

New York City MSW Composting Report

Appendix F Data from the New York City Composting Trials

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NMS is the code name that the laboratory assigned to the New York City MSW (residential and institutional waste collected by the Department of Sanitation) as it moved through the Marlborough facility during the NYC Composting Trials.

WERL stands for the Woods End Research Lab, the location of all compost testing, as well as the extended, monitored curing of the compost produced during the NYC Composting Trials.

Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
 Mount Vernon, ME 04352/USA
 207-293-2457 FAX: 207-293-2488 www.woodsend.org

Account: 556
 · Robert LaValva
 · Bur. of Waste Prev. Reuse and Recycling
 · 44 Beaver Street-6th floor
 · New York NY 10004

Code: Cc402 502 M Project: 605
 Date Received : 03/02/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4854.0
 Quality Checked : *WD 3/30/01*

COMPOSITION ANALYSIS

Sample Identification: NYC Trials Biosolids Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	63	1702 lbs/yd ³
Solids	%	100.0	14.7	294 lbs/ton
Moisture	%	0.0	85.3	205 gals/ton
est. water holding capacity	%	241.0	70.7	169 gals/ton
pH (1:1 H ₂ O)	-logH ⁺	~	6.06	V Low
Free Carbonates	Rating	~	1	None
Organic Matter	%	78.6	11.5	231 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	5.2	Medium
Carbon:Nitrogen (C:N) Ratio	w:w	8.2	8.2	V. Low
Solvita CO ₂ Rate	(see chart)	~	1	Ex. High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	1	Raw Waste!

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory [Interpretation Sheet](#)

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 Date Reported : 03/30/2001
 Lab ID Number : 4854.0

MINERALS ANALYSIS

Sample Identification: NYC Trials Biosolids, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	5.142	0.756	15.1
Organic-Nitrogen	%	4.306	0.633	12.7
Phosphorus (P)	%	2.048	0.301	6.0
Potassium (K)	%	0.200	0.029	0.6
Sodium (Na)	%	0.149	0.022	0.4
Calcium (Ca)	%	1.080	0.159	3.2
Magnesium (Mg)	%	0.177	0.026	0.5
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	8352	1228	2.5
Nitrate-N	ppm	3	0	0.0
Nitrite-N	ppm	3	0	-
Chloride (Cl)	ppm	2277	335	0.67
Sulfate (SO ₄ -S)	ppm	<4	< 1	

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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· Bur. of Waste Prev. Reuse and Recycling

Date Reported : 03/30/2001

· 44 Beaver Street-6th floor

Lab ID Number : 4854.0

· New York NY 10004

METALS ANALYSIS

Sample Identification: NYC Trials Biosolids Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	192.0	28.2	<0.1
Manganese (Mn)	mg·kg ⁻¹	1920.0	282.2	0.6
Iron (Fe)	mg·kg ⁻¹	8400.0	1234.8	2.5
Zinc (Zn)	mg·kg ⁻¹	328.0	48.2	<0.1
Lead (Pb)	mg·kg ⁻¹	24.8	3.6	4 grams
Chromium (Cr)	mg·kg ⁻¹	24.0	3.5	3.8 grams
Cadmium (Cd)	mg·kg ⁻¹	1.6	0.2	0.3 grams
Nickel (Ni)	mg·kg ⁻¹	59.6	8.8	9.5 grams
Fecal Coliform 503	MPN/g	5,200,000		
Salmonella 503	MPN/4g	<5.2		
Mercury (Hg)	mg·kg ⁻¹	0.57		
Arsenic (As)	mg·kg ⁻¹	15.0		
Molybdenum (Mo)	mg·kg ⁻¹	<5		
Selenium (Se)	mg·kg ⁻¹	<5		
Total PCB	mg·kg ⁻¹	<3.9		

Notes: ppm = mg·kg⁻¹

< = less than MLD (minimum level of detection) for the particular mineral tested

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Code: x Project: 605
 Date Received : 03/08/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4858.6
 Quality Checked : *WD 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NYC Trial Biosolids, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	62	1685 lbs/yd ³
Solids	%	100.0	16.4	328 lbs/ton
Moisture	%	0.0	83.6	200 gals/ton
est. water holding capacity	%	242	71	170 gals/ton
pH (paste, H ₂ O)	-logH ⁺	~	5.80	ExLow
Free Carbonates (CO ₃)	Rating	~	1	None
Organic Matter	%	78.9	12.9	259 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	3.8	Medium
Carbon:Nitrogen (C:N) Ratio	w:w	9.0	9.0	V. Low
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	3	Immature
..... Total Mineral Nutrients				
Total Nitrogen	%	4.737	0.777	15.5
Phosphorus (P)	%	2.140	0.351	7.0
Potassium (K)	%	0.160	0.026	0.5
Sodium (Na)	%	0.135	0.022	0.4
Calcium (Ca)	%	1.160	0.190	3.8
Magnesium (Mg)	%	0.164	0.027	0.5

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Code: x-Project: 605

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 · New York NY 10004

Date Received : 03/08/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4858.6

METALS ANALYSIS

Sample Identification: NYC Trials Biosolids Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton <i>as is</i>
Copper (Cu)	mg.kg ⁻¹	276.0	45.3	<0.1
Manganese (Mn)	mg.kg ⁻¹	1800.0	295.2	0.6
Iron (Fe)	mg.kg ⁻¹	8520.0	1397.3	2.8
Zinc (Zn)	mg.kg ⁻¹	372.0	61.0	0.1
Lead (Pb)	mg.kg ⁻¹	32.0	-	-
Chromium (Cr)	mg.kg ⁻¹	27.2	-	-
Cadmium (Cd)	mg.kg ⁻¹	2.0	-	-
Nickel (Ni)	mg.kg ⁻¹	47.6	-	-
Arsenic (As)	mg.kg ⁻¹	< 12	-	-
Mercury (Hg)	mg.kg ⁻¹	4.9	-	-
Molybdenum (Mo)	mg.kg ⁻¹	< 31	-	-
Selenium (Se)	mg.kg ⁻¹	< 26	-	-
Total PCB	mg.kg ⁻¹	<3.8	-	-

BACTERIOLOGIC ANALYSIS

Fecal coliform EPA503	MPN per g	68,000	-
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 0.49	-

Notes: mg.kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies *less than MLD* (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only
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Code: Cv502 402 x Project: 605
 Date Received : 03/05/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4856.4
 Quality Checked : *WD 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Primary Screen Unders, Day 1-3, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	38	1028 lbs/yd ³
Solids	%	100.0	46.7	934 lbs/ton
Moisture	%	0.0	53.3	128 gals/ton
est. water holding capacity	%	240	71	169 gals/ton
Inert and Oversize Matter	%	~	10.2	204.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	5.68	ExLow
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	22076	10309	V High
Organic Matter	%	78.3	36.6	732 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	10.4	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	30.9	30.9	Med-High
Respiration Rate/day ...	C% of Total-C	1.47	1.47	-
Carbon loss per day ...	% of total weight	0.62	0.29	5.8 lbs/ton
Solvita CO ₂ Rate	(see chart)	~	2	V. High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	2	Very Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory Interpretation Sheet

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Code: Cv502 402 x-Project: 605

· Robert LaValva

Date Received : 03/05/2001

· Bur. of Waste Prev. Reuse and Recycling

Date Reported : 03/30/2001

· 44 Beaver Street-6th floor

Lab ID Number : 4856.4

· New York NY 10004

MINERALS ANALYSIS

Sample Identification: NMS Primary Screen 'Unders', Day 1-3, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.368	0.639	12.8
Organic-Nitrogen	%	1.032	0.482	9.6
Phosphorus (P)	%	0.428	0.200	4.0
Potassium (K)	%	0.204	0.095	1.9
Sodium (Na)	%	0.368	0.172	3.4
Calcium (Ca)	%	2.280	1.065	21.3
Magnesium (Mg)	%	0.192	0.090	1.8
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	3354	1566	3.1
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4756	2221	4.44
Sulfate (SO ₄ -S)	ppm	2715	1268	2.54

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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· 44 Beaver Street-6th floor	Date Reported : 03/30/2001
· New York NY 10004	Lab ID Number : 4856.4

METALS ANALYSIS

Sample Identification: NMS Primary Screen 'Unders,' Day 1-3, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	90.0	42.0	<0.1
Manganese (Mn)	mg·kg ⁻¹	352.0	164.4	0.3
Iron (Fe)	mg·kg ⁻¹	12800.0	5977.6	12.0
Zinc (Zn)	mg·kg ⁻¹	512.0	239.1	0.5
Lead (Pb)	mg·kg ⁻¹	236.0	110.2	0.2
Chromium (Cr)	mg·kg ⁻¹	38.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	2.8	-	-
Nickel (Ni)	mg·kg ⁻¹	32.0	-	-
Arsenic (As)	mg·kg ⁻¹	8.7	-	-
Mercury (Hg)	mg·kg ⁻¹	1.0	-	-
Molybdenum (Mo)	mg·kg ⁻¹	< 11	-	-
Selenium (Se)	mg·kg ⁻¹	21	-	-
Total PCB	mg·kg ⁻¹	<0.92		

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies *less than MLD* (minimum level of detection) for the particular factor tested
 ‡ = EPA reporting requires dry basis only
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 · New York NY 10004

Code: Cv502 402 x Project: 605
 Date Received : 03/05/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4856.5
 Quality Checked : *W0 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Primary Screen Unders. Day 1-3, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	45	1213 lbs/yd ³
Solids	%	100.0	45.5	910 lbs/ton
Moisture	%	0.0	54.5	131 gals/ton
est. water holding capacity	%	242	71	170 gals/ton
Inert and Oversize Matter	%	~	19.7	394.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	5.92	ExLow
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	20779	9454	High
Organic Matter	%	78.8	35.9	717 lbs/ton
Conductivity	mmhos·cm ⁻¹	~	10.0	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	31.2	31.2	Med-High
Respiration Rate/day ...	C% of Total-C	1.73	1.73	-
Carbon loss per day ...	% of total weight	0.74	0.33	6.7 lbs/ton
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory Interpretation Sheet

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 · New York NY 10004

Code: Cv502 402 x-Project: 605
 Date Received : 03/05/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4856.5

MINERALS ANALYSIS

Sample Identification: NMS Primary Screen Unders, Day 1-3, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.364	0.621	12.4
Organic-Nitrogen	%	1.034	0.470	9.4
Phosphorus (P)	%	0.372	0.169	3.4
Potassium (K)	%	0.196	0.089	1.8
Sodium (Na)	%	0.396	0.180	3.6
Calcium (Ca)	%	2.140	0.974	19.5
Magnesium (Mg)	%	0.188	0.086	1.7
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	3298	1501	3.0
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4820	2193	4.39
Sulfate (SO ₄ -S)	ppm	2979	1356	2.71

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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 Date Received : 03/05/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4856.5

METALS ANALYSIS

Sample Identification: NMS Primary Screen Unders. Day 1-3. Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	80.0	36.4	<0.1
Manganese (Mn)	mg·kg ⁻¹	332.0	151.1	0.3
Iron (Fe)	mg·kg ⁻¹	18200.0	8281.0	16.6
Zinc (Zn)	mg·kg ⁻¹	500.0	227.5	0.5
Lead (Pb)	mg·kg ⁻¹	216.0	98.3	0.2
Chromium (Cr)	mg·kg ⁻¹	42.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	3.2	-	-
Nickel (Ni)	mg·kg ⁻¹	32.0	-	-
Arsenic (As)	mg·kg ⁻¹	7.2	-	-
Mercury (Hg)	mg·kg ⁻¹	0.95	-	-
Molybdenum (Mo)	mg·kg ⁻¹	< 11	-	-
Selenium (Se)	mg·kg ⁻¹	19	-	-
Total PCB	mg·kg ⁻¹	<0.88		

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
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 · New York NY 10004

Code: x Project: 605
 Date Received : 03/08/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4858.2
 Quality Checked : *WD 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Primary Screen Unders, Day 3-5, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	46	1230 lbs/yd ³
Solids	%	100.0	38.0	760 lbs/ton
Moisture	%	0.0	62.0	149 gals/ton
est. water holding capacity	%	236	70	168 gals/ton
Inert and Oversize Matter	%	~	9.7	194.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	5.83	ExLow
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	10797	4103	High
Organic Matter	%	76.8	29.2	583 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	9.0	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	25.2	25.2	Med-High
Respiration Rate/day ...	C% of Total-C	2.12	2.12	-
Carbon loss per day ...	% of total weight	0.88	0.33	6.7 lbs/ton
Solvita CO ₂ Rate	(see chart)	~	2	V. High
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	2	Very Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Account: 556

Code: x-Project: 605

· Robert LaValva

Date Received : 03/08/2001

· Bur. of Waste Prev. Reuse and Recycling

Date Reported : 03/30/2001

· 44 Beaver Street-6th floor

Lab ID Number : 4858.2

· New York NY 10004

MINERALS ANALYSIS

Sample Identification: NMS Primary Screen Unders, Day 3-5, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.643	0.624	12.5
Organic-Nitrogen	%	1.348	0.512	10.2
Phosphorus (P)	%	0.436	0.166	3.3
Potassium (K)	%	0.208	0.079	1.6
Sodium (Na)	%	0.420	0.160	3.2
Calcium (Ca)	%	2.840	1.079	21.6
Magnesium (Mg)	%	0.235	0.089	1.8
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	2949	1121	2.2
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5015	1906	3.81
Sulfate (SO ₄ -S)	ppm	5938	2257	4.51

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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 Lab ID Number : 4858.2

METALS ANALYSIS

Sample Identification: NMS Primary Screen Unders, Day 3-5, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	82.8	31.5	<0.1
Manganese (Mn)	mg·kg ⁻¹	364.0	138.3	0.3
Iron (Fe)	mg·kg ⁻¹	10040.0	3815.2	7.6
Zinc (Zn)	mg·kg ⁻¹	532.0	202.2	0.4
Lead (Pb)	mg·kg ⁻¹	94.0	-	-
Chromium (Cr)	mg·kg ⁻¹	40.8	-	-
Cadmium (Cd)	mg·kg ⁻¹	2.8	-	-
Nickel (Ni)	mg·kg ⁻¹	35.6	-	-
Arsenic (As)	mg·kg ⁻¹	6.5	-	-
Mercury (Hg)	mg·kg ⁻¹	0.86	-	-
Molybdenum (Mo)	mg·kg ⁻¹	< 12	-	-
Selenium (Se)	mg·kg ⁻¹	18	-	-
Total PCB	mg·kg ⁻¹	<1.0	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies *less than MLD* (minimum level of detection) for the particular factor tested
 ‡ = EPA reporting requires dry basis only
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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
 Mount Vernon, ME 04352/USA
 207-293-2457 FAX: 207-293-2488 www.woodsendlab.org

