THE VIRTIS COMPANY, INC.
ROUTE 208
GARDINER, NEW YORK

FINAL ENGINEERING REPORT

FOR

INDUSTRIAL WASTEWATER MANAGEMENT

October 1989

LMSE-89/0581&442/086

LAWLER, MATUSKY & SKELLY ENGINEERS
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

OBJECTIVE

The purpose of this document by Lawler, Matusky & Skelly Engineers (LMS) is to describe the wastewater disposal system that VirTis Corporation, Inc. (VirTis) intends to construct at its facility (Plant No. 1) on Route 208, Gardiner, New York. This wastewater system, when operational, is expected to bring VirTis' on-site discharge of wastewater within compliance with its SPDES permit.

BACKGROUND

In June 1988, LMS submitted on behalf of VirTis a preliminary engineering report and SPDES permit application for the Plant No. 1 wastewater discharges. The wastewaters, described in the preliminary report, consist of sanitary and process wastes. The report identified three alternatives for managing these wastes.

In February 1989, New York State Department of Environmental Conservation (NYSDEC) issued Order on Consent File No. R3-1518-8805. The Order on Consent specifies the Schedule of Compliance for VirTis, management of its Plant No. 1 wastewaters. This schedule presented in its entirety in Table 1, required VirTis to submit this final engineering report after issuance of the SPDES permit by NYSDEC.

SPDES NY0218855 permit was subsequently issued with a June 1989 effective date. VirTis has been in compliance with the monitoring requirements of the permit. The permit's effluent limitations are presented in Table 2. The permit's Schedule of Compliance for Effluent Limitations incorporates the Schedule of Compliance in the Order on Consent.

TABLE 1

SCHEDULE OF COMPLIANCE

1. Within four months after the issuance of the SPDES permit, Respondent shall submit a final Engineering Report, plans and specifications for a waste disposal system capable of compliance with the SPDES permit #NY021855. The Engineering Report shall include a proposed construction schedule; the approved schedule shall be deemed part of this Order.

2. Within 30 days after receipt of the Department's approval on the waste disposal system report, Respondent shall commence construction of the waste disposal system.

3. Respondent shall complete construction of the waste disposal system and commence its operation in accordance with the approved schedule.

4. Respondent shall attain compliance with the terms and conditions of its SPDES permit in accordance with the approved schedule.

TABLE 2

EFFLUENT LIMITATIONS

PARAMETER	LIMITATION[a]	UNITS
Aluminum - Total	2	mg/l
Iron - Total	0.6	mg/l
Oil & Grease	15	mg/l
Phenol - Total	2	ug/l
1,1,1-Trichloroethane	50	ug/l
Trichloroethylene	10	ug/l
Chromium - Total	1	mg/l
Copper - Total	1	mg/l
Lead - Total	0.05	mg/l
Zinc - Total	5	mg/l
1,1-Dichloroethane	50	ug/l
1,1-Dichloroethylene	0.7	ug/l
Tetrachloroethylene	0.7	ug/l
Toluene	50	ug/l
Trans-1,2-dichloroethylene	50	ug/l
pH (Range)	6.5-8.5	SU

SELECTED WASTEWATER MANAGEMENT ALTERNATIVE

VirTis will implement a variation of Alternative 3 initially described in the preliminary report - off-site disposal.

Following submission of the preliminary engineering report, VirTis removed the slop sink from the electrical assembly room. The modification has resulted in all process wastewaters being discharged to Outfall No. 1 via the floor drain and sump pump in the southeast corner of the building. This sump pump discharges to Tank A which subsequently drains via a septic tank (Tank B) to the facility's Outfall No. 1.

The initial estimate of the discharge to Tank A was 65 gal/day. Subsequent metering of the sump pump indicates that the discharge averages about 1500 gal/week or 300 gal/workday.

VirTis will divert the sump pump discharge to a new 3000 gal above ground storage tank. This tank will be located in an expansion to the south side of the building. Figure 1 (in plastic at the back of this report) prepared by VirTis presents the layout for the diversion and storage system. A sight glass will allow observation of the volume of wastewater in storage.

The concrete floor below the storage tank will be fitted with a water tight 8 in. curb and drain to Tank A. The existing outlet from Tank A will be plugged. The curbed volume and Tank A are provided for secondary containment in the event of a leak, overflow or rupture from the tank or associated piping. Therefore, Tank A will be empty except during an emergency.

Wastewater in the new storage tank will be conveyed by a pump, also located in the diked area, to a valved connection on the south side of the building expansion. Water will then be conveyed to a 2000 gal water tank truck purchased by VirTis.

The water tank truck will then be used to convey the wastewater to VirTis Plant No. 2, also located in Gardiner. The sanitary sewer system at Plant No. 2 is connected to the Gardiner publicly owned treatment works (POTW). The water tank truck will discharge to a new 2000 gal pretreatment tank which is used to regulate the flow to a tray-type air stripper. The tank discharges via a series of regulating, metering and sampling valves to the tray. The air stripping system will remove all detectable volatile organics in the wastewater prior to discharge to the sanitary drain and mixing with the other Plant No. 2 wastewaters.

