Domtar

It all begins with paper.®

Domtar Paper Company, LLC
Plymouth Mill
PO Box 747
Highway 149 North
Plymouth, NC 27962
T 252-793-8111
www.domtar.com

RECEIVED
NOV 24 2009
SOLID WASTE SECTION

November 17, 2009

Certified Mail
Return Receipt Requested

Ms. Elizabeth S. Werner
Hydrogeologist, Solid Waste Section
NC DENR – Division of Waste Management
1646 Mail Service Center
Raleigh, North Carolina 27669-1646

Subject: Response to Hydrogeology Review, NC DENR Letter to Bill Morris Dated February 12, 2009

Reference: Construction Plan Application – Phase 3 and Phase 4
Domtar Landfill No. 3, Plymouth, Washington County, North Carolina
Permit #94-01, DOC ID 6788

Dear Ms. Werner:

This letter is provided as a response to comments and questions you raised in your review of the referenced Construction Plan Application document. For ease of review, the original comments are presented in ***bold italics typeface*** with the accompanying responses following in normal type-face. All issues have been addressed in this letter. Where applicable, we have also provided replacement pages for the document itself.

1. ***In Section 1.1, the waste generation rate for Phase 1B and @ is stated as 155,000 cu/yr. However, in Section 1.4, the waste generation for Phase 3 and 4 is stated to 100,000 cu/yr. Explain the decrease in waste generation.***

   Response: Two paper machines (NC-1 and NC-5) have been permanently shut down at Plymouth. Also a recycled fiber operation that supported NC-1 was permanently closed. A fine paper finishing operation that worked in conjunction with NC-5 was also permanently closed. The closure of these manufacturing units is the reason for the decrease in waste generation.

2. ***In Section 2.1, it states that the 100-year flood plain is delineated on Sheet 7. Sheet 7 does not show the delineation of the 100-year flood plain.***

   Response: In Section 2.2. it states that the 100-year flood plain is delineated on Sheet 7. The sentence should read "Sheet 2" rather than "Sheet 7". As can be seen on the drawing, the 100-year flood plain is located along Welch Creek, approximately 1,500 feet west of the proposed landfill cells. The reference in Section 2.2 has been corrected.

3. *Section 2.4 – Submit a table displaying the historic water level measurements including the most recent water level readings.*

Response: Table 2-3 and Table 2-4 have been added to Section 2 and summarize historical and current groundwater elevations.

4. *Section 3.2 – Have you performed TCLP tests on the waste ash since 1989? If so, please submit the results. If not, explain why.*

Response: We have performed some ash analyses and the information is enclosed. However, with the exception of generation rates, nothing has changed in the combustion process that generates waste ash.

5. *Section 3.4 – The groundwater parameters to be monitored are not listed in Section 5.6.1 as stated.*

Response: Table 5-1 has been added to Section 5.6.1 which provides the groundwater monitoring parameters.

6. *Section 7.3 – Submit the manufacturer's recommendations for maintenance and cleaning for the pumps used in the monitoring wells.*

Response: QED manual is enclosed.

7. *Appendix M, Section 5 – How often do you plan on spraying the ash for dust control?*

Response: The ash will be sprayed as needed to control dust, and as frequently as on a daily basis. This frequency has been added to Appendix M, Section 5.

8. *Appendix N, Section 7.1 – Be more specific with "periodically" inspecting the final cap and perimeter berm.*

Response: The final cap and perimeter berm will at a minimum be inspected on a weekly basis. Appendix N, Section 7.1 has been modified to specify this frequency.

9. *Appendix N, Section 7.2 – State a specific time frame for the maintenance inspections of the leachate collection system.*

Response: The leachate pumps will be inspected at least on a weekly basis. The collection piping will be jet cleaned at least annually. The frequency of maintenance inspections has been added to Appendix N, Section 7.2.

10. *Appendix N, Attachment 2 – Are the costs of the QED pumps and water level meters included in the final cost of the post closure groundwater monitoring?*

Response: Yes.

11. *Appendix O, Equipment Decontamination – There is no need for the final deionized water rinse in the equipment decontamination process. The isopropyl alcohol rinse should be the final step before drying and then wrapping in aluminum foil.*

Response: The final deionized water rinse has been eliminated from the decontamination process presented in Appendix O.

12. ***Appendix O – The Teflon Bailer Cleaning Procedure does not match the Standard Operating Procedures (SOP) followed by the Division of Waste Management (DWM). The SOP for the DWM states the use of a 10% nitric acid rinse rather than hydrochloric acid. Also the SOP states the use of isopropyl alcohol instead of methanol. There is no need for steps 8 and 9. The last step should be the isopropyl alcohol rinse before drying and then wrapping in aluminum foil.***

    Response: The Teflon bailer cleaning procedure described in Appendix O has been modified as follows:

    - A 10% nitric acid rinse has replaced the hydrochloric acid rinse
    - Isopropyl alcohol has replaced methanol
    - Steps 8 and 9 have been removed

13. ***Appendix O, Water Levels – The dedicated water level indicators should be stored much above the seasonal high water table within the monitoring wells.***

    Response: The dedicated water level indicators will be stored at least 5 feet above the mean seasonal high water level within the well. This clarification has been added to Appendix O.

14. ***Appendix O, Sampling of Wells – Please state the monitoring frequency in the text for the monitoring wells associated with Landfill No. 2 (MW-2 through Mw-6, MW-6A, MW-7) and Landfill No. 3, Phase A (MW-9 through MW-12).***

    Response: Appendix O describes the procedures used for the collection and handling of groundwater samples. The groundwater monitoring frequency and monitoring parameters have been added to Section 5.6.1 – Groundwater Monitoring Plan.

15. ***A copy of the deed or other legal description of the landfill site that would be sufficient as a description in an instrument of conveyance and property owners name in accordance with 15A NCAC 13B. 0504(2)(h)(i) was not submitted. Please submit this documentation.***

    Response: This information was provided as part of the original landfill permit application submitted in 2000.

Please contact me if there are further questions.

Sincerely,

Bill Morris
Environmental Engineer
Domtar Plymouth Mill

Attachments

cc: Michael B. Parker, RMT
Central Files

Phase 3 and Phase 4 Construction Plan Application

On-site Industrial Waste Landfill No. 3

Domtar Paper Company, LLC (Formerly Weyerhaeuser Company), Plymouth, North Carolina

June 2008, Revised August 2009

Table of Contents

1. Introduction 1-1
   1.1 Background 1-1
   1.2 Purpose 1-1
   1.3 Document Overview 1-1
   1.4 General Information 1-3

2. Site Characterization 2-1
   2.1 Site Location 2-1
   2.2 Surface Hydrology 2-1
   2.3 Geology 2-2
   2.4 Hydrogeology 2-3
   2.5 Design Considerations 2-4

3. Waste Characterization 3-1
   3.1 Waste Types and Quantities 3-1
   3.2 Chemical Testing Results 3-2
   3.3 Physical Testing Results 3-3
   3.4 Design and Operating Considerations 3-4

4. Engineering Design 4-1
   4.1 Design Variances 4-1
   4.2 Liner System 4-1
      4.2.1 Liner Design 4-1
      4.2.2 Liner and Cap Stability 4-2
   4.3 Leachate Collection and Removal System 4-3
   4.4 Buffer Requirements 4-5
   4.5 Cover System 4-5
   4.6 Earthwork Volumes and Borrow Materials 4-6
   4.7 Erosion Control Plan 4-7
   4.8 Sediment Control Plan 4-7
   4.9 Capacity and Anticipated Life 4-8

5. Operating Procedures 5-1
5.1 Waste Route 5-1
5.2 Development of Phases 5-1
5.3 Waste Handling and Placement 5-1
5.4 Abnormal Conditions 5-2
5.4.1 Inclement Weather 5-2
5.4.2 Equipment Breakdown 5-2
5.5 Leachate and Stormwater Collection and Removal 5-3
5.6 Environmental Monitoring 5-4
5.6.1 Groundwater Monitoring Plan 5-4
5.6.2 Leachate Monitoring 5-5
5.6.3 Gas Monitoring 5-5
5.6.4 Stormwater Monitoring 5-5

6. Construction Quality Assurance Plan 6-1

7. Closure/Post-closure 7-1
7.1 Closure Method 7-1
7.2 Closure Schedule 7-1
7.3 Post-closure Care 7-2
7.4 Long-term Use 7-2
7.5 Abandonment of Leachate Collection and Environmental Monitoring Systems 7-3
7.6 Public Safety 7-3

8. References 8-1

List of Tables

Table 2-1 Site Coordinates 2-6
Table 2-2 Geologic Formations in Eastern North Carolina (Nelson, 1964) 2-7
Table 2-3 Water Elevation Summary – August 1989 through December 1999 2-8
Table 2-4 Water Elevation Summary – December 2009 through February 2009 2-16
Table 4-1 Phase Capacity (1) 4-12
Table 5-1 Groundwater Monitoring Parameters 5-6

List of Figures

Figure 4-1 Interface Direct Shear Test ... 4-9
Figure 4-2 Interface Direct Shear Tests ... 4-10
Figure 4-3 Interface Direct Shear Testing ... 4-11

List of Appendices

Appendix A Documentation of Design Issues
Appendix B Phase 2 – Hydrogeologic and Geotechnical Site Characterization for a Proposed Landfill
Appendix C Subgrade Settlement Calculations
Appendix D Waste Characterization and Analysis
Appendix E Slope Stability Analysis
Appendix F Groundwater Flow Model for Liner Design
Appendix G Water and Mass Balance Calculations
Appendix H Leachate Line Hydraulic Calculations and Drainage Layer Equivalency Report
Appendix I Pipe Strength Calculations
Appendix J Material Volume Calculations
Appendix K Borrow Investigation
Appendix L Stormwater/Erosion and Sedimentation Calculations
Appendix M Operations Plan
Appendix N Closure/Post-closure Plan
Appendix O Sampling and Analysis Procedures for Groundwater
Appendix P Construction Quality Assurance Plan Phase 3 and Phase 4 Construction – Landfill No. 3

Section 2
Site Characterization

2.1 Site Location

The spatial limits of Landfill No. 3 are described in Table 2-1 as the coordinates and elevations of the inside corners of the perimeter berm. The points are listed sequentially in a counterclockwise manner starting with the northern-most west corner (just west of the north sediment basin No. 1). The points represent the limits of waste, stated as State Plane Coordinates. Phase 3 and Phase 4 are located within this footprint.