Account: 556
 · Robert LaValva
 · Bur. of Waste Prev. Reuse and Recycling
 · 44 Beaver Street-6th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 03/08/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4858.3
 Quality Checked : *WD 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Primary Screen Unders, Day 3-5, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	49	1314 lbs/yd ³
Solids	%	100.0	37.5	750 lbs/ton
Moisture	%	0.0	62.5	150 gals/ton
est. water holding capacity	%	235	70	168 gals/ton
Inert and Oversize Matter	%	~	9.0	180.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	5.46	ExLow
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	16522	6196	High
Organic Matter	%	76.4	28.7	573 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	8.5	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	26.0	26.0	Med-High
Respiration Rate/day ...	C% of Total-C	2.05	2.05	-
Carbon loss per day ...	% of total weight	0.85	0.32	6.4 lbs/ton
Solvita CO ₂ Rate	(see chart)	~	2	V. High
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	2	Very Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory Interpretation Sheet

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Account: 556	Code: x-Project: 605
· Robert LaValva	
· Bur. of Waste Prev. Reuse and Recycling	Date Received : 03/08/2001
· 44 Beaver Street-6th floor	Date Reported : 03/30/2001
· New York NY 10004	Lab ID Number : 4858.3

MINERALS ANALYSIS

Sample Identification: NMS Primary Screen Unders, Day 3-5, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
Total Mineral Nutrients				
Total Nitrogen	%	1.585	0.594	11.9
Organic-Nitrogen	%	1.281	0.480	9.6
Phosphorus (P)	%	0.460	0.173	3.5
Potassium (K)	%	0.204	0.076	1.5
Sodium (Na)	%	0.400	0.150	3.0
Calcium (Ca)	%	2.980	1.118	22.4
Magnesium (Mg)	%	0.360	0.135	2.7
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	3038	1139	2.3
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5119	1920	3.84
Sulfate (SO ₄ -S)	ppm	5897	2211	4.42

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Account: 556

Code: x-Project: 605

· Robert LaValva
 · Bur. of Waste Prev. Reuse and Recycling
 · 44 Beaver Street-6th floor
 · New York NY 10004

Date Received : 03/08/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4858.3

METALS ANALYSIS

Sample Identification: NMS Primary Screen Unders, Day 3-5, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	80.4	30.2	<0.1
Manganese (Mn)	mg·kg ⁻¹	352.0	132.0	0.3
Iron (Fe)	mg·kg ⁻¹	9680.0	3630.0	7.3
Zinc (Zn)	mg·kg ⁻¹	500.0	187.5	0.4
Lead (Pb)	mg·kg ⁻¹	86.0	-	-
Chromium (Cr)	mg·kg ⁻¹	38.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	2.8	-	-
Nickel (Ni)	mg·kg ⁻¹	32.8	-	-
Arsenic (As)	mg·kg ⁻¹	7.2	-	-
Mercury (Hg)	mg·kg ⁻¹	1.1	-	-
Molybdenum (Mo)	mg·kg ⁻¹	< 15	-	-
Selenium (Se)	mg·kg ⁻¹	16	-	-
Total PCB	mg·kg ⁻¹	<1.1	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number

< signifies less than MLD (minimum level of detection) for the particular factor tested

‡ = EPA reporting requires dry basis only

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Account: 556
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 · New York NY 10004

Code: x Project: 605
 Date Received : 03/08/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4858.4
 Quality Checked : *WD 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 1 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	45	1213 lbs/yd ³
Solids	%	100.0	42.2	844 lbs/ton
Moisture	%	0.0	57.8	139 gals/ton
est. water holding capacity	%	237	70	169 gals/ton
Inert and Oversize Matter	%	~	10.1	202.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	5.91	ExLow
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	19670	8301	High
Organic Matter	%	77.2	32.6	652 lbs/ton
Conductivity	mmhos·cm ⁻¹	~	10.9	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	28.6	28.6	Med-High
Respiration Rate/day ...	C% of Total-C	1.40	1.40	-
Carbon loss per day ...	% of total weight	0.58	0.25	4.9 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	78	Not Plant-toxic
<i>Latuca sativa</i> Weight	%	~	66	Fair
<i>Lepidium sativum</i> Germination	%	~	81	Mod. Toxic
<i>Lepidium sativum</i> Weight	%	~	38	Low
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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 †For explanation of data, see Woods End Laboratory Interpretation Sheet

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Account: 556

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· Robert LaValva

· Bur. of Waste Prev. Reuse and Recycling

Date Received : 03/08/2001

· 44 Beaver Street-6th floor

Date Reported : 03/30/2001

· New York NY 10004

Lab ID Number : 4858.4

MINERALS ANALYSIS

Sample Identification: NMS Day 1 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.459	0.616	12.3
Organic-Nitrogen	%	1.125	0.475	9.5
Phosphorus (P)	%	0.420	0.177	3.5
Potassium (K)	%	0.204	0.086	1.7
Sodium (Na)	%	0.428	0.181	3.6
Calcium (Ca)	%	2.460	1.038	20.8
Magnesium (Mg)	%	0.206	0.087	1.7
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	3342	1410	2.8
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5008	2113	4.23
Sulfate (SO ₄ -S)	ppm	4153	1753	3.51

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Account: 556	Code: x-Project: 605
Robert LaValva	
Bur. of Waste Prev. Reuse and Recycling	Date Received : 03/08/2001
44 Beaver Street-6th floor	Date Reported : 03/30/2001
New York NY 10004	Lab ID Number : 4858.4

METALS ANALYSIS

Sample Identification: NMS Day 1 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	86.0	36.3	<0.1
Manganese (Mn)	mg·kg ⁻¹	392.0	165.4	0.3
Iron (Fe)	mg·kg ⁻¹	12200.0	5148.4	10.3
Zinc (Zn)	mg·kg ⁻¹	520.0	219.4	0.4
Lead (Pb)	mg·kg ⁻¹	178.0	75.1	0.2
Chromium (Cr)	mg·kg ⁻¹	40.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	3.2	-	-
Nickel (Ni)	mg·kg ⁻¹	40.4	-	-
Total PCB	mg·kg ⁻¹	<0.87		

BACTERIOLOGIC ANALYSIS

Fecal coliform EPA503	MPN per g	240	-	
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 1.7	-	

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only
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Appendix F: Data from the New York City Composting Trials

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 · New York NY 10004

Code: x Project: 605
 Date Received : 03/08/2001
 Date Reported : 03/30/2001
 Lab ID Number : 4858.5
 Quality Checked : *WD 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 1 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs·ft ³	-	46	1230 lbs/yd ³
Solids	%	100.0	42.5	850 lbs/ton
Moisture	%	0.0	57.5	138 gals/ton
est. water holding capacity	%	238	70	169 gals/ton
Inert and Oversize Matter	%	~	15.6	312.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	5.43	ExLow
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	22696	9646	High
Organic Matter	%	77.6	33.0	659 lbs/ton
Conductivity	mmhos·cm ⁻¹	~	10.9	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	29.4	29.4	Med-High
Respiration Rate/day ...	C% of Total-C	1.57	1.57	-
Carbon loss per day ...	% of total weight	0.66	0.28	5.6 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	61	Slightly Plant Toxic
<i>Latuca sativa</i> Weight	%	~	60	Fair
<i>Lepedium sativum</i> Germination	%	~	86	Non-toxic
<i>Lepedium sativum</i> Weight	%	~	38	Low
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	3	Immature

Notes ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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 †For explanation of data, see Woods End Laboratory Interpretation Sheet

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Account: 556	Code: x-Project: 605
· Robert LaValva	
· Bur. of Waste Prev. Reuse and Recycling	Date Received : 03/08/2001
· 44 Beaver Street-6th floor	Date Reported : 03/30/2001
· New York NY 10004	Lab ID Number : 4858.5

MINERALS ANALYSIS

Sample Identification: NMS Day 1 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.423	0.605	12.1
Organic-Nitrogen	%	1.075	0.457	9.1
Phosphorus (P)	%	0.392	0.167	3.3
Potassium (K)	%	0.204	0.087	1.7
Sodium (Na)	%	0.420	0.178	3.6
Calcium (Ca)	%	2.720	1.156	23.1
Magnesium (Mg)	%	0.388	0.165	3.3
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	3481	1479	3.0
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5159	2193	4.39
Sulfate (SO ₄ -S)	ppm	4439	1887	3.77

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Account: 556

Code: x-Project: 605

· Robert LaValva

Date Received : 03/08/2001

· Bur. of Waste Prev. Reuse and Recycling

Date Reported : 03/30/2001

· 44 Beaver Street-6th floor

Lab ID Number : 4858.5

· New York NY 10004

METALS ANALYSIS

Sample Identification: NMS Day 1 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	81.6	34.7	<0.1
Manganese (Mn)	mg·kg ⁻¹	388.0	164.9	0.3
Iron (Fe)	mg·kg ⁻¹	11800.0	5015.0	10.0
Zinc (Zn)	mg·kg ⁻¹	524.0	222.7	0.4
Lead (Pb)	mg·kg ⁻¹	164.0	69.7	0.1
Chromium (Cr)	mg·kg ⁻¹	36.8	-	-
Cadmium (Cd)	mg·kg ⁻¹	3.2	-	-
Nickel (Ni)	mg·kg ⁻¹	34.0	-	-
Total PCB	mg·kg ⁻¹	<1.4		

BACTERIOLOGIC ANALYSIS

Fecal coliform EPA503	MPN per g	32	-	
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 2.0	-	

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number

< signifies less than MLD (minimum level of detection) for the particular factor tested

‡ = EPA reporting requires dry basis only

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Account: 556
 · Robert LaValva
 · Bur. of Waste Prev. Reuse and Recycling
 · 44 Beaver Street-6th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 03/16/2001
 Date Reported : 04/19/2001
 Lab ID Number : 4871.0
 Quality Checked : *WD 10/10/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 7 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	40	1078 lbs/yd ³
Solids	%	100.0	43.8	876 lbs/ton
Moisture	%	0.0	56.2	135 gals/ton
est. water holding capacity	%	232	70	168 gals/ton
Inert and Oversize Matter	%	~	15.9	318.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.71	MedHigh
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	27191	11910	V High
Organic Matter	%	75.3	33.0	659 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	7.7	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	30.2	30.2	Med-High
Respiration Rate/day ...	C% of Total-C	1.36	1.36	-
Carbon loss per day ...	% of total weight	0.55	0.24	4.8 lbs/ton
Dewar Self-Heating	°C rise	~	34	Grade II
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	67	Slightly Plant Toxic
<i>Latuca sativa</i> Weight	%	~	40	Low
<i>Lepidium sativum</i> Germination	%	~	103	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	58	Fair
Solvita CO ₂ Rate	(see chart)	~	5	Medium
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	5	Late-Active

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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 †For explanation of data, see Woods End Laboratory [Interpretation Sheet](#)

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Account: 556

Code: x-Project: 605

Robert LaValva

Bur. of Waste Prev. Reuse and Recycling

Date Received : 03/16/2001

44 Beaver Street-6th floor

Date Reported : 04/19/2001

New York NY 10004

Lab ID Number : 4871.0

MINERALS ANALYSIS

Sample Identification: NMS Day 7 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.344	0.589	11.8
Organic-Nitrogen	%	0.863	0.378	7.6
Phosphorus (P)	%	0.376	0.165	3.3
Potassium (K)	%	0.260	0.114	2.3
Sodium (Na)	%	0.460	0.201	4.0
Calcium (Ca)	%	2.532	1.109	22.2
Magnesium (Mg)	%	0.244	0.107	2.1
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	4810	2107	4.2
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4499	1971	3.94
Sulfate (SO ₄ -S)	ppm	3318	1453	2.91

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Account: 556

Code: x-Project: 605

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 · New York NY 10004

Date Received : 03/16/2001
 Date Reported : 04/19/2001
 Lab ID Number : 4871.0

METALS ANALYSIS

Sample Identification: NMS Day 7 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	98.4	43.1	<0.1
Manganese (Mn)	mg·kg ⁻¹	388.0	169.9	0.3
Iron (Fe)	mg·kg ⁻¹	13080.0	5729.0	11.5
Zinc (Zn)	mg·kg ⁻¹	504.0	220.8	0.4
Lead (Pb)	mg·kg ⁻¹	210.0	92.0	0.2
Chromium (Cr)	mg·kg ⁻¹	40.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	3.6	-	-
Nickel (Ni)	mg·kg ⁻¹	40.8	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies *less than MLD* (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only
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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

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Account: 556
 · Robert LaValva
 · Bur. of Waste Prev. Reuse and Recycling
 · 44 Beaver Street-6th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 03/16/2001
 Date Reported : 04/19/2001
 Lab ID Number : 4871.1
 Quality Checked : *WES 10/10/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 7 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	39	1062 lbs/yd ³
Solids	%	100.0	43.5	870 lbs/ton
Moisture	%	0.0	56.5	135 gals/ton
est. water holding capacity	%	237	70	169 gals/ton
Inert and Oversize Matter	%	~	17.2	344.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.86	MedHigh
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	26294	11438	V High
Organic Matter	%	77.0	33.5	670 lbs/ton
Conductivity	mmhos·cm ⁻¹	~	7.7	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	30.5	30.5	Med-High
Respiration Rate/day ...	C% of Total-C	1.51	1.51	-
Carbon loss per day ...	% of total weight	0.63	0.27	5.5 lbs/ton
Dewar Self-Heating	°C rise	~	47	Grade I
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	64	Slightly Plant Toxic
<i>Latuca sativa</i> Weight	%	~	40	Low
<i>Lepidium sativum</i> Germination	%	~	108	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	64	Fair
Solvita CO ₂ Rate	(see chart)	~	5	Medium
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	5	Late-Active

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Account: 556

Code: x-Project: 605

· Robert LaValva
 · Bur. of Waste Prev. Reuse and Recycling
 · 44 Beaver Street-6th floor
 · New York NY 10004

Date Received : 03/16/2001
 Date Reported : 04/19/2001
 Lab ID Number : 4871.1

MINERALS ANALYSIS

Sample Identification: NMS Day 7 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
Total Mineral Nutrients				
Total Nitrogen	%	1.362	0.592	11.8
Organic-Nitrogen	%	0.857	0.373	7.5
Phosphorus (P)	%	0.376	0.164	3.3
Potassium (K)	%	0.260	0.113	2.3
Sodium (Na)	%	0.476	0.207	4.1
Calcium (Ca)	%	2.380	1.035	20.7
Magnesium (Mg)	%	0.212	0.092	1.8
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	5052	2198	4.4
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4377	1904	3.81
Sulfate (SO ₄ -S)	ppm	3167	1378	2.76

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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44 Beaver Street-6th floor

Date Reported : 04/19/2001

New York NY 10004

Lab ID Number : 4871.1

METALS ANALYSIS

Sample Identification: NMS Day 7 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	102.8	44.7	<0.1
Manganese (Mn)	mg·kg ⁻¹	360.0	156.6	0.3
Iron (Fe)	mg·kg ⁻¹	13120.0	5707.2	11.4
Zinc (Zn)	mg·kg ⁻¹	516.0	224.5	0.4
Lead (Pb)	mg·kg ⁻¹	218.0	94.8	0.2
Chromium (Cr)	mg·kg ⁻¹	36.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	4.4	-	-
Nickel (Ni)	mg·kg ⁻¹	44.0	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested

