Lampl\Herbert Consultants
P.O. Box 10129
Tallahassee, Florida 32302-2129
Tel: (904) 222-4634 Fax: (904) 224-9952

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MAR 22 1993
Division of Air
Resources Management

March 22, 1993

C. H. Fancy, P.E.
Chief of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee FL 32399-2400

RE: Request to Conduct Tests Burning a Residue from a Paper & Pulp Process with a Permitted Wood Waste Fuel at Timber Energy Resources Facility, Telogia, Florida

Dear Mr. Fancy:

On March 11, 1993, in a letter to Mr. Jerome J. Guidry, P.E., you requested additional characterizations of the paper and pulp residue. Our firm is the lead consultant for projects with Timber Energy Resources and as such we have retained Mr. Guidry on air permitting matters. I am responding directly from Tallahassee to expedite the transmittal.

Enclosed are summary data sheets of analyses conducted by Savannah Laboratories on behalf of ITT Rayonier. The data sheets list TCLP analyses on primary and secondary waste for samples taken 4/8/92. Additional, supporting analyses were conducted for pressed and unpressed waste on 6/5/90, 7/14/92 and 8/10/92.

I talked with Mr. Tom Stevens, Manager of Savannah's Tallahassee laboratory and he confirmed that all TCLP analyses are run at Savannah using Method 1311. Similarly, the Ph units ranged from 6.5 to 7.8 indicating that corrosivity is not an issue.

Should you have additional questions, either Mr. Guidry or myself will be available.

Sincerely,

LAMPL\HERBERT CONSULTANTS, INC.

Thomas A. Herbert, Ph.D., P.G.
Associate

cc: B. Mitchell
E. Middleswart
M. Rediy (OWM: Haz Was) 4-9-93 RRM

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

March 11, 1993

Mr. Jerome J. Guidry, P.E.
President
Perigee Technical Services, Inc.
6658 The Landings Drive
Orlando, Florida 32812-3528

Dear Mr. Guidry:

Re: Request to Conduct Tests While Burning a Residue from a Paper & Pulp Process with a Permitted Wood Waste Fuel

The Department has reviewed your letter with enclosures received February 10, 1993, which requested permission to conduct tests for air pollutants while burning the above referenced waste stream along with the permitted fuel at Timber Energy Resources, Inc. Based on an evaluation of the data submitted, the request is considered insufficient to make a final Departmental decision. Therefore, please have the residue analyzed for the following parameters, in accordance with the citings, and submit the results:

- Mobility of Both Organic and Inorganic Analytes Present in Liquid, Solid, and Multiphasic Wastes: 40 CFR 261, Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure; and,
- Characteristic of Corrosivity: 40 CFR 261.22.

If there are any questions, please call Mr. Bruce Mitchell at (904)488-1344 or write to me at the above address.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/BM/rbm

Enclosures

cc: E. Middleswart, NWD
M. Redig, BS&HW
J. Braswell, Esq., DER

	6/5/90 Primary Sludge µg/kg	6/5/90 Primary Sludge Pressate µg/l	6/5/90 Primary Sludge TCLP mg/l	4/8/92 Primary Sludge Pressed TCLP mg/l	4/8/92 Secondary Sludge TCLP mg/l	7/20/92 Primary Pressed Sludge µg/kg dw	7/14/92 Secondary Pressed Sludge µg/kg dw	8/7/92 Primary Pressed Sludge µg/kg dw	8/7/92 Secondary Pressed Sludge µg/kg dw	8/10/92 Primary Sludge Pressate µg/l	8/10/92 Secondary Sludge Pressate µg/l
a-BHC	<330	<25								<100	<100
b-BHC	<330	<25									
d-BHC	<330	<25								<100	<100
g-BHC	<330	<25									
Acenaphthene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Acrolein	<330	<25				<2,900	<1,800				
Acrylonitrile	<500	<25				<29	<18				
Anthracene	<500	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Benzene	<20	<1.0	<0.050	<0.020	<0.020	<29	<18	<18	<13	<5.0	<5.0
Benzidine	<330	<50				<310,000	<100,000				
Benzo (a) Anthracene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Benzo (a) Pyrene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Benzo (b) Fluoranthene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Benzo (g,h,i) Perylene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Benzo (k) Fluoranthene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Bis (2-chloroethyl) Ether	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Bis (2-chloroethoxy) Methane	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100

COPY # ____

CONTROLLED DOCUMENT

	6/5/90 Primary Sludge µg/kg	6/5/90 Primary Sludge Pressate µg/l	6/5/90 Primary Sludge TCLP mg/l	4/8/92 Primary Sludge Pressed TCLP mg/l	4/8/92 Secondary Sludge TCLP mg/l	7/20/92 Primary Pressed Sludge µg/kg dw	7/14/92 Secondary Pressed Sludge µg/kg dw	8/7/92 Primary Pressed Sludge µg/kg dw	8/7/92 Secondary Pressed Sludge µg/kg dw	8/10/92 Primary Sludge Pressate µg/l	8/10/92 Secondary Sludge Pressate µg/l
Bis (2-chloroisopropyl) Ether	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Bis (2-Ethylhexyl) Phthalate	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Bromodichloromethane	<20	<1				<39,000	<13,000	<18	<13	<5.0	<5.0
Bromomethane	<20	<1				<29	<18	<37	<27	<10	<10
Butyl Benzyl Phthalate	<330	<50				<39,000	<13,000				
Carbon Tetrachloride	<20	<1	<0.050	<0.020	<0.020	<29	<18	<18	<13	<5.0	<5.0
Chlordane	<1700	<200	<0.002			<600	<2,000	<17,000	<17,000	<500	<500
Chlorobenzene	<20	<1	<0.050	<0.020	<0.020	<29	<18	<18	<13	<5.0	<5.0
Chlorodibromomethane	<20	<1				<29	<18	<18	<13	<5.0	<5.0
Chloroethane	<20	<1				<29	<18	<37	<27	<10	<10
Chloroform	61.3	92.9	0.091	<0.020	<0.020	430	<18	150	<13	88	<5.0
Chloromethane	<20	<1				<29	<18	<37	<27	<10	<10
Chrysene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Cis-1,3-Dichloropropene	<20	<1				<29	<18	<18	<13	<5.0	<5.0
Di-n-butylphthalate	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Di-n-octylphthalate	<330	<50				<39,000	<13,000	<3,300	<3,300	<200	<200
Dibenzo (a,h) Anthracene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Dichloromethane	<20	<1				<29	<18	<18	<13	<5.0	<5.0

