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JUN 04 1990

C-583-5-0-143

May 31, 1990

Mr. Tom Moye
Agency of Natural Resources
Department of Environmental Conservation
Hazardous Materials Management Division
103 South Main Street
Waterbury, VT 05676

Subject: Final Screening Site Inspection
Sutherland Falls Quarry Dump
Proctor, Vermont
TDD No. F1-8810-04
Reference No. $375VT54$I
CERCLIS No. VTD988366159

Dear Mr. Moye:

Enclosed are three copies of the Final Screening Site Inspection for the Sutherland Falls Quarry Dump, located in Proctor, Vermont . This final Screening Site Inspection package has been revised according to comments received. Unaddressed comments have been incorporated in the NUS/FIT project file.

If you have any questions, please do not hesitate to call.

Sincerely,

Kayleen Jalkut

Kayleen Jalkut
Project Manager

KJ:aa

Enclosure

cc: D. Smith/EPA-RPO (w/o enclosure)
D. Smith/EPA (w/o enclosure)
J. Weiss (w/o enclosure)

-47-0067

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19 CROSBY DRIVE
BEDFORD, MASSACHUSETTS 01730
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C-583-5-0-210
May 31, 1990

Final Screening Site Inspection
Sutherland Falls Quarry Dump
Proctor, Vermont

TDD No. F1-8810-04
Reference No. $375VT54$I
CERCLIS No. VTD988366159

INTRODUCTION

The NUS Field Investigation Team (NUS/FIT) was requested by the Region 1 U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Screening Site Inspection of the Sutherland Falls Quarry Dump in Proctor, Vermont. All tasks were conducted in accordance with Technical Directive Document (TDD) No. F1-8810-04 which was issued to NUS/FIT on October 10, 1988. NUS/FIT performed a Preliminary Assessment of this property in November 1989. On the basis of information provided in this Preliminary Assessment, the Sutherland Falls Quarry Dump Screening Site Inspection was initiated.

Background information used in the generation of this report was obtained through file searches conducted at the Vermont Agency of Natural Resources (VT ANR) and at the EPA. Information was also collected during NUS/FIT field activities conducted on April 19, 1989.

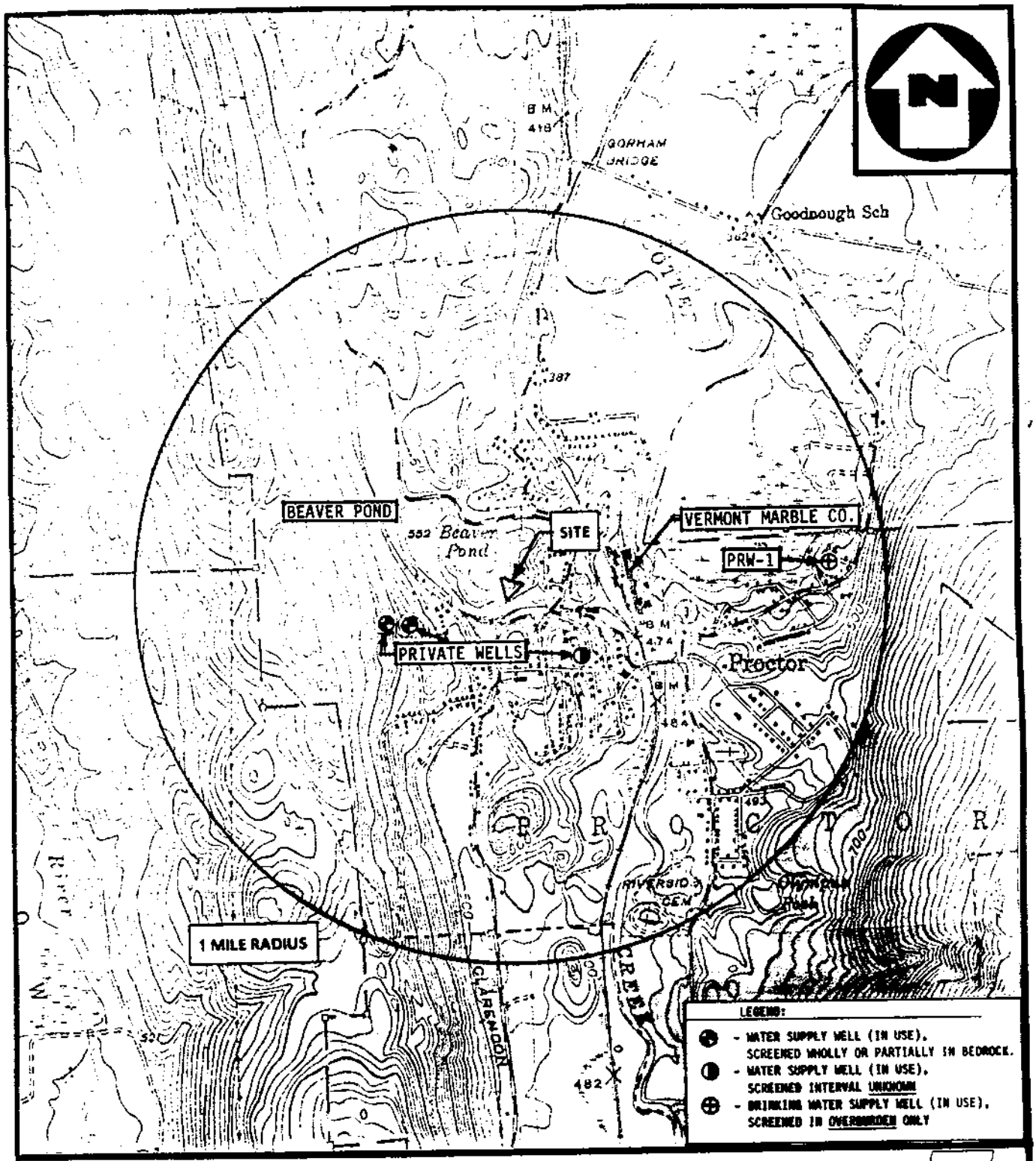
This package follows guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other federal, state or local regulations. Screening Site Inspections are intended to provide a preliminary screening of sites and to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

The Sutherland Falls Quarry Dump (quarry dump) is located approximately 200 yards northwest of the four-corner intersection of Market, North, Main and High Streets in Proctor, Vermont (Figures 1 and 2). The 1 acre inactive quarry-hole has been used by the Vermont Marble Company as a dump for industrial wastes (Jalkut, 1988b; 1988e; Schwiebert, 1980; USGS, 1944; VT AEC, 1980b).

The quarry dump is located in an industrial, residential, and commercial area of the town of Proctor. The quarry dump is bordered to the north, east, and west by woods, and to the south by a Rutland Railroad spur, a dirt path from North Street, and Market Street. Beaver Pond and Otter Creek are located approximately 383 yards northwest and upslope, and 1,320 yards east of the quarry dump, respectively (NUS/FIT, 1989b; USGS, 1944). Residential homes are located primarily to the south and northeast, with the nearest home located approximately 220 yards southeast of the quarry dump (Figure 2). The nearest commercial business, Bud's Cannonball Lounge, is located approximately 170 yards southeast of the quarry dump. The Vermont Marble Company facility is located approximately 866 yards east of the site (NUS/FIT, 1988; 1989b). Other marble quarries, both active and abandoned, are located in the Proctor-Pittsford-Rutland area (DeLorme Mapping Co., 1987; VT ANR, 1987).

Vehicular access to the quarry dump area is via a dirt road from North Street. The dirt road trends west parallel to the Rutland railroad track for at least 200 yards. At a spur, the railroad track winds north for approximately 125 yards where it terminates across the quarry dump. The quarry dump is

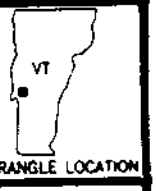


BASE MAP IS A PORTION OF THE FOLLOWING 7.5' U.S.G.S. QUADRANGLE(S):

