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**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

June 18, 1996

State of North Carolina
Department of Environment, Health and Natural Resources
Division of Solid Waste Management
P.O. Box 27687
Raleigh, North Carolina 27661-7687

Attention: Mr. James A. Coffey

Subject: Preliminary Evaluation of Weyerhaeuser Industrial Landfill
Permit Number 25-02
Craven County, North Carolina
Delta Project No. E096-019-1

Dear Mr. Coffey:

This correspondence is in response to 15 NCAC 13B .0503 and a January 18, 1996 request from the Division of Solid Waste Management for a preliminary evaluation of the above referenced industrial solid waste landfill. The preliminary evaluation includes a waste stream characterization, a survey plat showing pertinent permit, property and waste boundaries, a preliminary hydrogeological assessment and ground water modeling that demonstrates the existing landfill design ensures compliance with 15A NCAC 2L (NCAC 2L).

WASTE CHARACTERIZATION

A solid waste collection and disposal summary provided for January 1995 through September 1995 at the subject landfill is included in Table 1. Briefly, this table lists the specific source area of the waste, approximate waste quantities and type, and a breakdown of haul quantities. This characterization for 1995 is reflective of the typical waste stream for the landfill since operation began.

Analytical test results of specific solid wastes destined for disposal in the subject landfill are included in Attachment 1. These analytical tests include the following:

- Characteristic Test for Reactivity:

The report dated October 3, 1994, indicates that the solid waste samples tested including: lime grits, clarifier sludge, brown stock knots, leachate from the canal, lime mud, and lime dreg are not reactive.

- Heavy Metals in Primary Clarifier Sludge:

The report dated September 13, 1994, indicates that eight RCRA heavy metals including arsenic, barium, cadmium, total chromium, lead, mercury, selenium and silver all were below detection limits in the sludge sample.

- Total Metals Analyses:

The report dated August 24, 1994, indicates that the concentrations of inorganic parameters in the leachate from the canal and the influent to the leachate pumping station are consistent with the type of wastes currently being landfilled (Table 1).

SURVEY PLAT

The current property boundary and approximate landfill location are included on Figure 1. Figure 2 is a detailed view of the landfill, landfill boundaries and the existing monitoring wells. The current waste "footprint", the projected waste boundary as of January 1, 1998, the permitted waste boundary, and the compliance boundary, are also included in Figure 2. Well construction diagrams for the landfill monitoring wells are included as Attachment 2.

PRELIMINARY HYDROGEOLOGIC CHARACTERIZATION

The current ground water monitoring network and approximate landfill boundary are shown in Figure 3. Ground water elevations were measured in the landfill wells and adjacent facility monitoring wells on May 29, 1996 and are included as Table 2. This information was used to construct a water table elevation contour map which generally shows ground water flow to the northwest. The current leachate canal intercepts ground water flow from beneath the landfill. Water is then pumped to Weyerhaeuser's on-site treatment system and discharged under NPDES Permit No. NC0003191. A vertical gradient of 0.095 ft./ft. downward, as measured by well pair OWS-02/OWD-01, indicates that ground water has a tendency to move vertically down prior to discharge to Swift Creek. Swift Creek likely represents a local discharge boundary to ground water flow from the west/southwest.

Historical ground water analytical data for the landfill monitoring wells (OWD-01, OWS-01, OWS-02 and OWS-03) and leachate canal (LC-01) are summarized in Table 3. Concentrations of iron, manganese, and total dissolved solids (TDS) above standards specified by NCAC 2L have been detected in samples collected from monitoring wells OWD-01, OWS-02, and the leachate canal (LC-01). Iron and manganese above NCAC 2L ground water standards have been detected in samples collected from OWS-01 and OWS-03. Samples collected since 1991 have not shown levels of other inorganic constituents beyond concentrations specified by NCAC 2L.

Naturally occurring iron, manganese and TDS levels, above the NCAC 2L standard, are common in the sediments, surface water, and ground water along the coastal plain of North Carolina (Cross, et. al., 1970). A high level of dissolved iron can occur with oxidation of ferrous sulfides. Metallic sulfides are common in sedimentary rocks or sediments derived from the source rocks. Manganese is present in sedimentary rocks and can dissolve into ground water from manganese coatings on sediment particles. Environmental fluctuations in pH, salinity, or temperature can also influence the rate of exchange of trace metals in water and sediments. High concentrations of dissolved solids can be attributed to the proximity of farmlands and forests (Cross, et.al., 1970 and Hem, 1992).

GROUND WATER MODELING

Ground water chemistry data from samples collected on February 13, 1996 and contaminant transport parameters calculated for silty sand were used to conduct predictive modeling. This assessment was to estimate any TDS in ground water above NCAC 2L standards that may occur in the vicinity of the Weyerhaeuser landfill. The Dominico Model (Dominico, 1987) was developed to predict concentrations in ground water at finite distances from a known source concentration. Predictions are based solely on mechanical processes (dispersion, advection and dilution). The model does not account for biological or chemical degradation, therefore providing conservative estimates.

The Dominico Model was used to predict TDS concentrations at the compliance boundary 500 feet downgradient from the northeastern edge of the landfill (Dominico, 1987). A worst case scenario approach was adopted for this investigation. It was assumed that the highest concentration of TDS from the 02/13/96 sampling event, 894 mg/l in samples collected from monitoring well OWS-02, was indicative of TDS levels throughout the landfill cell. A hydraulic gradient of 0.0031, calculated between OWS-02 and Swift Creek (assuming the Swift Creek elevation at zero), was applied across the entire volume of the landfill cell. The gradient was calculated between OWS-02 and Swift Creek because OWS-02 represented the highest concentrations of TDS during the 02/13/96 sampling event at 894 mg/l. This has the effect of modeling TDS concentrations downgradient using the entire landfill volume as the source.

Results from the ground water modeling suggest that TDS concentrations at the compliance boundary will be approximately 88 mg/l or less than the NCAC 2L standard of 500 mg/l. A summary of the model calculations are included as Attachment 3.

CONCLUSIONS

Based on the preliminary evaluation of the existing landfill the following can be concluded:

- Leachate generated from future operations will not contribute to degradation of ground water quality;
- The Weyerhaeuser property boundary is approximately 3500 feet northwest of the current waste and permitted boundary;
- The current monitoring well network indicates that landfill operations have not resulted in ground water concentrations above those specified by NCAC 2L. Concentrations of measured parameters are consistently within NCAC 2L standards (except naturally occurring iron, manganese and TDS);
- Based on modeling predictions concentrations of TDS in ground water will be within those specified by NCAC 2L at the compliance boundary.

Weyerhaeuser will continue to manage the landfill through slope control and waste stream input. Slope will be maintained to promote runoff and natural vegetation growth on unused portions of the landfill while minimizing infiltration. The current and future waste stream will not likely contribute to the degradation of ground water quality in the area of the landfill.

REFERENCES

- Cross, Ford A., et al, *Biogeochemistry of Trace Elements in a Coastal Plain Estuary*, Chesapeake Science, Vol. 11, No. 4, pp. 221-234.
- Dominico, P.A., 1987, An analytical model for multidimensional transport of a decaying contaminant species: *Journal of Hydrology*, V. 91, p.49-58.
- Hem, John D., *Study and Interpretation of the Chemical Characteristics of Natural Water*, USGS Water Supply Paper, 2254.

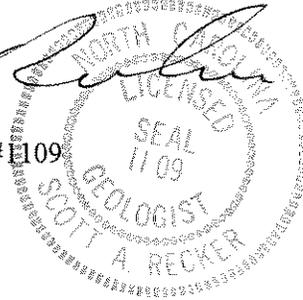
Preliminary Evaluation of Weyerhaeuser
Industrial Landfill
Craven County, NC
page 5

Please contact me at (704) 541-9890 should you have any questions.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.