The discharge will comply with the Town of Gardiner Sewer Use Regulations, the effluent limitations for which are presented in Table 3. Sampling was conducted in 1988 by LMS to determine the impact of the additional Plant No. 2 discharge on the POTW and receiving water. The results are presented in Appendix A. As indicated, the impact is insignificant.

The concentration of 1,1,1-trichloroethane in the untreated water was initially projected to average 0.34 mg/l with peak concentrations as high as 2-4 mg/l. Based on these projections, the tray stripper flow rate would be limited to 2 gal/min in order to maintain the proper air to water ratios required to achieve the effluent limitations.

TABLE 3

TOWN OF GARDINER EFFLUENT CONCENTRATION LIMITS

PARAMETER	DISCHARGE CONCENTRATION LIMITS (mg/l) unless otherwise noted
Cadmium	0.2
Hex. Chromium	0.1
Total Chromium	2.0
Copper	0.4
Lead	0.1
Mercury	0.1
Nickel	2.0
Zinc	0.6
Arsenic	0.1
Available Chlorine	50.0
Cyanide-Free	0.2
Cynaide-Complex	0.8
Selenium	0.1
Sulphide	3.0
Barium	2.0
Manganese	2.0
Gold	0.1
Silver	0.1
Flourides	
*To fresh water	2.0
*To saline water	18.0
Phenol	2.0
BOD	240
COD	600
Chlorine demand	25
TSS	300
Flow (gal/day)	3000
pH (SU)	5.5-9.5
Oil & grease	100

*If water is fluoridated, multiply by 1.5.

REQUIRED PERMITS

Plant No. 1

An air permit is not required for the vent from the storage tank. A Part 360 permit is not required for the storage of the wastewater. A building permit from the Town of Gardener is required for the expansion of the building.

Water Tank Truck

A Part 364 transporter permit is required for the water tank truck to convey the wastewater from Plant No. 1 to Plant No. 2. VirTis applied for this permit on 26 September 1989. A copy of the application is presented in Appendix B.

Plant No. 2

An air permit is required for the emissions from the new tray stripper. VirTis applied for this permit in 3 October 1989. A copy of the application is presented in Appendix B.

LMS was initially advised by NYSDEC staff that a 360 permit would not be needed for the treatment system because the wastewaters would be discharged to SPDES-permitted POTW and was therefore exempted from the permitting requirements of Part 360. On 13 October NYSDEC staff informed LMS that the 364 transporter permit would not be issued until a 360 permit had been issued. Because of this denial, VirTis is requesting a ruling from NYSDEC on the applicability of the permitting requirements of Part 360 to the Plant No. 2 system including the requirements of the POTW exemption of Paragraph 360-1.7(b)(8).

VirTis is not required to obtain a permit or other formal permission from the town to discharge from Plant No. 2

SCHEDULE

VirTis has already completed construction of the air stripping system at Plant No. 2 and purchased and registered the water tank truck.

The building permit was in issued October 1989 by the Town of Gardiner for the building expansion at Plant No. 1. Construction started that same month. It is anticipated that the construction, including the wastewater handling system shown in Figure 1, will be completed by 1 March 1990.

The applications for the Part 364 transporter permit and Plant No. 2 air permit have already been submitted by VirTis to NYSDEC. The system will be made operational as soon as these permits are issued by NYSDEC assuming that NYSDEC rules, after further review, that a Part 360 Permit is not required for Plant No. 2.

If after further review, NYSDEC rules that a Part 360 permit is required, VirTis will submit within 60 days after that ruling a Part 360 permit application or a revised engineering report that presents a plan and specifications for a system that does not require a Part 360 permit.

PLANT No. 1 SPDES PERMIT

The objective of this wastewater management plan is to divert all contaminated process wastewaters away from Outfall No. 1. VirTis will continue to comply with the monitoring requirements of its

SPDES permit. Assuming that the plan successfully achieves this objective, VirTis will submit an application to amend the SPDES permit so as to eliminate the monitoring requirements.

APPENDIX A

WASTEWATER SAMPLING ASSOCIATED WITH THE GARDINER STP

Lawler, Matusky & Skelly Engineers

Environmental Science & Engineering Consultants

JOHN P. LAWLER, P. E.
FELIX E. MATUSKY, P. E.
MICHAEL J. SKELLY, P. E.
KARIM A. ABOOD, P. E.
PATRICK J. LAWLER, P. E.
FRANCIS M. McGOWAN, P. E.
THOMAS L. ENGLERT, P. E.
PETER M. McGRODDY, P. E.

ONE BLUE HILL PLAZA
P.O.BOX 1509
PEARL RIVER, NEW YORK 10965
(914) 735-8300
FACSIMILE (914) 735-7466

17 January 1989
File No. 442-086

Mr. Ted Sutherland
The VirTis Company
Route 208
Gardiner, NY 12525

Re: WASTEWATER SAMPLING
GARDINER STP AND VIRTIS PLANT No. 2

Dear Mr. Sutherland:

The purpose of this letter report is to discuss the results of the wastewater sampling conducted by Lawler, Matusky & Skelly Engineers (LMS) on 15 December 1988. The purpose of the sampling program was to evaluate VirTis' proposal to move operations to VirTis Plant No. 2 and to install a new wastewater pretreatment plant at that location. As part of the investigation, aqueous samples were collected from the VirTis Plant No. 2 groundwater supply, the discharge of the VirTis plant septic tank to the town sanitary sewer, the raw influent and treated effluent of the town sewage treatment plant (STP) and the Wallkill River upstream of the STP. A sample of the STP sludge was also collected. The sampling was conducted to help assess the potential impact of the proposed additional discharge of treated wastewater to the sewer at Plant No. 2.

