED WASTE SITES
SW & HAZARDOUS MATERIALS DIV.
JUN 12 1981

Form Approved
OMB No. 2000-0138

Notification of Hazardous Waste Site : Side Two

Waste Quantity

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☒ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) ______

Total Facility Waste Amount

cubic feet ______

gallons Unknown

Total Facility Area

square feet ______

acres Unknown

Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

~~X Unknown~~

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

N

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

N

Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name F. M. Charles

Street 270 Park Avenue

City New York State NY Zip Code 10017

Signature F M Charles Date 6/5/81

☐ Owner, Present
☐ Owner, Past
☒ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

[FR Doc. 81-11500 Filed 4-14-81; 8:45 am]
BILLING CODE 6560-29-C

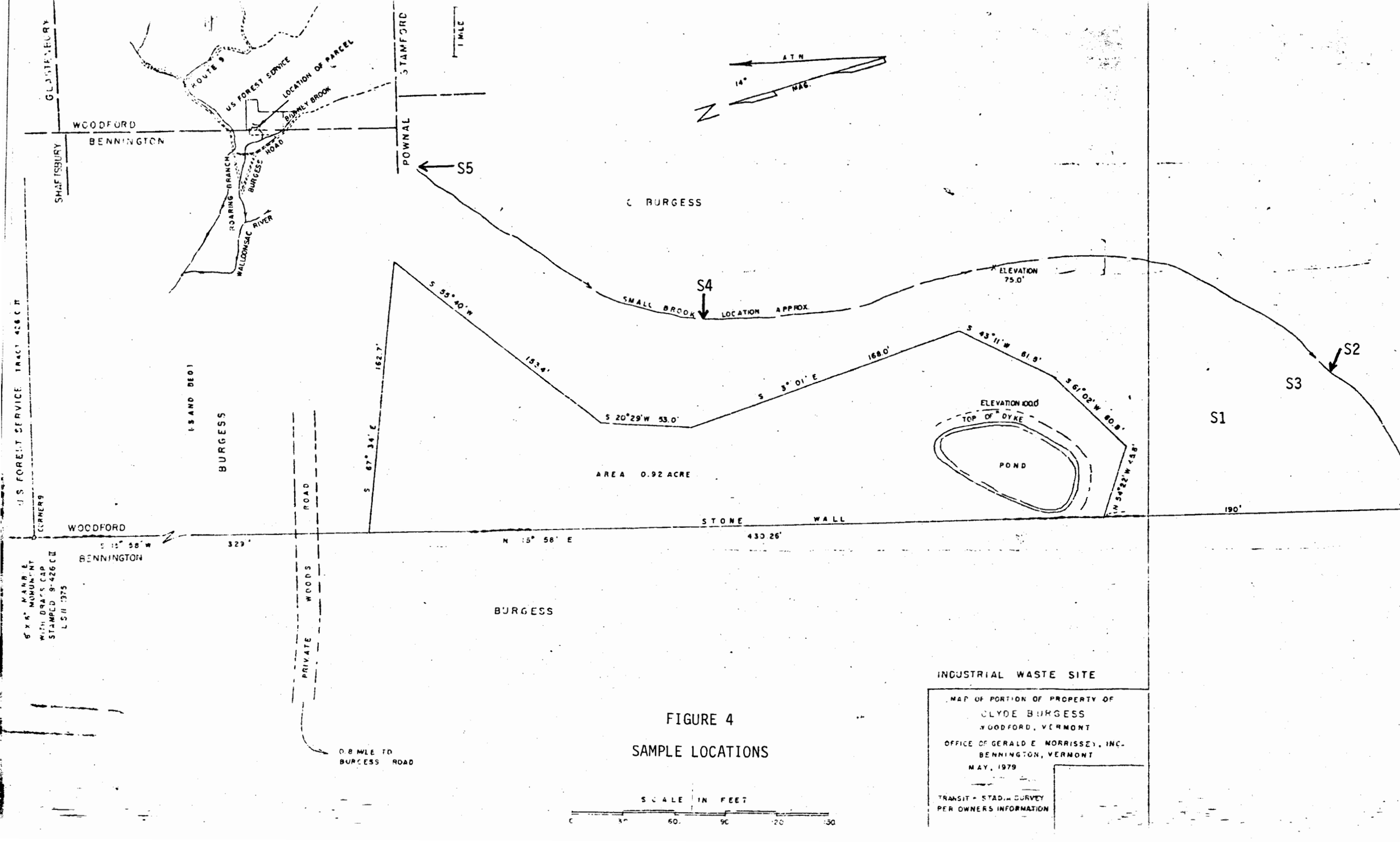


FIGURE 4

SAMPLE LOCATIONS