Scott A. Recker
North Carolina Licensed Geologist # E109



SAR/mcw

enclosures

cc: Ms. Susan Wright, Division of Solid Waste Management
Mr. David Gardner, Weyerhaeuser Company
Mr. Bill Morris, Washington Regional Office

TABLES

**Weyerhaeuser New Bern
Solid Waste Collection Summary in Tons**

Date: YTD 1995 through September

WASTE COLLECTION AREA		
	No. of Loads	Volume (c.y.)
Bleach Plant	211	1,147.5
Finishing Area	3	30
Garage	58	265
HBA	311	1,553.75
Heavy Equipment	48	298.75
Lime Kiln	60	433.75
Machine Room	166	877.75
Maintenance Shop	81	482.5
Mill General	183	1,445
Power House	338	2,862.5
Sawmill	1	5
Sludge Press	1,682	1,6820
Stores/Receiving	99	488.75
Woodyard	1,011	9,555
Woodyard Maintenance	43	211.25

Grand Total:

4,295	36,476.50
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TYPE OF WASTE		
	No. of Trucks	Volume (c.y.)
Asbestos ⁽¹⁾	7	35
Chips ⁽¹⁾	10	100
Demolition	57	584
Dirt	119	1,190
General Trash	931	4,778.75
Grit	922	8,842.5
Knots ⁽¹⁾	45	440
Lime Grit ⁽¹⁾	109	1,032.5
Lime Mud ⁽¹⁾	4	25
Paper/Cardboard ⁽²⁾	70	346.25
Pulp/Reject	131	717.5
Rock Media	1	1.25
Sludge	1,682	16,820
Wood Residue ⁽¹⁾	207	1,563.75

Grand Total:

4,295	36,476.50
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BULK HAULING		
	No. of Loads	Volume (c.y.)
4	331	3,310
5	327	3,270
7/OW	691	6,910
Contractor	7	84
Sludge	1,682	16,820

Grand Total:

3,038.00	30,394
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LUGGER BUCKET HAULING		
	No. of Loads	Volume (c.y.)
1/2 (2.50)	76	190
1/4 (1.25)	28	35
3/4 (3.75)	110	412.5
Full (10.00)	46	460
Full (5.00)	997	4,985

Grand Total:

1,257	6,082.50
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⁽¹⁾ = Not routinely landfilled.

⁽²⁾ = Either currently being recycled or will be.

GROUND WATER ELEVATION DATA
WEYERHAEUSER
NEW BERN, NORTH CAROLINA

DELTA PROJECT NO. E096-014

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	 WATER ELEV. ⁽¹⁾ (feet)	WATER ELEV. (feet)
L-01	05/29/96	8.99	11:45	6.58	NA	2.41
L-02	05/29/96	8.33	11:42	5.00	NA	3.33
L-03	05/29/96	12.11	11:48	10.00	NA	2.11
L-04	05/29/96	8.53	11:53	6.67	NA	1.86
LPW-01	07/18/91	0.00	00:00	10.00	NA	-10.00
LPW-01	12/13/91	0.00	00:00	9.93	0.07	-9.93
LPW-01	07/09/92	0.00	00:00	9.99	-0.06	-9.99
LPW-01	12/29/92	0.00	00:00	9.85	0.14	-9.85
LPW-01	07/20/93	0.00	00:00	10.38	-0.53	-10.38
LPW-01	12/07/93	0.00	00:00	10.58	-0.20	-10.58
LPW-01	07/28/94	0.00	00:00	10.14	0.44	-10.14
LPW-01	12/08/94	0.00	00:00	10.25	-0.11	-10.25
LPW-01	07/20/95	0.00	00:00	9.97	0.28	-9.97
LPW-01	05/29/96	14.90	11:20	10.92	13.95	3.98
OWD-01	08/17/89	12.43	00:00	9.25	NA	3.18
OWD-01	06/28/90	12.43	00:00	9.95	-0.70	2.48
OWD-01	07/18/91	12.43	00:00	9.66	0.29	2.77
OWD-01	02/09/93	12.43	00:00	9.29	0.37	3.14
OWD-01	08/03/93	12.43	00:00	9.90	-0.61	2.53
OWD-01	02/08/94	12.43	00:00	9.45	0.45	2.98
OWD-01	08/10/94	12.43	00:00	9.47	-0.02	2.96
OWD-01	02/07/95	12.43	09:40	9.53	-0.06	2.90
OWD-01	08/07/95	12.43	09:20	9.38	0.15	3.05
OWD-01	02/13/96	12.43	12:31	9.44	-0.06	2.99
OWD-01	05/29/96	12.43	11:25	10.17	-0.73	2.26
OWS-01	08/17/89	8.22	00:00	4.83	NA	3.39
OWS-01	06/28/90	8.22	00:00	6.41	-1.58	1.81
OWS-01	07/18/91	8.22	00:00	6.37	0.04	1.85
OWS-01	02/09/93	8.22	00:00	5.00	1.37	3.22
OWS-01	08/03/93	8.22	00:00	6.18	-1.18	2.04

(1) Change in Water Elevation since last reported measurement
(2) Measurements Based on Mean Sea Level

D = Dry NA = Not Available

TABLE 2
GROUND WATER ELEVATION DATA
WEYERHAEUSER
NEW BERN, NORTH CAROLINA

Page: 2
Date: 06/05/96

DELTA PROJECT NO. E096-014

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	 WATER ELEV. ⁽¹⁾ (feet)	WATER ELEV. (feet)
OWS-01	02/08/94	8.22	00:00	4.95	1.23	3.27
OWS-01	08/10/94	8.22	00:00	5.29	-0.34	2.93
OWS-01	02/07/95	8.22	10:25	4.85	0.44	3.37
OWS-01	08/07/95	8.22	10:48	5.35	-0.50	2.87
OWS-01	02/13/96	8.22	13:55	4.83	0.52	3.39
OWS-01	05/29/96	8.22	11:38	5.92	-1.09	2.30
OWS-02	08/17/89	13.26	00:00	9.42	NA	3.84
OWS-02	06/28/90	13.26	00:00	10.00	-0.58	3.26
OWS-02	07/18/91	13.26	00:00	9.66	0.34	3.60
OWS-02	02/09/93	13.26	00:00	9.47	0.19	3.79
OWS-02	08/03/93	13.26	00:00	9.86	-0.39	3.40
OWS-02	02/08/94	13.26	00:00	9.61	0.25	3.65
OWS-02	08/10/94	13.26	00:00	9.51	0.10	3.75
OWS-02	02/07/95	13.26	09:53	9.58	-0.07	3.68
OWS-02	08/07/95	13.26	10:15	9.39	0.19	3.87
OWS-02	02/13/96	13.26	13:24	9.52	-0.13	3.74
OWS-02	05/29/96	13.26	11:27	10.25	-0.73	3.01
OWS-03	08/17/89	13.08	00:00	8.17	NA	4.91
OWS-03	06/28/90	13.08	00:00	8.91	-0.74	4.17
OWS-03	07/18/91	13.08	00:00	9.16	-0.25	3.92
OWS-03	02/09/93	13.08	00:00	8.54	0.62	4.54
OWS-03	08/03/93	13.08	00:00	8.91	-0.37	4.17
OWS-03	02/08/94	13.08	00:00	8.66	0.25	4.42
OWS-03	08/10/94	13.08	00:00	8.86	-0.20	4.22
OWS-03	02/07/95	13.08	10:08	8.61	0.25	4.47
OWS-03	08/07/95	13.08	10:30	8.55	0.06	4.53
OWS-03	02/13/96	13.08	13:34	8.58	-0.03	4.50
OWS-03	05/29/96	13.08	11:34	9.33	-0.75	3.75