The landfill is located entirely on property owned by Domtar. The relationship of the property line to the landfill is shown on Sheet No. 7, and the legal description of the area permitted for landfill development is included as Appendix A.

2.2 Surface Hydrology

The contours shown on Sheet No. 2 are based on a April 13, 2007 aerial topographic survey,. While landfilling operations will have since altered some of the grades within the existing active landfill phases, the topographic conditions Phase 3 and Phase 4 areas are relatively unchanged.

The natural topography surrounding the overall landfill site exhibits relief of greater than 40 feet, ranging from approximately mean sea level (msl) on the flood plain of Welch Creek to greater than 42 feet msl in the center of Landfill No. 2, northwest of the site. In the vicinity of Landfill No. 3, a topographic ridge trends north-south.

Landfill No. 3 lies within the Welch Creek drainage basin. A portion of the surface water, which originates as precipitation runoff, drains directly to Welch Creek on the west. The remainder drains toward the northeast into Little Mill Creek, which flows into Welch Creek north of the landfill site within Domtar property. On the west side of the site, Welch Creek flows northerly until it discharges into the Roanoke River.

Landfill No. 3 footprint is not located within the 100-year flood plain; neither does it encroach upon jurisdictional wetlands. The delineation of the 100-year floodplain and the jurisdictional wetlands are shown on Sheet No. 2. A copy of the United States Army Corps of Engineers' Notification of Jurisdictional Determination is provided in Appendix A.

Two aquifers, one shallow water table and one underlying the water table aquifer, were identified at the Landfill No. 3 site. As illustrated on the geologic cross sections, the shallow water table aquifer exists throughout the site. A clay layer, 15 to 18 feet thick, forms a lower confining unit for this aquifer throughout most of the site. The second aquifer is present below the clay layer. Where present, the clay unit acts as an upper confining unit or aquitard to the lower aquifer. The clay unit is present throughout most of the site but is discontinuous on the west side of the site along the flood plain to Welch Creek and on the far northeast side of the site. In these areas, the upper and lower aquifers are interconnected and groundwater occurs under water table conditions.

A map characterizing the water table, included as Sheet No. 3, was prepared using historic high groundwater levels measured on April 2, 1993. The water table contours have been adjusted to reflect isolated historical high levels measured in well MW-5 on May 16, 2003 and in wells MW-7 and MW-13 on December 1, 2005. The water table configuration shown on Sheet No. 3 represents the highest recorded levels measured since monitoring was initiated in 1989. It should be noted that an anomalously high water level was measured in MW-13 on May 16, 2003. This water level appears to be erroneous and was not used. Historic and current water level elevations are summarized on Table 2-3 and Table 2-4.

The shallow water table fluctuates with seasonal variations in precipitation and, as shown on the geologic cross sections, generally mimics the topography across the site. Groundwater in both aquifers flows from the south of the site toward Welch Creek on the west and Little Mill Creek on the north. Water levels in the water table aquifer range from approximately 2 feet below land surface in the vicinity of well OW-2 in the southwestern portion of the site, to approximately 16 feet below land surface in well MW-2 in the western portion of the site.

Two groups of private residences are located 1,900 to 2,400 feet south of Domtar's Landfill No. 2 and 500 feet from the proposed footprint of Landfill No. 3. Some of these homes rely on private wells for their domestic water supply. These wells are topographically upgradient of the landfill. Discussions with well owners and drillers in the area indicate that domestic water supply wells in the area are commonly 100 to 200 feet deep.

2.5 Design Considerations

The information generated by the hydrogeological and geotechnical investigations led to the identification of two main design considerations. The first is the location of the water table. As required in NCAC Title 15A Subchapter 13B, Section .0503, Subsection 2.d.i of the NCAC, the liner has been designed to maintain a 4-foot buffer zone between the bottom elevation of the solid waste and the seasonal high water table. This is demonstrated on the cross sections of the landfill shown on Sheet No. 17.

Table 2-3
Water Elevation Summary - August 1989 through December 1999

STATION ID	TOP OF (2) CASING ELEVATION	DEPTH (1) TO WATER 08/16/89	WATER LEVEL (2) ELEVATION 08/16/89	DEPTH (1) TO WATER 01/14/90	WATER LEVEL (2) ELEVATION 01/14/90	DEPTH (1) TO WATER 08/16/90	WATER LEVEL (2) ELEVATION 08/16/90	DEPTH (1) TO WATER 11/20/90	WATER LEVEL (2) ELEVATION 11/20/90	DEPTH (1) TO WATER 12/14/90	WATER LEVEL (2) ELEVATION 12/14/90	DEPTH (1) TO WATER 01/14/91	WATER LEVEL (2) ELEVATION 01/14/91	DEPTH (1) TO WATER 02/14/91	WATER LEVEL (2) ELEVATION 02/14/91
LF-01	37.59	4	33.59	NM	NM	7.91	29.68	11.42	26.17	8.88	28.71	8.17	29.42	6.21	31.38
LF-01A	37.62	NM	NM	NM	NM	NM	NM	31.54	6.08	28.5	9.12	28.42	9.2	28	9.62
LF-02	27.68	20.33	7.35	NM	NM	21.79	5.89	21.58	6.1	21.71	5.97	21.5	6.18	21.21	6.47
LF-03	10.7	5.92	4.78	NM	NM	6.12	4.58	6.12	4.58	6.21	4.49	5.92	4.78	5.96	4.74
LF-04	12.09	7.79	4.3	NM	NM	8.75	3.34	8.13	3.96	8.17	3.92	7.75	4.34	7.5	4.59
LF-05	39.16	12.17	26.99	NM	NM	13.2	25.96	13.46	25.7	13.67	25.49	13.33	25.83	13.25	25.91
LF-06	14.02	10	4.02	NM	NM	11.5	2.52	10.58	3.44	10.58	3.44	10.17	3.85	10	4.02
LF-06A	14.05	NM	NM	NM	NM	NM	NM	10.08	3.97	10.08	3.97	9.83	4.22	9.58	4.47
LF-07	36.33	6.96	29.37	NM	NM	10.83	25.5	11.17	25.16	11.17	25.16	10.75	25.58	9.75	26.58
LF-08	36.19	NM	NM	NM	NM	NM	NM	29.71	6.48	29.46	6.73	29.67	6.52	29.33	6.86
LFO-01	36.98	NM	NM	NM	NM	NM	NM	NM	NM	29.13	7.85	29.08	7.9	28.75	8.23
LFO-02	33.83	NM	NM	NM	NM	NM	NM	NM	NM	Dry	Dry	Dry	Dry	11.04	22.79
LFO-03	45.58	NM	NM	NM	NM	NM	NM	NM	NM	20.79	24.79	21.08	24.5	21.25	24.33
LFO-04	36.95	NM	NM	NM	NM	NM	NM	NM	NM	15	21.95	15	21.95	14.71	22.24
LFO-05	34.1	NM	NM	NM	NM	NM	NM	NM	NM	16.5	17.6	14.42	19.68	13.83	20.27
LFO-06	34.27	NM	NM	23.75	10.52	NM	NM	NM	NM	23.75	10.52	NM	NM	NM	NM
LFO-07	24.47	NM	NM	NM	NM	NM	NM	NM	NM	19.21	5.26	19	5.47	18.92	5.55
LFO-08	36.63	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-09	33.67	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-10	38.88	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-11	39.52	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-12	39.44	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-13	38.96	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-14	39.89	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-15	41.61	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