PROCTOR, VT., 1944

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET



QUADRANGLE LOCATION

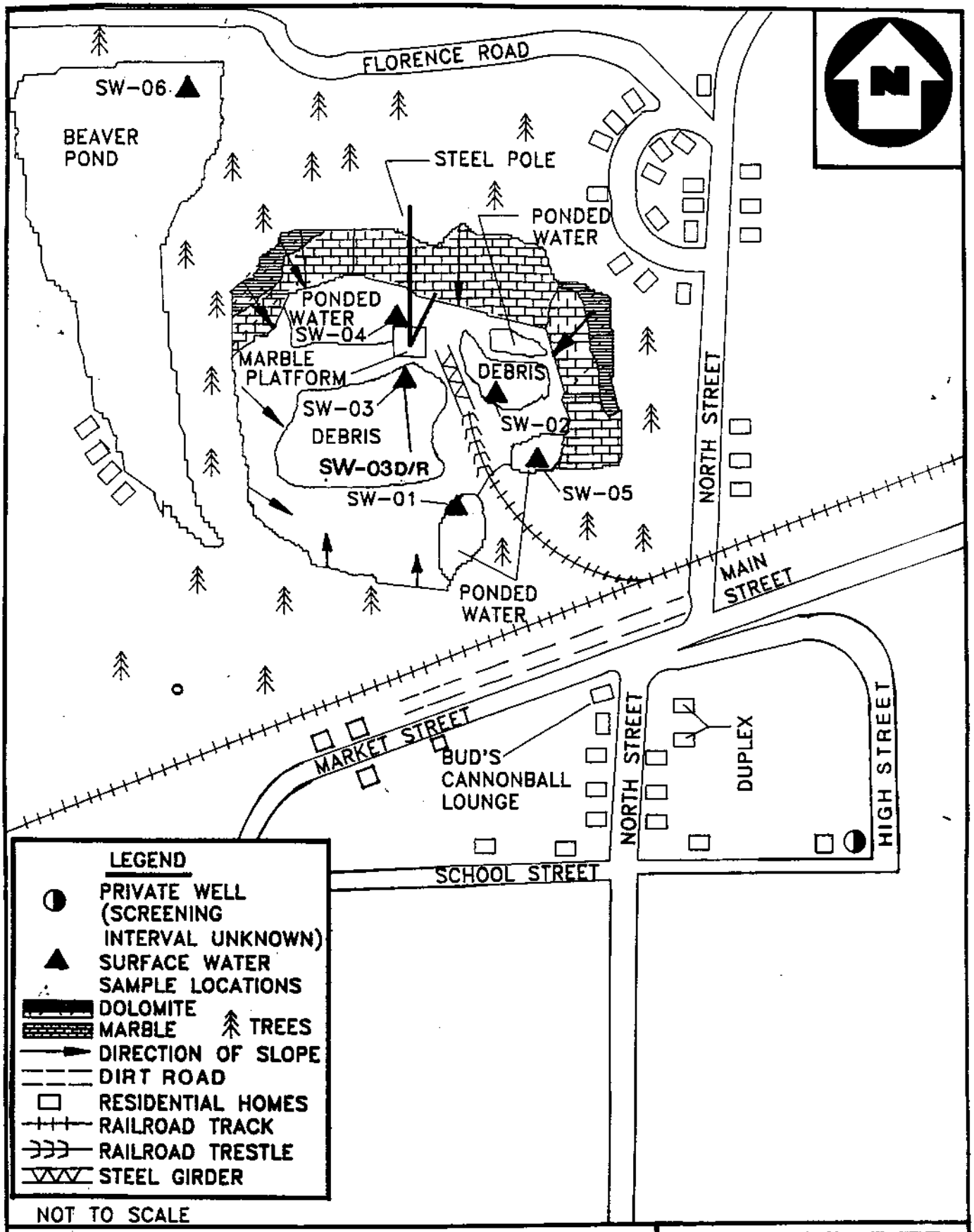
LOCATION MAP

SUTHERLAND FALLS QUARRY DUMP

PROCTOR, VERMONT

NUS CORPORATION

FIGURE 1



SITE SKETCH

SUTHERLAND FALLS QUARRY DUMP

PROCTOR, VERMONT

NUS CORPORATION

FIGURE 2

bisected in a north-south direction with a railroad trestle. The perimeter of the quarry dump is densely vegetated with pine and birch trees, assorted bushes, and other groundcover (NUS/FIT, 1988; 1989b). Access to the quarry dump is unrestricted. The quarry dump consists of an inactive marble and dolomite quarry approximately 300 feet in depth from the top of the quarry-hole to its bottom; its estimated dimensions are 165 feet in length, by 300 feet in width, by 300 feet in depth. Of the 300 feet of rock that was quarried, approximately 100 feet in height of rock is exposed on the northern quarry-hole wall and visible to the observer (Burns, 1988; NUS/FIT, 1988; 1989b). The waste in the quarry-hole is confined to an open pile with estimated dimensions of 165 feet in length, by 300 feet in width, and 200 feet in depth (Jalkut, 1988c; NUS/FIT, 1988; 1989b).

During the onsite reconnaissance activity conducted in April 1989, NUS/FIT personnel observed that most of the debris exposed on the surface of the open waste pile within the quarry-hole consisted of scrap lumber. Marble pieces, metal pieces, refuse, tires, plastic containers, and metal cans were also observed, but in smaller quantities in comparison to the amount of scrap lumber present.

The assorted debris was denser on the western side of the quarry, in comparison to the eastern side (NUS/FIT, 1988; 1989b; VT ANR, 1989). Rust-colored and green-colored ponded water was observed along the eastern side and in the northwest corner of the quarry dump (NUS/FIT, 1988; 1989b). NUS/FIT could not ascertain the depth of the water in the quarry dump. Much of the visible debris on the eastern side and only some of the visible debris on the western side of the quarry dump was floating in water. Iridescent filmy pools of liquid were observed between some of the floating debris flanking both sides of the railroad trestle and in the southwestern corner of the quarry dump (NUS/FIT, 1988; 1989b). The waste within the quarry-hole reportedly consisted of marble scrap, lumber scrap, refuse, metal scrap, and miscellaneous containers (Schwiebert, 1980).

In April 1989, the water level in the quarry dump was approximately 8 to 10 feet below the railroad trestle, which is at ground level at the southern entrance of the quarry-hole. According to the Town Manager, the water level in the quarry dump has dropped 3 to 5 feet since the summer of 1988 (NUS/FIT, 1989a; 1989b).

The Proctor Dump (CERCLIS No. VTD982542771), another potential hazardous waste site in the area, is located approximately 0.8 miles northeast of the quarry dump on Deere Road in Pittsford, Vermont. A Draft Preliminary Assessment was prepared for the Proctor Dump by the State of Vermont (VT ANR, 1987).

SITE ACTIVITY/HISTORY

The Sutherland Falls Quarry is owned by the Vermont Marble Co./OMYA, Inc. of Proctor, Vermont. The Vermont Marble Co., formerly operated by Redfield Proctor, has owned the quarry since 1870. This quarry was used as private dump for the disposal of industrial wastes by the Vermont Marble Co. and its subdivisions from 1926 to 1980. Vermont Marble Co./ OMYA, Inc., is a subsidiary of Plues-Staufer Industries of Oftringen, Switzerland (Jalkut, 1988c; 1988e; VT AEC, 1980b).

A brief historical chronology of events relating to the Sutherland Falls Quarry Dump is presented below:

1838-1926 Active quarrying operations proceeded under the direction of several owners. The quarry-hole advanced downward from the ground surface; horizontal tunneling to follow the marble layers was not conducted (Gayle, 1922). In 1926, at a depth of 300 feet from the land surface, the quarry-hole was at its deepest (Burns, 1988).

1926 Quarrying operations were abandoned at the Sutherland Falls Quarry. A lack of soundness, acceptable color, or accessibility of the marble may have been the reasons behind the decision to cease quarrying (Jalkut, 1988a; 1988b; VT AEC, 1980b).

1926-1980 The Sutherland Falls Quarry was used as a dump for industrial waste disposal by the Vermont Marble Company and its subdivisions. Unregulated and unmonitored disposal of waste is reported to have occurred for a period of 30 to 50 years after quarrying operations were abandoned (Schwiebert, 1980).

August 1980 On a routine industrial waste survey inspection at Callahan Ams, a can machinery manufacturer and a subdivision of the Vermont Marble Company, Vermont Agency of Environmental Conservation (VT AEC) personnel discovered that this company's steel chip waste and coolant oils were being disposed of into an old marble quarry in Proctor. Estimated quantity of waste disposed of included 15 drums of steel chip waste per week and 30 gallons of coolant oils per month. NUS/FIT was not able to determine the period of waste disposal. Meetings between VT AEC and Vermont Marble Company personnel led to the identity of the quarry as most likely being the Sutherland Falls Quarry, located several hundred yards west of Callahan Ams (Jalkut, 1988e; VT AEC, 1980a).

VT AEC personnel met with Edward van Schwiebert (Attorney and Vice President of Vermont Marble Co.). Mr. Schwiebert stated that his company was the only one in town using the quarry as a dump area and that most of the disposed materials consisted of marble waste, wood slabs, metal shavings and some coolants (VT AEC, 1980b).

The State Health Department sampled two private, residential, bedrock wells on School and Center Streets in Proctor at the request of the VT AEC due to their proximity to the quarry dump. These samples were analyzed for organic "chemicals", and inorganic "chemicals" (Attachment A) (VT DOH, 1980).

September 1980 The reported relative percentages of the materials disposed of weekly into the quarry dump since 1926 were as follows:

65% marble scrap
15% wood
10% paper and refuse
5% metal (steel and cast iron)
4% rubber headstone stencil and packing materials
1% miscellaneous (e.g. empty cans)

(Schwiebert, 1980; VT AEC, 1980b)

The waste was reportedly transported to the quarry dump via a railroad car (Schwiebert, 1980). NUS/FIT could not determine the volume of the railroad car used during the transportation and disposal activities.

The Vermont Marble Co. reportedly collected two aqueous samples at the quarry dump from unidentified sample locations for analysis through their in-house laboratory. In addition, two water samples were collected and sent to a private lab, Spectrum Research, Inc. of Berlin, Vermont, for analysis. Analytical results of the in-house analysis indicated the presence of select metals (Attachment B) (Schwiebert, 1980; VT AEC, 1980b). Analytical results from Spectrum Research, Inc., were not found during review of the state files.

Mr. Schwiebert stated that the Vermont Marble Co. had eliminated dumping everything but marble waste at the quarry. All of the other types of wastes previously disposed of in the quarry dump were being disposed of at the Proctor Dump, with the exception of

the metal products, which were removed by Fred Stone of Castleton Corners (Schwiebert, 1980).

July 1988 NUS/FIT conducted an offsite reconnaissance as part of the Preliminary Assessment of the Sutherland Falls Quarry Dump. The final Preliminary Assessment was completed in November 1989, and NUS/FIT recommended that a Screening Site Inspection of medium priority be conducted at the Sutherland Falls Quarry Dump.

April 1989 NUS/FIT conducted onsite reconnaissance and aqueous sampling activities as part of the Screening Site Inspection of the Sutherland Falls Quarry Dump.