‡ = EPA reporting requires dry basis only

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Code: x Project: 605
 Date Received : 02/22/2001
 Date Reported : 04/23/2001
 Lab ID Number : 4878.0
 Quality Checked : *WD 4/24/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 14 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	36	977 lbs/yd ³
Solids	%	100.0	47.7	954 lbs/ton
Moisture	%	0.0	52.3	125 gals/ton
est. water holding capacity	%	234	70	168 gals/ton
Inert and Oversize Matter	%	~	10.3	206.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	6.78	Med Low
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	35015	16702	V High
Organic Matter	%	76.1	36.3	726 lbs/ton
Conductivity	mmhos·cm ⁻¹	~	9.9	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	31.8	31.8	Med-High
Respiration Rate/day ...	C% of Total-C	1.31	1.31	-
Carbon loss per day ...	% of total weight	0.54	0.26	5.2 lbs/ton
Dewar Self-Heating	°C rise	~	48	Grade I
Seedling Response Assay. Percent of Control				
<i>Latuca sativa</i> Germination	%	~	59	Plant Toxic
<i>Latuca sativa</i> Weight	%	~	37	Low
<i>Lepidium sativum</i> Germination	%	~	95	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	52	Fair
Solvita CO ₂ Rate	(see chart)	~	7	Low
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	7	Mature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory [Interpretation Sheet](#)

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· Bur. of Waste Prev. Reuse and Recycling

Date Reported : 04/23/2001

· 44 Beaver Street-6th floor

Lab ID Number : 4878.0

· New York NY 10004

MINERALS ANALYSIS

Sample Identification: NMS Day 14 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton as is
..... Total Mineral Nutrients				
Total Nitrogen	%	1.294	0.617	12.3
Organic-Nitrogen	%	0.777	0.371	7.4
Phosphorus (P)	%	0.368	0.176	3.5
Potassium (K)	%	0.240	0.114	2.3
Sodium (Na)	%	0.400	0.191	3.8
Calcium (Ca)	%	2.240	1.068	21.4
Magnesium (Mg)	%	0.190	0.091	1.8
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	5168	2465	4.9
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4705	2244	4.49
Sulfate (SO ₄ -S)	ppm	2624	1252	2.50

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Code: x-Project: 605
 Date Received : 02/22/2001
 Date Reported : 04/23/2001
 Lab ID Number : 4878.0

METALS ANALYSIS

Sample Identification: NMS Day 14 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	108.0	51.5	0.1
Manganese (Mn)	mg·kg ⁻¹	364.0	173.6	0.3
Iron (Fe)	mg·kg ⁻¹	11560.0	5514.1	11.0
Zinc (Zn)	mg·kg ⁻¹	440.0	209.9	0.4
Lead (Pb)	mg·kg ⁻¹	234.4	111.8	0.2
Chromium (Cr)	mg·kg ⁻¹	34.8	-	-
Cadmium (Cd)	mg·kg ⁻¹	2.8	-	-
Nickel (Ni)	mg·kg ⁻¹	39.6	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies *less than MLD* (minimum level of detection) for the particular factor tested
 ‡ = EPA reporting requires dry basis only
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Appendix F: Data from the New York City Composting Trials

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Code: x Project: 605
 Date Received : 02/22/2001
 Date Reported : 04/23/2001
 Lab ID Number : 4878.1
 Quality Checked : *wd 4/24/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 14 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	36	977 lbs/yd ³
Solids	%	100.0	49.2	984 lbs/ton
Moisture	%	0.0	50.8	122 gals/ton
est. water holding capacity	%	223	69	166 gals/ton
Inert and Oversize Matter	%	~	13.0	260.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	6.87	Med Low
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	32648	16063	V High
Organic Matter	%	72.2	35.5	710 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	10.0	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	29.0	29.0	Med-High
Respiration Rate/day ...	C% of Total-C	1.59	1.59	-
Carbon loss per day ...	% of total weight	0.62	0.30	6.1 lbs/ton
Dewar Self-Heating	°C rise	~	48	Grade I
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	44	Plant Toxic
<i>Latuca sativa</i> Weight	%	~	44	Low
<i>Lepidium sativum</i> Germination	%	~	103	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	55	Fair
Solvita CO ₂ Rate	(see chart)	~	6	Med-Low
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	6	Active-Curing

Notes: ppm = mg/kg < = less than MLD (minimum level of detection), nd = none detected

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Account: 556	Code: x-Project: 605
· Robert LaValva	
· Bur. of Waste Prev. Reuse and Recycling	Date Received : 02/22/2001
· 44 Beaver Street-6th floor	Date Reported : 04/23/2001
· New York NY 10004	Lab ID Number : 4878.1

MINERALS ANALYSIS

Sample Identification: NMS Day 14 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.344	0.661	13.2
Organic-Nitrogen	%	0.769	0.378	7.6
Phosphorus (P)	%	0.384	0.189	3.8
Potassium (K)	%	0.232	0.114	2.3
Sodium (Na)	%	0.408	0.201	4.0
Calcium (Ca)	%	2.152	1.059	21.2
Magnesium (Mg)	%	0.202	0.099	2.0
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	5747	2828	5.7
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4593	2260	4.52
Sulfate (SO ₄ -S)	ppm	2844	1399	2.80

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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· Bur. of Waste Prev. Reuse and Recycling

Date Reported : 04/23/2001

· 44 Beaver Street-6th floor

Lab ID Number : 4878.1

· New York NY 10004

METALS ANALYSIS

Sample Identification: NMS Day 14 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	102.4	50.4	0.1
Manganese (Mn)	mg·kg ⁻¹	376.0	185.0	0.4
Iron (Fe)	mg·kg ⁻¹	12200.0	6002.4	12.0
Zinc (Zn)	mg·kg ⁻¹	460.0	226.3	0.5
Lead (Pb)	mg·kg ⁻¹	228.4	112.4	0.2
Chromium (Cr)	mg·kg ⁻¹	32.8	-	-
Cadmium (Cd)	mg·kg ⁻¹	4.0	-	-
Nickel (Ni)	mg·kg ⁻¹	39.2	-	-

Notes: mg·kg⁻¹ = ppm (parts per million), MPN = most probable number

< signifies *less than MLD* (minimum level of detection) for the particular factor tested

† = EPA reporting requires dry basis only

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Code: x Project: 605
 Date Received : 03/29/2001
 Date Reported : 05/02/2001
 Lab ID Number : 4888.0
 Quality Checked : *UD 5/16/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 21 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	32	876 lbs/yd ³
Solids	%	100.0	51.4	1028 lbs/ton
Moisture	%	0.0	48.6	117 gals/ton
est. water holding capacity	%	234	70	168 gals/ton
Inert and Oversize Matter	%	~	13.4	268.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.34	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	29499	15162	V High
Organic Matter	%	76.0	39.1	781 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	9.1	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	28.9	28.9	Med-High
Respiration Rate/day ...	C% of Total-C	1.44	1.44	-
Carbon loss per day ...	% of total weight	0.59	0.30	6.1 lbs/ton
Dewar Self-Heating	°C rise	~	46	Grade I
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	84	Not Plant-toxic
<i>Latuca sativa</i> Weight	%	~	52	Fair
<i>Lepidium sativum</i> Germination	%	~	100	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	57	Fair
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Code: x-Project: 605
 Date Received : 03/29/2001
 Date Reported : 05/02/2001
 Lab ID Number : 4888.0

MINERALS ANALYSIS

Sample Identification: NMS Day 21 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.418	0.729	14.6
Organic-Nitrogen	%	0.954	0.491	9.8
Phosphorus (P)	%	0.416	0.214	4.3
Potassium (K)	%	0.272	0.140	2.8
Sodium (Na)	%	0.420	0.216	4.3
Calcium (Ca)	%	2.440	1.254	25.1
Magnesium (Mg)	%	0.188	0.097	1.9
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	4634	2382	4.8
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5489	2821	5.64
Sulfate (SO ₄ -S)	ppm	3055	1570	3.14

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Date Received : 03/29/2001
 Date Reported : 05/02/2001
 Lab ID Number : 4888.0

METALS ANALYSIS

Sample Identification: NMS Day 21 Facility Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	132.0	67.8	0.1
Manganese (Mn)	mg·kg ⁻¹	388.0	199.4	0.4
Iron (Fe)	mg·kg ⁻¹	12200.0	6270.8	12.5
Zinc (Zn)	mg·kg ⁻¹	488.0	250.8	0.5
Lead (Pb)	mg·kg ⁻¹	228.0	117.2	0.2
Chromium (Cr)	mg·kg ⁻¹	31.2	-	-
Cadmium (Cd)	mg·kg ⁻¹	3.2	-	-
Nickel (Ni)	mg·kg ⁻¹	68.0	35.0	0.1
Arsenic (As)	mg·kg ⁻¹	< 4.4	-	-
Mercury (Hg)	mg·kg ⁻¹	0.98	-	-
Molybdenum (Mo)	mg·kg ⁻¹	20	-	-
Selenium (Se)	mg·kg ⁻¹	17	-	-
BACTERIOLOGIC ANALYSIS				
Fecal coliform EPA503	MPN per g	4.2	-	-
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 1.7	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
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Appendix F: Data from the New York City Composting Trials

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Code: x Project: 605
 Date Received : 03/29/2001
 Date Reported : 05/02/2001
 Lab ID Number : 4888.1
 Quality Checked : *WD 5/16/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 21 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	35	944 lbs/yd ³
Solids	%	100.0	53.8	1076 lbs/ton
Moisture	%	0.0	46.2	111 gals/ton
est. water holding capacity	%	219	69	165 gals/ton
Inert and Oversize Matter	%	~	12.4	248.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.31	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	25822	13892	V High
Organic Matter	%	70.6	38.0	760 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	9.1	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	30.0	30.0	Med-High
Respiration Rate/day ...	C% of Total-C	1.44	1.44	-
Carbon loss per day ...	% of total weight	0.55	0.30	5.9 lbs/ton
Dewar Self-Heating	°C rise	~	46	Grade I
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	66	Slightly Plant Toxic
<i>Latuca sativa</i> Weight	%	~	52	Fair
<i>Lepidium sativum</i> Germination	%	~	93	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	51	Fair
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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MINERALS ANALYSIS

Sample Identification: NMS Day 21 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton as is
Total Mineral Nutrients				
Total Nitrogen	%	1.269	0.683	13.7
Organic-Nitrogen	%	0.817	0.439	8.8
Phosphorus (P)	%	0.384	0.207	4.1
Potassium (K)	%	0.240	0.129	2.6
Sodium (Na)	%	0.408	0.220	4.4
Calcium (Ca)	%	2.180	1.173	23.5
Magnesium (Mg)	%	0.182	0.098	2.0
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	4523	2433	4.9
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5252	2825	5.65
Sulfate (SO ₄ -S)	ppm	2463	1325	2.65

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Date Received : 03/29/2001
 Date Reported : 05/02/2001
 Lab ID Number : 4888.1

METALS ANALYSIS

Sample Identification: NMS Day 21 Facility Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	94.8	51.0	0.1
Manganese (Mn)	mg·kg ⁻¹	348.0	187.2	0.4
Iron (Fe)	mg·kg ⁻¹	11600.0	6240.8	12.5
Zinc (Zn)	mg·kg ⁻¹	440.0	236.7	0.5
Lead (Pb)	mg·kg ⁻¹	202.0	108.7	0.2
Chromium (Cr)	mg·kg ⁻¹	29.6	-	-
Cadmium (Cd)	mg·kg ⁻¹	2.8	-	-
Nickel (Ni)	mg·kg ⁻¹	39.2	-	-
Arsenic (As)	mg·kg ⁻¹	< 4.1	-	-
Mercury (Hg)	mg·kg ⁻¹	0.79	-	-
Molybdenum (Mo)	mg·kg ⁻¹	20	-	-
Selenium (Se)	mg·kg ⁻¹	13	-	-
..... BACTERIOLOGIC ANALYSIS				
Fecal coliform EPA503	MPN per g	60	-	-
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 1.6	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only

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Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
 Mount Vernon, ME 04352/USA
 207-293-2457 FAX: 207-293-2488 www.woodsendlab.org

Account: 556
 · Robert LaValva
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: x Project: n/a
 Date Received : 04/13/2001
 Date Reported : 05/23/2001
 Lab ID Number : 4910.0
 Quality Checked : *WD 5/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Half-Inch 'Unders'

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	35	944 lbs/yd ³
Solids	%	100.0	56.6	1132 lbs/ton
Moisture	%	0.0	43.4	104 gals/ton
est. water holding capacity	%	222	69	165 gals/ton
pH (paste, H ₂ O)	-logH ⁺	~	8.05	MedHigh
Free Carbonates (CO ₃)	Rating	~	2	Med-High
Volatile Organic Acids	ppm	1677	949	M Low
Organic Matter	%	71.8	40.6	813 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	6.1	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	20.2	20.2	Medium
Respiration Rate/day ...	C% of Total-C	1.11	1.11	-
Carbon loss per day ...	% of total weight	0.43	0.24	4.9 lbs/ton
Dewar Self-Heating	°C rise	~	33	Grade II
..... Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	15	Extr. Plant Toxic
<i>Latuca sativa</i> Weight	%	~	62	Fair
<i>Lepidium sativum</i> Germination	%	~	90	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	43	Low
Solvita CO ₂ Rate	(see chart)	~	5	Medium
Solvita NH ₃ Rate	(see chart)	~	2	High
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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 †For explanation of data, see Woods End Laboratory Interpretation Sheet

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 · 44 Beaver Street-8th floor
 · New York NY 10004

Date Received : 04/13/2001
 Date Reported : 05/23/2001
 Lab ID Number : 4910.0

MINERALS ANALYSIS

Sample Identification: NMS Half-Inch 'Unders'

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
Total Mineral Nutrients				
Total Nitrogen	%	1.919	1.086	21.7
Organic-Nitrogen	%	1.513	0.856	17.1
Phosphorus (P)	%	0.360	0.204	4.1
Potassium (K)	%	0.260	0.147	2.9
Sodium (Na)	%	0.440	0.249	5.0
Calcium (Ca)	%	2.320	1.313	26.3
Magnesium (Mg)	%	0.212	0.120	2.4
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	4060	2298	4.6
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Volatile N as % of total-N	w:w	~	1.4	-
Chloride (Cl)	ppm	5350	3028	6.06
Sulfate (SO ₄ -S)	ppm	3373	1909	3.82

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Account: 556	Code: x-Project: n/a
· Robert LaValva	
· DOS Waste Prev. Reuse and Recycling	Date Received : 04/13/2001
· 44 Beaver Street-8th floor	Date Reported : 05/23/2001
· New York NY 10004	Lab ID Number : 4910.0

METALS ANALYSIS

Sample Identification: NMS Half-Inch 'Unders'

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	128.0	72.4	0.1
Manganese (Mn)	mg·kg ⁻¹	420.0	237.7	0.5
Iron (Fe)	mg·kg ⁻¹	17200.0	9735.2	19.5
Zinc (Zn)	mg·kg ⁻¹	476.0	269.4	0.5
Lead (Pb)	mg·kg ⁻¹	236.0	133.6	0.3
Chromium (Cr)	mg·kg ⁻¹	36.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	3.6	-	-
Nickel (Ni)	mg·kg ⁻¹	50.0	28.3	0.1

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only
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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

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Account: 556
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 · 44 Beaver Street-6th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 03/16/2001
 Date Reported : 04/23/2001
 Lab ID Number : 4875.0
 Quality Checked : *WD 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 7 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
Solids	%	100.0	48.2	964 lbs/ton
Moisture	%	0.0	51.8	124 gals/ton
est. water holding capacity	%	232	70	168 gals/ton
Inert and Oversize Matter	%	~	7.7	154.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.14	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	20729	9991	High
Organic Matter	%	75.2	36.3	725 lbs/ton
Conductivity	mmhos·cm ⁻¹	~	8.7	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	22.0	22.0	Medium
Respiration Rate/day ...	C% of Total-C	1.16	1.16	-
Carbon loss per day ...	% of total weight	0.47	0.23	4.5 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	54	Plant Toxic
<i>Latuca sativa</i> Weight	%	~	41	Low
<i>Lepidium sativum</i> Germination	%	~	103	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	65	Fair
Solvita CO ₂ Rate	(see chart)	~	1	Ex. High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	1	Raw Waste!