All samples were analyzed for six metals present in the VirTis Plant No. 1 wastewater: aluminum, chromium, copper, iron, lead and zinc. The VirTis sewage, STP influent and effluent, and river samples were also tested for oil and grease, total phenols (4AAP method) and USEPA Method 601 volatile organic compounds and toluene. The analyses were conducted by CAMO Laboratories, a NY State certified laboratory in Poughkeepsie.

The analytical results, including chain of custody documentation, are attached to this letter and summarized in Table 1. Comparable concentrations of the several parameters were measured in the VirTis sewage effluent and STP influent. The STP was found to be effectuating excellent removal, particularly for organics, aluminum, iron, zinc, phenols and oil and grease. Nothing was uncovered that suggests that the proposed changes at VirTis Plant No. 2

should not be implemented. These results are discussed in more detail below.

Volatile Organics

1,1,1-trichloroethane (0.038 mg/l) and a degredation product of that chemical (1,1-dichloroethylene 0.007 mg/l) were detected in the VirTis sewage at Plant No. 2. These chemicals were not detected at the STP or river. The source of the chemicals was subsequently found by you to be hand-wiping of parts with Sheila Shine Liquid, which is 25-30% 1,1,1-trichloroethane, and subsequent handwashing. You indicated that because of these recent findings, VirTis has discontinued its use of Sheila Shine Liquid. A repeat sampling for volatiles will be conducted in another couple of months to confirm that this action was effective.

A trace (0.011 mg/l) concentration of toluene was detected in the VirTis sewage. This is an environmentally insignificant concentration, which is probably a result of handwashing. The proposal outlined in my 15 December 1988 letter to you would not add further to the toluene discharge, and, in fact, would dilute it.

Considering the primarily domestic origin of the wastes treated by the town, toluene influent to the STP is unexpectedly high (0.10 mg/l). This chemical is removed from the wastewater during the treatment process at the STP.

Oil and Grease

Low concentrations of oil and grease were found in the VirTis sewage and STP influent. Within the limit of analytical detection, no oil and grease was found in the STP effluent. Therefore, the STP appears to be effectuating complete removal.

Phenols

Phenols were detected in the VirTis effluent (0.15 mg/l) and in the STP influent at a somewhat higher concentrations (0.261 mg/l). The STP is effectuating 93% removal of this chemical group. No phenols were detected in the river.

Metals

Except for aluminum, all of the metals tested for appear to be a result of the raw well water supply. This is likely the case

throughout the town as the VirTis effluent and STP influent samples have comparable concentrations.

Some metals are slightly removed in the VirTis septic tank. The ability of the STP to remove metals from the wastewater is markedly high. Aluminum appears to be completely removed (within limits of detection). Iron and zinc are subject to removal rates of 82% and 94%, respectively. These removals are also evidenced by the concentrations for these three metals in the STP sludge.

Except for iron, the metals concentrations in the Wallkill River are low. With the river flow being on the order of 1000 cfs at the time of sampling (this is being checked with the USGS), the iron is probably a result of natural sources.

Summary

Based on the sampling data, the discharge characteristics projected in my letter of 15 December have been slightly revised, as summarized in Table 2. These revisions are insignificant and accordingly there is no technical or environmental reason why VirTis can not proceed with the proposal outlined on 15 December. I have discussed these findings with John Sansalone of NYSDEC and confirmed with him that VirTis would not be a Significant Industrial User (SIU) under this proposal.

LMS is now proceeding with final design of the proposed air stripping system and completion of the related environmental permit applications to NYSDEC.

Yours very truly,

Stuart E. Bassell, P.E.
Project Manager

SEB/esm

Encl.

TABLE 1

SAMPLING OF 15 DECEMBER 1988

PARAMETER	WATER CONCENTRATION (mg/l) VIRTIS WELL WATER	VIRTIS SEWAGE	STP INFLUENT	STP EFFLUENT	WALLKILL RIVER	STP SLUDGE CONCENTRATION (mg/kg)
Aluminum	<0.2	0.6	0.4	<0.2	0.2	11,750
Chromium	<0.03	<0.03	<0.03	<0.03	<0.03	18
Copper	0.08	0.12	0.04	0.03	0.01	122
Iron	1.5	1.2	0.33	0.06	0.21	25,880
Lead	0.017	<0.005	0.005	<0.005	<0.005	20
Zinc	0.28	0.34	0.16	0.01	<0.01	245
Oil and grease		25	17	<4	<2	
Total phenols		0.15	0.261	0.019	<0.01	
Toluene		0.011	0.10	<0.001	<0.001	
Method 601 Volatiles						
1,1,1-trichloroethane		0.035	<0.001	<0.001	<0.001	
1,1-dichloroethylene		0.007	<0.001	<0.001	<0.001	
Others		ND	ND	ND	ND	