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	6/5/90 Primary Sludge µg/kg	6/5/90 Primary Sludge Pressate µg/l	6/5/90 Primary Sludge TCLP mg/l	4/8/92 Primary Sludge Pressed TCLP mg/l	4/8/92 Secondary Sludge TCLP mg/l	7/20/92 Primary Pressed Sludge µg/kg dw	7/14/92 Secondary Pressed Sludge µg/kg dw	8/7/92 Primary Pressed Sludge µg/kg dw	8/7/92 Secondary Pressed Sludge µg/kg dw	8/10/92 Primary Sludge Pressate µg/l	8/10/92 Secondary Sludge Pressate µg/l
Diethyl Phthalate	<330	<50				<39,000	<13,000			<200	<200
Dimethyl Phthalate	<330	<50				<39,000	<13,000			<200	<200
Endosulfan I	<330	<25				<60	<13,000				
Endosulfan II	<330	<25				<120	<380				
Endosulfan Sulfate	<330	<25				<120	<380	<6,600	<6,600	<200	<200
Ethyl Benzene	<20	<1				<29	<18	<18	<13	<5.0	<5.0
Fluoranthene	<330	<50				<9,000	<13,000	<3,300	<3,300	<100	<100
Fluorene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Hexachlorobenzene	<330	<50	<0.10	<0.050	<0.050	<39,000	<13,000	<3,300	<3,300	<100	<100
Hexachlorocyclopentadiene	<330	<50				<39,000	<13,000	<3,300	<3,300		
Hexachloroethane	<330	<50	<0.10	<0.050	<0.050	<39,000	<13,000	<3,300	<3,300	<100	<100
Indeno (1,2,3 cd) Pyrene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Isophorone	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
N-Nitrosodi-n-Propylamine	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
N-Nitrosodimethylamine	<330	<50				<39,000	<13,000	<3,300	<3,300		
N-Nitrosodiphenylamine	<330	<50				<39,000	<13,000	<3,300	<3,300		
Naphthalene	850	<50				<39,000	15,000	<3,300	<3,300	<100	<100
Nitrobenzene	<330	<50	<0.10	<0.050	<0.050	<39,000	<13,000	<3,300	<3,300	<100	<100

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	6/5/90 Primary Sludge µg/kg	6/5/90 Primary Sludge Pressate µg/l	6/5/90 Primary Sludge TCLP mg/l	4/8/92 Primary Sludge Pressed TCLP mg/l	4/8/92 Secondary Sludge TCLP mg/l	7/20/92 Primary Pressed Sludge µg/kg dw	7/14/92 Secondary Pressed Sludge µg/kg dw	8/7/92 Primary Pressed Sludge µg/kg dw	8/7/92 Secondary Pressed Sludge µg/kg dw	8/10/92 Primary Sludge Pressate µg/l	8/10/92 Secondary Sludge Pressate µg/l
Pentachlorophenol	<1700	<50	<1.0	<0.25	<0.25	<200,000	<6,500	<17,000	<17,000	<500	<500
Phenanthrene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Phenol	470	<25				<39,000	<13,000	<3,300	<3,300	<100	<100
Pyrene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
Tetrachloroethene	<20	<1	<0.050	<0.020	<0.020	<29	<18	<18	<13	<5.0	<5.0
Toluene	<20	<1				<29	<18	<18	<13	<5.0	<5.0
Total-1,2-Dichloroethene	<20	<1				<29	<18	<18	<13	<5.0	<5.0
Tribromomethane	<20	<1				<29	<18				
Trichloroethene	<20	<1	<0.050			<29	<18	<18	<13	<5.0	<5.0
Vinyl Chloride	<20	<1	<0.050	<0.040	<0.040	<29	<18	<37	<27	<10	<10
1,1-Dichloroethane	<20	<1				<29	<18	<18	<13	<5.0	<5.0
1,1-Dichloroethene	<20	<1				<29	<18	<18	<13	<5.0	<5.0
1,1,1-Trichloroethane	78.8	<1				<29	<18	<18	<13	<5.0	<5.0
1,1,2-Trichloroethane	<20	<1				<29	<18	<18	<13	<5.0	<5.0
1,1,2,2-Tetrachloroethane	<20	<1				<29	<18	<18	<13	<5.0	<5.0
1,2-Dichlorobenzene	<20	<1				<39,000	<13,000	<18	<13	<100	<100
1,2-Dichloroethane	<20	<1	<0.050	<0.020	<0.020	<29	<18	<18	<13	<5.0	<5.0
1,2-Dichloropropane	<20	<1				<29	<18	<18	<13	<5.0	<5.0

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1,2-Diphenylhydrazine	<330	<50				<39,000	<13,000				
1,2,4-Trichlorobenzene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	<100
1,3 Dichlorobenzene	<20	<1	<0.050			<39,000	<13,000	<18	<13	<100	<100
1,4 Dichlorobenzene	<20	<1	<0.050	<0.050	<0.050	<39,000	<13,000	<18	<13	<100	<100
2 Chloroethylvinyl Ether	<20	<1				<29	<180	<180	<130	<50	
2 Chloronaphthalene	<330	<50				<39,000	<13,000	<3,300	<3,300	<100	
2-Chlorophenol	<330	<25				<39,000	<13,000	<3,300	<3,300		
2 Nitrophenol	<330	<25				<39,000	<13,000	<3,300	<3,300	<500	<500
2,4 Dichlorophenol	<330	<25				<39,000	<13,000	<3,300	<3,300	<100	<100
2,4-Dimethylphenol	<330	<25				<39,000	<13,000	<33,000	<33,000	<100	<100
2,4-Dinitrophenol	<1700	<75	<2.0			<200,000	<65,000	<17,000	<17,000	<500	<500
2,4-Dinitrotoluene	<330	<50	<0.10	<0.050	<0.050	<39,000	<13,000	<33,000	<33,000	<200	<200
2,4,6-Trichlorophenol	<330	<25	<0.50	<0.050	<0.050	<39,000	<13,000	<33,000	<33,000	<100	<100
2,6 Dinitrotoluene	<330	<50				<39,000	<13,000	<33,000	<33,000	<200	<200
3,3 Dichlorobenzidine	<330	<50				<78,000	<26,000	<66,000	<66,000	<200	<200
4-Bromophenyl Phenyl Ether	<330	<50				<39,000	<13,000	<33,000	<33,000	<100	<100
4-Chloro-3-Methylphenol	<330	<25				<39,000	<3,000	<33,000	<33,000	<100	<100
4-Chlorophenyl Phenyl Ether	<330	<50				<39,000	<13,000	<33,000	<33,000	<100	<100

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4 Nitrophenol	<1700	<75				<200,000	<65,000	<17,000	<17,000	<500	<500
4,6-Dinitro-o cresol	<1700	<100				<200,000	<65,000	<17,000	<17,000	<500	<500
1,1-Dichloroethylene			<0.050	<0.020	<0.020						
Methyl Ethyl Ketone			<0.50	<0.20	<0.020						
Tetrachloroethylene			<0.050	<0.02	<0.020						
Trichloroethylene			<0.050	<0.02	<0.020						
Cresol (Ortho)			<0.50	<0.05	<0.05						
Cresol (M & P)			<0.50	<0.05	<0.050						
Hexachlorobutadiene			<0.10	<0.05	<0.050					<100	<100
2,4,5-Trichlorophenol			<0.50	<0.25	<0.25						
Pyridine			<5.0	<1.0	<1.0						