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Account: 556

Code: x-Project: 605

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Date Received : 03/16/2001

· 44 Beaver Street-6th floor

Date Reported : 04/23/2001

· New York NY 10004

Lab ID Number : 4875.0

MINERALS ANALYSIS

Sample Identification: NMS Day 7 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
Total Mineral Nutrients				
Total Nitrogen	%	1.848	0.891	17.8
Organic-Nitrogen	%	1.516	0.731	14.6
Phosphorus (P)	%	0.380	0.183	3.7
Potassium (K)	%	0.280	0.135	2.7
Sodium (Na)	%	0.532	0.256	5.1
Calcium (Ca)	%	2.700	1.301	26.0
Magnesium (Mg)	%	0.268	0.129	2.6
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	3317	1599	3.2
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5193	2503	5.01
Sulfate (SO ₄ -S)	ppm	3867	1864	3.73

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Date Received : 03/16/2001

· 44 Beaver Street-6th floor

Date Reported : 04/23/2001

· New York NY 10004

Lab ID Number : 4875.0

METALS ANALYSIS

Sample Identification: NMS Day 7 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	101.2	48.8	<0.1
Manganese (Mn)	mg·kg ⁻¹	400.0	192.8	0.4
Iron (Fe)	mg·kg ⁻¹	13000.0	6266.0	12.5
Zinc (Zn)	mg·kg ⁻¹	500.0	241.0	0.5
Lead (Pb)	mg·kg ⁻¹	203.6	98.1	0.2
Chromium (Cr)	mg·kg ⁻¹	39.6	-	-
Cadmium (Cd)	mg·kg ⁻¹	3.2	-	-
Nickel (Ni)	mg·kg ⁻¹	45.6	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number

< signifies *less than MLD* (minimum level of detection) for the particular factor tested

‡ = EPA reporting requires dry basis only

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Code: x Project: 605

Date Received : 03/16/2001

Date Reported : 04/23/2001

Lab ID Number : 4875.1

Quality Checked : *wo 4/23/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 7 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
Solids	%	100.0	48.9	978 lbs/ton
Moisture	%	0.0	51.1	123 gals/ton
est. water holding capacity	%	227	69	166 gals/ton
Inert and Oversize Matter	%	~	12.0	240.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.17	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	22685	11093	V High
Organic Matter	%	73.3	35.8	717 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	8.9	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	20.8	20.8	Medium
Respiration Rate/day ...	C% of Total-C	1.60	1.60	-
Carbon loss per day ...	% of total weight	0.63	0.31	6.2 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	44	Plant Toxic
<i>Latuca sativa</i> Weight	%	~	35	Low
<i>Lepidium sativum</i> Germination	%	~	95	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	64	Fair
Solvita CO ₂ Rate	(see chart)	~	1	Ex. High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	1	Raw Waste!

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory Interpretation Sheet

Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

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Account: 556

Code: x-Project: 605

Robert LaValva

Bur. of Waste Prev. Reuse and Recycling

Date Received : 03/16/2001

44 Beaver Street-6th floor

Date Reported : 04/23/2001

New York NY 10004

Lab ID Number : 4875.1

MINERALS ANALYSIS

Sample Identification: NMS Day 7 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton as is
Total Mineral Nutrients				
Total Nitrogen	%	1.902	0.930	18.6
Organic-Nitrogen	%	1.559	0.763	15.3
Phosphorus (P)	%	0.380	0.186	3.7
Potassium (K)	%	0.276	0.135	2.7
Sodium (Na)	%	0.528	0.258	5.2
Calcium (Ca)	%	2.640	1.291	25.8
Magnesium (Mg)	%	0.268	0.131	2.6
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	3423	1674	3.3
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4967	2429	4.86
Sulfate (SO ₄ -S)	ppm	3634	1777	3.55

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Account: 556

Code: x-Project: 605

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Bur. of Waste Prev. Reuse and Recycling

Date Received : 03/16/2001

44 Beaver Street-6th floor

Date Reported : 04/23/2001

New York NY 10004

Lab ID Number : 4875.1

METALS ANALYSIS

Sample Identification: NMS Day 7 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	100.0	48.9	<0.1
Manganese (Mn)	mg·kg ⁻¹	416.0	203.4	0.4
Iron (Fe)	mg·kg ⁻¹	13840.0	6767.8	13.5
Zinc (Zn)	mg·kg ⁻¹	508.0	248.4	0.5
Lead (Pb)	mg·kg ⁻¹	232.8	113.8	0.2
Chromium (Cr)	mg·kg ⁻¹	44.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	2.8	-	-
Nickel (Ni)	mg·kg ⁻¹	46.0	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number

< signifies less than MLD (minimum level of detection) for the particular factor tested

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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

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 · 44 Beaver Street-6th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 03/23/2001
 Date Reported : 04/25/2001
 Lab ID Number : 4879.0
 Quality Checked : *WD 4/25/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 14 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
Solids	%	100.0	52.6	1052 lbs/ton
Moisture	%	0.0	47.4	114 gals/ton
est. water holding capacity	%	222	69	165 gals/ton
Inert and Oversize Matter	%	~	16.4	328.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.75	MedHigh
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	6468	3402	M High
Organic Matter	%	71.6	37.6	753 lbs/ton
Conductivity	mmhos·cm ⁻¹	~	10.5	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	19.0	19.0	Medium
Respiration Rate/day ...	C% of Total-C	0.16	0.16	-
Carbon loss per day ...	% of total weight	0.06	0.03	0.6 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	51	Plant Toxic
<i>Latuca sativa</i> Weight	%	~	40	Low
<i>Lepidium sativum</i> Germination	%	~	97	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	57	Fair
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Date Received : 03/23/2001

· 44 Beaver Street-6th floor

Date Reported : 04/25/2001

· New York NY 10004

Lab ID Number : 4879.0

MINERALS ANALYSIS

Sample Identification: NMS Day 14 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton as is
Total Mineral Nutrients				
Total Nitrogen	%	2.029	1.067	21.3
Organic-Nitrogen	%	1.745	0.918	18.4
Phosphorus (P)	%	0.404	0.213	4.3
Potassium (K)	%	0.284	0.149	3.0
Sodium (Na)	%	0.496	0.261	5.2
Calcium (Ca)	%	2.760	1.452	29.0
Magnesium (Mg)	%	0.222	0.117	2.3
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	2834	1491	3.0
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5279	2777	5.55
Sulfate (SO ₄ -S)	ppm	4043	2127	4.25

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Appendix F: Data from the New York City Composting Trials

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· 44 Beaver Street-6th floor

· New York NY 10004

Date Received : 03/23/2001

Date Reported : 04/25/2001

Lab ID Number : 4879.0

METALS ANALYSIS

Sample Identification: NMS Day 14 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	124.0	65.2	0.1
Manganese (Mn)	mg·kg ⁻¹	460.0	242.0	0.5
Iron (Fe)	mg·kg ⁻¹	14080.0	7406.1	14.8
Zinc (Zn)	mg·kg ⁻¹	540.0	284.0	0.6
Lead (Pb)	mg·kg ⁻¹	240.0	126.2	0.3
Chromium (Cr)	mg·kg ⁻¹	308.8	162.4	0.3
Cadmium (Cd)	mg·kg ⁻¹	3.6	-	-
Nickel (Ni)	mg·kg ⁻¹	78.4	41.2	0.1

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number

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Code: x Project: 605
 Date Received : 03/23/2001
 Date Reported : 04/25/2001
 Lab ID Number : 4879.1
 Quality Checked : 4/25/01 WJ

COMPOSITION ANALYSIS

Sample Identification: NMS Day 14 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
Solids	%	100.0	54.3	1086 lbs/ton
Moisture	%	0.0	45.7	110 gals/ton
est. water holding capacity	%	212	68	163 gals/ton
Inert and Oversize Matter	%	~	15.0	300.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.71	MedHigh
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	11060	6006	High
Organic Matter	%	67.8	36.8	737 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	11.4	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	16.9	16.9	M. Low
Respiration Rate/day ...	C% of Total-C	1.83	1.83	-
Carbon loss per day ...	% of total weight	0.67	0.36	7.3 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	49	Plant Toxic
<i>Latuca sativa</i> Weight	%	~	40	Low
<i>Lepidium sativum</i> Germination	%	~	100	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	60	Fair
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Woods End Research Laboratory, Inc.

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Account: 556

Code: x-Project: 605

· Robert LaValva

· Bur. of Waste Prev. Reuse and Recycling

Date Received : 03/23/2001

· 44 Beaver Street-6th floor

Date Reported : 04/25/2001

· New York NY 10004

Lab ID Number : 4879.1

MINERALS ANALYSIS

Sample Identification: NMS Day 14 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	2.172	1.179	23.6
Organic-Nitrogen	%	1.873	1.017	20.3
Phosphorus (P)	%	0.452	0.245	4.9
Potassium (K)	%	0.276	0.150	3.0
Sodium (Na)	%	0.476	0.258	5.2
Calcium (Ca)	%	2.772	1.505	30.1
Magnesium (Mg)	%	0.226	0.123	2.5
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	2986	1621	3.2
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	5330	2894	5.79
Sulfate (SO ₄ -S)	ppm	3921	2129	4.26

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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 207-293-2457 FAX: 207-293-2488 www.woodsendlab.org

Account: 556

Code: x-Project: 605

· Robert LaValva

· Bur. of Waste Prev. Reuse and Recycling

Date Received : 03/23/2001

· 44 Beaver Street-6th floor

Date Reported : 04/25/2001

· New York NY 10004

Lab ID Number : 4879.1

METALS ANALYSIS

Sample Identification: NMS Day 14 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	120.0	65.2	0.1
Manganese (Mn)	mg·kg ⁻¹	476.0	258.5	0.5
Iron (Fe)	mg·kg ⁻¹	13720.0	7450.0	14.9
Zinc (Zn)	mg·kg ⁻¹	548.0	297.6	0.6
Lead (Pb)	mg·kg ⁻¹	236.0	128.1	0.3
Chromium (Cr)	mg·kg ⁻¹	42.4	-	-
Cadmium (Cd)	mg·kg ⁻¹	4.0	-	-
Nickel (Ni)	mg·kg ⁻¹	50.0	27.1	0.1

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number

< signifies less than MLD (minimum level of detection) for the particular factor tested

‡ = EPA reporting requires dry basis only

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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

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Account: 556
 · Robert LaValva
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 03/30/2001
 Date Reported : 05/02/2001
 Lab ID Number : 4891.0
 Quality Checked : *WD 5/16/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 21 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	27	725 lbs/yd ³
Solids	%	100.0	64.9	1298 lbs/ton
Moisture	%	0.0	35.1	84 gals/ton
est. water holding capacity	%	209	68	162 gals/ton
Inert and Oversize Matter	%	~	17.0	340.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.75	MedHigh
Free Carbonates (CO ₃)	Rating	~	2	Med-High
Volatile Organic Acids	ppm	1695	1100	Medium
Organic Matter	%	67.0	43.5	870 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	9.4	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	17.6	17.6	Medium
Respiration Rate/day ...	C% of Total-C	1.50	1.50	-
Carbon loss per day ...	% of total weight	0.54	0.35	7.1 lbs/ton
Dewar Self-Heating	°C rise	~	30	Grade III
..... Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	73	Slightly Plant Toxic
<i>Latuca sativa</i> Weight	%	~	42	Low
<i>Lepidium sativum</i> Germination	%	~	95	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	48	Low
Solventa CO ₂ Rate	(see chart)	~	4	Med-High
Solventa NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	4	Med-Active

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory Interpretation Sheet

Woods End Research Laboratory, Inc.

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Account: 556

Code: x-Project: 605

· Robert LaValva

· DOS Waste Prev. Reuse and Recycling

· 44 Beaver Street-8th floor

· New York NY 10004

Date Received : 03/30/2001

Date Reported : 05/02/2001

Lab ID Number : 4891.0

MINERALS ANALYSIS

Sample Identification: NMS Day 21 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	2.059	1.336	26.7
Organic-Nitrogen	%	1.809	1.174	23.5
Phosphorus (P)	%	0.408	0.265	5.3
Potassium (K)	%	0.300	0.195	3.9
Sodium (Na)	%	0.540	0.350	7.0
Calcium (Ca)	%	3.160	2.051	41.0
Magnesium (Mg)	%	0.268	0.174	3.5
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	2496	1620	3.2
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	7311	4745	9.49
Sulfate (SO ₄ -S)	ppm	6633	4305	8.61

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Woods End Research Laboratory, Inc.

