



**NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.**  
16 STATE STREET, MONTPELIER, VERMONT 05602  
802/223-7220 FAX 802/223-7128

February 13, 1998

Mr. James W. Berg  
NH Department of Environmental Services  
Solid Waste Compliance Section  
6 Hazen Drive  
Concord, NH 03301-0509  
{Via fax (603) 271-2456 and U.S. Mail : 9 pages}



**RE: North Country Environmental Services, Inc. (NCES) - Bethlehem, NH  
Env-Wm 2506.08 Leachate Management Requirements  
Secondary Leachate Generation for January 6-February 13, 1998**

Dear Mr. Berg:

As was explained in our correspondence of January 13, 1998, we have experienced an increase in the rate at which liquid is entering the secondary leachate collection systems at the NCES Facility. We have noted a correlation between the dates of rainfall and snow melt and the increased flows and believe that stormwater is entering the secondary leachate collection systems. To verify this belief we sampled the Stage I Phase 3 secondary collection system and enclosed the laboratory report for your reference. The BOD concentration of this leachate is well below the levels detected in the primary system for this area, thus suggesting stormwater entering the secondary system. We have also enclosed the Secondary Leachate Flow Spreadsheets and Rainfall Data report for January and February.

It does not appear that the primary and secondary liners were welded together in the anchor trench when installed, which was prior to NCES' purchase of the facility. As explained in previous reports, we believe that the liquid is likely entering the system between the primary and secondary liners. In our January 13, 1998 report, we explained that the presence of stormwater in perimeter swales is likely producing a situation where head exists above the top of the anchor trench. We retained Vermont Survey and Engineering, Inc. to survey the elevation of the invert of the perimeter swale. The survey data indicates that the invert of the swale along the toe of slope adjacent to Phases 3 and 4 was below the top of the liner at the perimeter of the landfill but about one foot higher than designed.

Casella Construction, Inc. was at the site last week taking steps to improve drainage around the facility by deepening the swale. This work was completed on Friday February 6, 1998.




Mr. James Berg, NHDES  
Page 2 of 2  
February 13, 1998

Although we believe the increased flows in the secondary system are a result of conditions associated with the drainage swale at the toe of slope, the snow cover and frost have made it very difficult to assess conditions and implement improvements. Improving the south side drainage was the first step in our plan to resolve this issue. If it is determined necessary, we plan to further improve drainage on the south side by removing the flared end section from the culvert crossing the south access road and replacing it with a stone headwall. Removing the flared end section will shift the invert of the swale about 3 feet further from the anchor trench and deepen it 6 to 10 inches where survey data indicates the top of the liner is at its lowest point. If necessary, we will also take steps to improve drainage on the north side of the landfill.

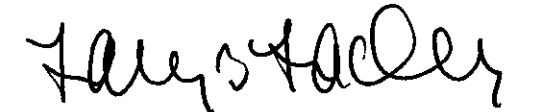
We are concerned about the presence of stormwater in the secondary collection systems and are actively monitoring the flow and taking steps to address the condition. We believe the efforts to improve drainage should reduce the stormwater infiltrating to the secondary system. We will keep you informed as to the status of the situation and any additional measures which may be implemented. Should you have any further questions regarding this matter, please do not hesitate to contact either of us at (802) 223-7220.

Sincerely,

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.



Karen G. Flanders, Staff Engineer (E.I.)  
Permits, Compliance and Engineering



Larry B. Lackey, Vice President  
Permits, Compliance and Engineering

Encl.

c: John W. Casella, New England Waste Services, Inc.  
James W. Bohlig, North Country Environmental Services, Inc.  
William T. Clifton, North Country Environmental Services, Inc.  
R. Scott Shillaber, Sanborn, Head and Associates, Inc.