CONTROLLED DOCUMENT

SENT BY: ; 3-22-93 ; 2:10PM ; ITT RAYONIER INC.→T A HERBERT TALL9852:# 8

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	6/5/90 Primary Sludge µg/kg	6/5/90 Primary Sludge Pressate µg/l	6/5/90 Primary Sludge TCLP mg/l	4/8/92 Primary Sludge Pressed TCLP mg/l	4/8/92 Secondary Sludge TCLP mg/l	7/20/92 Primary Pressed Sludge mg/kg dw	7/14/92 Secondary Pressed Sludge mg/kg dw	8/7/92 Primary Pressed Sludge µg/kg dw	8/7/92 Secondary Pressed Sludge µg/kg dw	8/10/92 Primary Sludge Pressate µg/l	8/10/92 Secondary Sludge Pressate µg/l
Antimony						<17	<26				
Arsenic			<0.05	<0.20	<0.20	<3.4	<5.6			<0.010	<0.011
Barium			<1.00	<1.0	1.0	24	29			0.068	0.059
Beryllium						<1.7	<2.6				
Cadmium			<0.50	<0.010	<0.010	<1.7	<2.6			<0.0050	<0.0050
Chromium			<0.50	<0.050	<0.050	11	85			0.016	0.054
Copper						18	47	13	28	<0.025	<0.025
Lead			<0.50	<0.20	<0.20	5.8	31			<0.0050	<0.12
Manganese						72	99			0.36	0.27
Mercury			<0.01	<0.020	<0.020	0.07	0.13			<0.00020	<0.0020
Nickel						24	42				
Selenium			<0.05	<0.50	<0.50	<3.4	<5.6			<0.010	<0.010
Thallium						<3.4	<5.6				
Silver			<0.50	<0.010	<0.010	<3.3	<5.3			<0.010	<0.010
Zinc						89	310			0.036	0.100
Iron						2100	3100			0.50	1.60
Sodium						2600	4600	2500	4000	450	940

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Phenolics						<1.4	<5.8				
Cyanide						<3.6	<5.9				
Density, g/cc						1.10	0.844				
Sulfate as SO_4						3,400	28,000			680	930
Nitrate-N						<29	<18			<0.050	0.11
Chloride						710	1,100			570	680
pH Units						7.5	7.3	7.8	7.3	7.1	6.5
Total Organic Carbon						620,000	290,000				
Total Kjedahl Nit.-N						14,000	28,000				
Total Phosphorous						1,100	2,000				
Color								Dark Black	Dark Black	500	1,500
Surfactants								<74		<0.50	<0.50
Odor								>200	>200	>256	>256
Total Dissolved Solids										4,700	17,000

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Lawton Chiles, Governor
Virginia B. Wetherell, Secretary

March 11, 1993

Mr. Jerome J. Guidry, P.E.
President
Perigee Technical Services, Inc.
6658 The Landings Drive
Orlando, Florida 32812-3528

Dear Mr. Guidry:

Re: Request to Conduct Tests While Burning a Residue from a Paper & Pulp Process with a Permitted Wood Waste Fuel

The Department has reviewed your letter with enclosures received February 10, 1993, which requested permission to conduct tests for air pollutants while burning the above referenced waste stream along with the permitted fuel at Timber Energy Resources, Inc. Based on an evaluation of the data submitted, the request is considered insufficient to make a final Departmental decision. Therefore, please have the residue analyzed for the following parameters, in accordance with the citings, and submit the results:

- Mobility of Both Organic and Inorganic Analytes Present in Liquid, Solid, and Multiphasic Wastes: 40 CFR 261, Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure; and,
- Characteristic of Corrosivity: 40 CFR 261.22.

If there are any questions, please call Mr. Bruce Mitchell at (904)488-1344 or write to me at the above address.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/BM/rbm

Enclosures

cc: E. Middleswart, NWD
M. Redig, BS&HW
J. Braswell, Esq., DER

Subpart C—Characteristics of Hazardous Waste

§ 261.20 General.

(a) A solid waste, as defined in § 261.2, which is not excluded from regulation as a hazardous waste under § 261.4(b), is a hazardous waste if it exhibits any of the characteristics identified in this subpart.

[*Comment*: § 262.11 of this chapter sets forth the generator's responsibility to determine whether his waste exhibits one or more of the characteristics identified in this subpart]

(b) A hazardous waste which is identified by a characteristic in this subpart is assigned every EPA Hazardous Waste Number that is applicable as set forth in this subpart. This number must be used in complying with the notification requirements of section 3010 of the Act and all applicable recordkeeping and reporting requirements under parts 262 through 265, 268, and 270 of this chapter.

(c) For purposes of this subpart, the Administrator will consider a sample obtained using any of the applicable sampling methods specified in appendix I to be a representative sample within the meaning of part 260 of this chapter.

[*Comment*: Since the appendix I sampling methods are not being formally adopted by the Administrator, a person who desires to employ an alternative sampling method is not required to demonstrate the equivalency of his method under the procedures set forth in §§ 260.20 and 260.21.]

[45 FR 33119, May 19, 1980, as amended at 51 FR 40636, Nov. 7, 1986; 55 FR 22684, June 1, 1990; 56 FR 3876, Jan. 31, 1991]

§ 261.21 Characteristic of ignitability.

(a) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

(1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has flash point less than 60°C (140°F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80 (incorporated by reference, see § 260.11), or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78 (incorporated by reference, see § 260.11), or as determined by an equivalent test method approved by the Administrator under procedures set forth in §§ 260.20 and 260.21.

(2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

(3) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Administrator under §§ 260.20 and 260.21.

(4) It is an oxidizer as defined in 49 CFR 173.151.

(b) A solid waste that exhibits the characteristic of ignitability has the EPA Hazardous Waste Number of D001.

[45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990]

§ 261.22 Characteristic of corrosivity.

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using either an EPA test method or an equivalent test method approved by the Administrator under the procedures set forth in §§ 260.20 and 260.21. The EPA test method for pH is specified as Method 5.2 in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by reference, see § 260.11).

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (incorporated by

pling waste with properties similar to the indicated materials, will be considered by the Agency to be representative of the waste.

Extremely viscous liquid—ASTM Standard D140-70 Crushed or powdered material—ASTM Standard D346-75 Soil or rock-like material—ASTM Standard D420-69 Soil-like material—ASTM Standard D1452-65

Fly Ash-like material—ASTM Standard D2234-76 [ASTM Standards are available from ASTM, 1916 Race St., Philadelphia, PA 19103]

Containerized liquid wastes—"COLIWASA" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," [a] U.S. Environmental Protection Agency, Office of Solid Waste, Washington, D.C. 20460. [Copies may be obtained from Solid Waste Information, U.S. Environmental Protection Agency, 26 W. St. Clair St., Cincinnati, Ohio 45268]

Liquid waste in pits, ponds, lagoons, and similar reservoirs.—"Pond Sampler" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods." [a]

This manual also contains additional information on application of these protocols.

Appendix II—Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)

1.0 Scope and Application

1.1 The TCLP is designed to determine the mobility of both organic and inorganic analytes present in liquid, solid, and multiphasic wastes.

1.2 If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run.

1.3 If an analysis of any one of the liquid fractions of the TCLP extract indicates that a regulated compound is present at such high concentrations that, even after accounting for dilution from the other fractions of the extract, the concentration would be equal to or above the regulatory level for that compound, then the waste is hazardous and it is not necessary to analyze the remaining fractions of the extract.