< - less than (none detected)
ND - none detected
blank space - not tested

TABLE 2

REVISED PLANT No. 2 EFFLUENT PROJECTIONS

PARAMETERS	CONCENTRATIONS (mg/l) BEFORE PRE-TREATMENT	AFTER PRE-TREATMENT	AFTER MIXING WITH OTHER VIRTIS WASTEWATERS	LIMITATION IN SEWER USE ORDINANCE
Volatile organics	0.1-12	non-detect	non-detect[a]	non-detect
Phenols	0.02	0.02	0.1-0.2[b]	2.0
Iron	2-7	2-7	0.4-0.7[b]	not limited
Aluminum	1-3	1-3	1-3	not limited
Zinc	0.2-8	0.2-8	0.3-0.8[b]	not limited
Copper	0.1	0.1	0.1	0.4
Lead	0.005	0.005	0.005	0.1
Chromium	not tested	not tested	0.05	2.0
Oil/grease	400-800	30-40	30-40[b]	100
pH (S.U.)	not tested	not tested	6.5-6.9	5.5-9.5

[a]Trace (0.011 mg/l) toluene may be present.
Town STP influent is 0.10 mg/l.
[b]Revised.

CAMO LABORATORIES

A DIVISION OF CAMO POLLUTION CONTROL, INC.

POUGHKEEPSIE AREA FACILITY:
CAMO LABORATORY
367 VIOLET AVENUE
POUGHKEEPSIE, N.Y. 12601
(914) 473-9200
FAX 914-473-1962

January 9, 1989

Dear Client:

Enclosed please find your sample results and our invoice for services rendered.

All analytical methods comply with those specified in APHA "Standard Methods" and/or EPA "Approved Methods".

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

We hope our services are to your satisfaction and, we look forward to doing future business with you.

Very truly yours,

CAMO LABORATORIES

John F. Eisenhardt
Director of
Measurement Services

REC'D QAS
JAN 18 1989

Complete Laboratory Facilities for Wastewater, Water and Air Analysis
New York State Department of Health Approved

CAMO LABORATORIES
367 VIOLET AVENUE
POUGHKEEPSIE, NEW YORK 12601
(914) 473-9200
FED. I.D. #14-1514539
NYS LAB ID NO.: 10310

Lawler, Matusky & Skelly Engineers
53 Hudson Avenue
Nyack, New York 10960

Attn: QA Department

Date of Invoice: 01/09/89
P.O. #: 24618
Typed by: dsh
Invoice #: 88-12-5558

LMS Project No.: 442-086

Analytical Report

Date Samples Collected: 12-15-88
Date Samples Received: 12-15-88
Samples Collected By: Client
Samples Delivered By: Client
Matrix: Water

Sample Identification

A. Virtis Well Water
B. Virtis Sewage
C. Gardiner STP Influent
D. Gardiner STP Effluent
E. Gardiner STP Sludge
F. Wallkill River

Parameters	Unit/ Measure	A	B	C	D	E	F
Metals							
Aluminum	mg/L	<0.2	0.6	0.4	<0.2	11,750 mg/kg	0.2
Chromium	mg/L	<0.03	<0.03	<0.03	<0.03	18 mg/kg	<0.03
Copper	mg/L	0.08	0.12	0.04	0.03	122 mg/kg	0.01
Iron	mg/L	1.5	1.2	0.33	0.06	25,880 mg/kg	0.21
Lead	mg/L	0.017	<0.005	0.005	<0.005	20 mg/kg	<0.005
Zinc	mg/L	0.28	0.34	0.16	0.01	245 mg/kg	<0.01
Oil & Grease	mg/L		25	17	<4		<2
Toluene	ug/L		11	100	<1		<1
Total Phenols	ug/L		150	261	19		<10
EPA Method 601	ug/L		*	*	*		*

Analysis Comments: * See attached tables.

Comments: All samples will be discarded after twenty-one (21) days or EPA Holding time, whichever is shorter, unless we are notified otherwise.

Hazardous waste samples will be returned to client.

Analytical Methods: All analytical methods comply with those specified in APHA "Standard Methods" and/or EPA approved methods.

CAMO LOG NO.: 88-12-5558

VOLATILES

METHOD 601

PARAMETERS	SAMPLE IDENTIFICATION			
	B Virtis Sewage	C Gardiner STP Influent	D Gardiner STP Effluent	F Wallkill River
Chloromethane	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1
Vinyl Chloride	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1
Methylene Chloride	<1	<1	<1	<1
1,1-Dichloroethylene	7	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1
Trans-1,2-Dichloroethylene	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1
1,1,1-Trichloroethane	38	<1	<1	<1
Carbon Tetrachloride	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1

NOTE: All results expressed in ug/L unless noted otherwise.

CAMO LOG NO.: 88-12-5558

VOLATILES

METHOD 601

PARAMETERS	SAMPLE IDENTIFICATION			
	B Virtis Sewage	C Gardiner STP Influent	D Gardiner STP Effluent	F Wallkill River
Trans-1,3-Dichloropropene	<1	<1	<1	<1
Trichloroethylene	<1	<1	<1	<1
Dibromochloromethane	<1	<1	<1	<1
Cis-1,3-Dichloropropene	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1
2-Chloroethylvinyl Ether	<10	<10	<10	<10
Bromoform	<1	<1	<1	<1
Tetrachloroethylene	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1

NOTE: All results expressed in ug/L unless noted otherwise.