(1) Measured in feet below top of casing
(2) Relative to mean sea level

Table 2-3

Water Elevation Summary - August 1989 through December 1999

STATION ID	TOP OF (2) CASING ELEVATION	DEPTH (1) TO WATER 03/20/91	WATER LEVEL (2) ELEVATION 03/20/91	DEPTH (1) TO WATER 04/02/93	WATER LEVEL (2) ELEVATION 04/02/93	DEPTH (1) TO WATER 06/04/93	WATER LEVEL (2) ELEVATION 06/04/93	DEPTH (1) TO WATER 08/17/93	WATER LEVEL (2) ELEVATION 08/17/93	DEPTH (1) TO WATER 09/20/93	WATER LEVEL (2) ELEVATION 09/20/93	DEPTH (1) TO WATER 10/14/93	WATER LEVEL (2) ELEVATION 10/14/93	DEPTH (1) TO WATER 11/29/93	WATER LEVEL (2) ELEVATION 11/29/93
LF-01	37.59	5.42	32.17	2.92	34.67	6.21	31.38	8.29	29.3	8.88	28.71	9.25	28.34	9	28.59
LF-01A	37.62	27.67	9.95	23.79	13.83	25.54	12.08	27.54	10.08	28.25	9.37	28.5	9.12	28.45	9.17
LF-02	27.68	21.13	6.55	18.88	8.8	20.12	7.56	21.46	6.22	21.79	5.89	21.83	5.85	21.66	6.02
LF-03	10.7	5.83	4.87	5.78	4.92	5.79	4.91	6.29	4.41	6.33	4.37	6.38	4.32	6.17	4.53
LF-04	12.09	7.33	4.76	6.85	5.24	7.46	4.63	8.15	3.94	8.29	3.8	8.5	3.59	8.08	4.01
LF-05	39.16	14.25	24.91	10.54	28.62	11.46	27.7	12.67	26.49	13.17	25.99	13.33	25.83	13.42	25.74
LF-06	14.02	10	4.02	8.08	5.94	10.21	3.81	10.94	3.08	11	3.02	10.88	3.14	10.5	3.52
LF-06A	14.05	9.51	4.54	8.37	5.68	9.54	4.51	10.38	3.67	10.37	3.68	10.33	3.72	10	4.05
LF-07	36.33	9.92	26.41	5.92	30.41	9.38	26.95	11.58	24.75	11.75	24.58	12.12	24.21	11.96	24.37
LF-08	36.19	29.25	6.94	26.83	9.36	27.88	8.31	29.25	6.94	29.67	6.52	29.83	6.36	29.69	6.5
LFO-01	36.98	28.5	8.48	25.5	11.48	26.65	10.33	28.33	8.65	28.92	8.06	29.12	7.86	29.04	7.94
LFO-02	33.83	11.25	22.58	3.73	30.1	7.92	25.91	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
LFO-03	45.58	21.33	24.25	Dry	Dry	NM	NM	19.83	25.75	20.44	25.14	20.75	24.83	21.27	24.31
LFO-04	36.95	14.67	22.28	12.12	24.83	13.6	23.35	14.33	22.62	14.67	22.28	14.88	22.07	14.88	22.07
LFO-05	34.1	Dry	Dry	12.92	21.18	13.9	20.2	14.38	19.72	Dry	Dry	14.88	19.22	13.88	20.22
LFO-06	34.27	20.33	13.94	18.35	15.92	17.67	16.6	18.75	15.52	19.08	15.19	19.29	14.98	19.46	14.81
LFO-07	24.47	18.88	5.59	17.71	6.76	18.42	6.05	18.96	5.51	19.17	5.3	19.29	5.18	19.04	5.43
LFO-08	36.63	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-09	33.67	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-10	38.88	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-11	39.52	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-12	39.44	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-13	38.96	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-14	39.89	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-15	41.61	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

(1) Measured in feet below top of casing

(2) Relative to mean sea level

Table 2-3
Water Elevation Summary - August 1989 through December 1999

STATION ID	TOP OF (2) CASING ELEVATION	DEPTH (1) TO WATER 12/22/93	WATER LEVEL (2) ELEVATION 12/22/93	DEPTH (1) TO WATER 01/10/94	WATER LEVEL (2) ELEVATION 01/10/94	DEPTH (1) TO WATER 02/22/94	WATER LEVEL (2) ELEVATION 02/22/94	DEPTH (1) TO WATER 05/23/94	WATER LEVEL (2) ELEVATION 05/23/94	DEPTH (1) TO WATER 06/21/94	WATER LEVEL (2) ELEVATION 06/21/94	DEPTH (1) TO WATER 07/27/94	WATER LEVEL (2) ELEVATION 07/27/94	DEPTH (1) TO WATER 10/20/94	WATER LEVEL (2) ELEVATION 10/20/94
LF-01	37.59	8.27	29.32	8.12	29.47	5.53	32.06	7.05	30.54	7.96	29.63	9	28.59	7.95	29.64
LF-01A	37.62	28.33	9.29	28.69	8.93	27.8	9.82	27.3	10.32	27.93	9.69	28.57	9.05	28.72	8.9
LF-02	27.68	NM	NM	22.04	5.64	21.35	6.33	21.62	6.06	22	5.68	22.49	5.19	22.39	5.29
LF-03	10.7	NM	NM	6.5	4.2	6.4	4.3	6.75	3.95	6.9	3.8	7.12	3.58	6.95	3.75
LF-04	12.09	NM	NM	8.38	3.71	8.05	4.04	8.71	3.38	8.71	3.38	8.99	3.1	8.72	3.37
LF-05	39.16	NM	NM	14.11	25.05	13.12	26.04	13.41	25.75	13.72	25.44	14.15	25.01	14.04	25.12
LF-06	14.02	NM	NM	10.63	3.39	10.6	3.42	11.22	2.8	11.5	2.52	11.85	2.17	11.14	2.88
LF-06A	14.05	NM	NM	10.25	3.8	10.08	3.97	10.55	3.5	10.9	3.15	11.27	2.78	10.69	3.36
LF-07	36.33	11.54	24.79	12.02	24.31	11.05	25.28	11.93	24.4	11.74	24.59	14.49	21.84	12.7	23.63
LF-08	36.19	29.54	6.65	30.07	6.12	29.5	6.69	29.43	6.76	29.44	6.75	30.25	5.94	29.81	6.38
LFO-01	36.98	28.94	8.04	29.38	7.6	28.8	8.18	28.45	8.53	28.45	8.53	29.41	7.57	29.55	7.43
LFO-02	33.83	Dry	Dry	Dry	Dry	13.45	20.38	14.75	19.08	Dry	Dry	Dry	Dry	Dry	Dry
LFO-03	45.58	21.27	24.31	22.25	23.33	22.37	23.21	21.75	23.83	21.34	24.24	21.71	23.87	22.5	23.08
LFO-04	36.95	9.79	27.16	15.25	21.7	14.75	22.2	14.85	22.1	15.14	21.81	14.42	22.53	15.75	21.2
LFO-05	34.1	13.6	20.5	14.01	20.09	14.05	20.05	14.8	19.3	14.72	19.38	15	19.1	14.12	19.98
LFO-06	34.27	19.44	14.83	19.81	14.46	18.83	15.44	19.12	15.15	19.5	14.77	19.93	14.34	19.55	14.72
LFO-07	24.47	19.83	4.64	19.38	5.09	19.2	5.27	19.3	5.17	19.58	4.89	19.87	4.6	19.69	4.78
LFO-08	36.63	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-09	33.67	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-10	38.88	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-11	39.52	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-12	39.44	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-13	38.96	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-14	39.89	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-15	41.61	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

(1) Measured in feet below top of casing

(2) Relative to mean sea level

Table 2-3
Water Elevation Summary - August 1989 through December 1999

STATION ID	TOP OF CASING ELEVATION [2]	DEPTH TO WATER 02/28/95 [1]	WATER LEVEL ELEVATION 02/28/95 [2]	DEPTH TO WATER 01/26/96 [1]	WATER LEVEL ELEVATION 01/26/96 [2]	DEPTH TO WATER 10/07/96 [1]	WATER LEVEL ELEVATION 10/07/96 [2]	DEPTH TO WATER 11/05/96 [1]	WATER LEVEL ELEVATION 11/05/96 [2]	DEPTH TO WATER 12/04/96 [1]	WATER LEVEL ELEVATION 12/04/96 [2]	DEPTH TO WATER 01/08/97 [1]	WATER LEVEL ELEVATION 01/08/97 [2]	DEPTH TO WATER 02/05/97 [1]	WATER LEVEL ELEVATION 02/05/97 [2]
LF-01	37.59	4.92	32.67	7.05	30.54	5.9	31.69	4.65	32.94	5.96	31.63	4.25	33.34	4.38	33.21
LF-01A	37.62	27.26	10.36	28.1	9.52	26.55	11.07	26.06	11.56	26.47	11.15	26.13	11.49	25.9	11.72
LF-02	27.68	21.08	6.6	21.84	5.84	20.94	6.74	20.73	6.95	21	6.68	19.69	7.99	20.61	7.07
LF-03	10.7	6.32	4.38	NM	NM	6.2	4.5	6.12	4.58	6.22	4.48	6.04	4.66	6.02	4.68
LF-04	12.09	7.96	4.13	8.24	3.85	7.79	4.3	7.85	4.24	7.85	4.24	7.73	4.36	7.74	4.35
LF-05	39.16	13.44	25.72	13.75	25.41	12.85	26.31	12.65	26.51	12.58	26.58	12.25	26.91	12.28	26.88
LF-06	14.02	10.33	3.69	10.67	3.35	10.32	3.7	10.32	3.7	10.53	3.49	10.3	3.72	10.38	3.64
LF-06A	14.05	9.78	4.27	10.29	3.76	9.8	4.25	9.73	4.32	9.94	4.11	9.71	4.34	9.72	4.33
LF-07	36.33	11.05	25.28	12.37	23.96	10.91	25.42	10	26.33	10.03	26.3	9.3	27.03	9.03	27.3
LF-08	36.19	28.82	7.37	29.66	6.53	28.55	7.64	28.29	7.9	28.5	7.69	28.26	7.93	28.07	8.12
LFO-01	36.98	28.63	8.35	29.08	7.9	28.92	8.06	27.51	9.47	27.82	9.16	27.52	9.46	27.3	9.68
LFO-02	33.83	12.23	21.6	13.92	19.91	14.3	19.53	NM	NM	12.77	21.06	11.52	22.31	11.08	22.75
LFO-03	45.58	22.74	22.84	20.62	24.96	21.38	24.2	NM	NM	20.56	25.02	20.72	24.86	20.39	25.19
LFO-04	36.95	15.12	21.83	16.27	20.68	NM	NM	14.87	22.08	14.97	21.98	14.74	22.21	14.63	22.32
LFO-05	34.1	13.72	20.38	14.3	19.8	14.35	19.75	14.29	19.81	14.58	19.52	14.26	19.84	14.47	19.63
LFO-06	34.27	18.48	15.79	18.14	16.13	18.08	16.19	18.39	15.88	19.14	15.13	19.27	15	19.3	14.97
LFO-07	24.47	19.15	5.32	13	11.47	19.08	5.39	18.97	5.5	19.02	5.45	18.88	5.59	18.87	5.6
LFO-08	36.63	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-09	33.67	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-10	38.88	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-11	39.52	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-12	39.44	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-13	38.96	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-14	39.89	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-15	41.61	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM

(1) Measured in feet below top of casing

(2) Relative to mean sea level

Table 2-3
Water Elevation Summary - August 1989 through December 1999

STATION ID	TOP OF CASING ELEVATION (2)	DEPTH TO WATER (1) 03/06/97	WATER LEVEL ELEVATION (2) 03/06/97	DEPTH TO WATER (1) 04/04/97	WATER LEVEL ELEVATION (2) 04/04/97	DEPTH TO WATER (1) 05/09/97	WATER LEVEL ELEVATION (2) 05/09/97	DEPTH TO WATER (1) 06/05/97	WATER LEVEL ELEVATION (2) 06/05/97	DEPTH TO WATER (1) 07/08/97	WATER LEVEL ELEVATION (2) 07/08/97	DEPTH TO WATER (1) 08/05/97	WATER LEVEL ELEVATION (2) 08/05/97	DEPTH TO WATER (1) 09/09/97	WATER LEVEL ELEVATION (2) 09/09/97
LF-01	37.59	4.31	33.28	4.71	32.88	5.21	32.38	6.54	31.05	8.1	29.49	8.28	29.31	9.07	28.52
LF-01A	37.62	25.91	11.71	25.9	11.72	26.08	11.54	26.74	10.88	27.58	10.04	27.99	9.63	28.46	9.16
LF-02	27.68	20.57	7.11	20.51	7.17	20.59	7.09	21.13	6.55	21.73	5.95	21.98	5.7	22.22	5.46
LF-03	10.7	5.96	4.74	5.99	4.71	6.03	4.67	6.34	4.36	6.71	3.99	6.76	3.94	6.92	3.78
LF-04	12.09	7.65	4.44	7.68	4.41	7.68	4.41	8.07	4.02	8.44	3.65	8.55	3.54	8.71	3.38
LF-05	39.16	12.2	26.96	12.19	26.97	12.29	26.87	12.8	26.36	13.43	25.73	13.64	25.52	13.78	25.38
LF-06	14.02	10.4	3.62	10.35	3.67	10.43	3.59	10.78	3.24	11.36	2.66	11.44	2.58	11.53	2.49
LF-06A	14.05	9.73	4.32	9.72	4.33	9.81	4.24	10.17	3.88	10.77	3.28	10.84	3.21	10.99	3.06
LF-07	36.33	8.65	27.68	5.83	30.5	9.01	27.32	9.82	26.51	10.52	25.81	11.03	25.3	11.69	24.64
LF-08	36.19	28.08	8.11	28.02	8.17	28.05	8.14	28.57	7.62	29.1	7.09	29.33	6.86	29.65	6.54
LFO-01	36.98	27.31	9.67	27.25	9.73	NM	NM	27.86	9.12	28.51	8.47	28.82	8.16	29.22	7.76
LFO-02	33.83	11.28	22.55	11.92	21.91	NM	NM	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
LFO-03	45.58	20.15	25.43	20.14	25.44	NM	NM	20.66	24.92	20.93	24.65	21.23	24.35	21.61	23.97
LFO-04	36.95	14.51	22.44	14.43	22.52	NM	NM	14.68	22.27	15.09	21.86	15.27	21.68	15.47	21.48
LFO-05	34.1	14.31	19.79	14.29	19.81	NM	NM	14.3	19.8	14.97	19.13	15.06	19.04	15.22	18.88
LFO-06	34.27	19.44	14.83	19.23	15.04	NM	NM	19.38	14.89	20.07	14.2	20.39	13.88	20.58	13.69
LFO-07	24.47	18.83	5.64	18.8	5.67	NM	NM	19.04	5.43	19.32	5.15	19.39	5.08	19.58	4.89
LFO-08	36.63	NM	NM	NM	NM	7.33	29.3	9.18	27.45	10.43	26.2	10.8	25.83	11.53	25.1
LFO-09	33.67	NM	NM	NM	NM	3.93	29.74	4.57	29.1	5.82	27.85	6.1	27.57	7.14	26.53
LFO-10	38.88	NM	NM	NM	NM	5.65	33.23	7.1	31.78	8.58	30.3	8.81	30.07	8.76	30.12
LFO-11	39.52	NM	NM	NM	NM	6.74	32.78	8.31	31.21	10.3	29.22	10.98	28.54	11.41	28.11
LFO-12	39.44	NM	NM	NM	NM	7.79	31.65	9.41	30.03	10.8	28.64	11.45	27.99	12.03	27.41
LFO-13	38.96	NM	NM	NM	NM	8.24	30.72	9.51	29.45	10.93	28.03	11.78	27.18	12.47	26.49
LFO-14	39.89	NM	NM	NM	NM	10.57	29.32	11.41	28.48	12.53	27.36	13.18	26.71	13.77	26.12
LFO-15	41.61	NM	NM	NM	NM	15.25	26.36	15.57	26.04	16.06	25.55	16.48	25.13	16.97	24.64

(1) Measured in feet below top of casing

(2) Relative to mean sea level

Table 2-3
Water Elevation Summary - August 1989 through December 1999

STATION ID	TOP OF CASING ELEVATION (2)	DEPTH TO WATER (1) 10/07/97	WATER LEVEL ELEVATION (2) 10/07/97	DEPTH TO WATER (1) 11/04/97	WATER LEVEL ELEVATION (2) 11/04/97	DEPTH TO WATER (1) 12/10/98	WATER LEVEL ELEVATION (2) 12/10/98	DEPTH TO WATER (1) 04/17/98	WATER LEVEL ELEVATION (2) 04/17/98	DEPTH TO WATER (1) 09/11/98	WATER LEVEL ELEVATION (2) 09/11/98	DEPTH TO WATER (1) 10/06/98	WATER LEVEL ELEVATION (2) 10/06/98	DEPTH TO WATER (1) 11/10/98	WATER LEVEL ELEVATION (2) 11/10/98
LF-01	37.59	8.93	28.66	8.83	28.76	8.05	29.54	4.38	33.21	NM	NM	NM	NM	NM	NM
LF-01A	37.62	28.55	9.07	28.74	8.88	28.32	9.3	25.04	12.58	NM	NM	NM	NM	NM	NM
LF-02	27.68	22.08	5.6	22.08	5.6	21.8	5.88	19.89	7.79	NM	NM	NM	NM	NM	NM
LF-03	10.7	6.9	3.8	6.7	4	6.48	4.22	5.75	4.95	NM	NM	NM	NM	NM	NM
LF-04	12.09	8.57	3.52	8.42	3.67	8.2	3.89	7.41	4.68	NM	NM	NM	NM	NM	NM
LF-05	39.16	13.82	25.34	13.74	25.42	13.42	25.74	12.23	26.93	NM	NM	NM	NM	NM	NM
LF-06	14.02	11.21	2.81	11.06	2.96	7.26	6.76	9.93	4.09	NM	NM	NM	NM	NM	NM
LF-06A	14.05	10.69	3.36	10.57	3.48	10.27	3.78	9.22	4.83	NM	NM	NM	NM	NM	NM
LF-07	36.33	11.86	24.47	11.77	24.56	11.86	24.47	9.43	26.9	NM	NM	NM	NM	NM	NM
LF-08	36.19	29.62	6.57	29.62	6.57	29.37	6.82	27.5	8.69	NM	NM	NM	NM	NM	NM
LFO-01	36.98	29.25	7.73	29.36	7.62	29.04	7.94	26.58	10.4	28.55	8.43	28.95	8.03	29.18	7.8
LFO-02	33.83	Dry	Dry	Dry	Dry	Dry	Dry	NM	NM	NM	NM	NM	NM	NM	NM
LFO-03	45.58	21.87	23.71	22.06	23.52	22.26	23.32	18.91	26.67	21.4	24.18	20.47	25.11	20.98	24.6
LFO-04	36.95	15.48	21.47	15.41	21.54	5.41	31.54	14.28	22.67	14.59	22.36	14.88	22.07	14.95	22
LFO-05	34.1	14.89	19.21	14.32	19.78	14.81	19.29	14.93	19.17	14.93	19.17	16.04	18.06	16.57	17.53
LFO-06	34.27	20.48	13.79	20.49	13.78	20.38	13.89	19.98	14.29	23.2	11.07	21.27	13	21.58	12.69
LFO-07	24.47	14.47	10	19.35	5.12	19.47	5	NM	NM	NM	NM	11.57	12.9	NM	NM
LFO-08	36.63	11.6	25.03	11.35	25.28	11.05	25.58	7.62	29.01	11.42	25.21	NM	NM	NM	NM
LFO-09	33.67	4.07	29.6	6.46	27.21	6.06	27.61	3.35	30.32	7.25	26.42	7.99	25.68	NM	NM
LFO-10	38.88	8.32	30.56	8.44	30.44	7.53	31.35	4.02	34.86	8.02	30.86	9.17	29.71	NM	NM
LFO-11	39.52	11.47	28.05	11.57	27.95	11.08	28.44	4.07	35.45	11.3	28.22	11.56	27.96	NM	NM
LFO-12	39.44	12.26	27.18	12.54	26.9	12.47	26.97	5.83	33.61	11.9	27.54	12.32	27.12	NM	NM
LFO-13	38.96	12.64	26.32	12.82	26.14	12.51	26.45	6.59	32.37	12.43	26.53	12.83	26.13	NM	NM
LFO-14	39.89	13.98	25.91	14.2	25.69	14.32	25.57	9.21	30.68	13.31	26.58	13.66	26.23	NM	NM
LFO-15	41.61	17.22	24.39	17.45	24.16	NM	NM	13.43	28.18	15.63	25.98	16	25.61	NM	NM