1.4 If an analysis of extract obtained using a bottle extractor shows that the concentration of any regulated volatile analyte equals or exceeds the regulatory level for that compound, then the waste is hazardous and extraction using the ZHE is not necessary. However, extract from a bottle extractor cannot be used to demonstrate that the concentration of volatile compounds is below the regulatory level.

2.0 Summary of Method

2.1 For liquid wastes (i.e., those containing less than 0.5% dry solid material), the waste, after filtration through a 0.6 to 0.8 μm glass fiber filter, is defined as the TCLP extract.

2.2 For wastes containing greater than or equal to 0.5% solids, the liquid, if any, is separated from the solid phase and stored for later analysis; the particle size of the solid phase is reduced, if necessary. The solid phase is extracted with an amount of extraction fluid equal to 20 times the weight of the solid phase. The extraction fluid employed is a function of the alkalinity of the solid phase of the waste. A special extractor vessel is used when testing for volatile analytes (see Table 1 for a list of volatile compounds). Following extraction, the liquid extract is separated from the solid phase by filtration through a 0.6 to 0.8 μm glass fiber filter.

2.3 If compatible (i.e., multiple phases will not form on combination), the initial liquid phase of the waste is added to the liquid extract, and these are analyzed together. If incompatible, the liquids are analyzed separately and the results are mathematically combined to yield a volume-weighted average concentration.

3.0 Interferences

3.1 Potential interferences that may be encountered during analysis are discussed in the individual analytical methods.

4.0 Apparatus and Materials

4.1 Agitation apparatus: The agitation apparatus must be capable of rotating the extraction vessel in an end-over-end fashion (see Figure 1) at 30 ±2 rpm. Suitable devices known to EPA are identified in Table 2.

4.2 Extraction Vessels.

4.2.1 Zero-Headspace Extraction Vessel (ZHE). This device is for use only when the waste is being tested for the mobility of volatile analytes (i.e., those listed in Table 1). The ZHE (depicted in Figure 2) allows for liquid/solid separation within the device, and effectively precludes headspace. This type of vessel allows for initial liquid/solid separation, extraction, and final extract filtration without opening the vessel (see section 4.3.1). The vessels shall have an internal volume of 500-600 mL, and be equipped to accommodate a 90-110 mm

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[a] These methods are also described in "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA 600/2-80-018, January 1980.

filter. The devices contain VITON
which should be replaced frequen
ble ZHE devices known to EPA
fied in Table 3.
For the ZHE to be acceptable fo
piston within the ZHE should be
moved with approximately 15 p
square inch (psi) or less. If it ta
pressure to move the piston, the
the device should be replaced. If
not solve the problem, the ZHE is
able for TCLP analyses and the
turer should be contacted.
The ZHE should be checked
after every extraction. If the devic
a built-in pressure gauge, press
device to 50 psi, allow it to stand u
for 1 hour, and recheck the pressu
device does not have a built-in
gauge, pressurize the device to 50
merge it in water, and check for
ence of air bubbles escaping from
fittings. If pressure is lost, check a
and inspect and replace O-rings,
sary. Retest the device. If leakage
cannot be solved, the manufactur
be contacted.
Some ZHEs use gas pressure t
the ZHE piston, while others use
cal pressure (see Table 3). Whereas
tiles procedures (see section 7.3)
pounds per square inch (psi), for
chanically actuated piston, the pre
plied is measured in torque-inc
Refer to the manufacturer's instru
to the proper conversion.
4.2.2 Bottle Extraction Vessel.
waste is being evaluated using the
tle extraction, a jar with sufficient
to hold the sample and the extrac
is needed. Headspace is allowed
vessel.
The extraction bottles may be co
from various materials, dependin
analytes to be analyzed and the
the waste (see section 4.3.3). It
mended that borosilicate glass b
used instead of other types of gl
cially when inorganics are of conc
tic bottles, other than polytetraflu
lene, shall not be used if organics
investigated. Bottles are available
number of laboratory suppliers. W
type of extraction vessel is used, t
tion device discussed in section 4.3.
for initial liquid/solid separation
extract filtration.
4.3 Filtration Devices: It is recor
that all filtrations be performed in
4.3.1 Zero-Headspace Extractor
(ZHE): When the waste is evaluate
latiles, the zero-headspace extracti
described in section 4.2.1 is used f

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[1] VITON® is a registered trade
DuPont.

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Jerome Guidry, PE
Perigee Tech Services
6658 The Landings Dr
Orlando, Fl 32812-3528

4a. Article Number
P 062 921 975

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
3-15-93

5. Signature (Addressee)
M. Guidry

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

P 062 921 975

UNITED STATES POSTAL SERVICE

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to	Jerome Guidry
Street and No.	Perigee Tech
P.O., State and ZIP Code	Orlando, Fl
Postage	
Certified Fee	$
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	3-12-93

PS Form **3800**, June 1991

I N T E R O F F I C E   M E M O R A N D U M

Date: 09-Mar-1993 11:56am ES
From: Bruce Mitchell TAL
MITCHELL_B
Dept: Air Resources Manageme
Tel No: 904/488-1344
SUNCOM:

TO: Michael Redig TAL (REDIG_M)

Subject: Jerome Guidry: Timber Energy Resources, Inc.-response to test

Michael:

Here is a draft of a response letter regarding the issues that we discussed this morning. Please critique, edit, etc. Many thanks for your assistance on this matter.

Sincerely,

Bruce Mitchell
488-1344

March 10, 1993

Mr. Jerome J. Guidry, P.E.
Perigee-Technical Services, Inc.
6658 The Landings Drive
Orlando, Florida 32812-3528

Dear Mr. Guidry:

Re: Request to Conduct Tests While Burning a Residue from a Paper & Pulp Process with a Permitted Wood Waste Fuel

The Department has reviewed your letter with enclosures received February 10, 1993, which requested permission to conduct tests for air pollutants while burning the above referenced waste stream along with the permitted fuel at Timber Energy Resources, Inc. Based on an evaluation of the data submitted, the request is considered insufficient to make a final Departmental decision. Therefore, please have the residue analyzed for the following parameters, in accordance with the citings, and submit the results:

- Mobility of Both Organic and Inorganic Analytes Present in Liquid, Solid, and Multiphasic Wastes: 40 CFR 261, Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure; and,

- Characteristic of Corrosivity: 40 CFR 261.22.

If there are any questions, please call Mr. Bruce Mitchell at (904)488-1344 or write to me at the above address.

Sincerely,

Mr. C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/BM/rbm

Enclosures

cc: E. Middleswart, NWD
M. Redig, BS&HW

Environmental Radiation Studies
Environmental Impact Studies
Radiation Dose Modeling
Risk Assessment

Perigee

Technical Services, Inc.

Atmospheric Dispersion Modeling
Air Pollution Permitting
Landscape Design
Graphic Arts

February 5, 1993

Mr. Clair Fancy
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Marty Costello has CEMs. info submitted with this 2/22/93 R Adams

Re: Timber Energy Resources, Inc.
Boiler
Permit Number: A039-205360

Dear Mr. Fancy:

Timber Energy Resources, Inc. wishes to obtain a temporary research and testing permit for the above referenced source to burn a residue from pulp and paper processing in conjunction with their permitted wood waste fuel for a period not to exceed 30 days. The purpose of this temporary permit will be to test airborne emissions from the combustion of these fuels. The results of the test will be used to conduct a toxics analysis of the emissions for the purpose of modifying the existing permit to allow the burning of the residue along with the wood waste on a routine basis. The test will be conducted under a single set of test conditions using the highest ratio of residue to wood waste which will requested in the future permit modification.