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Account: 556	Code: x-Project: 605
· Robert LaValva	
· DOS Waste Prev. Reuse and Recycling	Date Received : 03/30/2001
· 44 Beaver Street-8th floor	Date Reported : 05/02/2001
· New York NY 10004	Lab ID Number : 4891.0

METALS ANALYSIS

Sample Identification: NMS Day 21 Bench-Scale, Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	106.0	68.8	0.1
Manganese (Mn)	mg·kg ⁻¹	476.0	308.9	0.6
Iron (Fe)	mg·kg ⁻¹	11800.0	7658.2	15.3
Zinc (Zn)	mg·kg ⁻¹	560.0	363.4	0.7
Lead (Pb)	mg·kg ⁻¹	244.0	158.4	0.3
Chromium (Cr)	mg·kg ⁻¹	39.6	-	-
Cadmium (Cd)	mg·kg ⁻¹	4.0	-	-
Nickel (Ni)	mg·kg ⁻¹	58.0	37.6	0.1

BACTERIOLOGIC ANALYSIS

Fecal coliform EPA503	MPN per g	< 3.0	-
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 1.2	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only
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Account: 556
 · Robert LaValva
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 03/30/2001
 Date Reported : 05/02/2001
 Lab ID Number : 4891.1
 Quality Checked : *WD 5/16/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 21 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	26	708 lbs/yd ³
Solids	%	100.0	64.3	1286 lbs/ton
Moisture	%	0.0	35.7	86 gals/ton
est. water holding capacity	%	216	68	164 gals/ton
Inert and Oversize Matter	%	~	18.3	366.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.74	MedHigh
Free Carbonates (CO ₃)	Rating	~	2	Med-High
Volatile Organic Acids	ppm	1244	800	M Low
Organic Matter	%	69.4	44.6	892 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	8.6	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	18.7	18.7	Medium
Respiration Rate/day ...	C% of Total-C	1.43	1.43	-
Carbon loss per day ...	% of total weight	0.54	0.34	6.9 lbs/ton
Dewar Self-Heating	°C rise	~	31	Grade II
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	78	Not Plant-toxic
<i>Latuca sativa</i> Weight	%	~	43	Low
<i>Lepidium sativum</i> Germination	%	~	98	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	50	Fair
Solvita CO ₂ Rate	(see chart)	~	4	Med-High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	4	Med-Active

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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For explanation of data, see Woods End Laboratory Interpretation Sheet

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
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Account: 556

Code: x-Project: 605

· Robert LaValva

· DOS Waste Prev. Reuse and Recycling

· 44 Beaver Street-8th floor

· New York NY 10004

Date Received : 03/30/2001

Date Reported : 05/02/2001

Lab ID Number : 4891.1

MINERALS ANALYSIS

Sample Identification: NMS Day 21 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton as is
..... Total Mineral Nutrients				
Total Nitrogen	%	2.007	1.291	25.8
Organic-Nitrogen	%	1.750	1.125	22.5
Phosphorus (P)	%	0.436	0.280	5.6
Potassium (K)	%	0.336	0.216	4.3
Sodium (Na)	%	0.580	0.373	7.5
Calcium (Ca)	%	3.020	1.942	38.8
Magnesium (Mg)	%	0.264	0.170	3.4
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	2565	1649	3.3
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	7306	4698	9.40
Sulfate (SO ₄ -S)	ppm	6901	4438	8.88

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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· Robert LaValva
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Date Received : 03/30/2001
 Date Reported : 05/02/2001
 Lab ID Number : 4891.1

METALS ANALYSIS

Sample Identification: NMS Day 21 Bench-Scale, Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton <i>as is</i>
Copper (Cu)	mg·kg ⁻¹	116.0	74.6	0.1
Manganese (Mn)	mg·kg ⁻¹	464.0	298.4	0.6
Iron (Fe)	mg·kg ⁻¹	11160.0	7175.9	14.4
Zinc (Zn)	mg·kg ⁻¹	608.0	390.9	0.8
Lead (Pb)	mg·kg ⁻¹	220.4	141.7	0.3
Chromium (Cr)	mg·kg ⁻¹	39.6	-	-
Cadmium (Cd)	mg·kg ⁻¹	3.6	-	-
Nickel (Ni)	mg·kg ⁻¹	57.6	37.0	0.1

BACTERIOLOGIC ANALYSIS

Fecal coliform EPA503	MPN per g	< 3.0	-
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 1.2	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies *less than MLD* (minimum level of detection) for the particular factor tested
 ‡ = EPA reporting requires dry basis only
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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

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Account: 556
 Robert LaValva
 DOS Waste Prev. Reuse and Recycling
 44 Beaver Street-8th floor
 New York NY 10004

Code: x Project: n/a
 Date Received : 04/30/2001
 Date Reported : 06/04/2001
 Lab ID Number : 4931.0
 Quality Checked : *WD 6/4/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 59, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	29	775 lbs/yd ³
Solids	%	100.0	76.5	1530 lbs/ton
Moisture	%	0.0	23.5	56 gals/ton
est. water holding capacity	%	223	69	166 gals/ton
Inert and Oversize Matter	%	~	7.5	150.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.47	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	1046	800	M Low
Organic Matter	%	72.0	55.1	1102 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	7.8	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	25.9	25.9	Med-High
Respiration Rate/day ...	C% of Total-C	3.23	3.23	-
Carbon loss per day ...	% of total weight	1.25	0.96	19.2 lbs/ton
Dewar Self-Heating	°C rise	~	40	Grade II
Seedling Response Assay, Percent of Control				
<i>Latuca sativa</i> Germination	%	~	7	Extr. Plant Toxic
<i>Latuca sativa</i> Weight	%	~	1	V. Poor
<i>Lepidium sativum</i> Germination	%	~	88	Non-toxic
<i>Lepidium sativum</i> Weight	%	~	42	Low
Solvita CO ₂ Rate	(see chart)	~	2	V. High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	2	Very Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory Interpretation Sheet

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
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Account: 556

Code: x-Project: n/a

· Robert LaValva

Date Received : 04/30/2001

· DOS Waste Prev. Reuse and Recycling

Date Reported : 06/04/2001

· 44 Beaver Street-8th floor

Lab ID Number : 4931.0

· New York NY 10004

MINERALS ANALYSIS

Sample Identification: NMS Day 59, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.503	1.150	23.0
Organic-Nitrogen	%	1.279	0.978	19.6
Phosphorus (P)	%	0.424	0.324	6.5
Potassium (K)	%	0.296	0.226	4.5
Sodium (Na)	%	0.560	0.428	8.6
Calcium (Ca)	%	2.640	2.020	40.4
Magnesium (Mg)	%	0.388	0.297	5.9
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	2243	1716	3.4
Nitrate-N	ppm	<2	< 2	nd
Nitrite-N	ppm	<2	< 2	nd
Chloride (Cl)	ppm	6350	4858	9.72
Sulfate (SO ₄ -S)	ppm	4034	3086	6.17

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
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Account: 556

Code: x-Project: n/a

· Robert LaValva

· DOS Waste Prev. Reuse and Recycling

· 44 Beaver Street-8th floor

· New York NY 10004

Date Received : 04/30/2001

Date Reported : 06/04/2001

Lab ID Number : 4931.0

METALS ANALYSIS

Sample Identification: NMS Day 59, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	150.8	115.4	0.2
Manganese (Mn)	mg·kg ⁻¹	428.0	327.4	0.7
Iron (Fe)	mg·kg ⁻¹	12120.0	9271.8	18.5
Zinc (Zn)	mg·kg ⁻¹	568.0	434.5	0.9
Lead (Pb)	mg·kg ⁻¹	239.6	183.3	0.4
Chromium (Cr)	mg·kg ⁻¹	40.8	-	-
Cadmium (Cd)	mg·kg ⁻¹	4.0	-	-
Nickel (Ni)	mg·kg ⁻¹	57.6	44.1	0.1

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number

< signifies less than MLD (minimum level of detection) for the particular factor tested

† = EPA reporting requires dry basis only

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NMS Day 59 WERL Cure



Certificate of Analysis
Total Metals - Method EPA 8020/200.8

Sample Name:	4931.0	Analyte	Result	Units	PQL	Method
Sample Location:		Arsenic	4.6	mg/Kg	1.0	EPA 6020
Sampling Date:	8/19/2001	Mercury	1.0	mg/Kg	0.1	EPA 7471A
Sampling Time:	15:00	Molybdenum	5.5	mg/Kg	1.0	EPA 6020
Date Received:	8/17/2001	Selenium	1.4	mg/Kg	1.0	EPA 8020
Lab #:	01X1007-01	Boron	37.0	mg/Kg	10.0	EPA 6020
Matrix:	SOIL	Cobalt	4.2	mg/Kg	1.0	EPA 6020
Analysis Date:	8/23/2001					
% Split:	76.4					

Lab Supervisor:

Report Date:

04-Sep-01

ND Not Detected PQL Practical Quantitation Limit

Metals Report

7850 Old Rome Road • P.O. Box 297 • Mt. Vernon, Maine 04352
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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
 Mount Vernon, ME 04352/USA
 207-293-2457 FAX: 207-293-2488 www.woodsend.org

Account: 556
 · attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 05/11/2001
 Date Reported : 06/20/2001
 Lab ID Number : 4945.0
 Quality Checked : *WD 6/29/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 70, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs·ft ³	-	37	994 lbs/yd ³
Solids	%	100.0	55.9	1118 lbs/ton
Moisture	%	0.0	44.1	106 gals/ton
est. water holding capacity	%	202	67	160 gals/ton
Inert and Oversize Matter	%	~	6.7	134.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.38	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	2	Med-High
Volatile Organic Acids	ppm	1431	800	M Low
Organic Matter	%	64.3	35.9	718 lbs/ton
Conductivity	mmhos·cm ⁻¹	~	7.6	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	17.9	17.9	Medium
Respiration Rate/day ...	C% of Total-C	1.77	1.77	-
Carbon loss per day ...	% of total weight	0.61	0.34	6.9 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Lepidium sativum</i> Germination	%	~	98	No Phytotoxicity
<i>Lepidium sativum</i> Weight	%	~	36	Low
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection), nd = none detected
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†For explanation of data, see Woods End Laboratory Interpretation Sheet

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
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Account: 556

Code: x-Project: 605

· attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Date Received : 05/11/2001
 Date Reported : 06/20/2001
 Lab ID Number : 4945.0

MINERALS ANALYSIS

Sample Identification: NMS Day 70, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	1.937	1.083	21.7
Organic-Nitrogen	%	1.931	1.080	21.6
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	55	31	0.1
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	7350	4109	8.22
Sulfate (SO ₄ -S)	ppm	3051	1705	3.41

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
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Account: 556
 · attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: x Project: 605
 Date Received : 05/21/2001
 Date Reported : 07/02/2001
 Lab ID Number : 4958.0
 Quality Checked : W O 7/2/01

COMPOSITION ANALYSIS

Sample Identification: NMS Day 80, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	34	910 lbs/yd ³
Solids	%	100.0	54.4	1088 lbs/ton
Moisture	%	0.0	45.6	109 gals/ton
est. water holding capacity	%	188	65	157 gals/ton
Inert and Oversize Matter	%	~	8.5	170.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.41	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	1	None
Volatile Organic Acids	ppm	1285	699	M Low
Organic Matter	%	59.3	32.2	645 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	7.0	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	13.2	13.2	M. Low
Respiration Rate/day ...	C% of Total-C	0.95	0.95	-
Carbon loss per day ...	% of total weight	0.30	0.17	3.3 lbs/ton
Dewar Self-Heating	°C rise	~	20	Grade IV
..... Seedling Response Assay, Percent of Control				
<i>Lepidium sativum</i> Germination	%	~	95	No Phytotoxicity
<i>Lepidium sativum</i> Weight	%	~	50	Fair
Solvita CO ₂ Rate	(see chart)	~	3	High
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	3	Immature

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory Interpretation Sheet

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Account: 556	Code: x-Project: 605
· attn: Venetia Lannon	Date Received : 05/21/2001
· DOS Waste Prev. Reuse and Recycling	Date Reported : 07/02/2001
· 44 Beaver Street-8th floor	Lab ID Number : 4958.0
· New York NY 10004	

MINERALS ANALYSIS

Sample Identification: NMS Day 80, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	2.427	1.320	26.4
Organic-Nitrogen	%	2.416	1.314	26.3
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	112	61	0.1
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	7393	4022	8.04
Sulfate (SO ₄ -S)	ppm	4158	2262	4.52

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
 Mount Vernon, ME 04352/USA
 207-293-2457 FAX: 207-293-2488 www.woodsends.org

Account: 556
 · attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: snyx Project: 605
 Date Received : 06/01/2001
 Date Reported : 07/09/2001
 Lab ID Number : 4968.0
 Quality Checked : *wd 7/9/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 91, WERL Curc

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	37	1011 lbs/yd ³
Solids	%	100.0	47.0	940 lbs/ton
Moisture	%	0.0	53.0	127 gals/ton
est. water holding capacity	%	188	65	156 gals/ton
Inert and Oversize Matter	%	~	8.5	170.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	8.21	High
Free Carbonates (CO ₃)	Rating	~	2	Med-High
Volatile Organic Acids	ppm	744	350	M Low
Organic Matter	%	59.2	27.8	556 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	9.3	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	13.2	13.2	M. Low
Respiration Rate/day ...	C% of Total-C	0.60	0.60	-
Carbon loss per day ...	% of total weight	0.19	0.09	1.8 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Lepidium sativum</i> Germination	%	~	95	No Phytotoxicity
<i>Lepidium sativum</i> Weight	%	~	57	Fair
Solvita CO ₂ Rate	(see chart)	~	5	Medium
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	5	Late-Active

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory [Interpretation Sheet](#)

Woods End Research Laboratory, Inc.

Old Rome Road, P.O. Box 297
 Mount Vernon, ME 04352/USA
 207-293-2457 FAX: 207-293-2488 www.woodsendlab.org

Account: 556	Code: snyx-Project: 605
· attn: Venetia Lannon	Date Received : 06/01/2001
· DOS Waste Prev. Reuse and Recycling	Date Reported : 07/09/2001
· 44 Beaver Street-8th floor	Lab ID Number : 4968.0
· New York NY 10004	

MINERALS ANALYSIS

Sample Identification: NMS Day 91, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton as is
..... Total Mineral Nutrients.....				
Total Nitrogen	%	2.421	1.138	22.8
Organic-Nitrogen	%	2.341	1.100	22.0
..... Soluble Nutrients.....				
Ammonium-N (NH ₄ -N)	ppm	793	373	0.7
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	7285	3424	6.85
Sulfate (SO ₄ -S)	ppm	3808	1790	3.58

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Appendix F: Data from the New York City Composting Trials

Woods End Research Laboratory, Inc.

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Account: 556
 · attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: snyx Project: 605
 Date Received : 06/15/2001
 Date Reported : 07/17/2001
 Lab ID Number : 4985.0
 Quality Checked : *WD 7/17/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 105, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	41	1112 lbs/yd ³
Solids	%	100.0	45.9	918 lbs/ton
Moisture	%	0.0	54.1	130 gals/ton
est. water holding capacity	%	158	61	147 gals/ton
Inert and Oversize Matter	%	~	7.7	154.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	8.03	MedHigh
Free Carbonates (CO ₃)	Rating	~	3	V High
Volatile Organic Acids	ppm	1090	500	M Low
Organic Matter	%	48.5	22.3	446 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	6.3	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	9.8	9.8	V. Low
Respiration Rate/day ...	C% of Total-C	0.69	0.69	-
Carbon loss per day ...	% of total weight	0.18	0.08	1.7 lbs/ton
Seedling Response Assay, Percent of Control				
<i>Lepidium sativum</i> Germination	%	~	83	Slight Phytotoxicity
<i>Lepidium sativum</i> Weight	%	~	49	Low
Solvita CO ₂ Rate	(see chart)	~	6	Med-Low
Solvita NH ₃ Rate	(see chart)	~	4	Slight
Maturity Index	(see chart)	~	6	Active-Curing

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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†For explanation of data, see Woods End Laboratory Interpretation Sheet

Woods End Research Laboratory, Inc.