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

2) Measurements Based on Mean Sea Level

TABLE 3
GROUND WATER ANALYTICAL DATA - LANDFILL WELLS
WEYERHAEUSER
NEW BERN, NORTH CAROLINA
DELTA PROJECT NO. E096-019

Page: 1A
Date: 06/06/96

SITE	DATE	pH	BOD	COD	TOC	Chloride	Fluoride	Total dissolved solids (TDS)	Arsenic
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
NC-2L-STDS						250	2	500	0.05
LC-01	08/17/89	7.9	115	240	54.02	(64)	0.11	[1295]	<0.005
LC-01	06/28/90	8.4	39	218	303	140	<0.10	[2183]	0.007
LC-01	07/18/91	8.3	11	150	51.57	87	0.22	[1170]	[0.066]
LC-01	02/09/93	7.0	<1	306	74.61	14	0.10	[518]	<0.005
LC-01	08/03/93	7.7	24	313	49.69	68	0.31	[923]	<0.005
LC-01	02/08/94	6.9	14	99	35.03	51	0.22	[951]	<0.005
LC-01	08/10/94	7.3	23	94	32.21	54	0.12	[856]	<0.010
LC-01	02/07/95	7.6	5.8	61	24.64	111	0.52	[996]	<0.010
LC-01	08/07/95	7.8	12	102	29.98	38	0.23	[783]	<0.010
LC-01	02/13/96	7.9	19	102	31.72	69	0.40	[1060]	<0.010
OWD-01	08/17/89	6.9	11	205	8.50	23	0.36	[568]	0.006
OWD-01	06/28/90	6.8	1.6	51	9.64	17	<0.10	404	0.010
OWD-01	07/18/91	6.7	1.3	39	11.76	19	<0.10	392	0.007
OWD-01	02/09/93	6.6	1.2	38	14.19	15	<0.10	487	0.008
OWD-01	08/03/93	7.6	2.6	40	9.77	16	0.14	475	<0.005
OWD-01	02/08/94	6.7	2.2	28	17.07	16	<0.10	469	0.009
OWD-01	08/10/94	6.4	2.2	31	14.02	17	<0.10	498	<0.010
OWD-01	02/07/95	6.6	1.3	20	11.81	19	0.24	498	<0.010
OWD-01	08/07/95	6.4	1.8	46	10.45	14	(0.015)	[547]	<0.010
OWD-01	02/13/96	6.4	3.3	37	11.78	15	<0.10	[542]	<0.010
OWS-01	08/17/89	6.5	8.9	126	12.36	15	<0.10	147	0.006
OWS-01	06/28/90	6.3	3.1	197	11.9	(11)	<0.10	142	<0.005
OWS-01	07/18/91	6.1	2.8	65	23.99	12	<0.10	133	<0.005
OWS-01	02/09/93	6.4	1.3	45	18.64	5	<0.10	195	<0.005
OWS-01	08/03/93	6.1	6.6	41	18.16	23	<0.10	248	<0.005
OWS-01	02/08/94	6.2	3.6	48	24.90	16	<0.10	272	<0.005

Values represent total concentrations unless noted < = Not detected at indicated reporting limit ---- = Not analyzed
() = Less than Reporting Limit [] = Greater than Action Level
For RCL MET-ENV189

TABLE 3

GROUND WATER ANALYTICAL DATA - LANDFILL WELLS

WEYERHAEUSER

NEW BERN, NORTH CAROLINA

DELTA PROJECT NO. E096-019

Page: 1B

Date: 06/06/96

SITE	DATE	Barium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Chromium		Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)
					(total) (mg/L)					
NC-2L-STDS		2	0.005	1	0.05		0.3	0.015	0.05	0.0011
LC-01	08/17/89	[2.268]	<0.005	<0.010	<0.10		(3.460)	0.012	[0.167]	<0.0002
LC-01	06/28/90	[7.240]	<0.005	0.113	[0.082]		[39.90]	[0.066]	[1.600]	0.0002
LC-01	07/18/91	<0.50	<0.005	0.016	<0.010		(1.035)	<0.005	[0.108]	<0.0002
LC-01	02/09/93	<0.050	<0.001	0.25	<0.005		(1.964)	<0.005	[0.196]	<0.0002
LC-01	08/03/93	0.239	<0.001	0.014	<0.005		(0.791)	<0.005	[0.070]	<0.0002
LC-01	02/08/94	0.090	<0.001	0.014	<0.005		(2.575)	<0.005	[0.271]	<0.0002
LC-01	08/10/94	<0.50	<0.001	<0.200	<0.010		(1.845)	<0.010	[0.216]	<0.0002
LC-01	02/07/95	<0.50	<0.001	<0.200	<0.010		(2.402)	<0.010	[0.131]	<0.0002
LC-01	08/07/95	<0.50	<0.001	<0.200	<0.010		(1.739)	<0.010	[0.100]	<0.0005
LC-01	02/13/96	<0.50	<0.001	<0.200	<0.010		(3.430)	<0.010	[0.194]	<0.0005
OWD-01	08/17/89	[2.408]	<0.005	0.019	[0.079]		[63.30]	[0.017]	[1.800]	<0.0002
OWD-01	06/28/90	[3.012]	<0.005	0.30	[0.072]		[39.90]	<0.005	[2.460]	<0.0002
OWD-01	07/18/91	(0.172)	<0.005	0.075	<0.010		[23.07]	<0.005	[1]	<0.0002
OWD-01	02/09/93	0.167	<0.005	0.032	0.006		[27.71]	<0.005	[4.914]	<0.0002
OWD-01	08/03/93	0.238	<0.001	0.019	<0.005		[29.26]	<0.005	[3.652]	<0.0002
OWD-01	02/08/94	0.200	<0.001	0.021	<0.005		[25.27]	<0.005	[4.395]	<0.0002
OWD-01	08/10/94	<0.50	<0.001	<0.200	<0.010		[18.90]	<0.010	[5.035]	<0.0002
OWD-01	02/07/95	<0.50	<0.001	<0.200	<0.010		[23.51]	<0.010	[4.475]	<0.0002
OWD-01	08/07/95	<0.50	0.003	<0.200	<0.010		[32.08]	<0.010	[3.605]	<0.0005
OWD-01	02/13/96	<0.50	<0.001	<0.200	<0.010		[19.69]	<0.010	[4.570]	<0.0005
OWS-01	08/17/89	1.368	<0.005	0.082	0.011		[177]	[0.056]	[1.110]	0.0005
OWS-01	06/28/90	0.534	<0.001	0.028	0.017		[43.10]	[0.016]	[1.110]	<0.0002
OWS-01	07/18/91	(0.270)	<0.005	0.043	[0.093]		[95.30]	0.013	[0.877]	<0.0002
OWS-01	02/09/93	0.075	<0.001	0.029	0.020		[35.45]	<0.005	[0.408]	<0.0002
OWS-01	08/03/93	0.224	<0.001	0.024	0.015		[55.48]	<0.005	[0.971]	<0.0002
OWS-01	02/08/94	0.162	<0.001	0.056	0.048		[97.60]	[0.026]	[0.767]	<0.0002

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Reporting Limit [] = Greater than Action Level