I have enclosed a chemical analysis of primary and secondary residue samples and a listing of the proposed test parameters and test methods along with a check in the amount of $250 as the application fee. Please call me at (407) 859-7374 if you have any questions.

Very truly yours,

PERIGEE TECHNICAL SERVICES, INC.

Jerome J. Guidry, P.E.
President

RECEIVED
FEB 10 1993
Division of Air
Resources Management

JJG:emc

cc: Bruce Mitchell
Ed Middleswart
T. A. Herbert
J. B. Koogler

Enclosures

\lhcreq.ltr/157.0

6658 The Landings Drive, Orlando, Florida 32812-3528
Telephone: (407) 859-7374 FAX: (407) 850-0984

TEST PROTOCOL AND METHODS
WOOD WASTE/RESIDUE FUEL

Constituent	Test Method	Number of Test Runs	Duration of Each Test Run
Particulate Matter	EPA Method 5	3	1-hr
Hydrogen Chloride	EPA Method 26	3	1-hr
Metals[1]	EPA Method 29 (Multi-metals Train)	3	1-hr
Dioxins/Furans	EPA Method 23	3	2-hrs
Semi Volatiles[3]	EPA Method 23	3	2-hrs
Volatile Organics[5]	VOST (SW846-0030)	3	20-mins
Sulfur Dioxide	EPA Method 6C	See Note 2	
Nitrogen Oxides	EPA Method 7E	See Note 2	
Carbon Monoxide	EPA Method 10	See Note 2	
Total Hydrocarbons	EPA Method 25A	See Note 2	
Stack Gas Flow	EPA Method 2	See Note 4	
Stack Gas Moisture	EPA Method 4	See Note 4	
$O_2/CO_2/CO$	EPA Method 3	See Note 4	

[1]Metals to be run will be those from the EPA priority list: Sb, As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Tl, Zn

[2]Instrument methods will be run continuously.

[3]See attached list for semi-volatile organics

[4]Stack gas parameters will be run during the PM, HCl, Metals, PCDD/PCDF and semi-volatile runs.

[5]See attached list for volatile organics

Semi-volatile Organic Target Compounds

BN Extractables - Method 8270

Acenaphthene	Acenaphthylene
Acetophenone	4-Aminobiphenyl
Aniline	Anthracene
Benzidine	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(b)fluoranthene
Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Benzyl alcohol	Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether	Bis(2-chloroisopropyl) ether
bis(2-ethylhexyl)phthalate	4-bromophenyl phenyl ether
Butyl benzyl phthalate	4-chloroaniline
1-chloronaphthalene	2-chloronaphthalene
4-chlorophenyl phenyl ether	Chrysene
Dibenz(a,h)anthracene	Dibenz(a,j)acridine
Dibenzofuran	1,2-dichlorobenzene
1,3-dichlorobenzene	1,4-dichlorobenzene
3,3'-dichlorobenzidine	Diethylphthalate
p-dimethylaminoazobenzene	7,12-dimethylbenz(a)anthracene
a-,a-dimethylphenethylamine	Dimethylphthalate
Di-n-butylphthalate	2,4-dinitrotoluene
2,6-dinitrotoluene	Di-n-octylphthalate
Diphenylamine	1,2-diphenylhydrazine
Fluoranthene	Fluorene
Hexachlorobenzene	Hexachlorobutadiene
Hexachlorocyclopentadiene	Hexachloroethane
Indeno(1,2,3-cd)pyrene	Isophorone
3-methylcholanthrene	2-Methylnaphthalene
Naphthalene	1-Naphthylamine
2-Naphthylamine	2-nitroaniline
3-nitroaniline	4-nitroaniline
Nitrobenzene	N-nitrosodimethylamine
N-nitroso-di-n-butylamine	n-nitrosodiphenylamine
n-nitrosodipropylamine	n-nitrosopiperidine
Pentachlorobenzene	Pentachloronitrobenzene
Phenacetin	Phenanthrene
2-picoline	Pronamide
Pyrene	1,2,4,5-Tetrachlorobenzene
1,2,4-trichlorobenzene	

Semi-volatile Organic Target Compounds
(continued)

Acid Extractables - Method 8270

Benzoic acid
2-chlorophenol
2,6-dichlorophenol
4,6-dinitro-2-methylphenol
2-methylphenol
2-nitrophenol
Pentachlorophenol
2,3,4,6-tetrachlorophenol
2,4,6-trichlorophenol
4-chloro-3-methylphenol
2,4-dichlorophenol
2,4-dimethylphenol
2,4-dinitrophenol
4-methylphenol
4-nitrophenol
Phenol
2,4,5-trichlorophenol

Target Volatile Organic Compounds

Chloromethane	Vinyl chloride
Bromomethane	Chloroethane
1,1-Dichloroethene	Acetone
Carbon Disulfide	Methylene Chloride
1,2-dichloroethene	1,1-dichloroethane
2-butanone	Chloroform
1,2-dichloroethane	1,1,1-trichloroethane
Carbon tetrachloride	Vinyl acetate
Benzene	Trichloroethene
1,2-dichloropropane	Bromodichloromethane
cis-1,3-dichloropropene	trans-1,3-dichloropropene
1,1,2-trichloroethane	Dibromochloromethane
Bromoform	4-methyl-2-pentanone
Toluene	2-hexanone
Tetrachloroethene	Chlorobenzene
Ethylbenzene	Xylene (total)
Styrene	1,1,2,2-tetrachloroethane

Samples sent off for land application study
Tom Fox - SEFAR

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S2-43496

Received: 22 JUL 92

Mr. Milt Shirley
ITT Rayonier, Inc.
P.O. Box 728
Fernandina Beach, Florida 32034

Purchase Order: 00031285

Requisition: 47301

Project: Sludge Analysis
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
43496-1	Secondary Sludge (ASB) ENV 13903	07-14-92
43496-2	Primary Pressed Sludge ENV 13904	07-20-92

PARAMETER	43496-1	43496-2
Volatile Organic Compounds		
Acrolein, ug/kg dw	<3600*F65	<5900*F65
Acrylonitrile, ug/kg dw	<1800	<2900
Benzene, ug/kg dw	<18	<29
Bromoform, ug/kg dw	<89	<150
Carbon Tetrachloride, ug/kg dw	<18	<29
Chlorobenzene, ug/kg dw	<18	<29
Dibromochloromethane, ug/kg dw	<18	<29
Chloroethane, ug/kg dw	<18	<29
2-Chloroethylvinyl Ether, ug/kg dw	<180	<29
Chloroform, ug/kg dw	<18	430
Dichlorobromomethane, ug/kg dw	<18	<29
1,1-Dichloroethane, ug/kg dw	<18	<29
1,2-Dichloroethane, ug/kg dw	<18	<29
1,1-Dichloroethene, ug/kg dw	<18	<29
1,2-Dichloropropane, ug/kg dw	<18	<29
1,3-Dichloropropylene, ug/kg dw	<18	<29
Ethylbenzene, ug/kg dw	<18	<29
Bromomethane, ug/kg dw	<18	<29
Chloromethane, ug/kg dw	<18	<29
Methylene Chloride, ug/kg dw	<18	<29
1,1,2,2-Tetrachloroethane, ug/kg dw	<18	<29
Tetrachloroethene, ug/kg dw	<18	<29