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 207-293-2457 FAX: 207-293-2488 www.woodsendlab.org

Account: 556	Code: snyx-Project: 605
· attn: Venetia Lannon	Date Received : 06/15/2001
· DOS Waste Prev. Reuse and Recycling	Date Reported : 07/17/2001
· 44 Beaver Street-8th floor	Lab ID Number : 4985.0
· New York NY 10004	

MINERALS ANALYSIS

Sample Identification: NMS Day 105, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton as is
Total Mineral Nutrients				
Total Nitrogen	%	2.667	1.224	24.5
Organic-Nitrogen	%	2.554	1.173	23.5
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	1123	515	1.0
Nitrate-N	ppm	<2	< 1	nd
Nitrite-N	ppm	<2	< 1	nd
Volatile N as % of total-N	w:w	~	0.3	-
Chloride (Cl)	ppm	6841	3140	6.28
Sulfate (SO ₄ -S)	ppm	3771	1731	3.46

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Account: 556
 · attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: Ssnicyvdx Project: 605
 Date Received : 07/05/2001
 Date Reported : 08/07/2001
 Lab ID Number : 5005.0
 Quality Checked : *WD 8/7/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 125, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	41	1112 lbs/yd ³
Solids	%	100.0	44.8	896 lbs/ton
Moisture	%	0.0	55.2	132 gals/ton
est. water holding capacity	%	182	65	155 gals/ton
Inert and Oversize Matter	%	~	10.7	214.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.08	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	2	Med-High
Volatile Organic Acids	ppm	4128	1849	Medium
Organic Matter	%	57.2	25.6	512 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	8.3	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	12.6	12.6	M. Low
Respiration Rate/day ...	C% of Total-C	0.45	0.45	-
Carbon loss per day ...	% of total weight	0.14	0.06	1.2 lbs/ton
Dewar Self-Heating	°C rise	~	6	Grade V
Seedling Response Assay, Percent of Control.....				
<i>Lepidium sativum</i> Germination	%	~	66	Phytotoxic
<i>Lepidium sativum</i> Weight	%	~	83	Excellent
Solvita CO ₂ Rate	(see chart)	~	6	Med-Low
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	6	Active-Curing

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Account: 556	Code: Ssncyvdx-Project: 605
attn: Venetia Lannon	Date Received : 07/05/2001
DOS Waste Prev. Reuse and Recycling	Date Reported : 08/07/2001
44 Beaver Street-8th floor	Lab ID Number : 5005.0
New York NY 10004	

MINERALS ANALYSIS

Sample Identification: NMS Day 125, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton as is
Total Mineral Nutrients				
Total Nitrogen	%	2.455	1.100	22.0
Organic-Nitrogen	%	2.252	1.009	20.2
Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	287	129	0.3
Nitrate-N	ppm	439	196	0.4
Nitrite-N	ppm	1300	582	-
Chloride (Cl)	ppm	6842	3065	6.13
Sulfate (SO ₄ -S)	ppm	4990	2235	4.47

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Appendix F: Data from the New York City Composting Trials

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Account: 556
 · attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: CScyvdX Project: 605
 Date Received : 07/27/2001
 Date Reported : 09/18/2001
 Lab ID Number : 5035.0
 Quality Checked : *WD 9/19/01*

COMPOSITION ANALYSIS

Sample Identification: NMS Day 147 WERL Cure (<3/8"), Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	42	1129 lbs/yd ³
Solids	%	100.0	45.7	914 lbs/ton
Moisture	%	0.0	54.3	130 gals/ton
est. water holding capacity	%	171	63	151 gals/ton
Inert and Oversize Matter	%	~	7.0	140.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.27	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	3	V High
Volatile Organic Acids	ppm	656	300	M Low
Organic Matter	%	52.9	24.2	484 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	8.9	Med-High
Carbon:Nitrogen (C:N) Ratio	w:w	13.9	13.9	M. Low
Respiration Rate/day ...	C% of Total-C	0.19	0.19	-
Carbon loss per day ...	% of total weight	0.05	0.02	0.5 lbs/ton
Dewar Self-Heating	°C rise	~	1	Grade V
Seedling Response Assay, Percent of Control				
<i>Lepidium sativum</i> Germination	%	~	103	No Phytotoxicity
<i>Lepidium sativum</i> Weight	%	~	67	Fair
Solvita CO ₂ Rate	(see chart)	~	6	Med-Low
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	6	Active-Curing

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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Account: 556

Code: CScyvdX-Project: 605

· attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Date Received : 07/27/2001
 Date Reported : 09/18/2001
 Lab ID Number : 5035.0

MINERALS ANALYSIS

Sample Identification: NMS Day 147 WERL Cure (<3/8"), Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	2.063	0.943	18.9
Organic-Nitrogen	%	1.883	0.861	17.2
Phosphorus (P)	%	0.260	0.119	2.4
Potassium (K)	%	0.316	0.144	2.9
Sodium (Na)	%	0.580	0.265	5.3
Calcium (Ca)	%	3.960	1.810	36.2
Magnesium (Mg)	%	0.352	0.161	3.2
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	11	5	0.0
Nitrate-N	ppm	1783	815	1.6
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4811	2199	4.40
Sulfate (SO ₄ -S)	ppm	3287	1502	3.00

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected
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Account: 556

Code: CScyvdX-Project: 605

· attn: Venetia Lannon
 · D05 Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Date Received : 07/27/2001
 Date Reported : 09/18/2001
 Lab ID Number : 5035.0

METALS ANALYSIS

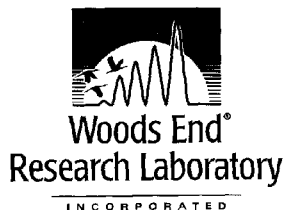
Sample Identification: NMS Day 147 WERL Cure (<3/8"), Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	164.0	74.9	0.1
Manganese (Mn)	mg·kg ⁻¹	520.0	237.6	0.5
Iron (Fe)	mg·kg ⁻¹	4640.0	2120.5	4.2
Zinc (Zn)	mg·kg ⁻¹	468.0	213.9	0.4
Lead (Pb)	mg·kg ⁻¹	170.0	77.7	0.2
Chromium (Cr)	mg·kg ⁻¹	44.8	-	-
Cadmium (Cd)	mg·kg ⁻¹	5.6	-	-
Nickel (Ni)	mg·kg ⁻¹	45.2	-	-
Arsenic (As)	mg·kg ⁻¹	2.9	-	-
Mercury (Hg)	mg·kg ⁻¹	1.1	-	-
Molybdenum (Mo)	mg·kg ⁻¹	3.86	-	-
Selenium (Se)	mg·kg ⁻¹	1.8	-	-
BACTERIOLOGIC ANALYSIS				
Fecal coliform EPA503	MPN per g	< 2	-	-
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 1.9	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only

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NMS Day 147 WERL Cure (<3/8")
 Sample A & Sample B



Certificate of Analysis
 Total Metals - Method EPA 6020/200.8

Sample Name:	5035.0	Analyte	Result	Units	PQL	Method
Sample Location:		Arsenic	2.9	mg/Kg	1.0	EPA 6020
Sampling Date:	8/6/2001	Mercury	1.1	mg/Kg	0.1	EPA 7471A
Sampling Time:	14:00	Molybdenum	3.86	mg/Kg	1.0	EPA 6020
Date Received:	8/7/2001	Selenium	1.8	mg/Kg	1.0	EPA 6020
Lab #:	01X0935-01	Boron	27.2	mg/Kg	10.0	EPA 6020
Matrix:	SOIL	Cobalt	3.4	mg/Kg	1.0	EPA 6020
Analysis Date:	8/15/2001					
% Solid:	67.9					

Sample Name:	5035.1	Analyte	Result	Units	PQL	Method
Sample Location:		Arsenic	2.9	mg/Kg	1.0	EPA 6020
Sampling Date:	8/6/2001	Mercury	1.1	mg/Kg	0.1	EPA 7471A
Sampling Time:	14:00	Molybdenum	4.56	mg/Kg	1.0	EPA 6020
Date Received:	8/7/2001	Selenium	1.5	mg/Kg	1.0	EPA 6020
Lab #:	01X0935-02	Boron	29.2	mg/Kg	10.0	EPA 6020
Matrix:	SOIL	Cobalt	3.8	mg/Kg	1.0	EPA 6020
Analysis Date:	8/15/2001					
% Solid:	67.7					

ND Not Detected PQL Practical Quantitation Limit

Metals Report

7850 Old Rome Road • P.O. Box 297 • Mt. Vernon, Maine 04352
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Appendix F: Data from the New York City Composting Trials

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 Mount Vernon, ME 04352/USA
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Account: 556
 · attn: Venetia Lannon
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: CScyvdX Project: 605
 Date Received : 07/27/2001
 Date Reported : 09/18/2001
 Lab ID Number : 5035.1
 Quality Checked : *WD 9/19/01*

COMPOSITION ANALYSIS

Sample Identification: Day 147 WERL Cure (<3/8"), Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	Notations †
DENSITY	lbs-ft ³	-	39	1062 lbs/yd ³
Solids	%	100.0	50.3	1006 lbs/ton
Moisture	%	0.0	49.7	119 gals/ton
est. water holding capacity	%	173	63	152 gals/ton
Inert and Oversize Matter	%	~	5.3	106.0 lbs/ton
pH (paste, H ₂ O)	-logH ⁺	~	7.32	Med-Ideal
Free Carbonates (CO ₃)	Rating	~	3	V High
Volatile Organic Acids	ppm	596	300	M Low
Organic Matter	%	53.7	27.0	540 lbs/ton
Conductivity	mmhos-cm ⁻¹	~	806.0	V. High
Carbon:Nitrogen (C:N) Ratio	w:w	12.0	12.0	M. Low
Respiration Rate/day ...	C% of Total-C	0.22	0.22	-
Carbon loss per day ...	% of total weight	0.06	0.03	0.7 lbs/ton
Dewar Self-Heating	°C rise	~	1	Grade V
..... Seedling Response Assay, Percent of Control				
<i>Lepidium sativum</i> Germination	%	~	103	No Phytotoxicity
<i>Lepidium sativum</i> Weight	%	~	69	Fair
Solvita CO ₂ Rate	(see chart)	~	6	Med-Low
Solvita NH ₃ Rate	(see chart)	~	5	Absent
Maturity Index	(see chart)	~	6	Active-Curing

Notes: ppm = mg/kg < = less than MLD (minimum level of detection); nd = none detected

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For explanation of data, see Woods End Laboratory Interpretation Sheet

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Account: 556	Code: CScyvdX-Project: 605
· attn: Venetia Lannon	Date Received : 07/27/2001
· DOS Waste Prev. Reuse and Recycling	Date Reported : 09/18/2001
· 44 Beaver Street-8th floor	Lab ID Number : 5035.1
· New York NY 10004	

MINERALS ANALYSIS

Sample Identification: NMS Day 147 WERL Cure (<3/8"), Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis	pounds/ton <i>as is</i>
..... Total Mineral Nutrients				
Total Nitrogen	%	2.408	1.211	24.2
Organic-Nitrogen	%	2.215	1.114	22.3
Phosphorus (P)	%	0.192	0.097	1.9
Potassium (K)	%	0.292	0.147	2.9
Sodium (Na)	%	0.500	0.252	5.0
Calcium (Ca)	%	3.800	1.911	38.2
Magnesium (Mg)	%	0.292	0.147	2.9
..... Soluble Nutrients				
Ammonium-N (NH ₄ -N)	ppm	10	5	0.0
Nitrate-N	ppm	1919	965	1.9
Nitrite-N	ppm	<2	< 1	nd
Chloride (Cl)	ppm	4936	2483	4.97
Sulfate (SO ₄ -S)	ppm	3667	1845	3.69

Notes: ppm = mg/kg < = less than MLD (minimum level of detection), nd = none detected
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Woods End Research Laboratory, Inc.

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 · New York NY 10004

Code: CScyvdX-Project: 605

Date Received : 07/27/2001
 Date Reported : 09/18/2001
 Lab ID Number : 5035.1

METALS ANALYSIS

Sample Identification: NMS Day 147 WERL Cure (<3/8"), Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
Copper (Cu)	mg·kg ⁻¹	148.0	74.4	0.1
Manganese (Mn)	mg·kg ⁻¹	520.0	261.6	0.5
Iron (Fe)	mg·kg ⁻¹	3880.0	1951.6	3.9
Zinc (Zn)	mg·kg ⁻¹	460.0	231.4	0.5
Lead (Pb)	mg·kg ⁻¹	181.6	91.3	0.2
Chromium (Cr)	mg·kg ⁻¹	44.0	-	-
Cadmium (Cd)	mg·kg ⁻¹	4.8	-	-
Nickel (Ni)	mg·kg ⁻¹	44.0	-	-
Arsenic (As)	mg·kg ⁻¹	2.9	-	-
Mercury (Hg)	mg·kg ⁻¹	1.1	-	-
Molybdenum (Mo)	mg·kg ⁻¹	4.56	-	-
Selenium (Se)	mg·kg ⁻¹	1.5	-	-

BACTERIOLOGIC ANALYSIS

Fecal coliform EPA503	MPN per g	< 2	-
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 1.6	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only

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Account: 556	Code: x-Project: 605
· attn: Venetia Lannon	Date Received : 05/21/2001
· DOS Waste Prev. Reuse and Recycling	Date Reported : 07/02/2001
· 44 Beaver Street-8th floor	Lab ID Number : 4958.0
· New York NY 10004	

SUPPLEMENTAL ANALYSIS

Sample Identification: NMS Day 80, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton as is
..... BACTERIOLOGIC ANALYSIS				
Fecal coliform EPA503	MPN per g	50	-	
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 0.2	-	

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 ‡ = EPA reporting requires dry basis only
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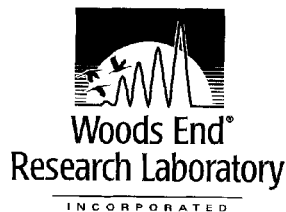
Account: 556	Code: Ssncyvdx-Project: 605
· attn: Venetia Lannon	Date Received : 07/05/2001
· DOS Waste Prev. Reuse and Recycling	Date Reported : 08/07/2001
· 44 Beaver Street-8th floor	Lab ID Number : 5005.0
· New York NY 10004	

SUPPLEMENTAL ANALYSIS

Sample Identification: NMS Day 125, WERL Cure

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
..... BACTERIOLOGIC ANALYSIS				
Fecal coliform EPA503	MPN per g	< 4.3	-	
Total <i>Salmonella</i> EPA503 ..	MPN per 4g	< 1.7	-	