(1) Measured in feet below top of casing
(2) Relative to mean sea level

Table 2-3
Water Elevation Summary - August 1989 through December 1999

STATION ID	TOP OF[2] CASING ELEVATION	DEPTH[1] TO WATER 01/14/99	WATER LEVEL[2] ELEVATION 01/14/99	DEPTH[1] TO WATER 02/03/99	WATER LEVEL[2] ELEVATION 02/03/99	DEPTH[1] TO WATER 02/26/99	WATER LEVEL[2] ELEVATION 02/26/99	DEPTH[1] TO WATER 03/29/99	WATER LEVEL[2] ELEVATION 03/29/99	DEPTH[1] TO WATER 04/26/99	WATER LEVEL[2] ELEVATION 04/26/99	DEPTH[1] TO WATER 05/18/99	WATER LEVEL[2] ELEVATION 05/18/99	DEPTH[1] TO WATER 06/21/99	WATER LEVEL[2] ELEVATION 06/21/99
LF-01	37.59	NM	NM	10.04	27.55	10.03	27.56	NM	NM	10.28	27.31	NM	NM	10.78	26.81
LF-01A	37.62	NM	NM	27.45	10.17	27.25	10.37	NM	NM	27.36	10.26	NM	NM	28.12	9.5
LF-02	27.68	NM	NM	21.02	6.66	21.06	6.62	NM	NM	21.32	6.36	NM	NM	21.88	5.8
LF-03	10.7	NM	NM	6.2	4.5	6.24	4.46	NM	NM	6.48	4.22	NM	NM	6.65	4.05
LF-04	12.09	NM	NM	7.89	4.2	7.98	4.11	NM	NM	8.23	3.86	NM	NM	8.54	3.55
LF-05	39.16	NM	NM	12.39	26.77	12.48	26.68	NM	NM	NM	NM	NM	NM	13.18	25.98
LF-06	14.02	NM	NM	10.3	3.72	10.45	3.57	NM	NM	10.77	3.25	NM	NM	11.1	2.92
LF-06A	14.05	NM	NM	9.73	4.32	9.87	4.18	NM	NM	10.14	3.91	NM	NM	10.53	3.52
LF-07	36.33	NM	NM	10.85	25.48	10.66	25.67	NM	NM	10.72	25.61	NM	NM	11.42	24.91
LF-08	36.19	NM	NM	28.82	7.37	28.76	7.43	NM	NM	NM	NM	NM	NM	29.43	6.76
LFO-01	36.98	28.75	8.23	NM	NM	28.28	8.7	28.26	8.72	28.35	8.63	28.55	8.43	28.96	8.02
LFO-02	33.83	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-03	45.58	21.31	24.27	NM	NM	20.87	24.71	21.06	24.52	21.11	24.47	21.23	24.35	21.55	24.03
LFO-04	36.95	14.68	22.27	NM	NM	14.35	22.6	14.35	22.6	NM	NM	14.6	22.35	14.92	22.03
LFO-05	34.1	14.39	19.71	NM	NM	14.62	19.48	14.02	20.08	NM	NM	15.91	18.19	16.09	18.01
LFO-06	34.27	19.91	14.36	NM	NM	19.97	14.3	20.13	14.14	NM	NM	21.14	13.13	21.48	12.79
LFO-07	24.47	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
LFO-08	36.63	11.58	25.05	NM	NM	10.97	25.66	10.74	25.89	10.98	25.65	11.13	25.5	11.98	24.65
LFO-09	33.67	7.68	25.99	NM	NM	7.37	26.3	7.09	26.58	7.77	25.9	7.6	26.07	8.32	25.35
LFO-10	38.88	7.51	31.37	NM	NM	6.43	32.45	6.76	32.12	7.58	31.3	7.99	30.89	9.14	29.74
LFO-11	39.52	11.54	27.98	NM	NM	10.01	29.51	9.69	29.83	10.07	29.45	10.58	28.94	11.4	28.12
LFO-12	39.44	NM	NM	NM	NM	12.28	27.16	12.22	27.22	12.25	27.19	12.43	27.01	13.03	26.41
LFO-13	38.96	13.08	25.88	NM	NM	12.41	26.55	12.41	26.55	12.54	26.42	12.85	26.11	13.26	25.7
LFO-14	39.89	14.09	25.8	NM	NM	13.45	26.44	13.4	26.49	13.4	26.49	13.63	26.26	14.18	25.71
LFO-15	41.61	17.02	24.59	NM	NM	16.52	25.09	16.63	24.98	16.78	24.83	16.88	24.73	17.22	24.39

(1) Measured in feet below top of casing
(2) Relative to mean sea level

Table 2-3

Water Elevation Summary - August 1989 through December 1999

STATION ID	TOP OF CASING ELEVATION (2)	DEPTH TO WATER 07/03/99 (1)	WATER LEVEL ELEVATION 07/03/99 (2)	DEPTH TO WATER 08/30/99 (1)	WATER LEVEL ELEVATION 08/30/99 (2)	DEPTH TO WATER 10/21/99 (1)	WATER LEVEL ELEVATION 10/21/99 (2)	DEPTH TO WATER 12/21/99 (1)	WATER LEVEL ELEVATION 12/21/99 (2)
LF-01	37.59	NM	NM	NM	NM	NM	NM	9.37	28.22
LF-01A	37.62	NM	NM	NM	NM	NM	NM	26.32	11.3
LF-02	27.68	NM	NM	NM	NM	NM	NM	20.64	7.04
LF-03	10.7	NM	NM	NM	NM	NM	NM	6.02	4.68
LF-04	12.09	NM	NM	NM	NM	NM	NM	7.88	4.21
LF-05	39.16	NM	NM	NM	NM	NM	NM	11.94	27.22
LF-06	14.02	NM	NM	NM	NM	NM	NM	10.32	3.7
LF-06A	14.05	NM	NM	NM	NM	NM	NM	9.67	4.38
LF-07	36.33	NM	NM	NM	NM	NM	NM	8.22	28.11
LF-08	36.19	NM	NM	NM	NM	NM	NM	28.22	7.97
LFO-01	36.98	29.5	7.48	29.6	7.38	26.33	10.65	27.53	9.45
LFO-02	33.83	NM	NM	NM	NM	NM	NM	NM	NM
LFO-03	45.58	21.81	23.77	22.07	23.51	17.88	27.7	17.83	27.75
LFO-04	36.95	15.17	21.78	15.27	21.68	13.1	23.85	14.04	22.91
LFO-05	34.1	16.73	17.37	16.7	17.4	13.16	20.94	15.06	19.04
LFO-06	34.27	21.78	12.49	21.87	12.4	18.05	16.22	21.05	13.22
LFO-07	24.47	NM	NM	NM	NM	NM	NM	NM	NM
LFO-08	36.63	12.61	24.02	12.81	23.82	4.4	32.23	7.38	29.25
LFO-09	33.67	8.76	24.91	8.85	24.82	2.8	30.87	5.37	28.3
LFO-10	38.88	9.99	28.89	9.25	29.63	2.11	36.77	6.24	32.64
LFO-11	39.52	11.09	28.43	12.35	27.17	2.18	37.34	5.72	33.8
LFO-12	39.44	14.11	25.33	13.68	25.76	3.01	36.43	7.34	32.1
LFO-13	38.96	14.34	24.62	14.18	24.78	3.22	35.74	8.02	30.94
LFO-14	39.89	14.63	25.26	14.9	24.99	7.58	32.31	9.47	30.42
LFO-15	41.61	17.52	24.09	17.76	23.85	11.39	30.22	12.54	29.07

(1) Measured in feet below top of casing

(2) Relative to mean sea level

Table 2-4
Water Elevation Summary - December 1999 through February 2009

WELL NAME	12/21/99	02/24/00	05/26/00	08/15/00	11/16/00	02/27/01	06/05/01	09/12/01	12/27/01	03/26/02	06/30/02	10/30/02	05/16/03	12/30/03	12/30/04
LF-01	28.22	28.82	28.31	27.66	28.26	28.15	27.55	27.8	27.13	28.44	27.53	27.43	28.73	30.18	29.21
LF-01A	11.3	11.67	11.12	10.92	10.92	10.2	9.58	9.39	8.34	9.53	9.14	8.52	12.5	13.36	10.91
LF-02	7.04	7.31	6.97	6.99	6.75	6.43	5.99	5.82	5.23	6.09	5.59	5.18	8.49	8.38	6.76
LF-03	4.68	4.8	4.56	4.62	4.53	4.49	4.07	3.94	3.77	4.43	3.72	3.79	4.87	5.19	4.66
LF-04	4.21	4.42	4.07	4.28	4.05	3.99	3.57	3.51	3.11	3.94	3.86	3.41	4.69	5.04	4.36
LF-05	27.22	27.17	26.91	22.02	26.89	NA	NA	NA	25.2	25.13	25.31	24.57	28.71	26.1	25.1
LF-06	3.7	3.88	3.67	4.06	3.47	3.51	3.17	3.02	2.88	-0.24	2.79	3.25	4	4.54	3.79
LF-06A	4.38	4.56	4.28	4.55	4.12	4.11	3.69	3.46	3.33	3.95	2.25	2.94	4.58	5.17	4.28
LF-07	28.11	29.27	28.91	29.26	27.63	27.5	26.62	26.43	25.37	27.12	25.96	25.65	29.06	29.57	27.7
LF-08	7.97	8.25	7.85	7.93	7.74	7.37	6.86	6.69	4.79	6.86	6.39	6.13	8.49	9.13	7.75
LF-09	NA	NA	NA	NA	NA	NA	NA	NA	7.29	NA	NA	NA	9.91	10.21	9.05
LF-10	NA	NA	NA	NA	NA	NA	NA	NA	4.04	NA	NA	NA	4.92	5.26	4.91
LF-11	NA	NA	NA	NA	NA	NA	NA	NA	4.39	NA	NA	NA	5.25	5.59	5.24
LF-12	NA	NA	NA	NA	NA	NA	NA	NA	5.87	NA	NA	NA	7.14	7.58	7.27
LF-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24.58	19.28	17.62
LFO-04	22.91	23.2	22.79	22.86	22.36	22.02	21.75	21.64	21.14	21.19	20.91	20.9	22.19	22.12	21.45
LFO-14	25.05	27.28	26.82	27.17	24.79	23.67	22.97	22.88	21.33	22.38	22.57	21.41	26.92	28.32	23.6