1/19/98  
c: North Country  
fr: Karen G. Flanders  
Via fax



ANALYTICAL REPORT

P.O. Box 339  
Randolph, Vermont 05060-0339  
(802) 728-6313

Casella Waste Management Inc.  
16 State Street  
Montpelier, VT 05601

Karen Flanders

Work Order No.: 9801-00009

Project Name: NCES Leachate Analysis, from Bethlehem - Weekend  
Customer Nos.: 070338

Date Received: 1/06/98  
Date Reported: 1/15/98

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Sample Desc.:	Stage 1 Phase 3 Sedondary North Country Leachate	Sample Date:	1/05/98			
Sample Nos:	001	Collection Time:	13:00			
Test Performed	Method	Results	Units	Analyst	Analysis Date	Time
BOD5	SM18 5210D	39	mg/L	GAG	1/06/98	9:27
COD	SM18 5220	88	mg/L	GAG	1/15/98	

Authorized by: Joann S Wood

NORTH COUNTRY ENVIRONMENTAL SERVICE INC.  
 STAGE I  
 1998 SECONDARY LEACHATE FLOW MONTHLY REPORT

January  DAY	PHASE I		PHASE II		PHASE III		PHASE IV	
	(Gallons)	(G/A/D) period of pumping	(Gallons)	(G/A/D) period of pumping	(Gallons)	(G/A/D) period of pumping	(Gallons)	(G/A/D) period of pumping
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	1069	10.05	862	22.68	1056	11.89
6	0	0	0	0	1124	295.79	987	266.76
7	0	0	0	0	1479	389.21	668	180.54
8	0	0	1560	136.84	2709	712.89	3642	984.32
9	0	0	2418	636.32	90	23.68	0	0
10	0	0	1433	377.11	0	0	0	0
11	0	0	0	0	0	0	0	0
12	0	0	0	0	516	45.26	684	46.22
13	0	0	0	0	6032	1587.37	3390	916.22
14	0	0	0	0	6115	1609.21	0	0
15	0	0	0	0	2393	629.74	1540	208.11
16	0	0	0	0	3385	890.79	0	0
17	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0
19	0	0	1168	34.15	2232	195.79	0	0
20	0	0	0	0	0	0	0	0
21	0	0	0	0	757	99.61	0	0
22	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0
26	0	0	0	0	1321	69.53	0	0
27	0	0	0	0	0	0	0	0
28	0	0	0	0	105	13.82	1026	21.33
29	0	0	0	0	315	82.89	0	0
30	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0
<b>Month Average Flow (Gal/Ac/Day)</b>	<b>0.00</b>		<b>64.92</b>		<b>249.87</b>		<b>113.28</b>	

\* Note: The secondary pumping system is automatic and initiated by set probe levels in the sump. The leachate collected within the secondary detection zone drains to the sump. When the liquid level in the sump reaches the probe level, the pump will engage and leachate is removed to the holding tanks. The volumes in this report represent the volume collected in the sump prior to initiation of the pump. The pumps are activated as required to remove the leachate during the given period.

NORTH COUNTRY ENVIRONMENTAL SERVICE INC.  
 STAGE II  
 1998 SECONDARY LEACHATE FLOW MONTHLY REPORT

January DAY	PHASE I		PHASE II	
	(Gallons)	(G/A/D) period of pumping	(Gallons)	(G/A/D) period of pumping
1	0	0		
2	0	0		
3	0	0		
4	0	0		
5	0	0		
6	0	0		
7	0	0		
8	0	0		
9	0	0		
10	0	0		
11	0	0		
12	0	0		
13	0	0		
14	0	0		
15	0	0		
16	0	0		
17	0	0		
18	0	0		
19	0	0		
20	0	0		
21	0	0		
22	30	0.19		
23	0	0		
24	0	0		
25	0	0		
26	0	0		
27	0	0		
28	0	0		
29	0	0		
30	0	0		
31	0	0		
<b>Month Average Flow (Gal/Ac/Day)</b>	<b>0.26</b>			