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43496-1	Secondary Sludge (ASB) ENV 13903	07-14-92
43496-2	Primary Pressed Sludge ENV 13904	07-20-92

PARAMETER	43496-1	43496-2
Toluene, ug/kg dw	<18	<29
Cis/Trans-1,2-Dichloroethene, ug/kg dw	<18	<29
1,1,1-Trichloroethane, ug/kg dw	<18	<29
1,1,2-Trichloroethane, ug/kg dw	<18	<29
Trichloroethene, ug/kg dw	<18	<29
Vinyl Chloride, ug/kg dw	<18	<29
Acid Extractable Organics		
2-Chlorophenol, ug/kg dw	<13000*F65	<39000*F65
2,4-Dichlorophenol, ug/kg dw	<13000	<39000
2,4-Dimethylphenol, ug/kg dw	<13000	<39000
4,6-Dinitro-2-methylphenol, ug/kg dw	<65000	<200000
2,4-Dinitrophenol, ug/kg dw	<65000	<200000
2-Nitrophenol, ug/kg dw	<13000	<39000
4-Nitrophenol, ug/kg dw	<65000	<200000
p-Chloro-m-cresol, ug/kg dw	<13000	<39000
Pentachlorophenol, ug/kg dw	<65000	<200000
Phenol, ug/kg dw	<13000	<39000
2,4,6-Trichlorophenol, ug/kg dw	<13000	<39000

SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

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Fernandina Beach, Florida 32034

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Project: Sludge Analysis
Sampled By: Client

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LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
43496-1	Secondary Sludge (ASB) ENV 13903	07-14-92
43496-2	Primary Pressed Sludge ENV 13904	07-20-92

PARAMETER	43496-1	43496-2
Base Neutral Compounds		
Acenaphthene, ug/kg dw	<13000*F65	<39000*F65
Acenaphthylene, ug/kg dw	<13000	<39000
Anthracene, ug/kg dw	<13000	<39000
Benzidine, ug/kg dw	<100000	<310000
Benzo(a)Anthracene, ug/kg dw	<13000	<39000
Benzo(a)pyrene, ug/kg dw	<13000	<39000
3,4-Benzofluoranthene, ug/kg dw	<13000	<39000
Benzo(g,h,i)perylene, ug/kg dw	<13000	<39000
Benzo(k)Fluoranthene, ug/kg dw	<13000	<39000
bis(2-Chloroethoxy)methane, ug/kg dw	<13000	<39000
bis(2-Chloroethyl)ether, ug/kg dw	<13000	<39000
Bis(2-chloroisopropyl)ether, ug/kg dw	<13000	<39000
bis(2-Ethylhexyl)phthalate, ug/kg dw	<13000	<39000
4-Bromophenyl-phenyl-ether, ug/kg dw	<13000	<39000
Butylbenzylphthalate, ug/kg dw	<13000	<39000
2-Chloronaphthalene, ug/kg dw	<13000	<39000
4-Chlorophenyl-phenyl ether, ug/kg dw	<13000	<39000
Chrysene, ug/kg dw	<13000	<39000
Dibenz(a,h)anthracene, ug/kg dw	<13000	<39000
1,2-Dichlorobenzene, ug/kg dw	<13000	<39000
1,3-Dichlorobenzene, ug/kg dw	<13000	<39000
1,4-Dichlorobenzene, ug/kg dw	<13000	<39000

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43496-2	Primary Pressed Sludge ENV 13904	07-20-92

PARAMETER	43496-1	43496-2
3,3'-Dichlorobenzidine, ug/kg dw	<26000	<78000
Diethylphthalate, ug/kg dw	<13000	<39000
Dimethylphthalate, ug/kg dw	<13000	<39000
Di-n-butylphthalate, ug/kg dw	<13000	<39000
2,4-Dinitrotoluene, ug/kg dw	<13000	<39000
2,6-Dinitrotoluene, ug/kg dw	<13000	<39000
Di-n-octylphthalate, ug/kg dw	<13000	<39000
1,2-Diphenylhydrazine, ug/kg dw	<13000	<39000
Fluoranthene, ug/kg dw	<13000	<39000
Fluorene, ug/kg dw	<13000	<39000
Hexachlorobenzene, ug/kg dw	<13000	<39000
Hexachlorobutadiene, ug/kg dw	<13000	<39000
Hexachlorocyclopentadiene, ug/kg dw	<13000	<39000
Hexachloroethane, ug/kg dw	<13000	<39000
Indeno(1,2,3-cd)pyrene, ug/kg dw	<13000	<39000
Isophorone, ug/kg dw	<13000	<39000
Naphthalene, ug/kg dw	15000	<39000
Nitrobenzene, ug/kg dw	<13000	<39000
N-Nitrosodimethylamine, ug/kg dw	<13000	<39000
N-Nitrosodi-N-Propylamine, ug/kg dw	<13000	<39000
N-Nitrosodiphenylamine/Diphenylamine, ug/kg dw	<13000	<39000
Phenanthrene, ug/kg dw	<13000	<39000
Pyrene, ug/kg dw	<13000	<39000
1,2,4-Trichlorobenzene, ug/kg dw	<13000	<39000

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& ENVIRONMENTAL SERVICES, INC.

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Requisition: 47301

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Sampled By: Client

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LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
43496-1	Secondary Sludge (ASB) ENV 13903	07-14-92
43496-2	Primary Pressed Sludge ENV 13904	07-20-92

PARAMETER	43496-1	43496-2
Pesticides/PCB's		
Aldrin, ug/kg dw	<200*F65	<60*F65
alpha-BHC, ug/kg dw	<200	<60
beta-BHC, ug/kg dw	<200	<60
gamma-BHC, ug/kg dw	<200	<60
delta-BHC, ug/kg dw	<200	<60
Chlordane, ug/kg dw	<2000	<600
4,4'-DDT, ug/kg dw	<380	<120
4,4'-DDE, ug/kg dw	<380	<120
4,4'-DDD, ug/kg dw	<380	<120
Dieldrin, ug/kg dw	<380	<120
Alpha-Endosulfan, ug/kg dw	<200	<60
Beta-Endosulfan, ug/kg dw	<380	<120
Endosulfan sulfate, ug/kg dw	<380	<120
Endrin, ug/kg dw	<380	<120
Endrin Aldehyde, ug/kg dw	<380	<120
Heptachlor, ug/kg dw	<200	<60
Heptachlor epoxide, ug/kg dw	<200	<60
Aroclor-1242, ug/kg dw	<3800	<1200
Aroclor-1254, ug/kg dw	<3800	<1200
Aroclor-1221, ug/kg dw	<7700	<2400
Aroclor-1232, ug/kg dw	<3800	<1200
Aroclor-1248, ug/kg dw	<3800	<1200
Aroclor-1260, ug/kg dw	<3800	<1200
Aroclor-1016, ug/kg dw	<3800	<1200
Toxaphene, ug/kg dw	<20000	<6000