WELL NAME	03/31/05	06/28/05	09/22/05	12/1/2005	03/23/06	06/06/06	08/22/06	11/27/06	02/27/07	05/30/07	08/14/07	08/07/08	11/24/08	02/23/09
LF-01	30.11	31.39	28.59	29.09	28.72	28.79	28.79	30.19	29.35	28.28	27.17	25.99	25.91	26.12
LF-01A	11.84	10.71	11.21	11.52	11.22	10.98	10.98	12.25	11.33	10.82	9.2	8.2	7.87	8.11
LF-02	5.68	6.57	6.71	7.08	6.88	6.84	6.84	7.86	7	6.58	5.48	5.03	4.68	5
LF-03	4.89	4.38	4.49	4.75	4.65	4.65	4.65	5.05	4.75	4.29	3.8	3.36	3.57	3.7
LF-04	4.74	4.09	4.29	4.51	4.29	4.28	4.28	5.06	4.46	4.04	3.29	3.02	3.22	3.31
LF-05	25.06	24.9	24.95	24.85	24.56	24.64	24.64	24.31	24.3	24.16	24.06	23.69	23.29	23.31
LF-06	4.36	3.22	3.46	3.82	3.68	3.72	3.72	4.77	3.41	3.42	2.6	2.12	2.67	2.87
LF-06A	4.83	3.75	3.94	7.56	4.23	4.18	4.18	5.23	4.48	3.8	3.05	2.58	3	3.25
LF-07	28.94	26.91	26.88	30.72	27.52	27.67	27.67	27.66	28.06	26.68	25.58	24.23	23.83	23.72
LF-08	8.29	7.65	7.79	8.04	7.92	7.4	7.4	8.54	7.54	8.11	6.49	5.27	6.13	5.74
LF-09	9.62	9.23	9.3	9.53	9.33	9.32	9.32	9.53	9.15	9.07	8.38	7.87	7.06	7.50
LF-10	5.13	4.57	4.81	4.78	4.85	4.88	4.88	5.31	5.13	4.56	4.06	3.66	3.79	4.08
LF-11	5.47	4.89	5	5.23	4.83	5.21	5.21	5.64	5.27	4.74	4.34	3.54	4.24	4.29
LF-12	7.57	6.52	6.69	7.28	7.12	6.92	6.92	7.57	7.16	6.42	5.72	4.62	5.12	5.94
LF-13	18.99	18.88	17.73	17.88	17.86	17.78	17.78	17.78	17.75	17.18	16.33	15.86	15.23	13.42
LFO-04	21.61	21.3	22.44	21.22	21.21	21.15	21.15	21.25	21.05	20.95	20.41	19.46	19.35	19.37
LFO-14	26.61	24.12	23.37	23.97	24.17	23.81	23.81	24.85	24.67	23.37	21.87	NA	NA	NA

Water level elevations are in feet MSL.

NA - Data not available

5.6 Environmental Monitoring

NC DENR regulations stipulate that four media (*i.e.*, groundwater, leachate, gas, and stormwater) be monitored around landfill sites. The proposed monitoring plans for the site are presented in the following paragraphs.

5.6.1 Groundwater Monitoring Plan

Domtar has implemented a groundwater monitoring plan for Landfill No. 3 as required under NCAC Title 15A, Subchapter 13B, Section .0600 and in accordance with Title 15A, Subchapter 2C, Section .0100. The groundwater monitoring program was designed to provide information on groundwater quality immediately upgradient and downgradient of Landfill No. 3. These monitoring wells are located adjacent to the landfill and will detect changes in groundwater quality should a release occur. Baseline groundwater quality monitoring was performed prior to site operations to characterize existing groundwater quality. Additional baseline groundwater quality data was provided by a past investigation of Landfill No. 2 located immediately west and northwest (downgradient) of Landfill No. 3 (*Groundwater Quality Assessment for the Existing Landfill*, RMT, October 1989).

The groundwater monitoring plan consists of 13 existing monitoring wells: two wells (MW-1 and MW-1A) upgradient from the landfill, six wells (MW-2, MW-3, MW-4, MW-5, MW-6, and MW-6A) around the perimeter of Landfill No. 2, four wells (MW-9, MW-10, MW-11, and MW-12) around the perimeter of Landfill No. 3, Phase 1A, and one well (MW-13) located east of Phase 2. These monitoring well locations are shown on Sheet No. 3. The existing monitoring well nest MW-1/ MW-1A is located upgradient of all landfill activity. Well MW-1 is screened in the water table aquifer and well MW-1A is screened in the lower confined aquifer. These wells are presently used to provide background water quality data and to assess the water table configuration.

Monitoring wells MW-2 through MW-6 and MW-6A monitor groundwater quality related to Landfill No. 2 and wells MW-9 through MW-13 monitor groundwater quality related to Landfill No. 3. These wells will continue to be monitored on a semiannual basis for the parameters summarized on Table 5-1. Groundwater sampling and analysis procedures are outlined in Appendix O, Sampling and Analysis Procedures for Groundwater.

Water levels in the wells will be measured quarterly (February, May, August, and November). Data obtained from shallow wells will be used to monitor water table variations.

Table 5-1
Groundwater Monitoring Parameters

PARAMETERS
Biochemical Oxygen Demand (BOD)
Chemical Oxygen Demand (COD)
Nitrate Nitrogen
Total Organic Carbon (TOC)
Chloride
Fluoride
Total Dissolved Residue
Arsenic
Barium
Cadmium
Copper
Chromium
Iron
Lead
Manganese
Mercury
Selenium
Silver
Zinc
Total Organic Halides (TOH)
Sulfate

Appendix M
Operations Plan

RMT

ENVIRONMENT • ENERGY • ENGINEERING

Phase 3 and Phase 4 - Operations Plan

On-site Industrial Waste Landfill No. 3

Domtar Paper Company, LLC (Formerly Weyerhaeuser Company), Plymouth, North Carolina

June 2008, Revised August 2009

I:\WPGVL\PJT\00-71717\10\R007171710-006.DOC

30 Patewood Drive, Suite 100 • Greenville, SC 29615-3535 • (864) 281-0030 • (864) 281-0288 FAX • www.rmtinc.com

CREATING BALANCE℠

Section 5
Dust Control

Due to the frequent use of ash as daily cover and the potential for dusting, dust control equipment will be used at the Landfill. This equipment will consist of a pump and piping system tied to the leachate transfer station storage tank or wet well. Leachate will be pumped from the storage tank or wet well to mobile sprinkler units located within the landfill. The ash will be sprayed as needed to control dust, and as frequently as on a daily basis.

Appendix N
Closure/Post-closure Plan

RMT

ENVIRONMENT • ENERGY • ENGINEERING

Phase 3 and Phase 4 - Closure/Post-closure Plan

On-site Industrial Waste Landfill No. 3

Domtar Paper Company, LLC (Formerly Weyerhaeuser Company), Plymouth, North Carolina

June 2008, Revised August 2009

30 Patewood Drive, Suite 100 • Greenville, SC 29615-3535 • (864) 281-0030 • (864) 281-0288 FAX • www.rmtinc.com

Section 7
Post-closure Monitoring and Maintenance

7.1 Final Cover Maintenance/Inspection Schedule

The finished cap and perimeter berm will receive a visual inspection on a weekly basis to check for and document evidence of settling, subsidence, erosion, and other potential failures of the final cover. These inspections will also encompass the perimeter berm, ditches, channels, and sediment basin to ensure storm water runoff and runon are being properly routed. These inspections, along with any repairs that were required, will be documented and maintained on file by Domtar.

In addition, the landfill will be mowed at least once per growing season, and fertilized and reseeded as necessary. This will protect the final cover against erosion and decrease the potential for leachate generation. Vegetation that poses a threat to the integrity of the final cover, such as deep-rooted shrubs and trees, will be removed.

7.2 Leachate Collection System/Miscellaneous Maintenance

Domtar will perform the following maintenance activities for the duration of the post-closure care period:

- **Pumps**. Proper maintenance of this equipment is critical to the operation of the leachate collection and transfer system. The manufacturer's recommendation for routine inspection and cleaning intervals will be followed for pumps and pump controls, with pump inspections occurring no less than once per week. The collection piping will be jet cleaned at least annually. In addition, all valves and flow measurement devices will be inspected and cleaned as necessary on a regular basis.
- **Leachate Treatment**. Leachate collected in the wet well of the leachate transfer station will continue to be treated in the mill wastewater treatment system for the duration of the post-closure period. Leachate collection may be discontinued if testing establishes that leachate treatment is no longer necessary and upon approval of NC DENR (see Subsection 5.6.2 of the permit application).
- **Access Control**. Access to the landfill facility will be controlled by secure fencing for the duration of the post-closure period.

7.3 Groundwater Monitoring System

Groundwater will continue to be monitored as described in Subsection 5.6.1 and in Appendix O, Sampling and Analysis Procedures for Groundwater, of the permit application for the duration of the post-closure period.

Appendix O
Sampling and Analysis Procedures for Groundwater

Sampling and Analysis Procedures for Groundwater

General Information

Sample bottles will be shipped to the site in sturdy, durable shipping coolers.

Type 1 reagent grade water will be used that meets ASTM, CAP, and NCCLS standards.

Field activities will be documented in a bound field book or on a field collection sheet. The following information will appear on each page: project, date, time, sampler's initials, site contact, conductivity, well depth, temperature, water level, gallons purged, and pH.

Existing monitoring wells are fitted with dedicated QED low flow purge system bladder sampling pumps and water level meters (or equivalent). The dedicated pumps will be used to purge well volumes and collect groundwater samples. Proposed monitoring well MW-13 will also be fitted with a dedicated QED sampling pump (or equivalent) and an electric water level meter.

In most cases, a field team will consist of two technicians. The field team will check equipment before departing for the site. Water extracted from the wells that is not used for sample volume will be discarded on the land surface in the vicinity of the well.