For RCL MET-ENV189

TABLE 3
GROUND WATER ANALYTICAL DATA - LANDFILL WELLS
WEYERHAEUSER
NEW BERN, NORTH CAROLINA
DELTA PROJECT NO. E096-019

SITE	DATE	Selenium (mg/L)	Silver (mg/L)	Zinc (mg/L)	Total Organic Halides (mg/L)	Sulfate (mg/L)	Conductivity (mg/L)	Temp era ture (mg/L)	Nitrate/ Nitrogen (mg/L)
NC-2L-STDS		0.05	0.018	2.1		250			10
LC-01	08/17/89	<0.005	<0.005	(0.015)	0.169	54	1384	28	<0.02
LC-01	06/28/90	<0.005	<0.005	0.505	0.045	80	2850	26	<0.02
LC-01	07/18/91	<0.005	<0.005	<0.010	0.061	47	1880	32	<0.02
LC-01	02/09/93	<0.005	<0.005	0.015	0.062	27	680	9	0.06
LC-01	08/03/93	<0.010	<0.005	<0.010	0.041	58	1300	24	0.02
LC-01	02/08/94	<0.010	<0.005	<0.010	0.035	50	1140	11	<0.02
LC-01	08/10/94	<0.020	<0.010	<0.050	0.029	60	1200	31	<0.04
LC-01	02/07/95	<0.020	<0.010	<0.050	0.025	60	1800	4	0.12
LC-01	08/07/95	<0.020	<0.010	<0.050	0.022	80	1100	29	0.08
LC-01	02/13/96	<0.020	<0.010	<0.050	0.024	63	1400	9	<0.04
OWD-01	08/17/89	<0.005	<0.005	0.078	0.016	45	738	24	<0.02
OWD-01	06/28/90	<0.005	<0.005	0.109	0.017	29	772	25	<0.02
OWD-01	07/18/91	<0.005	<0.005	0.012	0.012	26	725	21	<0.02
OWD-01	02/09/93	<0.005	<0.005	<0.010	0.017	36	750	15	<0.02
OWD-01	08/03/93	<0.010	<0.005	<0.010	0.015	40	880	24	0.10
OWD-01	02/08/94	<0.010	<0.005	<0.010	0.024	50	810	16	<0.02
OWD-01	08/10/94	<0.020	<0.010	<0.050	0.014	40	860	18	<0.04
OWD-01	02/07/95	<0.020	<0.010	<0.050	0.017	50	910	11	<0.04
OWD-01	08/07/95	<0.020	<0.010	<0.050	0.016	29	890	20	0.04
OWD-01	02/13/96	<0.020	<0.010	<0.050	0.018	76	770	16	<0.04
OWS-01	08/17/89	<0.005	<0.005	0.270	0.024	29	228	24	<0.02
OWS-01	06/28/90	<0.005	<0.005	0.050	0.019	26	439	25	0.03
OWS-01	07/18/91	<0.005	<0.005	0.127	0.024	24	190	21	<0.02
OWS-01	02/09/93	<0.005	<0.005	0.036	0.020	10	220	15	<0.02
OWS-01	08/03/93	<0.010	<0.005	0.033	0.020	1	460	23	0.02
OWS-01	02/08/94	<0.010	<0.005	0.091	0.016	6	330	14	<0.02

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed
 () = Less than Reporting Limit
 For RCL MET-ENV189

TABLE 3
GROUND WATER ANALYTICAL DATA - LANDFILL WELLS
WEYERHAEUSER
NEW BERN, NORTH CAROLINA

DELTA PROJECT NO. E096-019

Page: 2A
Date: 06/06/96

SITE	DATE	pH (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Total dissolved solids (TDS) (mg/L)	Arsenic (mg/L)
NC-2L-STD5									
OWS-01	08/10/94	6.1	3.3	54	18.98	250	2	500	0.05
OWS-01	02/07/95	6.2	1.9	22	18.28	8	<0.10	389	<0.010
OWS-01	08/07/95	6.3	2.5	51	19.70	14	0.30	225	<0.010
OWS-01	02/13/96	6.0	4.4	29	13.67	10	0.24	328	<0.010
OWS-02	08/17/89	6.5	18	197	28.96	8	<0.10	265	<0.010
OWS-02	06/28/90	6.4	6.9	194	23.4	31	<0.10	[643]	0.014
OWS-02	07/18/91	6.3	6.0	263	34.01	<1	<0.10	424	0.006
OWS-02	02/09/93	6.3	1.8	90	45.68	21	<0.10	291	0.010
OWS-02	08/03/93	6.2	6.5	81	27.42	14	<0.10	492	0.007
OWS-02	02/08/94	6.6	3.9	59	37.41	<1	<0.10	[594]	<0.005
OWS-02	08/10/94	6.3	5.5	93	30.16	16	<0.10	[585]	<0.005
OWS-02	02/07/95	6.3	1.9	<10	20.87	16	0.36	[655]	<0.010
OWS-02	08/07/95	6.4	5.2	71	21.86	10	<0.10	[513]	<0.010
OWS-02	02/13/96	6.1	4.4	72	30.38	12	<0.10	[894]	<0.010
OWS-03	08/17/89	6.9	19	130	16.29	11	<0.10	[500]	<0.005
OWS-03	06/28/90	6.6	3.6	435	16.1	7	<0.10	367	<0.005
OWS-03	07/18/91	6.6	1.7	63	18.61	11	<0.10	311	<0.005
OWS-03	02/09/93	6.5	2.9	27	13.12	<1	<0.10	242	<0.005
OWS-03	08/03/93	6.3	6.6	27	38.09	4	<0.10	285	<0.005
OWS-03	02/08/94	6.1	2.8	18	14.21	3	<0.10	294	<0.005
OWS-03	08/10/94	6.3	2.7	33	16.10	2	<0.10	333	<0.010
OWS-03	02/07/95	6.5	2.1	<10	9.34	7	0.34	309	<0.010
OWS-03	08/07/95	6.5	2.3	24	11.29	2	0.10	356	<0.010
OWS-03	02/13/96	6.5	2.4	<10	5.16	2	<0.10	278	<0.010

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed
[] = Greater than Action Level