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LOG NO: S2-43496

Received: 22 JUL 92

Mr. Milt Shirley
ITT Rayonier, Inc.
P.O. Box 728
Fernandina Beach, Florida 32034

Purchase Order: 00031285

Requisition: 47301

Project: Sludge Analysis
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
43496-1	Secondary Sludge (ASB) ENV 13903	07-14-92
43496-2	Primary Pressed Sludge ENV 13904	07-20-92

PARAMETER	43496-1	43496-2
Antimony, mg/kg dw	<26	<17
Arsenic, mg/kg dw	<5.6	<3.4
Beryllium, mg/kg dw	<2.6	<1.7
Cadmium, mg/kg dw	<2.6	<1.7
Chromium, mg/kg dw	85	11
Copper, mg/kg dw	47	18
Lead , mg/kg dw	31	5.8
Mercury, mg/kg dw	0.13	0.070
Nickel, mg/kg dw	42	24
Selenium, mg/kg dw	<5.6	<3.4
Silver, mg/kg dw	<5.3	<3.3
Thallium, mg/kg dw	<5.6	<3.4
Zinc, mg/kg dw	310	89
Phenolics,Total Recoverable, mg/kg dw	<5.8	<1.4
Cyanide, Total, mg/kg dw	<5.9	<3.6
Moisture (% Loss on drying @ 105 C), %	83	72
Density, g/cc	0.844	1.10
Specific Conductance, umhos/cm	460	690
Sulfate as SO4 (375.2), mg/kg dw	28000	3400
Nitrate-N (353.2), mg/kg dw	<18	<29
Chloride (325.2), mg/kg dw	1100	710
pH (150.1), units	7.3	7.5
Total Organic Carbon, mg/kg dw	290000	620000
Total Kjeldahl Nitrogen-N, mg/kg dw	28000	14000
Total Phosphorus (365.1), mg/kg dw	2000	1100

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
43496-1	Secondary Sludge (ASB) ENV 13903	07-14-92
43496-2	Primary Pressed Sludge ENV 13904	07-20-92

PARAMETER	43496-1	43496-2
Aluminum, mg/kg dw	3300	2200
Iron, mg/kg dw	3100	2100
Potassium, mg/kg dw	<530	740
Calcium, mg/kg dw	14000	44000
Magnesium, mg/kg dw	940	850
Manganese, mg/kg dw	99	72
Barium, mg/kg dw	29	24
Percent Solids, %	28	17
Sodium , mg/kg dw	4600	2600

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43496-3	Method Blank
43496-4	Accuracy (mean % recovery)
43496-5	Precision (% RPD)

PARAMETER	43496-3	43496-4	43496-5
Volatile Organic Compounds			
Acrolein, ug/kg dw	<1000	---	---
Acrylonitrile, ug/kg dw	<500	---	---
Benzene, ug/kg dw	<5.0	104 %	2.9 %
Bromoform, ug/kg dw	<25	---	---
Carbon Tetrachloride, ug/kg dw	<5.0	---	---
Chlorobenzene, ug/kg dw	<5.0	105 %	.95 %
Dibromochloromethane, ug/kg dw	<5.0	---	---
Chloroethane, ug/kg dw	<5.0	---	---
2-Chloroethylvinyl Ether, ug/kg dw	<50	---	---
Chloroform, ug/kg dw	<5.0	---	---
Dichlorobromomethane, ug/kg dw	<5.0	---	---
1,1-Dichloroethane, ug/kg dw	<5.0	---	---
1,2-Dichloroethane, ug/kg dw	<5.0	---	---
1,1-Dichloroethene, ug/kg dw	<5.0	90 %	7.8 %
1,2-Dichloropropane, ug/kg dw	<5.0	---	---
1,3-Dichloropropylene, ug/kg dw	<5.0	---	---
Ethylbenzene, ug/kg dw	<5.0	---	---
Bromomethane, ug/kg dw	<5.0	---	---
Chloromethane, ug/kg dw	<5.0	---	---
Methylene Chloride, ug/kg dw	<5.0	---	---
1,1,2,2-Tetrachloroethane, ug/kg dw	<5.0	---	---

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43496-3	Method Blank
43496-4	Accuracy (mean % recovery)
43496-5	Precision (% RPD)

PARAMETER	43496-3	43496-4	43496-5
Tetrachloroethene, ug/kg dw	<5.0	---	---
Toluene, ug/kg dw	<5.0	105 %	5.7 %
Trans-1,2-Dichloroethene, ug/kg dw	<5.0	---	---
1,1,1-Trichloroethane, ug/kg dw	<5.0	---	---
1,1,2-Trichloroethane, ug/kg dw	<5.0	---	---
Trichloroethene, ug/kg dw	<5.0	81 %	12.3 %
Vinyl Chloride, ug/kg dw	<5.0	---	---
Acid Extractable Organics			
2-Chlorophenol, ug/kg dw	<330	68 %	16 %
2,4-Dichlorophenol, ug/kg dw	<330	---	---
2,4-Dimethylphenol, ug/kg dw	<330	---	---
4,6-Dinitro-2-methylphenol, ug/kg dw	<1700	---	---
2,4-Dinitrophenol, ug/kg dw	<1700	---	---
2-Nitrophenol, ug/kg dw	<330	---	---
4-Nitrophenol, ug/kg dw	<1700	89 %	11 %
p-Chloro-m-cresol, ug/kg dw	<330	81 %	9.9 %
Pentachlorophenol, ug/kg dw	<1700	55 %	15 %
Phenol, ug/kg dw	<330	67 %	18 %
2,4,6-Trichlorophenol, ug/kg dw	<330	---	---

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Requisition: 47301

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43496-3	Method Blank
43496-4	Accuracy (mean % recovery)
43496-5	Precision (% RPD)

PARAMETER	43496-3	43496-4	43496-5
Base Neutral Compounds			
Acenaphthene, ug/kg dw	<330	91 %	13 %
Acenaphthylene, ug/kg dw	<330	---	---
Anthracene, ug/kg dw	<330	---	---
Benzidine, ug/kg dw	<2600	---	---
Benzo(a)Anthracene, ug/kg dw	<330	---	---
Benzo(a)pyrene, ug/kg dw	<330	---	---
3,4-Benzofluoranthene, ug/kg dw	<330	---	---
Benzo(g,h,i)perylene, ug/kg dw	<330	---	---
Benzo(k)Fluoranthene, ug/kg dw	<330	---	---
bis(2-Chloroethoxy)methane, ug/kg dw	<330	---	---
bis(2-Chloroethyl)ether, ug/kg dw	<330	---	---
Bis(2-chloroisopropyl)ether, ug/kg dw	<330	---	---
bis(2-Ethylhexyl)phthalate, ug/kg dw	<330	---	---
4-Bromophenyl-phenyl-ether, ug/kg dw	<330	---	---
Butylbenzylphthalate, ug/kg dw	<330	---	---
2-Chloronaphthalene, ug/kg dw	<330	---	---
4-Chlorophenyl-phenyl ether, ug/kg dw	<330	---	---
Chrysene, ug/kg dw	<330	---	---
Dibenz(a,h)anthracene, ug/kg dw	<330	---	---
1,2-Dichlorobenzene, ug/kg dw	<330	---	---
1,3-Dichlorobenzene, ug/kg dw	<330	---	---