Equipment Decontamination

Dedicated QED sampling pumps and water level meters (or equivalent) will remain in the wells. No equipment will require removal prior to measuring water levels and sampling. This equipment will be shipped to the site pre-cleaned. Therefore, decontamination of pump equipment at the site will not be necessary.

Though the wells are to be equipped with dedicated pumps, it may be necessary at times to use non-dedicated equipment (for example, dedicated pumps out of service) to purge and sample wells. Such groundwater sampling equipment that will come into contact with the sample will be cleaned according to a specific procedure. Equipment will be washed with laboratory detergent and water, followed by a tap water rinse. Stiff brushes may be used to remove gross debris. Cleaning procedures may be augmented with the use of a high-pressure sprayer to remove debris, assist with the detergent wash, and perform the tap water rinse. The equipment will then be rinsed three times with deionized, organic free (*i.e.*, Type 1 reagent grade) water, and allowed to air dry. After rinses with deionized, organic free water, equipment will be rinsed with isopropanol, and allowed to air dry. Any equipment that is not to be used immediately after decontamination will be wrapped in aluminum foil, then stored in a manner and location that minimizes the risk of contamination.

Teflon® Bailer Cleaning Procedure

(This procedure is approved for use under both Solid Waste Section and Groundwater Section rules.)

1. Disassemble the bailers, and rinse the parts with tap water. Place the end caps and ball in a phosphate-free soap solution to soak.
2. Wash the bailer tubes with phosphate-free soap. Use a brush to scrub the insides of each tube.
3. Rinse all bailer parts with deionized water and reassemble.
4. Rinse the inside and outside of each bailer with a 10 percent solution of nitric acid in deionized water.
5. Rinse bailers with deionized water.
6. Rinse the inside and outside of each bailer with isopropyl alcohol.
7. Let bailers air dry for 24 hours on shelf.
8. Wrap completely in aluminum foil (shiny side out).
9. Place foil-wrapped bailer in plastic sleeve, and seal with tape.

Water Levels

A procedure for obtaining water levels will be used that maximizes accuracy of measurement, reduces the risk of exposure to potentially contaminated groundwater, and reduces the potential for cross contamination. The well cap will be removed and the well allowed to vent. Tightly sealed wells will not respond well to variation in the water table due to a "straw effect" caused by air trapped in the well casing. Venting the well will allow the water level in the well to equilibrate and become representative of the piezometric surface. Measurements will be made to the nearest hundredth of a foot.

The wells will be equipped with dedicated water level indicators. The dedicated water level indicators will be stored at least 5 feet above the mean seasonal high water level within the well. In the event that the dedicated water level indicator cannot be used, a portable water level indicator will be used. The operation of the portable electric water level indicator will be checked before introducing it into the well. The probe will be lowered slowly into the well until the buzzer sounds or a light illuminates to indicate the probe is in the water. Depth to water will be measured from the point on the cable touching the surveyed measuring point at the top of the well casing.

To reduce the possibility of cross contamination, the portable water level indicator probe and any cable that entered the well must be decontaminated as indicated by site-specific requirements before the next water level will be taken.

Pressure transducers and data loggers may also be used to record water levels over extended periods of time.

Purging Wells

Water that has remained in a well casing for a period of time may not be representative of the water contained in the surrounding formation that the well is intended to sample. To obtain samples that are representative of water in the formation, wells will be purged of the water in the casing and surrounding sand pack to allow water from the formation to enter the well casing for sampling. The wells will be purged slowly to reduce turbidity and the potential for suspended sediment in the sample.

Water will be purged slowly from a well until specific conductance, pH and temperature stabilize. A minimum of three well volumes will be purged from the well unless the well is bailed dry. In the latter case, no further purging is necessary. A "well volume" is the volume of water contained in the well at the time of sampling. A well volume will be purged using the dedicated sampling pump. As an alternative, the wells may be purged using a peristaltic pump with flexible tubing, or Groundfos® sampling pump (or equivalent), or using a clean bailer and cord. Unless otherwise specified, dedicated QED sampling pumps (or equivalent) will be used. The pump will be started at a low flow rate and the outflow will be directed into a bucket of known volume. The purpose of the low flow rate during well purging is to reduce turbidity resulting from disturbing sediment that may be present in the bottom of the well. Purge water will be measured based on the known volume of the bailer used or by pouring the contents into a container of known volume. Purge water will be discarded on the ground adjacent to the well.

As a second alternative to purging with the dedicated sampling pump, a bottom-filling Teflon® bailer may be used to purge the well. The bailer and cord should only touch the inside of the well or a clean surface provided specifically for that bailer and cord. Bailers will be gently lowered to the top of the water column and then gently removed to reduce turbidity.

The color, odor, turbidity, and any other comments pertaining to the purge water will be documented in the field log. After each well volume of water has been removed from the well, specific conductance, pH, and temperature of the water will be determined and recorded in the field log. After specific conductance, pH and temperature have stabilized, sample collection may begin.

Sampling of Wells

New monitoring well MW-13 will be sampled quarterly for four consecutive quarters beginning after the well has been installed. Following the fourth quarter, MW-13 will be sampled semiannually. Monitoring wells MW-2 through MW-6 and MW-6A and MW-7 will continue to be sampled at the frequency established for Landfill No. 2, and MW-9 through MW-12 will continue to be monitored at the frequency established for Landfill No. 3, Phase 1A.

Wells will be sampled using dedicated QED sampling pumps (or equivalent). The samples will be discharged directly to the sample containers. The sample bottles will be labeled with sample identification, date, and project number. Preservative will be added to the bottle prior to collecting the sample. Samples will be collected in the following order unless otherwise specified: volatile and organics; metals; sulfate and chloride; turbidity; and nitrate. This sequence is based on the preferred collection order listed in RCRA Groundwater Monitoring Technical Enforcement Guidance Document, September 1986.

In bottles where caustic preservative will be required (*i.e.*, samples for cyanide analysis), pH will be verified in the field by pouring some of the preserved sample over pH paper. If the proper pH has not been attained, more preservative will be added in the field. Samples requiring acid preservative will be checked with pH paper to determine if sufficient preservative has been added. More preservative will be added to the sample if necessary.

Well sampling sequence will be determined based upon available information about the site. The sequence will generally begin with background wells and wells upgradient of active and completed landfill phases, followed by wells downgradient of active or completed phases.

Sample Handling and Shipping

Immediately after sample collection, the sampler will check the label for completeness. Glass sample bottles will be wrapped in bubble wrap packaging to minimize the possibility of breakage. Samples will then be placed into a cooler containing ice. The chain-of-custody form will then be completed and stored with the samples inside the cooler in a plastic bag. Custody will be maintained by the sampler until the coolers are prepared for transport. The cooler will be filled with ice, sealed with tape, and shipped via overnight air freight or courier, or it will be delivered to the laboratory by field technicians.

References

Bouwer, H. and Rice, R. C., 1988, A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells, Water Resources Research, vol. 12, no. 3, pages 423-428.

National Water Well Association. "RCRA Groundwater Monitoring Technical Enforcement Guidance Document (TEGD): September, 1986."

United States Environmental Protection Agency, Office of Research and Development. "Groundwater Handbook," EPA/625/6-87/016, March, 1987.

United States Environmental Protection Agency, Region IV. "Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual (ECBSOPQAM): February 1, 1991."

Well Development Pump Installation & Operation Manual

Models HR4105D and HR4105SS

Contents:

HR4105D Setup & Operation — page 1

HR4105SS Setup & Operation — pages 2 & 3

Flow Rate Optimization — page 4

Cleaning & Disassembly — page 5

HR4105D Technical Data & Specifications — page 6

HR4105SS Technical Data & Specifications — page 7

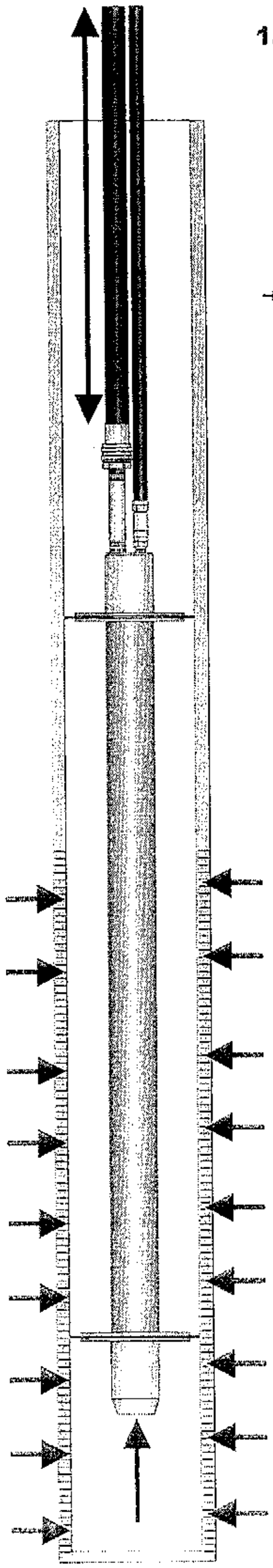
Warranty Information — pages 8 & 9

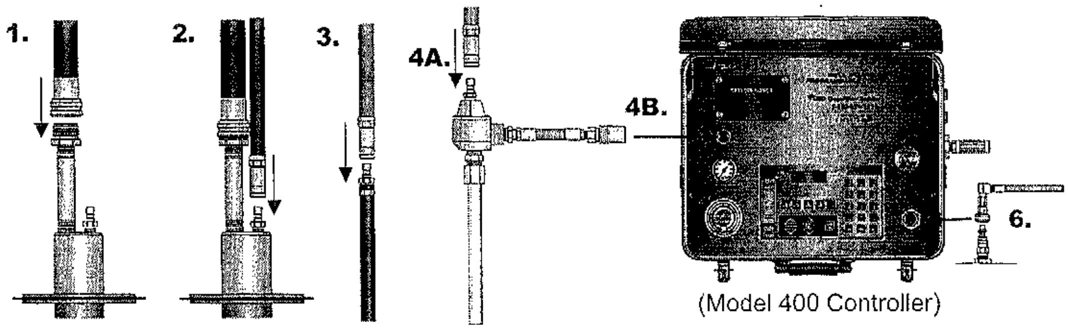
QED Environmental Systems

P.O. Box 3726 Ann Arbor, MI 48106-3726 USA
1-800-624-2026 Fax (734) 995-1170
info@qedenv.com www.qedenv.com

P/N 95121 2-14-08

QED's well development pumps are double action high rate purge pumps designed to develop 2" and 4" wells. As the operator lifts the pump within the well by pulling up on the tubing, flexible wipers attached to the pump sweep the well casing wall creating a surge-block action. The Surging draws small particles through the well screen and into the well casing, where the well development pump pumps them out.