ENVIRONMENTAL SETTING

Proctor, Vermont lies within the north-trending Vermont Valley between the Taconic Mountain range to the west and the Green Mountains to the east. Relief within the valley is approximately 1,000 feet (Fowler, 1950; USGS, 1944). The valley is developed on limestones and dolomites. The Town of Proctor is located approximately 500-600 feet above mean sea level. Otter Creek, located approximately 0.25 miles east of Proctor's center, receives surface water drainage from the east flank of the Taconic Mountains. Otter Creek flows north and empties into Lake Champlain near Ferrisburg, Vermont (DeLorme Mapping Co., 1987; NUS/FIT, 1988; 1989b).

Land use in the town of Proctor is predominantly industrial with residential, commercial, farming and forested areas (USGS, 1944; NUS/FIT, 1988; 1989b; Town of Proctor, 1986-87).

Surficial materials in the immediate area of the quarry dump are mostly glacial tills. The tills are generally thin over bedrock with much bedrock exposed. They have a low water yield potential and exhibit a bouldery surface (Doll, 1970; VTGS, 1972). Most of the soils in the Proctor area have been mapped as deep, loamy, silty, and highly limey soils overlying limestone uplands (USDA, 1972). Conflicting information exists regarding whether or not the soils in the general area are well drained or poorly drained.

Quarrying has exposed the bedrock in the quarry dump. Depth to bedrock ranges from 9 to 248 feet below the ground surface in Proctor (VT ANR, 1974-1988). The rocks in the Proctor area are generally of sedimentary origin, altered by later metamorphism. Bedrock at the quarry dump is comprised of the Boardman Formation, which is divided into three members: the Sutherland Falls marble member, the Intermediate dolomite member, and the Columbian marble member. Respective thicknesses of these rock units are 90-100 feet, 190 feet, and 600 feet (Fowler, 1950).

The Sutherland Falls marble member is a thinly-bedded, green-grey streaked, white and cream colored marble with dolomite curdles (Jalkut, 1988d). The Intermediate dolomite member is a thickly-bedded, light-grey dolomite containing some sandy beds, quartz knots and marble lenses. The Columbian marble member is a white and blue-grey marble with dark zones of grey stripes parallel to bedding (Fowler, 1950). These dark zones may be composed of manganese, as this accessory mineral may be associated with this marble member (NUS/FIT, 1989b).

In the overburden, the groundwater surface in the vicinity of the quarry dump is presumed to mimic the surrounding topography, hence groundwater may flow to the east toward Otter Creek (USGS, 1944). Groundwater flow beneath the quarry dump presumably occurs entirely within fractures; the degree of fracturing in the bedrock quarry-hole has not been determined. Some fractures were observed on the northern wall of the quarry-hole during NUS/FIT field activities (NUS/FIT, 1988; 1989b; VT ANR, 1989). In addition to fractures, potential exists for solution cavities to be present but none were observed during the NUS/FIT onsite reconnaissance (NUS/FIT, 1989b).

The ponded water in the quarry dump is most likely a mixture of surface water and groundwater. The groundwater may have entered the quarry-hole through fractures (NUS/FIT, 1989b). Depth to the ponded water in the quarry dump is approximately 8 to 10 feet below the ground surface at the southern entrance of the quarry-hole. Based on professional judgement and information from the Proctor Town Manager, it is presumed that the quarrying operations intercepted the water table in the bedrock aquifer. At the time the quarry was active (mid-late 1800s to early 1900s), pumping devices were available for use to keep the quarry-hole dry (NUS/FIT, 1989b). Available well completion reports for residential wells in the town of Proctor indicate that the depth to the water table in the overburden and the bedrock ranges from 10 to 80 feet below ground surface (VT ANR, 1974-1988).

The Champlain-Vermont Valley is bounded on the east by the Green Mountain Anticlinorium. Approximately 1.75 miles east of the quarry dump lies the Pine Hill Thrust - a low angle reverse fault that extends roughly 14 miles south into the Castleton area (Fowler, 1950). The fault may not represent an aquifer discontinuity as bedrock in the area is slightly fractured and groundwater may flow between and through the faulted blocks.

During NUS/FIT field activities, there were no observed surface water discharge points in the quarry dump. All surface water runoff entering the quarry dump from the upgradient drainage area is presumed to remain in the quarry (Jalkut, 1988c; NUS/FIT, 1988; Schwiebert, 1980). At the time of the onsite reconnaissance, the level of water within the quarry dump was below the level of the ground surface at the southern entrance to the quarry-hole (NUS/FIT, 1989b). Due to a lack of surface water discharge points from within the quarry dump and a water level below that of the ground surface, there are no potential surface water receptors of any contaminants from the quarry dump.

Portions of the following cities and towns are located within a 4-mile radius of the Sutherland Falls Quarry Dump: Castleton, Hubbardton, Ira, Pittsford, Proctor, Rutland-City, Rutland-Town, and West Rutland (USGS, 1944; 1961; 1970; 1972a; 1972b).

There are five community groundwater supply systems located within a 4-mile radius of the quarry dump. These wells are located in the towns of Pittsford, Proctor, and Rutland-Town and are presented in Table 1 (Smith, 1989; VT DOH, 1987). The closest of these systems to the quarry dump is the groundwater supply source for the town of Proctor. The Proctor Water Department's well #1 (PRW-1) is a single drilled well located off of Field Street, approximately 0.85 miles east of the quarry dump (Figure 2). Water is drawn from a gravel aquifer found within a thick deposit of coarse-grained stratified glacial drift (Hodges, 1967; VT DOH, 1975). The well supply is reportedly artesian, yields approximately 380 gallons per minute, and is considered a back-up supply source to the primary surface water supply source. PRW-1 is maintained annually and can supply drinking water to residents and process water to the Vermont Marble Company (VT AEC, 1961; VT DOH, 1975). The well water is periodically mixed with the town's main surface water supply (VT AEC, 1961). The surface water supply is derived from intakes on Kiln Brook and Furnace Brook, both located approximately seven miles northeast of PRW-1, in the town of Chittenden. Such mixing typically occurs during summer months when increased demand exists and water levels in the storage tank are low (Jalkut, 1988f). The Proctor Water Superintendent has reported that the well water obtained from PRW-1 is hard and untreated (VT DOH, 1975).

There are no community groundwater systems in the towns of Hubbardton, Ira, Castleton, Rutland-City, and W. Rutland within a 4-mile radius of the quarry dump (Smith, 1989; USGS, 1944; 1961; 1970; 1972a; 1972b).

The following table lists those towns which have residents relying on private wells for drinking water within 4 miles of the Sutherland Falls Quarry Dump. Please note that the populations indicated are based upon 1980 U.S. Census Bureau information. The population figures correspond to ZIP Code boundaries, which do not necessarily coincide with town boundaries. For this report, the distinction

TABLE 1

COMMUNITY GROUNDWATER SUPPLY SOURCES WITHIN A 4-MILE RADIUS OF THE SUTHERLAND FALLS QUARRY DUMP

TOWN	GROUNDWATER SOURCE	VERMONT WATER SYSTEM IDENTIFICATION NO. (WSID)	APPROXIMATE DISTANCE/DIRECTION FROM SUTHERLAND FALLS QUARRY DUMP	ESTIMATED POPULATION SERVED	WELL CHARACTERISTICS
Pittsford	Florence Water Works #1 (FWW-1)	5226	3.5 miles north	170	1 gravel well, 1 well head protection area delineated
Proctor	Proctor Water Department #1 (PRW-1)	5228	0.85 miles east	2,100	1 sand and gravel well, 1 well head protection area delineated
Rutland-Town	Fire District #1 (F.D. #1)	5534	4.0 miles south	326	1 unconsolidated well, 1 well head protection area delineated
	Oakrest Wter System	5482	1.96 miles southeast 2.0 miles southeast	50	2 bedrock wells, 1 well head protection area delineated
	Country Side Estates	5428	3.7 miles southeast 3.76 miles southeast	120 2,766*	2 bedrock wells, 1 of which is a backup supply source, 1 well head protection area delineated

* Approximate total year round population using community groundwater supply sources within a 4 mile radius of the Sutherland Falls Quarry Dump (excluding population using residential/private groundwater systems)

(References: Smith, 1989; USGS, 1944; 1972a; 1972b; 1961; and VT DOH, 1987)

between people residing inside the 4-mile radius versus those residing outside the radius -- but within the ZIP Code area-- has not been made.

Town	Zip Code	1980 Zip Code Population	Approximate Population Served by Private Wells
Castleton	05735	2,479	1,226
Hubbardton	05732	846	672
Ira & W. Rutland	05777	3,160	916
Pittsford	05763	386	239
Proctor	05765	1,952	56
Rutland	05701	22,326	2,013
		Total private well users:	**5,122**

(NWWA, 1986).

There are three private wells in use within a 1,700 foot radius of the quarry dump. Two of the wells are located on Center Street extension, approximately 1,650 feet west of the quarry dump, and one well is located approximately 1,400 feet southeast of the quarry dump on School Street (Figure 1). The Center Street extension wells are bedrock wells approximately 245 feet and 375 feet in depth and have reportedly yielded 90 gallons per minute (gpm) and 1.5 gpm, respectively. These wells are located in two separate bedrock formations composed of marble and slate, respectively. Several wells have reportedly been drilled in the slate formation, but all with little yield (VT ANR, 1989). NUS/FIT could not determine characteristics of the School Street well.