LAWLER, MATUSKY & SKELLY ENGINEERS Page 1 of ___

CHAIN OF CUSTODY RECORD

PROJECT No. 442-086

LMS FACILITY NYACK

PROJECT ___

COLLECTION SITE GARDINER STP

FIELD PERSONNEL D. KASSELL

SAMPLE TYPE (Circle):

Drinking Water | Stream/Pond | Monitoring Wells | Bottom Sediment

Industrial Waste | (River/Ocean) | (Treatment Facility) | Soil

Coliform (T / F) | Leachate | Other ___

SAMPLE ID NUMBER	DATE	TIME	SAMPLE SITE	PARAMETERS	SAMPLE PREP: PRESERVATIVE	SAMPLE PREP: FILTER (Y/N)
9099	12/15/88	1117	GARDINER STP INFLUENT	VOAS 601 V1	4°C	
9098				V2		
9093				METALS AL, CR CU FE PB, ZN	HNO3	
9095				OIL + GREASE	H2SO4	
9094				TOTAL PHENOLS	H2SO4	
9097 V1 9096 V2				TOLUENE	4°C	
9086 V1 9087 V2		1140	GARDINER STP EFFLUENT	VOAS 601		
9088 V1 9092 V2				TOLUENE		
9091				METALS AL, CR, CU FE, PB, ZN	HNO3	
9089				OIL + GREASE	H2SO4	
9092				TOTAL PHENOLS		
9083		1200	GARDINER STP SLUDGE	METALS. AL, CR, CU FE PB ZN	4°C	
9082 V1 9081 V2		1225	WALLKILL RIVER	VOAS 601		
9080 V1 9079 V2				TOLUENE		
9076				METALS ZN AL, CR, PB, CU, FE	HNO3	
9078				OIL + GREASE	H2SO4	

Relinquished By: D. KASSELL | Date/Time: 12/15/88 152 | No. Bottles: 22 | Received By:

Relinquished By: | Date/Time: | Received By:

Relinquished By: | Date/Time: | Received By:

Messenger: | Shipped To: | Received at Laboratory By: Carrie Stickler

Remarks:

One Blue Hill Plaza, Pearl River, New York 10965
(914) 735-8300
Sample Drop-Off: 53 Hudson Avenue, Nyack, New York 10960

LAWLER, MATUSKY & SKELLY ENGINEERS
CHAIN OF CUSTODY RECORD

PROJECT No. 442-086

LMS FACILITY NYACK

PROJECT COLLECTION SITE GARDINER STP

FIELD PERSONNEL D. KASSELL

SAMPLE TYPE (Circle):
Drinking Water, Industrial Waste, Coliform (T / F), Stream/Pond, River/Ocean, Leachate, Monitoring Wells, Treatment Facility, Other_____, Bottom Sediment, Soil

SAMPLE ID NUMBER	DATE	TIME	SAMPLE SITE	PARAMETERS	SAMPLE PREP PRESERVATIVE	SAMPLE PREP FILTER (Y/N)
9077	12/15/88	1220	WALLKILL RIVER	TOTAL PHENOLS	H_2SO_4	N

Relinquished By: D. KASSELL | Date/Time: 12/15/88 1520 | No. Bottles: 22 | Received By:

Relinquished By: | Date/Time: | Received By:

Relinquished By: | Date/Time: | Received By:

Messenger: | Shipped To: | Received at Laboratory By: Carrie Stickler

Remarks:

One Blue Hill Plaza, Pearl River, New York 10965
(914) 735-8300
Sample Drop-Off: 53 Hudson Avenue, Nyack, New York 10960

LAWLER, MATUSKY & SKELLY ENGINEERS

CHAIN OF CUSTODY RECORD

PROJECT No. 4447-084

PROJECT V. RTIS

LMS FACILITY NYACK

COLLECTION SITE

FIELD PERSONNEL D. KASSELL

SAMPLE TYPE (Circle):

Drinking Water | Stream/Pond | Monitoring Wells | Bottom Sediment

Industrial Waste | River/Ocean | Treatment Facility | Soil

Coliform (T / F) | Leachate | Other

SAMPLE ID NUMBER	DATE	TIME	SAMPLE SITE	PARAMETERS	SAMPLE PREP: PRESERVATIVE	SAMPLE PREP: FILTER (Y/N)
9075	12/15/88	1340	V.RTIS WELL WATER	METALS AL, CR, ZN, CU, FE, PB	HNO3	N
9074 U1 9073 U2		1355	V.RTIS SEWAGE	VOAS 601	4°C	
9072 U1 9071 U2				TOLUENE	↓	
9070				METALS AL, CR, CU, FE, ZN, PB	HNO3	
9069				OIL + GREASE	H2SO4	
9068	↓	↓	↓	TOTAL PHENOLS	↓	↓

Relinquished By: D. KASSELL	Date/Time: 12/15/88 1530	No. Bottles: 8	Received By:
Relinquished By:	Date/Time:		Received By:
Relinquished By:	Date/Time:		Received By:
Messenger:	Shipped To:	Received at Laboratory By: Carrie Stickler	

Remarks:

One Blue Hill Plaza, Pearl River, New York 10965

(914) 735-8300

Sample Drop-Off: 53 Hudson Avenue, Nyack, New York 10960

APPENDIX B

APPLICATIONS FOR AIR AND PART 364 TRANSPORTER PERMITS

THE VIRTIS COMPANY, INC.