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43496-3	Method Blank
43496-4	Accuracy (mean % recovery)
43496-5	Precision (% RPD)

PARAMETER	43496-3	43496-4	43496-5
1,4-Dichlorobenzene, ug/kg dw	<330	89 %	15 %
3,3'-Dichlorobenzidine, ug/kg dw	<660	---	---
Diethylphthalate, ug/kg dw	<330	---	---
Dimethylphthalate, ug/kg dw	<330	---	---
Di-n-butylphthalate, ug/kg dw	<330	---	---
2,4-Dinitrotoluene, ug/kg dw	<330	87 %	5.8 %
2,6-Dinitrotoluene, ug/kg dw	<330	---	---
Di-n-octylphthalate, ug/kg dw	<330	---	---
1,2-Diphenylhydrazine, ug/kg dw	<330	---	---
Fluoranthene, ug/kg dw	<330	---	---
Fluorene, ug/kg dw	<330	---	---
Hexachlorobenzene, ug/kg dw	<330	---	---
Hexachlorobutadiene, ug/kg dw	<330	---	---
Hexachlorocyclopentadiene, ug/kg dw	<330	---	---
Hexachloroethane, ug/kg dw	<330	---	---
Indeno(1,2,3-cd)pyrene, ug/kg dw	<330	---	---
Isophorone, ug/kg dw	<330	---	---
Naphthalene, ug/kg dw	<330	---	---
Nitrobenzene, ug/kg dw	<330	---	---
N-Nitrosodimethylamine, ug/kg dw	<330	---	---
N-Nitrosodi-N-Propylamine, ug/kg dw	<330	71 %	11 %
N-Nitrosodiphenylamine/Diphenylamine, ug/kg dw	<330	---	---
Phenanthrene, ug/kg dw	<330	---	---
Pyrene, ug/kg dw	<330	74 %	5.4 %
1,2,4-Trichlorobenzene, ug/kg dw	<330	93 %	15 %

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43496-3	Method Blank
43496-4	Accuracy (mean % recovery)
43496-5	Precision (% RPD)

PARAMETER	43496-3	43496-4	43496-5
Pesticides/PCB's			
Aldrin, ug/kg dw	<1.7	76 %	2.7 %
alpha-BHC, ug/kg dw	<1.7	---	---
beta-BHC, ug/kg dw	<1.7	---	---
gamma-BHC, ug/kg dw	<1.7	68 %	4.4 %
delta-BHC, ug/kg dw	<1.7	---	---
Chlordane, ug/kg dw	<17	---	---
4,4'-DDT, ug/kg dw	<3.3	102 %	2.9 %
4,4'-DDE, ug/kg dw	<3.3	---	---
4,4'-DDD, ug/kg dw	<3.3	---	---
Dieldrin, ug/kg dw	<3.3	81 %	4.9 %
Alpha-Endosulfan, ug/kg dw	<1.7	---	---
Beta-Endosulfan, ug/kg dw	<3.3	---	---
Endosulfan sulfate, ug/kg dw	<3.3	---	---
Endrin, ug/kg dw	<3.3	100 %	5.0 %
Endrin Aldehyde, ug/kg dw	<3.3	---	---
Heptachlor, ug/kg dw	<1.7	80 %	3.8 %
Heptachlor epoxide, ug/kg dw	<1.7	---	---
Aroclor-1242, ug/kg dw	<33	---	---
Aroclor-1254, ug/kg dw	<33	---	---
Aroclor-1221, ug/kg dw	<67		---
Aroclor-1232, ug/kg dw	<33	---	---
Aroclor-1248, ug/kg dw	<33	---	---
Aroclor-1260, ug/kg dw	<33	---	---
Aroclor-1016, ug/kg dw	<33		---
Toxaphene, ug/kg dw	<170	---	---

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43496-3	Method Blank
43496-4	Accuracy (mean % recovery)
43496-5	Precision (% RPD)

PARAMETER	43496-3	43496-4	43496-5
Antimony, mg/kg dw	<5.0	92 %	6.5 %
Arsenic, mg/kg dw	<1.0	106 %	1.9 %
Beryllium, mg/kg dw	<0.50	97 %	6.2 %
Cadmium, mg/kg dw	<0.50	89 %	6.7 %
Chromium, mg/kg dw	<1.0	99 %	6.1 %
Copper, mg/kg dw	<2.5	96 %	5.2 %
Lead , mg/kg dw	<0.50	101 %	11 %
Mercury, mg/kg dw	<0.010	86 %	8.1 %
Nickel, mg/kg dw	<4.0	97 %	5.2 %
Selenium, mg/kg dw	<1.0	97 %	11 %
Silver, mg/kg dw	<1.0	92 %	6.5 %
Thallium, mg/kg dw	<1.0	101 %	8.9 %
Zinc, mg/kg dw	<3.0	90 %	8.9 %
Phenolics,Total Recoverable, mg/kg dw	<0.40	98 %	1.0 %
Cyanide, Total, mg/kg dw	<1.0	108 %	4.7 %
Moisture (% Loss on drying @ 105 C), %	---	---	---
Density, g/cc	---	---	---
Specific Conductance, umhos/cm	<1.0	97 %	1.0 %
Sulfate as SO4 (375.2), mg/kg dw	<100	112 %	6.3 %
Nitrate-N (353.2), mg/kg dw	<5.0	90 %	2.2 %
Chloride (325.2), mg/kg dw	<20	97 %	0 %
pH (150.1), units	---	100 %	0 %
Total Organic Carbon, mg/kg dw	<50	133 %	1.5 %
Total Kjeldahl Nitrogen-N, mg/kg dw	<20	103 %	0 %

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43496-3	Method Blank
43496-4	Accuracy (mean % recovery)
43496-5	Precision (% RPD)

PARAMETER	43496-3	43496-4	43496-5
Total Phosphorus (365.1), mg/kg dw	<20	100 %	0 %
Aluminum, mg/kg dw	<20	101 %	9.0 %
Iron, mg/kg dw	<5.0	91 %	5.5 %
Potassium, mg/kg dw	<100	100 %	6.0
Calcium, mg/kg dw	<10	100 %	7.0 %
Magnesium, mg/kg dw	<5.0	100 %	8.0 %
Manganese, mg/kg dw	<1.0	96 %	6.3 %
Barium, mg/kg dw	<1.0	99 %	5.1 %
Sodium , mg/kg dw	<50	76 %	13 %

Methods: EPA SW-846
F65 - Elevated detection limits were reported due to matrix interference which required sample dilution prior to analysis.

J. W. Andrews

J. W. Andrews, Ph. D.

Method 1311

~~App~~ charac TCLP

40 CFR 261.

Appendix 2

also 261.22

~~SGB~~