RESULTS

In August 1980, groundwater from two wells on School Street and Center Street was sampled by the State Health Department. This sampling activity came at the request of the Vermont Agency of Environmental Conservation due to the proximity of the wells in relation to the quarry dump. Both well supply samples were analyzed for primary and secondary drinking water standards including analysis for organic "chemicals" (THMs (trihalomethanes), trichloroethylene, tetrachloroethylene, and hydrocarbons), and inorganic "chemicals". NUS/FIT could not determine if the samples analyzed for inorganic "chemicals" were filtered. Analytical results indicated that no volatile organic compounds were detected and that all concentrations of inorganic "chemicals" detected in both of the well samples were below the listed Federal Maximum Contaminant Levels (MCLs) (Attachment A) (Sargent, 1980; VT DOH, 1980; Jalkut, 1990b). State and EPA file information did not indicate if the groundwater from these wells has been tested since 1980.

In September 1980, the Vermont Marble Co. reported that they collected two water samples from the quarry dump; however, the sample locations were not specified in information obtained from the state files. These samples were sent to a private lab for analysis, but the analytical techniques and results were not reported in the state file information. In addition, two water samples were collected for water quality and select metals analyses by the Vermont Marble Company's in-house lab (Attachment B). Chloride and iron were detected in the samples at elevated concentrations of 1,000 parts per million (equivalent to mg/l) and 3.62 mg/l, respectively. These concentrations exceeded the listed Maximum Contaminant Levels established by the National Secondary Drinking Water Regulations. In 1980, the Secondary Maximum Contaminant Levels for chloride and iron were 250 milligrams per liter (mg/l) and 0.3 mg/l, respectively. Analytical results indicated that the concentrations of other metals detected in the samples were below listed MCLs. Chromium and copper were detected in the sample collected from sample location #1 at concentrations of 0.12 mg/l and 0.02 mg/l, respectively, but were not detected in the sample from location #2. Detection limits were not reported. A background sample was not collected. NUS/FIT could not determine whether

the samples analyzed for selected metals were filtered. Concentrations of other metals detected were similar between onsite samples (Attachment B) (Schwiebert, 1980).

On Wednesday, April 19, 1989, NUS/FIT personnel conducted onsite reconnaissance and sampling activities as part of the Screening Site Inspection of the Sutherland Falls Quarry Dump. Eight aqueous samples were collected, including one blank, one duplicate/replicate, and one background sample (Table 2; Figure 2). The aqueous samples were collected from shallow depths, approximately 1 to 2 feet below the water surface. During field activities, the photoionization detector did not register any elevated concentrations of volatile organic compounds in the ambient air.

All aqueous samples collected by NUS/FIT were analyzed for Superfund List organic compounds and inorganic elements through the US EPA Contract Laboratory Program (CLP). Samples collected for organic compound analysis were shipped by an air courier to CEIMIC Corporation of Narragansett, Rhode Island. Samples collected for inorganic element analysis were shipped by an air courier to Nanco Laboratories, Inc. of Wappinger Falls, New York. Analytical results and contract required quantitation limits from the organic compound analyses are presented in Attachment C, Tables 1 and 2. Analytical results and instrument detection limits from the inorganic element analysis are presented in Attachment C, Table 3.

Note that sample results qualified by a "J" on the analytical tables are considered approximate because of limitations identified during the quality control review.

In addition to complete analytical tables, a sample results summary table has also been included (Table 3). The results summary table compares concentrations of any compound or element detected in the sample to the background sample concentration. The table summarizes compounds or elements detected at concentrations greater than or equal to three times the background sample location. If the compound or element was not detected in the background sample then the contract required quantitation limit (CRQL) or instrument detection limit (IDL) for that compound or element is used as a reference. If the compound or element was detected in the sample but was not detected in the background sample and the sample concentration does not exceed three times the CRQL or the IDL, the compound or element is described as being "detected".

Organic Sampling Results

There were no volatile organic compounds detected in the surface water samples collected from onsite sample locations at concentrations greater than three times their respective background sample concentration (Attachment C, Table 1).

The aqueous samples were also analyzed for extractable organic compounds including semi-volatile organic compounds, polychlorinated biphenyls (PCBs), and pesticides. There were no semi-volatile organic compounds detected at concentrations greater than three times the background sample concentration or contract required quantitation limits. PCBs and pesticides were not detected in the onsite samples collected from the quarry dump (Attachment C, Table 2).

Inorganic Sampling Results

The following inorganic elements were detected in the samples from one or more sample locations at concentrations ranging from 3 to 65 times greater than their respective background sample concentrations or instrument detection limits: barium, iron, manganese and potassium (Attachment C, Table 3). The concentrations of barium detected in all of the samples collected from onsite sample locations did not exceed the listed Maximum Contaminant Level as described in the Federal Register (US EPA, 1987). Currently, there are no listed Federal MCLs for iron, manganese or potassium. In addition, vanadium was detected in one onsite sample but not in the background sample; the sample

TABLE 2 - SAMPLE SUMMARY [1]
SUTHERLAND FALLS QUARRY DUMP
PROCTOR, VERMONT

Aqueous samples collected by NUS/FIT on April 19, 1989

Sample Location	Sample #/ Traffic Report #'s	Time (hrs)	Remarks	Sample Source
SW-01	22092/ AP362 MAJ848	1244	grab 1 foot depth	Southwest corner of the quarry dump; bearing N15°W from steel pole reference point in front of northern quarry wall
SW-02	22093/ AP363 MAJ849	1330	grab 1-1.5 foot depth	Thirty yards north of SFQD entrance from railroad trestle; bearing N5°W from steel pole reference point in front of northern quarry wall
SW-03	22094/ AP364 MAJ850	1541	grab 2 foot depth	From southwest corner of marble platform west of railroad trestle in front of northern quarry wall; bearing N10°E from steel pole reference point in front of northern quarry wall
SW-03D/R	22095/ AP365 MAJ851	1541	grab 2 foot depth	Same as SW-03; Duplicate VOA; replicate for inorganic and extractable fractions
SW-04	22096/ AP366 MAJ852	1615	grab 2 foot depth	Ponded water from north-west quarry dump corner west of railroad trestle; bearing S30°W from steel pole reference point in front of northern quarry wall

Table 2 continued
Sample Summary
Sutherland Falls Quarry Dump
Proctor, Vermont

Sample Location	Sample #/ Traffic Report #'s	Time (hrs)	Remarks	Sample Source
SW-05	22097/ AP367 MAJ853	1120	grab 1 foot depth	Ponded water at south-east corner of quarry dump; bearing N44°W from steel pole reference point in front of northern quarry wall
SW-06	22098/ AP368 MAJ854	1845	grab 2 foot depth	Background sample, forty yards south of Florence Road along northern bank of Beaver Pond; bearing S6°E from reference point of yellow house across lake
SW-07	22099/ AP369 MAJ855	0900**	grab	Aqueous trip blank from the US EPA's New England Regional Laboratory (NERL) in Lexington, Mass.

Legend

SFQD - Sutherland Falls Quarry Dump
AP - denotes organic analysis traffic report number
MAJ - denotes inorganic analysis traffic report number
** - denotes trip blank collection date as April 18, 1989 from the US EPA's NERL
1 - Sample locations depicted on Figure 2

TABLE 3

SAMPLE RESULTS SUMMARY TABLE
SUTHERLAND FALLS QUARRY DUMP
SAMPLES COLLECTED APRIL 19, 1989

LOCATION	COMPOUND/ELEMENT	CONCENTRATION	ATTACHMENT/TABLE	COMMENTS
SW-01	1,4-Dichlorobenzene	3J ppb	C2	Detected
	Barium	310 ppb	C3	>4 times BKG
	Iron	2,840J ppb	C3	>35 times BKG
	Manganese	33.0 ppb	C3	>8 times BKG
	Potassium	3,970 ppb	C3	>3 times IDL
SW-02	1,4-Dichlorobenzene	6J ppb	C2	Detected
	Barium	233 ppb	C3	>3 times BKG
	Iron	1,210J ppb	C3	>15 times BKG
	Manganese	49 ppb	C3	>12 times BKG
	Potassium	2,660 ppb	C3	Detected
	Vanadium	9 ppb	C3	Detected
SW-03	1,4-Dichlorobenzene	4J ppb	C2	Detected
	Barium	225 ppb	C3	>3 times BKG
	Iron	2,270J ppb	C3	>28 times BKG
	Manganese	37 ppb	C3	>9 times BKG
	Potassium	3,050 ppb	C3	Detected
SW-03D/R	1,4-Dichlorobenzene	4J ppb	C2	Detected
	Barium	224 ppb	C3	>3 times BKG
	Iron	4,770J ppb	C3	>60 times BKG
	Manganese	56 ppb	C3	>13 times BKG
	Potassium	3,530 ppb	C3	Detected
SW-04	1,4-Dichlorobenzene	3J ppb	C2	Detected
	Barium	232 ppb	C3	>3 times BKG
	Iron	5,150J ppb	C3	>65 times BKG
	Manganese	53 ppb	C3	>13 times BKG
	Potassium	3,740 ppb	C3	Detected
SW-05	1,4-Dichlorobenzene	2J ppb	C2	Detected
	Barium	215 ppb	C3	>3 times BKG
	Manganese	18 ppb	C3	>4 times BKG
	Potassium	2,330 ppb	C3	Detected

KEY

ppb - parts per billion
BKG - background sample concentration
IDL - instrument detection limit

Detected - the compound was detected in the sample but not in the background sample; the sample concentration does not exceed three times the contract required quantitation limit or the instrument detection limit

concentration was less than three times the respective instrument detection limit (Attachment C, Table 3).

Spatially, the number of inorganic elements detected in the onsite samples were distributed equally amongst all of the sample locations. Generally, those samples collected from sample locations SW-03D/R, and SW-04 contained the highest concentrations of inorganic elements above background sample concentrations as compared to the other onsite sample locations.