For RCL MET-ENV189

TABLE 3

GROUND WATER ANALYTICAL DATA - LANDFILL WELLS

WEYERHAEUSER

NEW BERN, NORTH CAROLINA

DELTA PROJECT NO. E096-019

Page: 2B
Date: 06/06/96

SITE	DATE	Barium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Chromium		Iron (mg/L)	Lead (mg/L)	Manganese (mg/L)	Mercury (mg/L)
					(total) (mg/L)	1				
NC-2L-STD5		2	0.005	1	0.05		0.3	0.015	0.05	0.0011
OWS-01	08/10/94	<0.50	<0.001	<0.200	0.027		[38.13]	0.013	[0.370]	0.0003
OWS-01	02/07/95	<0.50	<0.001	<0.200	0.016		[35.18]	0.011	[1.506]	<0.0002
OWS-01	08/07/95	<0.50	<0.001	<0.200	0.023		[43.11]	<0.010	[0.454]	<0.0005
OWS-01	02/13/96	<0.50	<0.001	<0.200	<0.010		[14.28]	<0.010	[0.331]	<0.0005
OWS-02	08/17/89	0.792	<0.005	0.015	<0.10		[1.11]	0.010	[1.330]	<0.0002
OWS-02	06/28/90	1.452	<0.005	0.20	0.019		[1.09]	<0.005	[1.250]	<0.0002
OWS-02	07/18/91	(0.269)	<0.005	0.036	[0.061]		[155.1]	[0.020]	[1.038]	<0.0002
OWS-02	02/09/93	0.210	<0.001	0.048	[0.077]		[114.60]	[0.026]	[1.638]	0.0002
OWS-02	08/03/93	0.326	<0.001	0.019	<0.005		[130.6]	<0.005	[1.048]	<0.0002
OWS-02	02/08/94	0.155	<0.001	0.025	0.015		[57.35]	<0.005	[2.528]	<0.0002
OWS-02	08/10/94	<0.50	<0.001	<0.200	<0.010		[82.70]	<0.010	[1.487]	<0.0002
OWS-02	02/07/95	<0.50	<0.001	<0.200	<0.010		[42.58]	<0.010	[1.800]	<0.0002
OWS-02	08/07/95	<0.50	<0.001	<0.200	<0.010		[63.10]	<0.010	[1.068]	<0.0005
OWS-02	02/13/96	<0.50	<0.001	<0.200	<0.010		(0.835)	<0.010	[0.737]	<0.0005
OWS-03	08/17/89	1.280	<0.005	0.021	(0.047)		[50.80]	[0.015]	[0.909]	<0.0002
OWS-03	06/28/90	[2.284]	<0.005	0.015	0.011		[21.30]	0.005	[0.314]	<0.0002
OWS-03	07/18/91	(0.148)	<0.005	0.011	0.013		[30.57]	<0.005	[0.383]	<0.0002
OWS-03	02/09/93	0.068	<0.001	0.018	0.009		[27.71]	<0.005	[4.914]	<0.0002
OWS-03	08/03/93	0.150	<0.001	0.018	<0.005		[8.330]	<0.005	[0.096]	<0.0002
OWS-03	02/08/94	0.089	<0.001	0.018	0.006		[8.225]	<0.005	[0.171]	<0.0002
OWS-03	08/10/94	<0.50	<0.001	<0.200	<0.010		(3.827)	<0.010	[0.127]	<0.0002
OWS-03	02/07/95	<0.50	<0.001	<0.200	<0.010		[8.275]	<0.010	[0.177]	<0.0002
OWS-03	08/07/95	<0.50	<0.001	<0.200	<0.010		[7.120]	<0.010	[0.098]	<0.0005
OWS-03	02/13/96	<0.50	<0.001	<0.200	<0.010		(0.891)	<0.010	[0.065]	<0.0005

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For RCL MET-ENV189

TABLE 3

GROUND WATER ANALYTICAL DATA - LANDFILL WELLS

WEYERHAEUSER

NEW BERN, NORTH CAROLINA

DELTA PROJECT NO. E096-019

Page: 2C

Date: 06/06/96

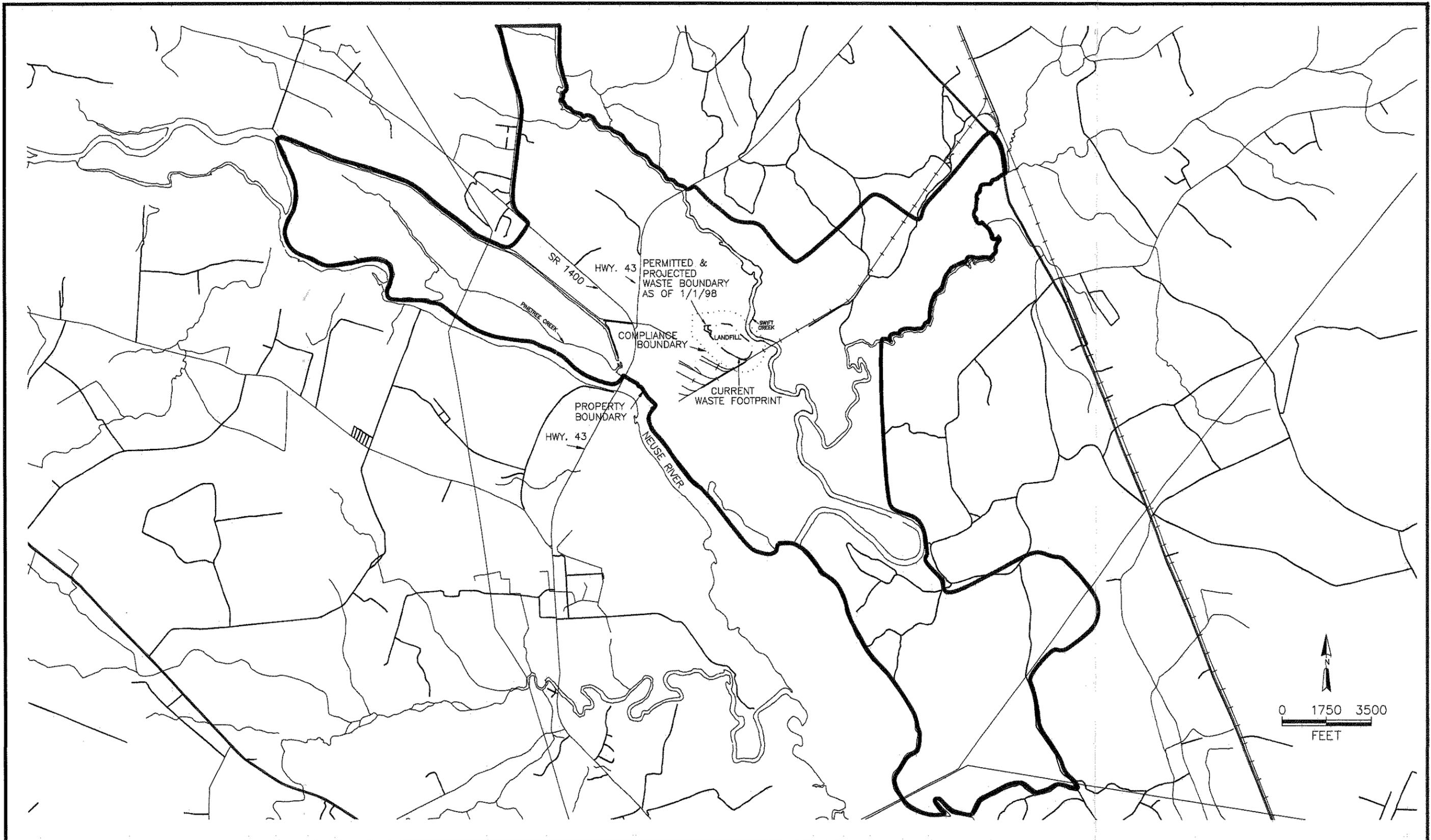
SITE	DATE	Selenium (mg/L)	Silver (mg/L)	Zinc (mg/L)	Total		Sulfate (mg/L)	Conductivity (mg/L)	Temp era ture (mg/L)	Nitrate/ Nitrogen (mg/L)
					Organic Halides (mg/L)	Sulfate (mg/L)				
NC-2L-STDS		0.05	0.018	2.1			250			10
OWS-01	08/10/94	<0.020	<0.010	<0.050	0.022		4	250	22	<0.04
OWS-01	02/07/95	<0.020	<0.010	<0.050	0.024		15	210	8	<0.04
OWS-01	08/07/95	<0.020	<0.010	<0.050	0.022		8	200	23	0.04
OWS-01	02/13/96	<0.020	<0.010	<0.050	0.019		<5	190	9	<0.04
OWS-02	08/17/89	<0.005	<0.005	(0.044)	0.046		18	975	23	<0.02
OWS-02	06/28/90	<0.005	<0.005	0.047	0.052		20	703	25	<0.02
OWS-02	07/18/91	<0.005	<0.005	0.068	0.044		9	616	21	<0.02
OWS-02	02/09/93	<0.005	<0.005	0.064	0.024		16	820	15	0.72
OWS-02	08/03/93	<0.010	<0.005	0.011	0.027		10	750	23	0.02
OWS-02	02/08/94	<0.010	<0.005	0.014	0.031		16	1000	15	0.03
OWS-02	08/10/94	<0.020	<0.010	<0.050	0.028		21	1000	22	<0.04
OWS-02	02/07/95	<0.020	<0.010	<0.050	0.028		30	680	11	0.52
OWS-02	08/07/95	<0.020	<0.010	<0.050	0.028		6	1400	22	0.04
OWS-02	02/13/96	<0.020	<0.010	<0.050	0.035		40	1000	15	6.78
OWS-03	08/17/89	<0.005	<0.005	(0.032)	0.046		73	617	25	0.26
OWS-03	06/28/90	<0.005	<0.005	0.102	0.039		8	625	25	<0.02
OWS-03	07/18/91	<0.005	<0.005	<0.010	0.042		8	541	21	<0.02
OWS-03	02/09/93	<0.005	<0.005	<0.010	(0.006)		3	340	15	<0.02
OWS-03	08/03/93	<0.010	<0.005	0.032	0.011		8	530	24	1.14
OWS-03	02/08/94	<0.010	<0.005	<0.010	0.014		7	510	17	0.04
OWS-03	08/10/94	<0.020	<0.010	<0.050	0.016		16	520	25	<0.04
OWS-03	02/07/95	<0.020	<0.010	<0.050	0.019		17	370	10	0.16
OWS-03	08/07/95	<0.020	<0.010	<0.050	0.014		<5	420	25	0.10
OWS-03	02/13/96	<0.020	<0.010	<0.050	0.014		12	390	14	<0.04