RESEARCH EQUIPMENT FOR THE LIFE SCIENCES ROUTE 208, GARDINER, NEW YORK 12525 • 914 255-5000 • TELEX 926474

October 3, 1989

Mr. Ralph Manna
New York State Department
of Environmental Conservation
21 South Putt Corners Road
New Paltz, NY 12561

Dear Mr. Manna:

Re: Consent Order File No. R3-1518-8805
Air Permit Application for Minor Discharge

In order to bring our company into compliance with subject consent order, a wastewater air stripper system is required to remove V.O.C.'s before discharging our metal finishing wastewaters to the Gardiner, N. Y. municipal sewer system.

We have advised Gardiner officials that we will be in compliance with their ordinance, and not cause them to exceed their SPDES limitations. We have done preliminary testing of the town system for parameters of concern, and we will be testing our Plant #2 effluent to assure effective treatment of the discharge (VirTis Plant #2 in the hamlet is presently connected to the hamlet system).

The enclosed air permit application is for the blower discharge from the air stripper. The stripper will be required to operate through a 24 hour period once per week to accomplish the water purification task. Please contact me if there are any questions or if there is additional information required.

Very truly yours,

David T. Sutherland
Vice-President, Engineering

DTS:dg
Encs.: Plot Plan Drawing
Process Unit Drawing
Air Permit Application
Fee
cc: Stuart Bassell, Lawler, Matusky & Skelly Engineers
Kevin Young, Whiteman, Osterman & Hanna

LOCATION | FACILITY | EMISSION POINT

A ADD
C CHANGE
D DELETE

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

COPIES
WHITE - ORIGINAL
GREEN - DIVISION OF AIR
WHITE - REGIONAL OFFICE
WHITE - FIELD REP
YELLOW - APPLICANT

PROCESS, EXHAUST OR VENTILATION SYSTEM

APPLICATION FOR PERMIT TO CONSTRUCT OR CERTIFICATE TO OPERATE

1. NAME OF OWNER/FIRM: The Virtis Company
2. NUMBER AND STREET ADDRESS: Route 208
3. CITY-TOWN-VILLAGE: Gardiner
4. STATE: NY
5. ZIP: 12525
6. OWNER CLASSIFICATION: A. [ ] COMMERCIAL B. [X] INDUSTRIAL C. [ ] UTILITY D. [ ] FEDERAL E. [ ] STATE F. [ ] MUNICIPAL G. [ ] EDUC. INST. H. [ ] HOSPITAL I. [ ] RESIDENTIAL J. [ ] OTHER
7. NAME & TITLE OF OWNERS REPRESENTATIVE: David T. Sutherland, Vice President
8. TELEPHONE: 914/ 255-5000
9. NAME OF AUTHORIZED AGENT:
10. TELEPHONE:
11. NUMBER AND STREET ADDRESS:
12. CITY-TOWN-VILLAGE:
13. STATE:
14. ZIP:
15. NAME OF P.E. OR ARCHITECT PREPARING APPLICATION: Patrick J. Lawler
16. N.Y.S. P.E. OR ARCHITECT LICENSE NO.: 045152
17. TELEPHONE: 914/ 735-8300
18. SIGNATURE OF OWNERS REPRESENTATIVE OR AGENT WHEN APPLYING FOR A PERMIT TO CONSTRUCT: [signature]
19. FACILITY NAME (IF DIFFERENT FROM OWNER/FIRM):
20. FACILITY LOCATION (NUMBER AND STREET ADDRESS): 23 Second St.
21. CITY-TOWN-VILLAGE: Gardiner, NY
22. ZIP: 12525
23. BUILDING NAME OR NUMBER: Plant 2
24. FLOOR NAME OR NUMBER: Floor 1
25. START UP DATE: 9 / 89 (MO / YR)
26. DRAWING NUMBERS OF PLANS SUBMITTED: 001, 002
27. PERMIT TO CONSTRUCT: A. [X] NEW SOURCE B. [ ] MODIFICATION
28. CERTIFICATE TO OPERATE: A. [ ] NEW SOURCE B. [ ] MODIFICATION C. [ ] EXISTING SOURCE

29. EMISSION POINT ID.	30. GROUND ELEVATION (FT.)	31. HEIGHT ABOVE STRUCTURES (FT.)	32. STACK HEIGHT (FT.)	33. INSIDE DIMENSIONS (IN.)	34. EXIT TEMP (°F)	35. EXIT VELOCITY (FT/SEC)	36. EXIT FLOW RATE (ACFM)	37. SOURCE CODE	38. HRS/DAY	39. DAYS/YR	40. % OPERATION BY SEASON Winter / Spring / Summer / Fall
001	310	1	17	4	50-90	27	140		17	52	25 / 25 / 25 / 2[illegible]

41. DESCRIBE PROCESS OR UNIT:
1. Air stripper to pretreat wastewater prior to discharge to sanitary sewer. Wastewater is derived from tumbling
3. parts cleaning and solvent degreasing operations.