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only
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NMS Day 21, Sample A

Sample Matrix: COMPOST
 Sample Description: 4888.0
 Sample Type: Unknown

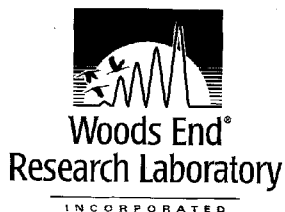
Parameter	Result	Unit	Detection Limit	Method	Preparation Date	Analysis Date	Analyst
PCB in solids						04/10/01	
TCMX	102	%	40	EPA 8082	04/04/01	04/10/01	KAP
DCB (Surrogate)	98	%	40	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1016	Not Detected	mg/Kg	1.2	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1221	Not Detected	mg/Kg	1.2	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1232	Not Detected	mg/Kg	1.2	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1242	Not Detected	mg/Kg	1.2	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1248	Not Detected	mg/Kg	1.2	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1254	Not Detected	mg/Kg	1.2	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1260	Not Detected	mg/Kg	1.2	EPA 8082	04/04/01	04/10/01	KAP
Arsenic Total	<4.4	mg/Kg	4.4	EPA 6010B	04/11/01	04/12/01	MRB
Fecal Coliform 503 MPN	4.2	MPN/g DW	4.2	SM9221E.1	03/31/01		BAG
Mercury Total	0.98	mg/Kg	0.02	EPA 7471A	04/05/01	04/05/01	BW
Molybdenum Total	20	mg/Kg	11	EPA 6010B	04/11/01	04/12/01	MRB
Salmonella 503 MPN	<1.7	MPN/4g DW	1.7	SM9260D.1	03/31/01		BAG
Selenium Total	17	mg/Kg	9.2	EPA 6010B	04/11/01	04/12/01	MRB
Solids, Percent	48	%	0.01	SM 2540G	04/06/01	04/06/01	CAH

Comments:

Duplicate Confirmation

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Appendix F: Data from the New York City Composting Trials



NMS Day 21, Sample B

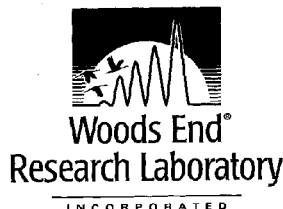
Sample Matrix: COMPOST
 Sample Description: 4888.1
 Sample Type: Unknown

Parameter	Result	Unit	Detection Limit	Method	Preparation Date	Analysis Date	Analyst
PCB in solids						04/10/01	
DCB (Surrogate)	86	%	40	EPA 8082	04/04/01	04/10/01	KAP
TCMX	92	%	40	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1016	Not Detected	mg/Kg	1.3	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1221	Not Detected	mg/Kg	1.3	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1232	Not Detected	mg/Kg	1.3	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1242	Not Detected	mg/Kg	1.3	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1248	Not Detected	mg/Kg	1.3	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1254	Not Detected	mg/Kg	1.3	EPA 8082	04/04/01	04/10/01	KAP
AROCLOR 1260	Not Detected	mg/Kg	1.3	EPA 8082	04/04/01	04/10/01	KAP
Arsenic Total	<4.1	mg/Kg	4.1	EPA 6010B	04/11/01	04/12/01	MRB
Fecal Coliform 503 MPN	60	MPN/g DW	4.0	SM9221E.1	03/31/01		BAG
Mercury Total	0.79	mg/Kg	0.02	EPA 7471A	04/05/01	04/05/01	BW
Molybdenum Total	20	mg/Kg	10	EPA 6010B	04/11/01	04/12/01	MRB
Salmonella 503 MPN	<1.6	MPN/4g DW	1.6	SM9260D.1	03/31/01		BAG
Selenium Total	13	mg/Kg	8.5	EPA 6010B	04/11/01	04/12/01	MRB
Solids, Percent	50	%	0.01	SM 2540G	04/06/01	04/06/01	CAH

Comments:

Duplicate Confirmation

NMS Day 147 WERL Cure (<3/8")
 Sample A & Sample B



Certificate of Analysis

PCB's Method EPA 8082

Sample:	5035.0	Analyte	Result	Units	PQL
Collect Date:	8/6/2001	PCB 1242	ND	mg/Kg	0.2
Date Received:	8/7/2001	PCB 1254	ND	mg/Kg	0.2
Lab Sample #	01X0835-01	PCB 1232	ND	mg/Kg	0.2
Date Analyzed	8/13/2001	PCB 1260	ND	mg/Kg	0.2
Date Extracted	8/8/2001	PCB 1248	ND	mg/Kg	0.2
Surrogate(DCB) % Recovery	55.5 AR30-150	PCB 1016	ND	mg/Kg	0.2
g Sample Extracted	Percent Solids 67.9	PCB 1016	ND	mg/Kg	0.2
Wt Basis	Dry wt Basis	PCB 1221	ND	mg/Kg	0.2

Sample:	5035.1	Analyte	Result	Units	PQL
Collect Date:	8/6/2001	PCB 1242	ND	mg/Kg	0.2
Date Received:	8/7/2001	PCB 1254	ND	mg/Kg	0.2
Lab Sample #	01X0835-02	PCB 1232	ND	mg/Kg	0.2
Date Analyzed	8/13/2001	PCB 1260	ND	mg/Kg	0.2
Date Extracted	8/8/2001	PCB 1248	ND	mg/Kg	0.2
Surrogate(DCB) % Recovery	56.3 AR30-150	PCB 1016	ND	mg/Kg	0.2
g Sample Extracted	Percent Solids 67.7	PCB 1016	ND	mg/Kg	0.2
Wt Basis	Dry wt Basis	PCB 1221	ND	mg/Kg	0.2

PQL Practical Quantitation Limit
 PCB Report

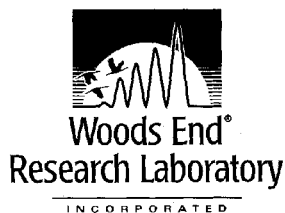
ND Not Detected (<PQL)

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Appendix F: Data from the New York City Composting Trials

NMS Primary Screen Overs (>2") Day 1-3, Sample A [#4856.2]

NMS Primary Screen Unders (<2") Day 1-3, Sample A& B [#4856.4 & #4856.5]



Certificate of Analysis

TCLP Metals - Method EPA 1311, 6020,7470A

Sample Name:	4856.2	Analyte	Result	Units	PQL	EPA MCL
Sample Location:	COMPOST	TCLP Arsenic	ND	ppm	0.05	5.0
Sampling Date:	4/16/2001	TCLP Barium	0.36	ppm	0.05	100
Sampling Time:	12:00	TCLP Cadmium	ND	ppm	0.05	1.0
Date Received:	4/18/2001	TCLP Chromium	0.05	ppm	0.05	5.0
Lab #:	01X0366-01	TCLP Mercury	ND	ppm	0.01	0.2
Matrix:	SOIL	TCLP Lead	0.13	ppm	0.05	5.0
Analysis Date:	4/20/2001	TCLP Selenium	ND	ppm	0.05	1.0
		TCLP Silver	ND	ppm	0.05	5.0

Sample Name:	4856.4	Analyte	Result	Units	PQL	EPA MCL
Sample Location:	COMPOST	TCLP Arsenic	ND	ppm	0.05	5.0
Sampling Date:	4/16/2001	TCLP Barium	0.42	ppm	0.05	100
Sampling Time:	12:00	TCLP Cadmium	ND	ppm	0.05	1.0
Date Received:	4/18/2001	TCLP Chromium	0.09	ppm	0.05	5.0
Lab #:	01X0366-02	TCLP Mercury	ND	ppm	0.01	0.2
Matrix:	SOIL	TCLP Lead	0.10	ppm	0.05	5.0
Analysis Date:	4/20/2001	TCLP Selenium	ND	ppm	0.05	1.0
		TCLP Silver	ND	ppm	0.05	5.0

Sample Name:	4856.5	Analyte	Result	Units	PQL	EPA MCL
Sample Location:	COMPOST	TCLP Arsenic	ND	ppm	0.05	5.0
Sampling Date:	4/16/2001	TCLP Barium	0.44	ppm	0.05	100
Sampling Time:	12:00	TCLP Cadmium	ND	ppm	0.05	1.0
Date Received:	4/18/2001	TCLP Chromium	0.10	ppm	0.05	5.0
Lab #:	01X0366-03	TCLP Mercury	ND	ppm	0.01	0.2
Matrix:	SOIL	TCLP Lead	0.08	ppm	0.05	5.0
Analysis Date:	4/20/2001	TCLP Selenium	ND	ppm	0.05	1.0
		TCLP Silver	ND	ppm	0.05	5.0

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NMS Primary Screen Overs (>2") Day 3-5, Sample A [#4858.0]

NMS Primary Screen Unders (<2") Day 3-5, Sample A & B [#4858.2 & #4858.3]



Certificate of Analysis

TCLP Metals - Method EPA 1311, 6020,7470A

Sample Name:	4858.0	Analyte	Result	Units	PQL	EPA MCL
Sample Location:	COMPOST	TCLP Arsenic	ND	ppm	0.05	5.0
Sampling Date:	4/16/2001	TCLP Barium	0.26	ppm	0.05	100
Sampling Time:	12:00	TCLP Cadmium	ND	ppm	0.05	1.0
Date Received:	4/18/2001	TCLP Chromium	ND	ppm	0.05	5.0
Lab #:	01X0366-04	TCLP Mercury	ND	ppm	0.01	0.2
Matrix:	SOIL	TCLP Lead	ND	ppm	0.05	5.0
Analysis Date:	4/20/2001	TCLP Selenium	ND	ppm	0.05	1.0
		TCLP Silver	ND	ppm	0.05	5.0
Sample Name:	4858.2	Analyte	Result	Units	PQL	EPA MCL
Sample Location:	COMPOST	TCLP Arsenic	ND	ppm	0.05	5.0
Sampling Date:	4/16/2001	TCLP Barium	0.44	ppm	0.05	100
Sampling Time:	12:00	TCLP Cadmium	ND	ppm	0.05	1.0
Date Received:	4/18/2001	TCLP Chromium	0.05	ppm	0.05	5.0
Lab #:	01X0366-05	TCLP Mercury	ND	ppm	0.01	0.2
Matrix:	SOIL	TCLP Lead	ND	ppm	0.05	5.0
Analysis Date:	4/20/2001	TCLP Selenium	ND	ppm	0.05	1.0
		TCLP Silver	ND	ppm	0.05	5.0
Sample Name:	4858.3	Analyte	Result	Units	PQL	EPA MCL
Sample Location:	COMPOST	TCLP Arsenic	ND	ppm	0.05	5.0
Sampling Date:	4/16/2001	TCLP Barium	0.46	ppm	0.05	100
Sampling Time:	12:00	TCLP Cadmium	ND	ppm	0.05	1.0
Date Received:	4/18/2001	TCLP Chromium	0.06	ppm	0.05	5.0
Lab #:	01X0366-06	TCLP Mercury	ND	ppm	0.01	0.2
Matrix:	SOIL	TCLP Lead	ND	ppm	0.05	5.0
Analysis Date:	4/20/2001	TCLP Selenium	ND	ppm	0.05	1.0
		TCLP Silver	ND	ppm	0.05	5.0

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Account: 556
 · Robert LaValva
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: x Project: n/a
 Date Received : 04/06/2001
 Date Reported : 05/17/2001
 Lab ID Number : 4905.0
 Quality Checked : *WD 5/17/01*

TCLP METALS ANALYSIS

Sample Identification: NMS Half-Inch Overs (>1/2")

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton <i>as is</i>
TCLP Arsenic	mg·kg ⁻¹	ND	-	-
TCLP Barium	mg·kg ⁻¹	0.65	-	-
TCLP Cadmium	mg·kg ⁻¹	ND	-	-
TCLP Chromium	mg·kg ⁻¹	ND	-	-
TCLP Mercury	mg·kg ⁻¹	ND	-	-
TCLP Lead	mg·kg ⁻¹	0.07	-	-
TCLP Selenium	mg·kg ⁻¹	ND	-	-
TCLP Silver	mg·kg ⁻¹	ND	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested

‡ = EPA reporting requires dry basis only

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Account: 556

· Robert LaValva

· DOS Waste Prev. Reuse and Recycling

· 44 Beaver Street-8th floor

· New York NY 10004

Code: x Project: n/a

Date Received : 04/10/2001

Date Reported : 05/17/2001

Lab ID Number : 4907.0

Quality Checked : *WD 5/17/01*

TCLP METALS ANALYSIS

Sample Identification: NMS Final Facility 3/8" 'Overs' Sample A

VARIABLE MEASURED	Unit	dry basis	as is basis‡	pounds/ton as is
TCLP Arsenic	mg·kg ⁻¹	ND	-	-
TCLP Barium	mg·kg ⁻¹	0.63	-	-
TCLP Cadmium	mg·kg ⁻¹	ND	-	-
TCLP Chromium	mg·kg ⁻¹	0.05	-	-
TCLP Mercury	mg·kg ⁻¹	ND	-	-
TCLP Lead	mg·kg ⁻¹	ND	-	-
TCLP Selenium	mg·kg ⁻¹	ND	-	-
TCLP Silver	mg·kg ⁻¹	ND	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number

< signifies less than MLD (minimum level of detection) for the particular factor tested

‡ = EPA reporting requires dry basis only

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Account: 556
 · Robert LaValva
 · DOS Waste Prev. Reuse and Recycling
 · 44 Beaver Street-8th floor
 · New York NY 10004

Code: x Project: n/a
 Date Received : 04/10/2001
 Date Reported : 05/17/2001
 Lab ID Number : 4907.1
 Quality Checked : *WD 5/17/01*

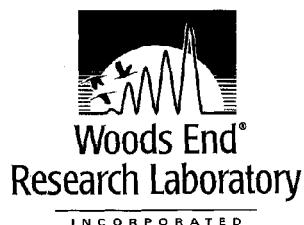
TCLP METALS ANALYSIS

Sample Identification: NMS Final Facility 3/8" 'Overs', Sample B

VARIABLE MEASURED	Unit	dry basis	as is basis†	pounds/ton as is
TCLP Arsenic	mg·kg ⁻¹	ND	-	-
TCLP Barium	mg·kg ⁻¹	0.58	-	-
TCLP Cadmium	mg·kg ⁻¹	ND	-	-
TCLP Chromium	mg·kg ⁻¹	0.06	-	-
TCLP Mercury	mg·kg ⁻¹	ND	-	-
TCLP Lead	mg·kg ⁻¹	0.06	-	-
TCLP Selenium	mg·kg ⁻¹	ND	-	-
TCLP Silver	mg·kg ⁻¹	ND	-	-

Notes: mg·kg⁻¹ = ppm (parts per million); MPN = most probable number
 < signifies less than MLD (minimum level of detection) for the particular factor tested
 † = EPA reporting requires dry basis only
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NMS Day 147 WERL Cure Overs (>3/8")