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For RCL MET-ENV189

FIGURES



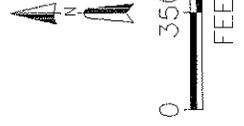
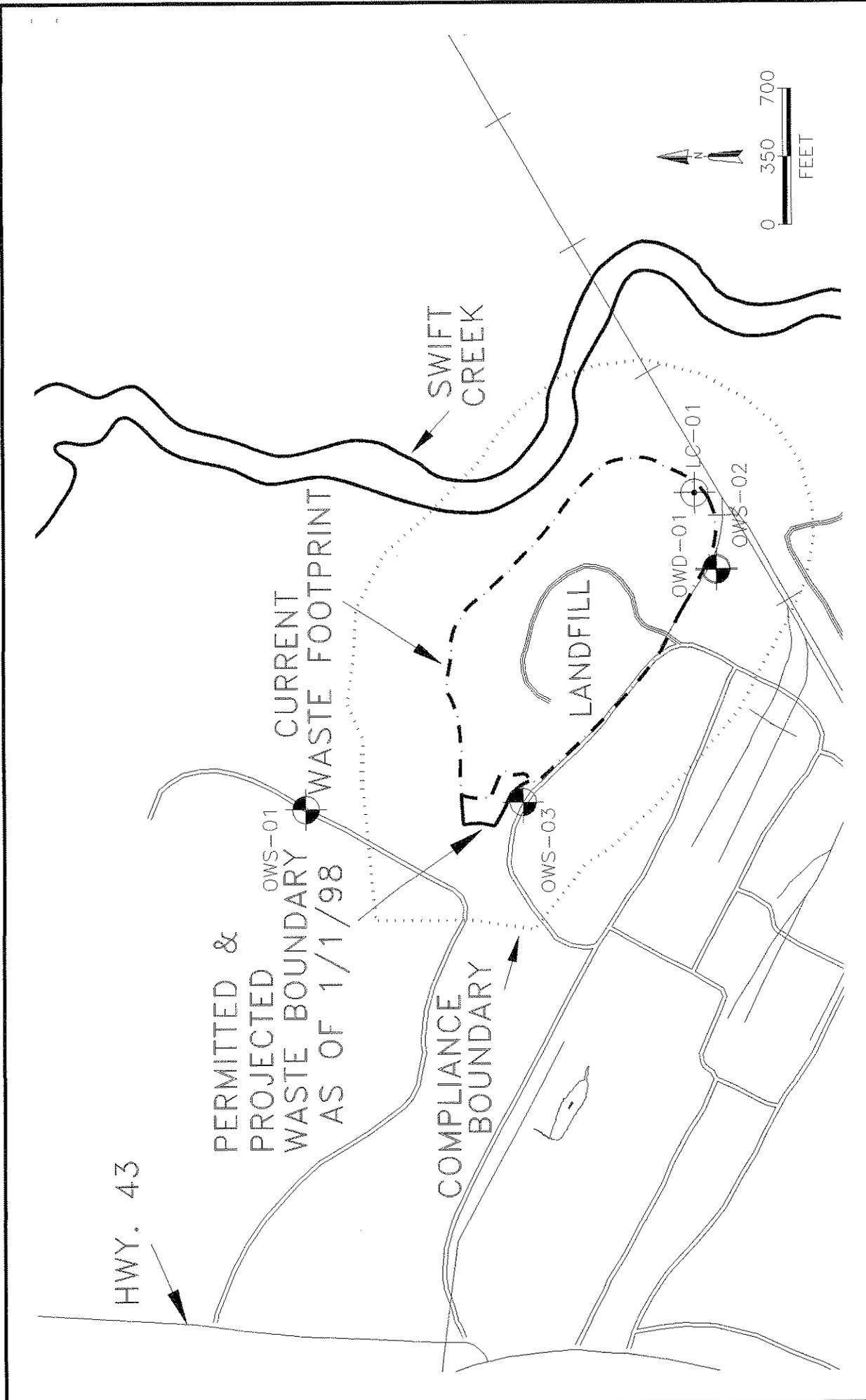
Delta
Environmental Consultants, Inc.
Charlotte, North Carolina