All of the onsite samples were either collected in areas of ponded, reddish to greenish-colored water or from areas of debris-laden water. The elevated concentrations of iron may be attributable to the abundance of metal cans and metal scrap visible in the water and in the debris pile. The offsite background sample was collected from Beaver Pond, located northwest and upslope of the quarry dump (Figure 2).

SUMMARY

The Sutherland Falls Quarry Dump occupies approximately 1 acre of land and is located north of Market Street in Proctor, Vermont. The property was an active marble quarry from the 1860s until 1926, when quarrying operations ceased. At its deepest point, the quarry-hole extended 300 feet below the ground surface. Estimated dimensions of the quarry-hole are 165 feet in length, by 300 feet in width, by 300 feet in depth. The quarry-hole is filled with approximately 200 feet of debris and industrial wastes in the form of an open waste pile.

The Sutherland Falls Quarry is owned by the Vermont Marble Co./OMYA, Inc., a subsidiary of Plues-Staufer Industries (a parent company) of Switzerland. The former quarry-hole was used by the Vermont Marble Co. for the disposal of industrial wastes for at least 30 to 50 years. From 1926 to 1980, scrap marble, scrap lumber, metal cans, tires, refuse, rubber headstone stencils, and packing materials were disposed of into the quarry dump. In addition, industrial wastes including steel chip waste and coolant oils from Callahan Ams, a subdivision of the Vermont Marble Co., were reportedly disposed of into the quarry dump.

In August 1980, the Vermont Agency of Environmental Conservation collected two groundwater samples from domestic wells located less than 0.5 miles east and west of the quarry dump. Analytical results did not indicate the presence of contamination from the quarry dump. All parameters were detected at concentrations lower than the listed Federal Maximum Contaminant Levels (MCLs) as described on the Vermont State Public Health Laboratory Report.

In September 1980, the Vermont Marble Co. reported that they had collected two water samples from the quarry dump and had them analyzed for various water quality parameters and select metals. Analytical results indicated the presence of chloride and iron at concentrations in excess of the listed MCLs, established by the National Secondary Drinking Water Regulations.

On April 19, 1989, NUS/FIT collected six shallow aqueous samples from the quarry dump. The samples were analyzed for Superfund List organic compounds and inorganic elements. Volatile organic compounds were not detected in the aqueous samples, nor were extractable organic compounds detected at concentrations greater than three times background sample concentrations or respective contract required quantitation limits. Four inorganic elements (barium, iron, manganese, and potassium) were detected in onsite samples ranging in concentrations from 3 to 65 times their respective background sample concentrations or instrument detection limits. The concentrations of barium detected in all of the samples collected from onsite sample locations did not exceed the listed Maximum Contaminant Levels as reported in the Federal Register. Currently, there are no listed Federal MCLs for iron, manganese, or potassium.

Elevated concentrations of iron in the quarry dump may be attributable to the metal cans and metal pieces observed in the debris-laden water. Elevated concentrations of manganese in the quarry dump may be naturally occurring. The quarry dump is located within a marble and dolomite quarry-hole composed of members of the Boardman Formation. These members may contain manganese as an accessory mineral. The quarry bedrock is fractured. Potential exists for contaminants to migrate through the fractured bedrock to nearby residential wells given the proximity of the wells to the quarry dump.

There are no surface water discharge points from the quarry dump. All upgradient surface water drainage is presumed to remain in the quarry-hole. There are no potential surface water receptors of contaminants from the quarry dump.

Approximately 7,888 people are served by community groundwater supply systems and private wells within a 4-mile radius of the quarry dump. Analytical results of the groundwater samples collected in 1980 from wells closest to the quarry dump did not indicate the presence of contaminant migration, though such potential exists. State and EPA file information did not indicate if the groundwater from these wells has been tested since 1980.

Documentation of industrial dumping in the quarry for a minimum of 30 to 50 years, the detection of four inorganic elements at elevated concentrations in the onsite aqueous samples, a fractured bedrock, and the close proximity of domestic wells results in an NUS/FIT recommendation for a Listing Site Inspection.

Submitted By:

Kayleen E. Jalkut

Kayleen E. Jalkut
Project Manager

Approval:

Robert Jubach
FIT Office Manager

KEJ:ib

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LIST OF ATTACHMENTS

ATTACHMENT A : Vermont Department of Health Groundwater Analytical Results from Sampling Activities at Private Wells Located on School Street and Center Street Extension in Proctor, Vermont. Samples Collected by the Vermont Agency of Environmental Conservation, August 1980.

ATTACHMENT B: Vermont Marble Co. Surface Water Analytical Results of Samples Collected from the Sutherland Falls Quarry Dump, August/September 1980.

ATTACHMENT C: CLP Analytical Results of Surface Wate Samples Collected from the Sutherland Falls Quarry Dump by NUS/FIT, April 19, 1989.

ATTACHMENT A

Vermont Department of Health Groundwater Analytical Results
from Sampling Activities at Private Wells Located on School Street and Center Street Extension in Proctor, Vermont.

Samples Collected by the Vermont Agency of Environmental Conservation, August 1980.

VERMONT STATE PUBLIC HEALTH LABORATORY
CHEMICAL/PHYSICAL ANALYSIS OF ~~PUBLIC WATER SUPPLY~~

Ref. 54

OWN Proctor

WATER SYSTEM DRILLED WE

SAMPLE LOCATION (STREET #, NAME, APT. #, ETC.) 2 School street - JAMES MINTZER

PURPOSE OF SAMPLE (CHECK)
- ☐ ROUTINE
- ☐ FOLLOWUP
- ☒ OTHER SPECIAL (SPECIFY)

NAME OF SAMPLER D. Yachko

TYPE OF SAMPLER
- ☐ HEALTH OFFICER
- ☐ OPERATOR
- ☒ STATE HEALTH DEPARTMENT
- ☐ OTHER (SPECIFY)

TYPE OF SAMPLE (CHECK)
- ☐ SOURCE
- ☒ DISTRIBUTION
- ☐ OTHER (SPECIFY)

DATE OF SAMPLE: 7/21/80
TIME: 1135 O'CLOCK ☒ A.M. ☐ P.M.

REMARKS: SAMPLE REQUESTED BY David Foster
OLD JUMP, NEAR 1/2 MILE OF HEAD

MCL = MAXIMUM CONTAMINANT LEVEL
CHECK ANALYSES REQUESTED

LABORATORY REPORT

MG/L = MILLIGRAMS PER LITER
PPM = PARTS PER MILLION

	MCL	STD. UNITS
☐ PHYSICAL		
☐ PH	6.5-8.5	7.5
☐ TURBIDITY	1	.1
☐ COLOR	15	0
☐ ODOR	3	0

	MCL	MG/L (PPM)
☐ INORGANIC CHEMICALS		
☐ PHTH ALK. AS $CaCO_3$		0
☐ M.O ALK. AS $CaCO_3$		259
☐ HARDESS AS $CaCO_3$		318
☐ COPPER	1.0	0
☐ CHLORIDE	250.	32.
☐ FOAMING AGENTS	0.5	0
☐ HYDROGEN SULFIDE	0.05	
☐ IRON	0.3	0
☐ MANGANESE	0.05	0
☐ SODIUM	20.	10
☐ SULFATE	250.	
☐ TDS	500.	
☐ ZINC	5.	.1
☐		
☐		
☐		
☐		
☐		
☐		

	MCL	MG/L (PPM)
☐ ARSENIC	0.05	0
☐ BARIUM	1.0	0
☐ CADMIUM	0.01	0
☐ CHROMIUM (TOTAL)		0
☐ CHROMIUM (HEX.)	0.05	
☐ FLUORIDE	2.2	.1
☐ LEAD	0.05	0
☐ MERCURY	0.002	0
☐ NITRATE	10.	1.2
☐ NITRITE		0
☐ SELENIUM	0.01	0
☐ SILVER	0.05	0
☐		
☐		

	MCL	MG/L (PPM)
☐ ORGANIC CHEMICALS		
☐ ENDRIN	0.0002	
☐ LINDANE	0.004	
☐ METHOXYCHLOR	0.1	
☐ TOXAPHENE	0.005	
☐ 2,4-D	0.1	
☐ 2,4,5-TP SILVEX	0.01	
☑ hydrocarbons		0
☑ THMs		0
☐ TYCE		0

DATE REC'D 7, 24, 80 TIME: REPORTED SEP 08 1980

LAB. NO. 427 LABORATORY DIRECTOR: D Pomeroy

SENDER NAME AND ADDRESS HEALTH OFFICER

JAMES MINTZER
4 SCHOOL STREET

Ref. 54

CHEMICAL/PHYSICAL ANALYSIS OF PUBLIC WATER SUPPLY

862-57[illegible]

TOWN [illegible]

WATER SYSTEM NAME & ADDRESS [illegible]

DEC 11 1980

SAMPLE LOCATION (NAME, STREET #, APT. #, ETC.) Louis [illegible], [illegible]

PURPOSE OF SAMPLE (CHECK)
- ☐ ROUTINE ☐ ANNUAL
- ☐ FOLLOW UP ☐ ANNUAL FOLLOW UP
- ☐ OTHER Special (SPECIFY)

SAMPLER NAME & ADDRESS Mike Yadko, Health Dept

TYPE OF SAMPLE (CHECK)
- ☐ HEALTH OFFICER
- ☐ OPERATOR
- ☒ STATE HEALTH DEPARTMENT
- ☐ OTHER ______ (SPECIFY)