EMISSION CONTROL EQUIPMENT I.D.	CONTROL TYPE	MANUFACTURER'S NAME AND MODEL NUMBER	DISPOSAL METHOD	DATE INSTALLED MONTH / YEAR	USEFUL LIFE
42.	43.	44.	45.	46. /	47.
48.	49.	50.	51.	52. /	53.

CALCULATIONS

PARAMETER:	INFLUENT CONC. (ug/l)[a]	X	FLOW (gal/hr)	X	8.34×10^{-9}	=	EMISSION (lb/hr)
1,1,1-Trichloroethane	4000						0.004
1,1-Dichloroethane	100	X	120		8.34×10^{-9}	=	0.0001
Toluene	100		peak				0.0001
Trichloroethylene	100		flow				0.0001
Tetrachloroethylene	10						0.00001

[a] Projected peak influent concentration; average will be less. Calculations assume 100% of all volatiles will be stripped.

CONTAMINANT NAME	CAS NUMBER	INPUT OR PRODUCTION	UNIT	ENV. RATING	EMISSIONS ACTUAL	EMISSIONS UNIT	EMISSIONS HOW DET	EMISSIONS PERMISSIBLE	% CONTROL EFFIC'CY	HOURLY EMISSIONS (LBS/HR) ERP	HOURLY EMISSIONS (LBS/HR) ACTUAL	ANNUAL EMISSIONS (LBS/YR) ACTUAL	ANNUAL EMISSIONS 10^x	ANNUAL EMISSIONS PERMISSIBLE
54. 1,1,1-Trichloroethane	55. 71-55-6	56.	57.	58.	59. 4	60. 2	61. 6	62.	63. 0	64. 0.004	65. 0.004	66. 3	67. 0	68.
69. 1,1-Dichloroethane	70. 75-34-3	71.	72.	73.	74. 0.1	75. 2	76. 6	77.	78. 0	79. 0.0001	80. 0.0001	81. 0.1	82. 0	83.
84. Toluene	85. 108-88-3	86.	87.	88.	89. 0.1	90. 2	91. 6	92.	93. 0	94. 0.0001	95. 0.0001	96. 0.1	97. 0	98.
99. Trichloroethylene	100. 79-01-6	101.	102.	103.	104. 0.1	105. 2	106. 6	107.	108. 0	109. 0.0001	110. 0.0001	111. 0.1	112. 0	113.
114. Tetrachloroethylene	115. 127-18-4	116.	117.	118.	119. 0.01	120. 2	121. 6	122.	123. 0	124. 0.00001	125. 0.00001	126. 0.01	127. 0	128.
129.	130. - -	131.	132.	133.	134.	135.	136.	137.	138.	139.	140.	141.	142.	143.

SOLID FUEL TYPE	SOLID FUEL TONS/YR	SOLID FUEL %S	LIQUID FUEL TYPE	LIQUID FUEL THOUSANDS OF GALLONS/YR	LIQUID FUEL %S	GAS TYPE	GAS THOUSANDS OF CF/YR	GAS BTU/CF	APPLICABLE RULE	APPLICABLE RULE
144.	145.	146.	147.	148.	149.	150.	151.	152.	153.	154.

on completion of construction sign the statement listed below and forward to the appropriate field representative
E PROCESS, EXHAUST OR VENTILATION SYSTEM HAS BEEN CONSTRUCTED AND WILL BE OPERATED IN ACCORDANCE WITH STATED ECIFICATIONS AND IN CONFORMANCE WITH ALL PROVISIONS OF EXISTING REGULATIONS.

155. SIGNATURE OF AUTHORIZED REPRESENTATIVE OR AGENT | DATE

156. LOCATION CODE	157. FACILITY ID. NO.	158. U.T.M. (E)	159. U.T.M. (N)	160. SIC NUMBER	161. DATE APPL. RECEIVED	162. DATE APPL. REVIEWED	163. REVIEWED BY:
					/ /	/ /	

AGENCY USE ONLY

PERMIT TO CONSTRUCT

164. DATE ISSUED	165. EXPIRATION DATE	166. SIGNATURE OF APPROVAL	167. FEE
/ /	/ /		

168.
1. DEVIATION FROM APPROVED APPLICATION SHALL VOID THIS PERMIT
2. THIS IS NOT A CERTIFICATE TO OPERATE
3. TESTS AND/OR ADDITIONAL EMISSION CONTROL EQUIPMENT MAY BE REQUIRED PRIOR TO THE ISSUANCE OF A CERTIFICATE TO OPERATE

CERTIFICATE TO OPERATE

169. DATE ISSUED	170. EXPIRATION DATE	171. SIGNATURE OF APPROVAL	172. FEE
/ /	/ /		

173.
1. [ ] INSPECTED BY ____________ DATE ________
2. [ ] INSPECTION DISCLOSED DIFFERENCES AS BUILT VS. PERMIT, CHANGES INDICATED ON FORM
3. [ ] ISSUE CERTIFICATE TO OPERATE FOR SOURCE AS BUILT
4. [ ] APPLICATION FOR C.O. DENIED ________ DATE ________ INITIALED

174. SPECIAL CONDITIONS:

1.	2.
3.	4.
5.	6.
7.	8.