TITLE:
**PROPERTY BOUNDARY
WEYERHAEUSER
NEW BERN, NORTH CAROLINA**

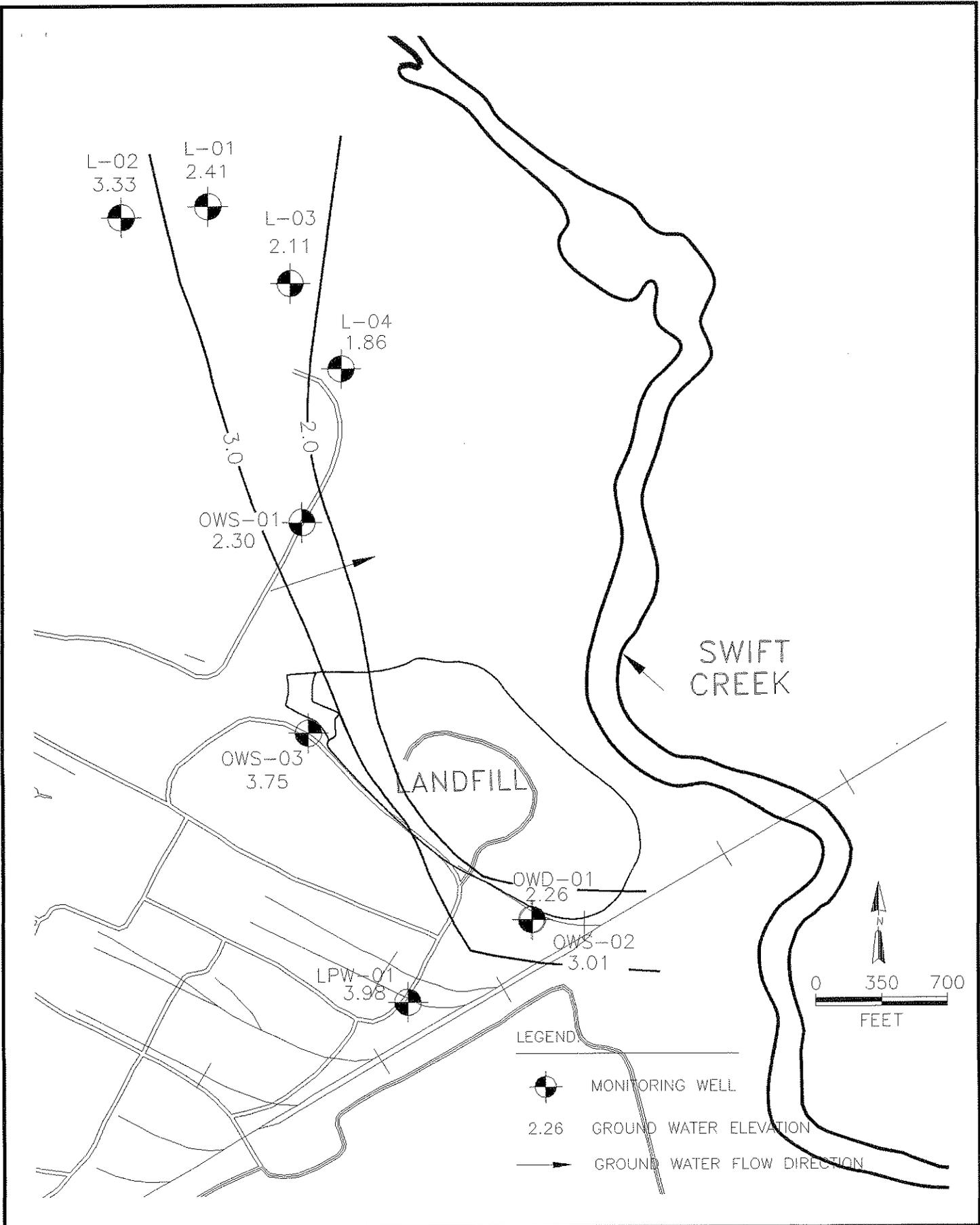
DWN: BLG
CHKD:
DATE: 06/06/96

DES.:
APPD.:
REV.:

PROJECT NO.:
E096-019
FIGURE NO.:
1



 Delta Environmental Consultants, Inc. Charlotte, North Carolina	TITLE: LANDFILL BOUNDARIES WEYERHAEUSER NEW BERN, NORTH CAROLINA		
	DWN: BLG	DES.: APPD:	PROJECT NO.: E096-019
	CHKD:	APPD:	FIGURE NO.: 2
	DATE: 06/06/96	REV.:	



TITLE:
GROUND WATER CONTOUR MAP (05/29/96)
WEYERHAEUSER
NEW BERN, NORTH CAROLINA

DWN: BLG
CHKD:
DATE: 06/05/96

DES.:
APPD.:
REV.:

PROJECT NO.:
E096-019
FIGURE NO.:
3

ATTACHMENT 1

A

ANALYTICAL DATA

Request 16143

(WASTE STREAMS)

WEYERHAEUSER TECHNOLOGY CENTER
Analytical Laboratories
Tacoma, Washington

REPORT

New Bern RCRA Waste
10/3/94

Sample Designation	Analytical Lab Code	Reactive CN mg/kg As-Rec'd	Reactive CN mg/L	Reactive H2S mg/kg As-Rec'd	Reactive H2S mg/L
8294 Lime Grits	36006	<250 ; <250		<100 ; <100	
8295 Clarifier Sludge	36007	<250		<100	
8296 Brown Stock Knots	36008	<250		<100	
8297 Landfill Leachate Canal	36009		<250		<100
8298 Lime Mud	36010	<250		<100	
8299 Lime Dregs	36011	<250		<100	
	Method used :	SW 846 7.3.3.2	SW 846 7.3.3.2	SW 846 7.3.4.2	SW 846 7.3.4.2

NOT ROUTINELY LANDFILLED

- BROWN STOCK KNOTS - RECYCLED BACK TO DIGESTERS
- LIME MUD - KEPT IN RECLAIM SYSTEM
- LIME DREGS - SEWERED TO WTS

Approved 

Date 10/20/94

Weyerhaeuser Analytical and Testing Services RCRA Report

SR# 15754

Submitted By: Bob Maimone New Bern, NC

Service Request Title: New Bern Waste Profiles II

EPA #	Constituent	33846 8031 Primary Clarifier Sludge	Quantitation Limit	Calculated MCL in the solid	Method Number
(mg/kg, as-received basis)					
D004	Arsenic	ND	10	100	3050/6010
D005	Barium	ND	10	2000	3050/6010
D006	Cadmium	ND	1	20	3050/6010
D007	Chromium (total)	ND	1	100	3050/6010
D008	Lead	ND	5	100	3050/6010
D009	Mercury	ND	0.1	4	7471M
D010	Selenium	ND	0.3	20	3050/200.9
D011	Silver	ND	1	100	3050/6010

ND = Not Detected above the Quantitation Limit Listed

Approved

Mary Beth Lantz

Report Date 9/13/94

WEYERHAEUSER COMPANY
ANALYTICAL LABORATORIES
ATOMIC SPECTROSCOPY
Tacoma, WA

New Bern Waste Profiles I
SR 15687
Total Metals Analysis

Element	33398 8019 Landfill Leachate Canal	33398D Duplicate	33399 8020 Influent	Quantitation Limit	Method
	(ug/L)				
Ag	< 10	< 10	< 10	10	3010/6010
Al	1000	1000	2600	200	3010/6010
As	<3	<3	<3	3	3020/200.9
Ba	< 100	< 100	100	100	3010/6010
Be	< 10	< 10	< 10	10	3010/6010
Ca	51800	51800	28500	500	3010/6010
Cd	< 10	< 10	< 10	10	3010/6010
Co	< 10	< 10	< 10	10	3010/6010
Cr	< 10	< 10	< 10	10	3010/6010
Cu	< 20	< 20	< 20	20	3010/6010
Fe	800	800	1400	100	3010/6010
Hg	<0.2	<0.2	<0.2	0.2	7470
K	20000	20000	< 10000	10000	3010/6010
Mg	5300	5300	5800	100	3010/6010
Mn	120	130	510	10	3010/6010
Na	30000	30000	322000	1000	3010/6010
Ni	< 30	< 30	< 30	30	3010/6010
Pb	<3	<3	<3	3	3020/200.9
Sb	< 50	< 50	< 50	50	3010/6010
Se	<3	<3	<3	3	3020/200.9
Tl	<3	<3	<3	3	3020/200.9
V	20	20	20	10	3010/6010
Zn	30	20	120	20	3010/6010

Approved



Report Date 8/29/94

ATTACHMENT 2



Project Number:	Site Id: OWS-01
Project Name: WEYERHAEUSER/NEW BERM	Location: WEYERHAEUSER/OLD LANDFILL WELL
Contractor: WESTINGHOUSE	Elevation: 5.70'
Consulting Firm: WESTINGHOUSE	Datum: Mean Sea Level
Logged By:	Measuring Point: 8.22'
Date(s): 06/28/89 -- 06/28/89	Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Purpose: Well	Blank Casing: type: PVC dia: 2.00in fm: -2.6' to: 1.50'
Drilling Method: Hollow Stem Auger	Screens: type: Slotted size: 0.010in dia: 2.00in fm: 1.50' to: 11.50'
Remarks:	Annular Fill: type: NEAT CEMENT fm: 0.00' to: 0.50' type: BENTONITE-CEMENT GROUT fm: 0.50' to: 1.00' type: NATIVE SAND fm: 1.00' to: 11.50'

Elevation (ft)	Depth (ft)	Recovery	Sample No.	Blow Count	Vapor	Graphic Log	USCS Code	Material Description	Well Construction MP. EL. 8.22
0							SM	Brown clayey, silty, sand	
							CL	Gray sandy clay	
							SM	Tan sand	
								Boring terminated at 16 feet.	