TYPE OF SAMPLE
- ☐ SOURCE
- ☒ DISTRIBUTION
- ☐ OTHER ______ (SPECIFY)

DATE OF SAMPLE 8/21/80

TIME 12:30 O'CLOCK AM (PM)

REMARKS BY SAMPLER
Sample requested by David Storer. Old dump in area 1/4 mile [illegible]

REMARKS BY LAB
This is a copy from our lab file. Our copy is too faint to xerox.
[illegible], Act. [illegible]

MCL = MAXIMUM CONTAMINANT LEVEL
CHECK ANALYSES REQUESTED

LABORATORY REPORT

MG/L = MILLIGRAMS PER LITER
PPM = PARTS PER MILLION

PRIMARY STANDARDS

PHYSICAL	STD. UNITS	MCL
☐ TURBIDITY	0.2	1

INORGANIC CHEMICALS	MG/L (PPM)	MCL
☐ LEAD	0.0	0.05
☐ SILVER	0.	0.05
☐ CHROMIUM	0.	0.05
☐ CADMIUM	0.	0.01
☐ BARIUM	0.	1.0
☐ ARSENIC	0.	0.05
☐ SELENIUM	0.	0.01
☐ FLUORIDE	0.	2.2
☐ MERCURY	0.	0.002
☐ NITRATE	2.8	10*
☐ SODIUM	19.	20**

ORGANIC CHEMICALS		MCL
☐ ENDRIN	.	0.0002
☐ LINDANE	.	0.004
☐ METHOXYCHLOR	.	0.1
☐ TOXAPHENE	.	0.005
☐ 2,4-D	.	0.1
☐ 2,4,5-TP SILVEX	.	0.01
☐ TOTAL THM	.	0.1

OTHER ANALYSES	
☐ TRICHLOROETHYLENE	0.
☐ TETRACHLOROETHYLENE	0.
☐ TETRACHLOROETHANE	.

SECONDARY STANDARDS

PHYSICAL	STD. UNITS	MCL
☐ COLOR	0.	15
☐ ODOR	0.	
☐ PH	7.[illegible]	6.5-8

INORGANIC CHEMICALS	MG/L (PPM)	MCL
☐ PHTH ALK. AS $CACO_3$	0.	
☐ M.O. ALK. AS $CACO_3$	276.	
☐ HARDNESS AS $CACO_3$	368.	
☐ COPPER	0.	1.0
☐ IRON	0.	0.3
☐ MANGANESE	0.	0.05
☐ ZINC	.1	5
☐ FOAMING AGENTS	0.	0.5
☐ NITRITE	0.	
☐ CHLORIDE	92.	250
☐ SULFATE	.	250
☐ CORROSIVITY	.	0.1 U
☐ HYDROGEN SULFIDE	.	0.05
☐ TOT. DISSOLVED SOLIDS	.	500

OTHER ANALYSES	
Hydro Carbon	0.

DATE REC'D 8/22/80 TIME ______ DATE REPORTED 9/12/80

LAB NUMBER 428 LABORATORY DIRECTOR ______

*FOR INFANTS UP TO 6 MO., CONSULT PHYSICIAN IF NITRATE EXCEEDS 2.5

ATTACHMENT B

Vermont Marble Co. Surface Water Analytical Results of Samples Collected from the Sutherland Falls Quarry Dump, August/September 1980.

VERMONT MARBLE COMPANY

Marble Division
61 Main Street
Proctor, VT 05765
Tel: (802) 459-3311
Telex: 954658 VMCO PRTR
Fax: (802) 459-2996

September 18, 1980

John A. Malter, Chief
Hazardous Materials Management
Agency of Environmental Conservation
State of Vermont
Montpelier, Vermont 05602

Dear John:

Pursuant to our telephone conversation of September 11, 1980, this will confirm my response to your letter of July 31, 1980 with regard to the Sutherland Falls Quarry.

In your letter you ask five questions which will be answered in series and pursuant to the numbers you used:

1. Approximately one railroad hopper car per week has been dumped into the Sutherland Falls Quarry and by volume the types and quantities of material are as follows:

   a. 65% marble scrap
   b. 15% wood
   c. 10% paper and refuse
   d. 5% metal (mostly steel and cast iron)
   e. 4% headstone stencil and packing material
   f. 1% miscellaneous (such as empty cans and the like)

2. According to the memory of some of the old timers in the area, the disposal has been occurring for at least 30 years and probably for something in the range of 40-50 years.

3. I do not know the surface dimensions of the Quarry, but I am enclosing two maps showing the Quarry. The Quarry is approximately 150 feet deep, and it is our presumption based upon quantities dumped and the Quarry site that the Quarry is full to the bottom.

4. With regard to the water quality samples, two samples were taken of the water and were sent to

Spectrum Research, Inc. In addition our own laboratory performed Atomic Absorption spectrophotometer and standard water and wastewater wet chemistry procedures, and the test results are as follows:

		Sample #1 Mg/liter	Sample #2 Mg/liter
1.	Total suspended solids	4	1
2.	Biochemical oxygen demand	2.5	4
3.	Total solids	144	155
4.	Chemical oxygen demand	30	40
5.	Total dissolved solids	140	154
6.	Total Coliform**	435 colonies/ 100 ml	8000 colonies/ 100 ml
7.	Total volatile solids	52	67
8.	Fecal coliform	120 colonies/ 100 ml	8000 colonies/ 100 ml

** Total - Coli includes non-coliform colonies, that inhibited proper determination of coliform.

		Sample #1	Sample #2
1.	Alkalinity, total as $CaCO_3$	180 ppm	185 ppm
2.	Arsenic, As As	None detected	None detected
3.	Chloride, as Cl	500 ppm	1000 ppm
4.	Cadmium, as Cd	N D	N D
5.	Colbalt, as Co	N D	N D
6.	Chromium, as Cr	0.12 Mg/l	N D
7.	Copper, as Cu	0.02 Mg/l	N D
8.	Iron, as Fe	3.62 Mg/l	2.56 Mg/l
9.	Mercury, as Hg	N D	N D

10.	Manganese, as Mn	0.12 Mg/l	0.14 Mg/l
11.	Nickel, as Ni	0.02 Mg/l	0.02 Mg/l
12.	Nitrogen, Ammonia, as N	0.02 ppm	0.03 ppm
13.	Nitrate, as N	N D	N D
14.	Nitrite, as N	N D	N D
15.	pH	7.21	7.23
16.	Phosphate, Ortho	0.05 ppm	0.05 ppm
17.	Sulfate	N D	N D
18.	Carbon Dioxide	0.05 ppm	0.05 ppm
19.	Dissolved O_2	3.92 ppm	2.45 ppm
20.	Turbidity	28 FTU	13 FTU

I understand from our conversation that certain of those results exceed the permissible level for drinking water. You agreed to send me the drinking water standards. I would appreciate also knowing by what authority, be it state or federal, such a site must meet the drinking water standards.

5. We have examined the land area in the vicinity of the Quarry and have not been able to locate any points of discharge. The only surface water in the vicinity of the Quarry is Otter Creek which is downhill and in excess of a quarter of a mile away. We have not had any tests made of Otter Creek because, even if those tests prove negative, there is no way of determining where any of the contaminants may be coming from in Otter Creek. In fact, when Ms. McCann and Mr. Stoner were here for their visit in August, I informed them of a situation we typically face at our Hydroelectric Station in Proctor. That situation is the required manual scraping of human fecal matter from our intake screens for the Hydroelectric Station. With that type of water quality in Otter Creek, I didn't think a water sample test would prove much. In any event, I would appreciate receiving from you the test results that you obtained from the two wells that were located in Proctor.

As I mentioned to you on the telephone, in connection with continued dumping in the Quarry, we have eliminated dumping everything but marble at the Quarry. It is our hope

that, by continuing the dumping in the Quarry, the marble eventually will cover the less sightly of the waste and will also tend to neutralize, to some degree, the water quality. All of the other types of refuse that had been dumped in the Quarry are no longer being dumped but instead are being disposed of at the Proctor Dump with the exception of the metal products which are being picked up by Fred Stone of Castleton Corners.

If there is any further question with regard to the current status of the Quarry, please do not hesitate to get in touch with me. In the meantime, your cooperation is appreciated.

Sincerely,

Edward V. Schwiebert
Vice President and General Counsel

EVS:ab

cc: D. Gallus
F. J. Mainolfi
N. Champine
D. G. Ogden
T. Olson

National Interim Primary Drinking Water Regulations

Contaminant	Maximum Contaminant Level	
Arsenic	0.05	mg/l
Barium	1.0	"
Cadmium	0.01	"
Chromium	0.05	"
Lead	0.05	"
Mercury	0.002	"
Nitrate (as N)	10.0	"
Selenium	0.01	"
Silver	0.05	"
Chlorinated Hydrocarbons		
Endrin	0.0002	mg/l
Lindane	0.004	"
Methoxychlor	0.1	"
Toxaphene	0.005	"
Chlorophenoxys		
2, 4-D	0.1	mg/l
2, 4, 5 - TP Silvex	0.01	"
Turbidity	1 Turbidity Unit (monthly average)	
	5 Turbidity Units (Ave. 2 consecutive days)	

National Secondary Drinking Water Regulations

Contaminant	Maximum Contaminant Levels	
Chloride	250	mg/l
Color	15 color units	
Copper	1	mg/l
Corrosivity	Non-corrosive	
Foaming Agents	0.5	mg/l
Hydrogen Sulfide	0.05	"
Iron	0.3	"
Manganese	0.05	"
Odor	3 Threshold Odor Number	
pH	6.5 - 8.5	
Sulfate	250	mg/l
Total Dissolved Solids	500	mg/l
Zinc	5	mg/l

ATTACHMENT C

CLP Analytical Results of Surface Water Samples Collected
from the Sutherland Falls Quarry Dump by NUS/FIT,
April 19, 1989.