THE VIRTIS COMPANY, INC.

RESEARCH EQUIPMENT FOR THE LIFE SCIENCES ROUTE 208, GARDINER, NEW YORK 12525 • 914 255-5000 • TELEX 926474

September 26, 1989

New York State Department of
Environmental Conservation
Division of Hazardous Substances Regulation
50 Wolf Road, Room 205
Albany, New York 12233-7252

Dear Sirs:

Enclosed is our application for a Part 364 Transporter permit.

We shall be trucking one run per week of approximately 2000 gallons of non hazardous wastewater from our Plant #1 facility two miles to our Plant #2 facility which is connected to the Gardiner, N.Y. municipal sewer system. We will be pretreating to remove V.O.C.'s, then discharging over a 24-hour period to the municipal system.

Our consultants, Lawler Matusky and Skelly have advised Gardiner officials and discussed the details with the engineer for the town sewer plant. We have assured them that we will be in full compliance with their sewer ordinance, and that we will test periodically to ensure on-going compliance with both the ordinance and their SPDES permit.

The Gardiner ordinance allows industrial use when less than 3000 GPD, while our average flow will be less than 300 GPD and 2000 GPD on the one day per week that the pre-treatment system is in operation discharging the weekly accumulation.

We are anxious to begin operation since we are presently discharging to groundwater at our Plant #1 under Consent Order File #R3-1518-8805.

If this application is incomplete or cannot be processed for any reason, please contact me so that I can supply any additional information required. Also, L.M.S. correspondence is enclosed relating to the various permits required, see page 1 and 2 "Solid Waste Permits."

Very truly yours,

David T. Sutherland
Vice-President, Engineering

DTS:dg
Encs.: L.M.S. File Memo 442-086 to Whiteman Osterman & Hanna
cc: Stuart Bassell, L.M.S.
Kevin Young, W.O.H.

47-19-9 (5/84)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID AND HAZARDOUS WASTE

WASTE TRANSPORTER PERMIT APPLICATION—6 NYCRR Part 364

PART A—Applicant Information

1. APPLICANT BUSINESS NAME: THE VIRTIS COMPANY
2. NYSDEC PERMIT NUMBER: ☐☐ — ☐☐☐
3. MAILING ADDRESS
STREET: ROUTE 208
CITY: GARDINER
STATE: NY
ZIP CODE: 12525
COUNTY: ULSTER
4. EPA ID NUMBER:
5. CONTACT PERSON: DAVID SUTHERLAND
6. PHONE NUMBER: (914) 255-5000
7. CHECK
☒ New Application ☐ Renewal ☒ Proof of Insurance Attached ☒ Permit Fee Attached $ 25

WASTE TRANSPORTER PERMIT APPLICATION—6 NYCRR Part 364

PART B—Vehicle Information

1. APPLICANT BUSINESS NAME (for Modifications only): THE VIRTIS COMPANY
2. NYSDEC PERMIT NUMBER (For Modifications only) NEW: ☐☐ — ☐☐☐
3. VEHICLE FEE ATTACHED (for modification only): NEW APPL. $
4. TOTAL NUMBER OF VEHICLES: 1
5. LOCATION WHERE VEHICLES ARE GARAGED:
STREET: ROUTE 208
CITY: GARDINER
STATE: N.Y.
ZIP CODE: 12525

6. License Number	7. State	8. Capacity	9. Units	10. Make	11. Type	12. Delete	13. Add
GG3163	NY	2000	01	GMC	TANK		X

14. I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

SIGNATURE: D. T. Sutherland
PRINTED OR TYPED NAME: DAVID T. SUTHERLAND
TITLE: VICE PRESIDENT
DATE: 9/20/89

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water, Region 3
100 Hillside Avenue, Suite 1W, White Plains, NY 10603
P: (914) 428-2505 | F: (914) 428-0323
www.dec.ny.gov

September 20, 2018

Thomas Francese
The Virtis Company, Inc.
815 Route 208
Gardiner, NY 12525

Re: **Remedial Progress and Remediation System Modifications Basis of Design Reports**
The VirTis Company
Gardiner, Ulster County
SPDES #: NY0218855; Consent Order #: R3-1518-8805-A

Dear Mr. Francese:

The Department has reviewed the Remedial Progress Report dated August 2018, and the Basis of Design Report for Remediation System Modifications dated August 30, 2017, last revised August 9, 2018, prepared by TRC Engineers, Inc. The Reports are acceptable and hereby approved.

Your cooperation in operating and maintaining this facility, complying with your SPDES permit and the protection of New York's Waters is appreciated.

Should you have any questions, please contact Wayne Mizerak at (518) 402-9657.

Very truly yours,

Adedayo Adewole, P.E
Professional Engineer 1 (Environmental)

Wayne Mizerak, Remedial Section, Division of Environmental Remediation
Dan Warren, Senior Project Manager, TRC Engineers Inc.