**Certificate of Analysis**

TCLP Metals - Method EPA 1311, 6020,7470A

Sample Name:	5035.4	Analyte	Result	Units	PQL	EPA MCL
Sample Location:		TCLP Arsenic	ND	ppm	0.05	5.0
Sampling Date:	8/6/2001	TCLP Barium	0.48	ppm	0.05	100
Sampling Time:	14:00	TCLP Cadmium	ND	ppm	0.05	1.0
Date Received:	8/7/2001	TCLP Chromium	ND	ppm	0.05	5.0
Lab #:	01X0935-05	TCLP Mercury	ND	ppm	0.01	0.2
Matrix:	SOIL	TCLP Lead	ND	ppm	0.05	5.0
Analysis Date:	8/13/2001	TCLP Selenium	ND	ppm	0.05	1.0
		TCLP Silver	ND	ppm	0.05	5.0

Lab Supervisor:

Wayne Davis

Report Date:

04-Sep-01

ND Not Detected PQL Practical Quantitation Limit
MCL Maximum Contaminant Level

TCLP Metals Report

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INERTS CHARACTERIZATION

Client:
 attn: Venetia Lannon
 DOS Waste Prev. Reuse and Recycling
 44 Beaver Street-8th floor
 New York NY 10004

Date: 8-Oct-01
 Project: 605
 Acct#: 556
 Initials: EE
 Ref: _____

Lab No: 4856.2, -3 Description: NMS Primary Screen Overs (>2"), Sample A

<u>FRACTION: Over 0.25 "</u>	<u>LAB SORT</u>	<u>percent of whole</u>
Glass	42	0.2%
Plastic-Hard	3637	18.1%
Plastic-Film	5450	27.2%
Metal	1034	5.2%
Textile, fibers	5512	27.5%
Paper	200	1.0%
Wood	691	3.4%
Stones	1	0.0%
Food, bone, shell	181	0.9%
<u>Under 0.25 "</u>	3303	16.5%
<u>TOTAL WEIGHT</u>	20051	100.0%

Lab No: 4858.0, -1 Description: NMS Primary Screen Overs (>2"), Sample B

<u>FRACTION: Over 0.25 "</u>	<u>LAB SORT</u>	<u>percent of whole</u>
Glass	120	0.5%
Plastic-Hard	2741	10.3%
Plastic-Film	11450	43.1%
Metal	983	3.7%
Textile, fibers	7378	27.8%
Paper	0	0.0%
Wood	1542	5.8%
Stones	40	0.2%
Food, bone, shell	5	0.0%
<u>Under 0.25 "</u>	2300	8.7%
<u>TOTAL WEIGHT</u>	26559	100.0%

10-08-01

Printed:

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INERTS CHARACTERIZATION

Client:
 attn: Venetia Lannon
 DOS Waste Prev. Reuse and Recycling
 44 Beaver Street-8th floor
 New York NY 10004

Date: 8-Oct-01
 Project: 605
 Acct#: 556
 Initials: EE
 Ref: _____

Lab No: 4905.0 Description: NMS Half-Inch Overs (>1/2")

<i>FRACTION:</i> <u>Over 0.25 "</u>	LAB SORT	percent of whole
Glass	193	11.3%
Plastic-Hard	316	18.6%
Plastic-Film	374	22.0%
Metal	94	5.5%
Textile, fibers	59	3.5%
Paper	0	0.0%
Wood	40	2.4%
Stones	167	9.8%
Food	28	1.6%
Bone, shell, seeds	0	0.0%
<u>Under 0.25 "</u>	430	25.3%
<u>TOTAL WEIGHT</u>	1701	100.0%

Lab No: 4910.0 Description: NMS Half-Inch Unders (<1/2")

<i>FRACTION:</i> <u>Over 0.25 "</u>	LAB SORT	percent of whole
Glass	5	0.6%
Plastic-Hard	2	0.3%
Plastic-Film	4	0.4%
Metal	1	0.1%
Textile, fibers	4	0.5%
Paper	1	0.2%
Wood	1	0.1%
Stones	1	0.1%
Food	2	0.2%
Bone, shell, seeds	0	0.0%
<u>Under 0.25 "</u>	865	97.6%
<u>TOTAL WEIGHT</u>	886	100.0%

Printed: 10-08-01

Woods End Research Laboratory, Inc.
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INERTS CHARACTERIZATION

Client:
 attn: Venetia Lannon
 DOS Waste Prev. Reuse and Recycling
 44 Beaver Street-8th floor
 New York NY 10004

Date: 27-Jul-01
 Project: 605
 Acct#: 556
 Initials: EE
 Ref: _____

Lab No: 4907.2 **Description:** NMS Final Screen Unders (<3/8"), Sample A

Weight In, g:		911	0.55		
FRACTION: <u>Over 10mm</u>		LAB SORT	dry weight, grams	percent of whole, dry basis	percent of over-10 mm, dry basis
	Glass	0.0	0.0	0.00%	0.0%
	Plastic-Hard	0.0	0.0	0.00%	0.0%
	Plastic-Film	0.0	0.0	0.00%	0.0%
	Metal	0.0	0.0	0.00%	0.0%
	Textile, fibers	0.0	0.0	0.00%	0.0%
	Paper	0.0	0.0	0.00%	0.0%
	Wood	0.0	0.0	0.00%	0.0%
	Stones	0.0	0.0	0.00%	0.0%
	Bone, shell	0.0	0.0	0.00%	0.0%
	Compost	0.0	0.0	0.00%	0.0%
	TOTAL WEIGHT	0.0	0.0	0.0%	0.0%

Total Man-made Inerts Matter = 0.0%

Weight In, g:		911.10			
FRACTION: <u>Under 10mm</u>		LAB SORT	dry weight, grams	percent of whole, dry basis	percent of under-10 mm, dry basis
	Glass	0.0	0.0	0.00%	0.0%
	Plastic-Hard	1.0	1.0	0.20%	0.2%
	Plastic-Film	0.4	0.4	0.08%	0.1%
	Metal	0.1	0.1	0.02%	0.0%
	Textile, fibers	2.1	1.2	0.23%	0.2%
	Paper	2.9	1.6	0.32%	0.3%
	Wood	0.5	0.3	0.05%	0.1%
	Stones	0.0	0.0	0.00%	0.0%
	Bone, shell	0.1	0.1	0.01%	0.0%
	Compost + Fines	904.0	497.2	99.09%	99.1%
	TOTAL WEIGHT	911.1	501.8	100.0%	100.0%

> 4mm

Total Man-made Inerts Matter = 0.5%

Printed: 10-19-01

Woods End Research Laboratory, Inc.
20 Old Rome Road - Mt Vernon ME 04352

INERTS CHARACTERIZATION

Client:
attn: Venetia Lannon
DOS Waste Prev. Reuse and Recycling
44 Beaver Street-8th floor
New York NY 10004

Date: 27-Jul-01
Project: 605
Acct#: 556

Initials EE
Ref:

Lab No: 4907.3 **Description:** NMS Final Screen Unders (<3/8"), Sample B

Weight In, g:	686.00	0.55	percent of whole, dry basis	percent of over-10 mm, dry basis
FRACTION: Over 10mm	LAB SORT	dry weight, grams		
Glass	0.0	0.0	0.00%	0.0%
Plastic-Hard	0.0	0.0	0.00%	0.0%
Plastic-Film	0.0	0.0	0.00%	0.0%
Metal	0.0	0.0	0.00%	0.0%
Textile, fibers	0.0	0.0	0.00%	0.0%
Paper	0.0	0.0	0.00%	0.0%
Wood	0.0	0.0	0.00%	0.0%
Stones	0.0	0.0	0.00%	0.0%
Bone, shell	0.0	0.0	0.00%	0.0%
Compost	0.0	0.0	0.00%	0.0%
TOTAL WEIGHT	0.0	0.0	0.0%	0.0%

Total Man-made Inerts Matter = 0.0%

Weight In, g:	665.80	LAB SORT	dry weight, grams	percent of whole, dry basis	percent of under-10 mm, dry basis
FRACTION: Under 10mm					
Glass		0.0	0.0	0.00%	0.0%
Plastic-Hard		0.7	0.7	0.19%	0.2%
Plastic-Film		0.2	0.2	0.05%	0.1%
Metal		0.0	0.0	0.00%	0.0%
Textile, fibers		1.6	0.9	0.24%	0.2%
Paper		2.2	1.2	0.33%	0.3%
Wood		0.1	0.1	0.02%	0.0%
Stones		0.0	0.0	0.00%	0.0%
Bone, shell		0.0	0.0	0.00%	0.0%
Compost + Fines		661.0	363.6	99.17%	99.2%
TOTAL WEIGHT		665.8	366.6	100.0%	100.0%

Total Man-made Inerts Matter = 0.5%

Printed: 10-19-01

Woods End Research Laboratory, Inc.
 20 Old Rome Road - Mt Vernon ME 04352

INERTS CHARACTERIZATION

Client:
 attn: Venetia Lannon
 DOS Waste Prev. Reuse and Recycling
 44 Beaver Street-8th floor
 New York NY 10004

Date: 10-Apr-01
 Project: 605
 Acct#: 556
 Initials: FE
 Ref: _____

Lab No: 4907.0 Description: NMS Final Facility Overs (>3/8"), Sample A

FRACTION:	<u>Over 0.25 "</u>	LAB SORT	dry weight, grams	percent, dry basis
	Glass	103	103	17.6%
	Plastic-Hard	14	14	2.4%
	Plastic-Film	0	0	0.0%
	Metal	5	5	0.9%
	Textile, fibers	248	114	19.5%
	Paper	0	0	0.0%
	Wood	9	4	0.7%
	Stones	14	6	1.1%
	Food	0	0	0.0%
	Bone, shell, seeds	0	0	0.0%

Under 0.25 " 738 339

Total Man-made Inerts > 1/4" = 40.3%

Lab No: 4907.1 Description: NMS Final Facility Overs (>3/8"), Sample B

FRACTION:	<u>Over 0.25 "</u>	LAB SORT	dry weight, grams	percent, dry basis
	Glass	68	68	15.6%
	Plastic-Hard	6	6	1.4%
	Plastic-Film	0	0	0.0%
	Metal	0	0	0.0%
	Textile, fibers	128	59	13.6%
	Paper	0	0	0.0%
	Wood	0	0	0.0%
	Stones	10	10	2.3%
	Food	0	0	0.0%
	Bone, shell, seeds	0	0	0.0%

Under 0.25 " 634 292

Total Man-made Inerts > 1/4" = 30.6%

Printed: 10-22-01

Woods End Research Laboratory, Inc.
 20 Old Rome Road - Mt Vernon ME 04352

INERTS CHARACTERIZATION

Client:
 attn: Venetia Lannon
 DOS Waste Prev. Reuse and Recycling
 44 Beaver Street-8th floor
 New York NY 10004

Date: 9-Oct-01
 Project: 610
 Acct#: 556
 Initials: EE
 Ref: _____

Lab No: **5119.0** Description: **NYC Leaf Compost A**

Weight In, g: 1043

FRACTION: <u>Over 10mm</u>	LAB SORT	dry weight, grams	percent of whole, dry basis	percent of over-10 mm, dry basis
Glass	0.0	0.0	0.00%	0.0%
Plastic-Hard	0.0	0.0	0.00%	0.0%
Plastic-Film	0.0	0.0	0.00%	0.0%
Metal	0.0	0.0	0.00%	0.0%
Textile, fibers	0.0	0.0	0.00%	0.0%
Paper	0.0	0.0	0.00%	0.0%
Wood	7.8	3.5	0.37%	7.5%
Stones	43.6	43.6	4.56%	92.5%
Bone, shell	0.0	0.0	0.00%	0.0%
Compost	0.0	0.0	0.00%	0.0%
TOTAL WEIGHT	51.4	47.1	4.9%	100.0%

Total Man-made Inerts Matter = 0.0%

Weight In, g: 1042.37

FRACTION: <u>Under 10mm</u>	LAB SORT	dry weight, grams	percent of whole, dry basis	percent of under-10 mm, dry basis
Glass	1.0	1.0	0.20%	0.2%
Plastic-Hard	1.0	1.0	0.20%	0.2%
Plastic-Film	0.0	0.0	0.00%	0.0%
Metal	0.0	0.0	0.00%	0.0%
Textile, fibers	0.0	0.0	0.00%	0.0%
Paper	0.0	0.0	0.00%	0.0%
Wood	58.0	26.1	5.11%	5.4%
Stones	70.0	70.0	13.71%	14.4%
Bone, shell	0.0	0.0	0.00%	0.0%
Compost + Fines	861.0	387.5	75.86%	79.8%
TOTAL WEIGHT	991.0	485.6	95.1%	100.0%

> 4mm

Total Man-made Inerts Matter = 0.4%

Printed: 10-23-01

Woods End Research Laboratory, Inc.
 20 Old Rome Road - Mt Vernon ME 04352

INERTS CHARACTERIZATION

Client:
 attn: Venetia Lannon
 DOS Waste Prev. Reuse and Recycling
 44 Beaver Street-8th floor
 New York NY 10004

Date: 9-Oct-01
 Project: 610
 Acct#: 556
 Initials: EE
 Ref: _____

Lab No: 5119.1 Description: NYC Leaf Compost B

Weight In, g: 1309

FRACTION: <u>Over 10mm</u>	LAB SORT	dry weight, grams	percent of whole, dry basis	percent of over-10 mm, dry basis
Glass	0.0	0.0	0.00%	0.0%
Plastic-Hard	1.6	1.6	0.14%	4.0%
Plastic-Film	0.0	0.0	0.00%	0.0%
Metal	0.0	0.0	0.00%	0.0%
Textile, fibers	0.0	0.0	0.00%	0.0%
Paper	0.0	0.0	0.00%	0.0%
Wood	10.0	4.5	0.39%	11.2%
Stones	34.0	34.0	2.95%	84.8%
Bone, shell	0.0	0.0	0.00%	0.0%
Compost	0.0	0.0	0.00%	0.0%
TOTAL WEIGHT	45.6	40.1	3.5%	100.0%

Total Man-made Inerts Matter = 4.0%

Weight In, g: 774.27

FRACTION: <u>Under 10mm</u>	LAB SORT	dry weight, grams	percent of whole, dry basis	percent of under-10 mm, dry basis
Glass	0.0	0.0	0.00%	0.0%
Plastic-Hard	0.2	0.2	0.05%	0.1%
Plastic-Film	0.1	0.1	0.03%	0.0%
Metal	0.0	0.0	0.00%	0.0%
Textile, fibers	0.0	0.0	0.00%	0.0%
Paper	0.0	0.0	0.00%	0.0%
Wood	35.0	15.8	4.12%	4.3%
Stones	59.0	59.0	15.44%	16.0%
Bone, shell	0.0	0.0	0.00%	0.0%
Compost + Fines	653.0	293.9	76.88%	79.7%
TOTAL WEIGHT	747.3	368.9	96.5%	100.0%

> 4mm

Total Man-made Inerts Matter = 0.1%

Printed: 10-23-01