Project Number:	Site Id: OWS-02
Project Name: WEYERHAEUSER/NEW BERN	Location: WEYERHAEUSER/OLD LANDFILL WELL
Contractor: WESTINGHOUSE	Elevation: 11.00'
Consulting Firm: WESTINGHOUSE	Datum: Mean Sea Level
Logged By:	Measuring Point: 13.26'
Date(s): 06/29/89 - 06/29/89	Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Purpose: Well	Blank Casing: type: PVC dia: 2.00in fm: -2.3' to: 2.50'
Drilling Method: Hollow Stem Auger	Screens: type: Slotted size: 0.010in dia: 2.00in fm: 2.50' to: 12.50'
Remarks:	Annular Fill: type: NEAT CEMENT fm: 0.00' to: 0.50' type: BENTONITE-CEMENT GROUT fm: 0.50' to: 1.80' type: NATIVE SAND fm: 1.80' to: 12.50'

Elevation (ft)	Depth (ft)	Recovery	Sample No.	Blow Count	Vapor	Graphic Log	USCS Code	Material Description	Well Construction MP. EL. 13.26
10							SM	Brown silty sand with fill material	
	10							Tan silty sand	
0								Boring terminated at 14 feet.	
	20								
-10									



Project Number:	Site Id: OWS-03
Project Name: WEYERHAEUSER/NEW BERN	Location: WEYERHAEUSER/OLD LANDFILL WELL
Contractor: WESTINGHOUSE	Elevation: 10.30'
Consulting Firm: WESTINGHOUSE	Datum: Mean Sea Level
Logged By:	Measuring Point: 13.08'
Date(s): 06/30/89 - 06/30/89	Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Purpose: Well	Blank Casing: type: PVC dia: 2.00in fm: -2.3' to: 4.00'
Drilling Method: Hollow Stem Auger	Screens: type: Slotted size: 0.010in dia: 2.00in fm: 4.00' to: 14.00'
Remarks:	Annular Fill: type: NEAT CEMENT fm: 0.00' to: 0.50' type: BENTONITE-CEMENT GROUT fm: 0.50' to: 3.00' type: NATIVE SAND fm: 3.00' to: 14.00'

Elevation (ft)	Depth (ft)	Recovery	Sample No.	Blow Count	Vapor	Graphic Log	USCS Code	Material Description	Well Construction MP. EL. 13.08
10							SM	Brown silty sand	
								Dark brown silty sand	
0	10						CL	Greenish-gray sandy clay	
							SM	Gray silty sand	
								Boring terminated at 14.5 feet.	



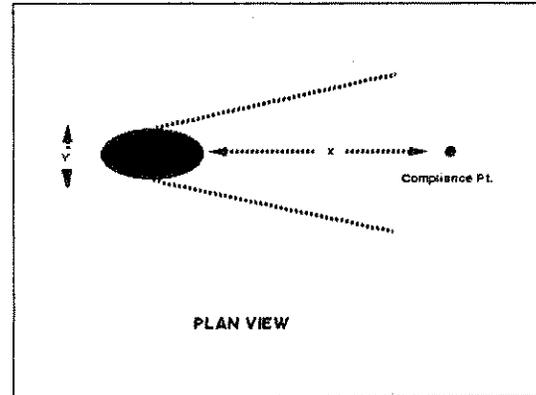
Project Number:	Site Id: OWD-01
Project Name: WEYERHAEUSER/NEW BERN	Location: WEYERHAEUSER/OLD LANDFILL WELL
Contractor: WESTINGHOUSE	Elevation: 10.90'
Consulting Firm: WESTINGHOUSE	Datum: Mean Sea Level
Logged By:	Measuring Point: 12.43'
Date(s): 06/29/89 - 06/29/89	Conductor Casing: type: dia: 0.00in fm: 0.00' to: 0.00'
Purpose: Well	Blank Casing: type: PVC dia: 2.00in fm: -2.4' to: 19.50'
Drilling Method: Hollow Stem Auger	Screens: type: Slotted size: 0.010in dia: 2.00in fm: 19.50' to: 24.50'
Remarks:	Annular Fill: type: NEAT CEMENT fm: 0.00' to: 0.50' type: BENTONITE-CEMENT GROUT fm: 0.50' to: 17.00' type: NATIVE SAND fm: 17.00' to: 24.50'

Elevation (ft)	Depth (ft)	Recovery	Sample No.	Blow Count	Vapor	Graphic Log	USCS Code	Material Description	Well Construction MP. EL. 12.43
10							SM	Brown silty sand with fill material	
	10							Tan silty sand	
0								Brownish-red silty sand	
	20							Light gray silty sand	
-10								Boring terminated at 27 feet.	

ATTACHMENT 3

DOMINICO MODEL

Input Data	
Source Concentration (mg/l)	894
Source Width (ft)	1974
Source Thickness (ft)	25
Distances - Source to Receptor (ft)	
Longitudinal (downgradient)	500
Transverse (crossgradient)	0
Vertical	0
Water Table Gradient (ft/ft)	0.0031
Hydraulic Conductivity (ft/day)	0.2834
First Order Decay Rate (days ⁻¹)	0.0002
Partitioning Coefficient, Koc	
chemical specific (ml/g)	0
Effective Porosity (%)	25%
Organic Content of Soil (%)	0.1%
Bd (kg/cu m)	1500



Calculated Data	
Dispersivities (ft)	
Longitudinal (downgradient)	50
Transverse (crossgradient)	16.6666667
Vertical	2.5
Seepage Velocity (ft/day)	0.00351416
Retardation Factor	1
Retarded Seepage Velocity (ft/day)	0.00351416
Time to receptor (days)	142281.519
Time to receptor (years)	389.81
PREDICTED CONCENTRATION AT RECEPTOR (mg/L)	88.246119
PREDICTED CONCENTRATION AT RECEPTOR (ug/L)	88246.12

RESULTS OF ALL EQUATIONS

equation 1	88.24612 mg/l	(used if receptor is on centerline of plume)
equation 2	88.24612 mg/l	(used if receptor is off centerline AND 1st order decay is zero)
equation 3	5.45E-12 mg/l	(used if receptor is off centerline and 1st order decay is non-zero)

EQUATION 1

88.24612 mg/l

		abs val	calc t	abs erf	erf	erfc
first portion	(A)		447			
erfc argument	(B)	-2.861E-17	2.86E-17	1	4.16E-17	-4.2E-17
erf argument	(C)	5.40602164	5.406022	0.282217	1	1
erf argument	(D)	0.1767767	0.176777	0.923218	0.197419	0.197419

EQUATION 2

88.24612 mg/l

		abs val	calc t	abs erf	erf	erfc
first portion	(A)		111.75			
erfc argument	(B)	-2.861E-17	2.86E-17	1	4.16E-17	-4.2E-17
erf argument	(C)	5.40602164	5.406022	0.282217	1	1
erf argument	(D)	-5.4060216	5.406022	0.282217	1	-1
erf argument	(E)	0.1767767	0.176777	0.923218	0.197419	0.197419
erf argument	(F)	-0.1767767	0.176777	0.923218	0.197419	-0.19742

EQUATION 3

5.45E-12 mg/l

		abs val	calc t	abs erf	erf	erfc
first portion	(A)		0.00037894			
erfc argument	(B)	-3.9827	3.9827	0.347978	1.00E+00	-1
erf argument	(C)	5.40602164	5.406022	0.282217	1	1
erf argument	(D)	-5.4060216	5.406022	0.282217	1	-1
erf argument	(E)	0.1767767	0.176777	0.923218	0.197419	0.197419
erf argument	(F)	-0.1767767	0.176777	0.923218	0.197419	-0.19742