Table 1 : CLP Surface Water Volatile Organic Analytical Results with Contract Required Quantitation Limits

Table 2 : CLP Surface Water Extractable Organic Analytical Results with Contract Required Quantitation Limits

Table 3 : CLP Surface Water Inorganic Analytical Results with Instrument Detection Limits

TABLE 1 Page 1 of 1
SUTHERLAND FALLS QUARRY DUMP
April 19, 1989
CLP VOLATILE ORGANIC ANALYSIS
CASE NO. 11793, SDG NO. AP392
SURFACE WATER ANALYTICAL RESULTS (ug/L)

Sample Location		SW-01	SW-02	SW-03	SW-03D	SW-04	SW-05	SW-06	SW-07
Sample Number		22092	22093	22094	22095	22096	22097	22098	22099
Traffic Report Number		AP362	AP363	AP364	AP365	AP366	AP367	AP368	AP369
Remarks					Duplicate			Background	Blank
Sampling Date		19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	18-APR-89
Analysis Date		29-APR-89	29-APR-89	29-APR-89	29-APR-89	29-APR-89	29-APR-89	29-APR-89	29-APR-89
VOLATILE ORGANIC COMPOUND	CRQL								
Chloromethane	10								
Bromomethane	10								
Vinyl Chloride	10								
Chloroethane	10								
Methylene Chloride	5								
Acetone	10								
Carbon Disulfide	5								
1,1-Dichloroethene	5								
1,1-Dichloroethane	5								
1,2-Dichloroethene (Total)	5								
Chloroform	5								
1,2-Dichloroethane	5								
2-Butanone	10	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane	5								
Carbon Tetrachloride	5								
Vinyl Acetate	10								
Bromodichloromethane	5								
1,2-Dichloropropane	5								
cis-1,3-Dichloropropene	5	5UJ	5UJ	5UJ	5UJ	5UJ	5UJ	5UJ	5UJ
Trichloroethene	5								
Dibromochloromethane	5								
1,1,2-Trichloroethane	5								
Benzene	5								
trans-1,3-Dichloropropene	5								
Bromoform	5								
4-Methyl-2-pentanone	10								
2-Hexanone	10								
Tetrachloroethene	5								
1,1,2,2-Tetrachloroethane	5								
Toluene	5								
Chlorobenzene	5								
Ethylbenzene	5								
Styrene	5								
Xylene (Total)	5								
Total VOC concentration (ug/L)									

A blank space indicates the volatile organic compound (VOC) was not detected.

R Value is rejected.

CRQL Contract Required Quantitation Limit

UJ Quantitation limit is approximated due to limitations identified in the quality control review.

TABLE 2 Page 1 of 3
SUTHERLAND FALLS QUARRY DUMP
April 19, 1989
CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 11793, SDG NO. AP362
SURFACE WATER ANALYTICAL RESULTS
(ug/L)

Sample Location		SW-01	SW-02	SW-03	SW-03R	SW-04	SW-05	SW-06	SW-07
Sample Number		22092	22093	22094	22095	22096	22097	22098	22099
Traffic Report Number		AP362	AP363	AP364	AP365	AP366	AP367	AP368	AP369
Remarks					Replicate			Background	Blank
Sampling Date		19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89
Extraction Date		22-APR-89	22-APR-89	22-APR-89	22-APR-89	22-APR-89	21-APR-89	21-APR-89	21-APR-89
Analysis Date		19-MAY-89	19-MAY-89	22-MAY-89	22-MAY-89	22-MAY-89	22-MAY-89	23-MAY-89	23-MAY-89
SEMI-VOLATILE COMPOUND	CRQL								
Phenol	10								
bis (2-Chloroethyl) ether	10								
2-Chlorophenol	10								
1,3-Dichlorobenzene	10								
1,4-Dichlorobenzene	10	3J	6J	4J	4J	3J	2J		
Benzyl Alcohol	10	10UJ	10UJ	10UJ	10UJ	10UJ	10UJ	10UJ	10UJ
1,2-Dichlorobenzene	10								
2-Methylphenol	10								
bis (2-Chloroisopropyl)ether	10								
4-Methylphenol	10								
N-Nitroso-di-n-propylamine	10								
Hexachloroethane	10								
Nitrobenzene	10								
Isophorone	10								
2-Nitrophenol	10								
2,4-Dimethylphenol	10								
Benzoic acid	50								
bis (2-Chloroethoxy) methane	10								
2,4-Dichlorophenol	10								
1,2,4-Trichlorobenzene	10								
Naphthalene	10								
4-Chloroaniline	10								
Hexachlorobutadiene	10								
4-Chloro-3-methylphenol	10								
2-Methylnaphthalene	10								
Hexachlorocyclopentadiene	10								
2,4,6-Trichlorophenol	10								
2,4,5-Trichlorophenol	50								
2-Chloronaphthalene	10								
2-Nitroaniline	50								
Dimethylphthalate	10								
Acenaphthylene	10								
2,6-Dinitrotoluene	10								

TABLE 2 Page 2 of 3
SUTHERLAND FALLS QUARRY DUMP
April 19, 1989
CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 11793, SDG NO. AP362
SURFACE WATER ANALYTICAL RESULTS
(ug/L)

Sample Location		SW-01	SW-02	SW-03	SW-03R	SW-04	SW-05	SW-06	SW-07
Sample Number		22092	22093	22094	22095	22096	22097	22098	22099
Traffic Report Number		AP362	AP363	AP364	AP365	AP366	AP367	AP368	AP369
Remarks					Replicate			Background	Blank
SEMI-VOLATILE COMPOUND	CRQL								
3-Nitroaniline	50								
Acenaphthene	10								
2,4-Dinitrophenol	50								
4-Nitrophenol	50								
Dibenzofuran	10								
2,4-Dinitrotoluene	10								
Diethylphthalate	10								
4-Chlorophenyl-phenylether	10								
Fluorene	10								
4-Nitroaniline	50								
4,6-Dinitro-2-methylphenol	50								
N-Nitrosodiphenylamine	10								
4-Bromophenyl-phenylether	10								
Hexachlorobenzene	10								
Pentachlorophenol	50								
Phenanthrene	10								
Anthracene	10								
Di-n-butylphthalate	10								
Fluoranthene	10								
Pyrene	10								
Butylbenzylphthalate	10			10UJ	10UJ	10UJ	10UJ	10UJ	10UJ
3,3'-Dichlorobenzidine	20								
Benzo(a)anthracene	10								
Chrysene	10								
bis(2-Ethylhexyl)phthalate	10								8J
Di-n-octyl phthalate	10								
Benzo(b)fluoranthene	10								
Benzo(k)fluoranthene	10								
Benzo(a)pyrene	10								
Indeno (1,2,3-cd)pyrene	10								
Dibenz(a,h)anthracene	10								
Benzo(g,h,i)perylene	10								

TABLE 2 Page 3 of 3
SUTHERLAND FALLS QUARRY DUMP
April 19, 1989
CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 11793, SDG NO. AP362
SURFACE WATER ANALYTICAL RESULTS
(ug/L)

Sample Location		SW-01	SW-02	SW-03	SW-03R	SW-04	SW-05	SW-06	SW-07
Sample Number		22092	22093	22094	22095	22096	22097	22098	22099
Traffic Report Number		AP362	AP363	AP364	AP365	AP366	AP367	AP368	AP369
Remarks					Replicate			Background	Blank
Sampling Date		19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	19-APR-89	18-APR-89
Extraction Date		22-APR-89	22-APR-89	22-APR-89	22-APR-89	22-APR-89	21-APR-89	21-APR-89	21-APR-89
Analysis Date		23-MAY-89	23-MAY-89	23-MAY-89	23-MAY-89	23-MAY-89	23-MAY-89	23-MAY-89	23-MAY-89
PESTICIDE/PCB COMPOUND	CRQL								
alpha-BHC	0.05								
beta-BHC	0.05								
delta-BHC	0.05								
gamma-BHC (Lindane)	0.05								
Heptachlor	0.05								
Aldrin	0.05								
Heptachlor epoxide	0.05								
Endosulfan I	0.05								
Dieldrin	0.10								
4,4'-DDE	0.10								
Endrin	0.10								
Endosulfan II	0.10								
4,4'-DDD	0.10								
Endosulfan sulfate	0.10								
4,4'-DDT	0.10								
Methoxychlor	0.5								
Endrin ketone	0.10								
alpha-Chlordane	0.5								
gamma-Chlordane	0.5								
Toxaphene	1.0								
Aroclor-1016	0.5								
Aroclor-1221	0.5								
Aroclor-1232	0.5								
Aroclor-1242	0.5								
Aroclor-1248	0.5								
Aroclor-1254	1.0								
Aroclor-1260	1.0								

A blank space indicates the compound was not detected.
J Quantitation is approximate due to limitations identified during the quality control review.
CRQL Contract Required Quantitation Limit.
UJ Quantitation Limit is approximated due to limitations identified during the quality control review.