\* Phase II is not yet constructed

NORTH COUNTRY ENVIRONMENTAL SERVICES

RAINFALL RECORD

Depth in Inches

01-Jan-98	0.00
02-Jan-98	0.00
03-Jan-98	0.00
04-Jan-98	0.00
05-Jan-98	0.00
06-Jan-98	0.35
07-Jan-98	0.25
08-Jan-98	1.20
09-Jan-98	1.10
10-Jan-98	0.20
11-Jan-98	0.00
12-Jan-98	0.00
13-Jan-98	0.00
14-Jan-98	0.00
15-Jan-98	0.00
16-Jan-98	0.00
17-Jan-98	0.00
18-Jan-98	0.00
19-Jan-98	0.00
20-Jan-98	0.00
21-Jan-98	0.00
22-Jan-98	0.00
23-Jan-98	0.00
24-Jan-98	0.00
25-Jan-98	0.00
26-Jan-98	0.00
27-Jan-98	0.00
28-Jan-98	0.00
29-Jan-98	0.00
30-Jan-98	0.00
31-Jan-98	0.00

Monthly Total: 3.10

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.  
 STAGE I  
 1998 SECONDARY LEACHATE FLOW MONTHLY REPORT

February  DAY	PHASE I		PHASE II		PHASE III		PHASE IV		
	(Gallons)	(G/A/D) period of pumping	(Gallons)	(G/A/D) period of pumping	(Gallons)	(G/A/D) period of pumping	(Gallons)	(G/A/D) period of pumping	
1	0	0	0	0	0	0	0	0	
2	0	0	0	0	317	20.86	407	22.0	
3	0	0	0	0	212	55.79	0	0	
4	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	
9	0	0	0	0	318	13.95	0	0	
10	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	
12	0	0	0	0	317	27.81	0	0	
13	0	0	0	0	421	110.79	0	0	
14	Flow to date								
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
<b>Month Average Flow (Gal/Ac/Day)</b>	<b>0.00</b>		<b>0.00</b>		<b>14.90</b>		<b>3.93</b>		

\* Note: The secondary pumping system is automatic and initiated by set probe levels in the sump. The leachate collected within the secondary detection zone drains to the sump. When the liquid level in the sump reaches the probe level, the pump will engage and leachate is removed to the holding tanks. The volumes in this report represent the volume collected in the sump prior to initiation of the pump. The pumps are activated as required to remove the leachate during the given period.

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.  
 STAGE II  
 1998 SECONDARY LEACHATE FLOW MONTHLY REPORT

February DAY	PHASE I		PHASE II	
	(Gallons)	(G/A/D) period of pumping	(Gallons)	(G/A/D) period of pumping
1	0	0		
2	0	0		
3	0	0		
4	0	0		
5	0	0		
6	0	0		
7	0	0		
8	0	0		
9	0	0		
10	0	0		
11	0	0		
12	0	0		
13	0	0		
14	Flow to date			
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
<b>Month Average Flow (Gal/Ac/Day)</b>	<b>0.00</b>			

\* Phase II is not yet constructed



NORTH COUNTRY ENVIRONMENTAL SERVICES	
RAINFALL RECORD	
Depth in Inches	
01-Feb-98	0.00
02-Feb-98	0.00
03-Feb-98	0.00
04-Feb-98	0.00
05-Feb-98	0.00
06-Feb-98	0.00
07-Feb-98	0.00
08-Feb-98	0.00
09-Feb-98	0.00
10-Feb-98	0.00
11-Feb-98	0.00
12-Feb-98	0.10
13-Feb-98	0.50
14-Feb-98	
15-Feb-98	
16-Feb-98	
17-Feb-98	
18-Feb-98	
19-Feb-98	
20-Feb-98	
21-Feb-98	
22-Feb-98	
23-Feb-98	
24-Feb-98	
25-Feb-98	
26-Feb-98	
27-Feb-98	
28-Feb-98	
Monthly Total:	0.60
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