TABLE 3 Page 1 of 1
SUTHERLAND FALLS QUARRY DUMP
APRIL 19, 1989
CLP INORGANIC ANALYSIS
CASE NO. 11793, SDG NO.MAJ848
SURFACE WATER ANALYTICAL RESULTS
(ug/L)

Sample Location			SW-01	SW-02	SW-03	SW-03R	SW-04	SW-05	SW-06	SW-07
Sample Number			22092	22093	22094	22095	22096	22097	22098	22098
Traffic Report Number			MAJ848	MAJ849	MAJ850	MAJ851	MAJ852	MAJ853	MAJ854	MAJ855
Remarks						Replicate			Background	Blank
Inorganic Elements		Instrument Detection Limits								
Aluminum	P	54.7								
Antimony	P	48.7	51.0 U			54.0 U				
Arsenic	F	0.80								
Barium	P	26.4	310	233	225	244	232	215	67.0 U	30.0 J
Beryllium	P	1.6								
Cadmium	P	2.1								
Calcium	P	615	17800	29000	40100	42100	42600	30200	37100	
Chromium	P	9.8						14.0	12.0	
Cobalt	P	8.0								
Copper	P	5.1	36.0 U	12.0 U	8.0 U	6.0 U				
Iron	P	42.4	2840 J	1210 J	2270 J	4770 J	5150 J	249 U	79.0 U	63.0 J
Lead	P	0.50	0.80 U			0.50 UJ	0.50 UJ		0.50 UJ	0.90 J
Magnesium	P	300.3	4380	8410	12100	13800	13600	9130	6950	
Manganese	P	2.0	33.0	49.0	37.0	56.0	53.0	18.0	4.0 J	
Mercury	CV	0.10								0.17 J
Nickel	P	11.0								
Potassium	P	1282	3970	2660	3050	3530	3740	2330 J		
Selenium	F	0.70								
Silver	P	7.8	7.8 UJ	7.8 UJ	7.8 UJ	7.8 UJ	7.8 UJ	7.8 UJ	7.8 UJ	7.8 UJ
Sodium	P	762.0	8700 U	5900 U	6830 U	7100 U	7420 U	6230 U	20500	2880 UJ
Thallium	F	2.8	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ
Vanadium	P	8.4		9.0 J						
Zinc	P	4.8	35.0 U	40.0 U	6.0 U	4.8 UJ	9.0 U	4.8 UJ	5.0 U	6.0 J
Cyanide	C	NA	NA	NA	NA	NA	NA	NA	NA	NA

Analytical Method
F Furnace
P ICP/Flame AA
CV Cold Vapor
C Colorimetric

NOTE:
A blank space indicates the element was not detected.
J Quantitation is approximate due to limititations identified in the quality control review.
U Revised detection limit.
UJ Quantitation limit is approximated due to limitations identified during the quality control

Site Name: Sutherland Falls Quarry Dump
CERCLIS No.: VTD988366159
TDD No.: F1-8810-04
Reference No.: $375VT54$I

NPL ELIGIBILITY CHECKLIST

	YES	NO	COMMENTS
Are the wastes onsite considered hazardous as defined in CERCLA?	X		
*Sites covered by other authorities:			
Are the hazardous materials at the site solely petroleum products (gasoline, oil, natural gas)?		X	
Is the contamination at the site caused solely by pesticides that were applied using an accepted practice?		X	
If the release is into public or private drinking water systems, is it due to deterioration of the system through ordinary use?		X	
Is the release from products which are part of the structure, and results in exposure within residential, business, or community structures?		X	
Did the release result in exposure to people solely within a work place?		X	
Does the facility have an Underground Injection Control permit under the Safe Drinking Water Act?		X	
Is the release the result of the normal application of fertilizer?		X	
Does the release involve naturally occurring substances in their unaltered form?		X	
Does the contamination at the site consist solely of radioactive materials generated by Department of Energy/Atomic Energy Commission activities?		X	
Is the contamination at the site caused solely by coal mining operations?		X	
Does the facility have a permit from the EPA or the US Army Corps of Engineers (under the Marine Protection, Research, and Sanctuaries Act) to dispose of dredged materials in ocean waters?		X	

Site Name: Sutherland Falls Quarry Dump
CERCLIS No.: UTD988366159
TDD No.: F1-8810-09
Reference No.: $375 UT54 $I

	YES	NO	COMMENTS
***Other issues to site definition:**			
Is the site defined solely as a contaminated well field?	___	X	___
Is the site currently owned or operated by a federal agency, or has it been in the past?	___	X	___
Is the site a municipal landfill?	___	X	___
-- Check if there is documentation of disposal of industrial waste.		___	
Does the waste consist of a "special waste" such as fly ash?	___	X	___
-- Check if there is documentation of a hazardous component to the waste.		___	
Does the facility have an NPDES permit?	___	X	___
-- Check if the facility has a history of permit violations.		___	
Is the facility subject to ambient air quality standards under the Clean Air Act?	___	X	___
Does the facility have a permit under the Clean Air Act?	___	X	___
***RCRA Status**			
Has the facility notified as a RCRA generator?	___	X	___
-- The facility is a large quantity generator.		___	
-- The facility is a small quantity generator.		___	
Has the facility ever had RCRA interim status or a RCRA permit?	___	X	___
If yes, check any that apply:			
-- The facility is a "non-notifier" or "protective filer" (identified as such by EPA or the state).		___	

Site Name: Sutherland Falls Quarry Dump
CERCLIS No.: VTD988366159
TDD No.: F1-8810-04
Reference No.: $375VT54$I

***RCRA Status (continued)**

-- The owner of the facility is bankrupt, or the owner has filed for protection under bankruptcy laws (if known). ___

-- A RCRA compliance order or notice of violation has been issued for the facility at some time. ___

The order or notice concerned:

- conditions that posed a hazard (i.e., a release of contamination to the environment) OR ___
- administrative violations (i.e., record-keeping or financial requirements). ___

-- Some RCRA enforcement action is currently pending at the facility. ___

-- A RCRA permit has been denied or interim status has been revoked for the facility. ___

The permit or interim status was revoked:

- because of conditions at the facility that posed a hazard OR ___
- because the facility failed to meet an administrative requirement (i.e., failed to file an acceptable Part B permit application). ___

-- A closure plan has been requested or submitted for the facility under RCRA. ___

-- A closure plan has been requested or submitted for the facility under RCRA. ___

-- A closure plan has been approved for the facility under RCRA. ___

-- The facility is closed and currently monitoring under RCRA regulations. ___

CERCLIS DATABASE FORM

DATE: 5-31-90

SITE NAME: Sutherland Falls Quarry Dump
CERCLIS No. VTD988366159
TDD No. F1-8810-04 PROJECT MANAGER: K. JALKUT

DIRECTIONS TO SITE: I-89 to Rt. 4W to Rt. 3 N (South St.) Follow Rt 3N to Main St. in Proctor. Travel less than 0.25 miles northwest on Main Street until you reach the 4-way intersection of Main Market, High, and North Streets. Sutherland Falls Quarry Dump is North of Market Street, approximately 200 yards into a wooded area Railroad tracks off to the north lead into the quarry dump.

ELEMENT	CERCLIS CODE (No. of positions)	DESCRIPTION	ENTRY
I. FOR ALL PROJECTS			
State	C2(2)	Postal code	VT
Site ID (If available)	C101(12)	Dun & Bradstreet or GSA	
Site Name	C104(40)		Sutherland Falls Quarry Dump
Street Address	C110(25)		North of Market Street
City	C111(25)		Proctor
County	*TBD		Rutland
Ownership	C136(2)	FF = Federally owned ST = State owned CO = County owned DI = District owned IL = Indian lands MI = Mixed ownership UN = Unknown *TBD1 = Municipally owned *TBD2 = Privately owned OH = Other	TBD2
Years of operation (as a dump)	*TBD	1926 to 1980 at least	minimum 54 years
FMS Number (if assigned)	C315(4)		
Coordinates	*TBD	Latitude	43° 39' 55" N
		Longitude	73° 02' 26" W

ELEMENT	CERCLIS CODE (No. of positions)	DESCRIPTION	ENTRY
Recommendation of Most Recent Project at Site	C2103(1)	For PAs: H = High = SSI Required M = Med. = SSI Recommended N = NFRAP = No Further Remedial Action Planned For SSIs: R = Recommended for an LSI D = Deferred to another authority N = NFRAP = No Further Remedial Action Planned For LSIs: G = Recommended for an HRS Scoring N = NFRAP = No Further Remedial Action Planned	R
Note	C2105(20)	Abbreviated Comments	
Reasons for Ineligibility (for Sites Determined Ineligible under CERCLA)	*TBD	*TBD1 = Petroleum contamination only *TBD2 = Active RCRA facility *TBD3 = Properly applied pesticide *TBD4 = Nuclear/radioactive waste *TBD5 = All other reasons	
Agency Responsible for Work at Site	C2117(2)	F = EPA, Fund financed S = State, Fund financed SN = State, no Fund financing FF = Federal facility *TBD = Responsible Party	F

ELEMENT	CERCLIS CODE (No. of positions)	DESCRIPTION	ENTRY

II. ONLY FOR SITE WITH HRS

Type of Facility of Source — C137(1)

B	=	Chemical Plant
C	=	City Contamination
L	=	Landfill
M	=	Manufacturing Plant
N	=	Military Facility
F	=	Other Federal Facility
T	=	mines/tailings
P	=	Lagoons
A	=	Abandoned/Midnight dumping

If unknown, Type of Waste Present

R	=	Radioactive Waste
J	=	Inorganic Waste
*TBD	=	Organic Waste
I	=	Other Industrial Waste
D	=	Dioxin

If unknown, Type of Receptor Affected

V	=	Waterways/river
H	=	Housing Area
W	=	Drinking Water Wells
*TBD	=	Ecological Receptors
O	=	Other _____

Abstract — C201(240) — Site Description

_____

_____

_____

_____

_____