(Model 400 Controller)

Setting Up Your Well Development Pump

For proper installation of the your pump, the following steps should be followed:

1. Connect the 3/4" X 50' discharge hose onto the pump by threading the female fitting of the hose onto the male discharge fitting of the pump (Fig. 1). Tighten securely.

2. Attach the female quick connect of the 3/8" X 50' air supply hose to the male nipple fitting on the pump (Fig. 2). NOTE: Discharge and air hose for the HR4105D come in standard lengths of 50'. More than one section of hose is required for wells deeper than 50'. Attach discharge and air hose lengths as required.

3. Attach the female quick connect of the exhaust valve found at the end of the red hose to the male nipple on the 3/8" X 50' air hose (Fig. 3).

4. Attach the female quick connect from one end of the red 3/8" X 20' air hose supplied with your controller to the male nipple on the exhaust valve (Fig. 4A). Connect the other end of the male nipple on the controller labeled: "PUMP AIR SUPPLY" (Fig. 4B).

5. Lower the pump into the well to the desired depth.

6. Connect the pressure source to the male nipple on the controller labeled: "PUMP PRESSURE INLET" (Fig. 6). Purging will begin. NOTE: Do not exceed 125 P.S.I. for controller models 400, 3013 and 350.

7. Position controller timers as described in the section entitled "Pump Flow Rate Optimization.

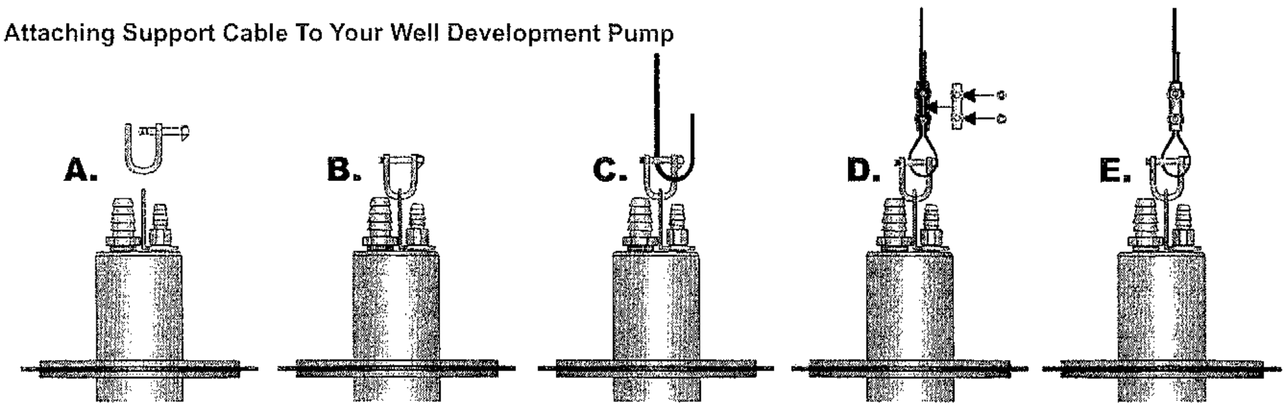
Operation Of Your Well Development Pump

1. To operate the pump, pull the discharge and air hose in up and down motions while the pump operates within the well (see figure at left). This causes a plunging or surge blocking action that draws small particles and drilling fines through the well screen and into the well casing allowing the pump to pump them out. Once particles and drilling fines are cleared from the water, the well development is complete.

<u>NOTE:</u> To prevent the pump from clogging up with silt, do not thrust the pump directly into silt at the bottom of the well. Instead, locate the bottom of the well (or silt) by lowering the pump until it stops and then pull the pump up about 6" and use this position as the bottom limit of your down surge motion.

QED's well development pumps are double action high rate purge pumps designed to develop 2" and 4" wells. As the operator lifts the pump within the well by pulling up on the tubing, flexible wipers attached to the pump sweep the well casing wall creating a surge-block action. The Surging draws small particles through the well screen and into the well casing, where the well development pump pumps them out.

Attaching Support Cable To Your Well Development Pump

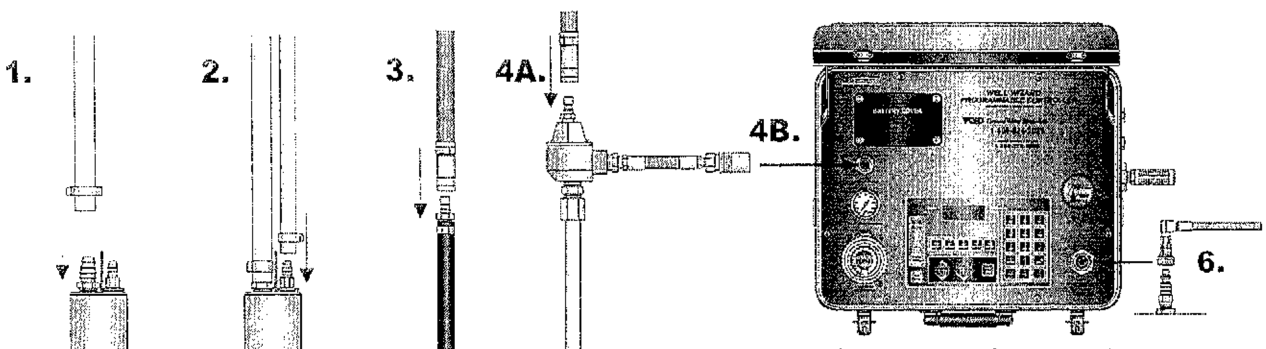


1. Unthread post from horseshoe clamp (fig. A). Insert clamp through the hole in the cable support bracket and thread post fully back into the clamp (fig. B).

2. Pass support cable through the horseshoe clamp(fig. C). Remove Nuts and pressure plate from the cable clamp then thread the support cable through the cable clamp (fig.D)

3. Place clamp pressure plate on clamp and thread nuts down on the pressure plate until clamp is tight and secure (fig. E).

Setting Up Your Well Development Pump



(Model 400 Controller)

1. Slide clamp over 3/4" discharge tube then connect the tube to the pump discharge barb fitting. Position clamp over the barb fitting then using the clamp tool crimp clamp down onto tubing (fig. 1).

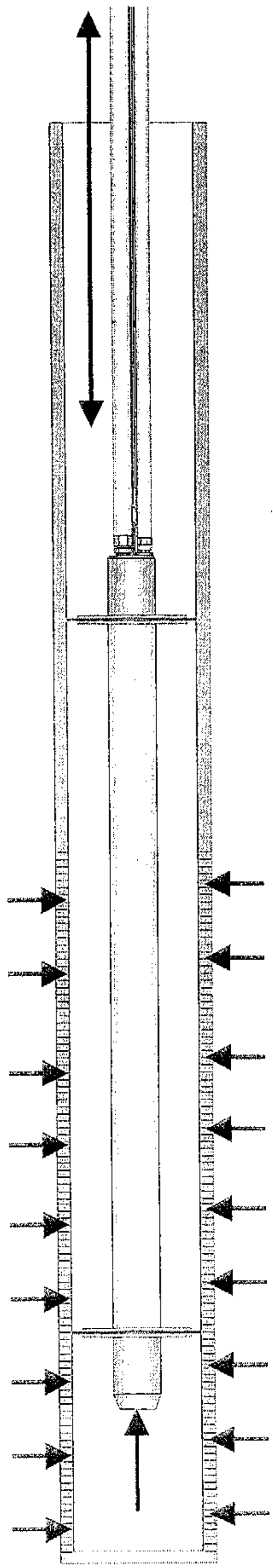
2. Slide clamp over 1/2" pump air supply tube then connect the tube to the pump air supply fitting. Position clamp over the barb fitting then using the clamp tool crimp clamp down onto tubing (fig. 2).

3. Attach the female quick connect of the exhaust valve found at the end of the red hose to the male nipple on the air supply tubing (Fig. 3).

4. Attach the female quick connect from one end of the red 3/8" X 20' air hose supplied with your controller to the male nipple on the exhaust valve (Fig. 4A). Connect the other end of the male nipple on the controller labeled: "PUMP AIR SUPPLY" (Fig. 4B).

5. Lower the pump into the well to the desired depth.

6. Connect the pressure source to the male nipple on the controller labeled: "PUMP PRESSURE INLET" (Fig. 6). Purging will begin. NOTE: Do not exceed 125 P.S.I. for controller models 400, 3013 and 350.



Setting UpYour Well Development Pump Continued...

7. Position controller timers as described in the section entitled "Pump Flow Rate Optimization"

Operation Of Your Well Development Pump

1. To operate the pump, pull the Support cable along with the discharge and air hose in up and down motions while the pump operates within the well (see figure at left). This causes a plunging or surge blocking action that draws small particles and drilling fines through the well screen and into the well casing allowing the pump to pump them out. Once particles and drilling fines are cleared from the water, the well development is complete.

NOTE: To prevent the pump from clogging up with silt, do not thrust the pump directly into silt at the bottom of the well. Instead, locate the bottom of the well (or silt) by lowering the pump until it stops and then pull the pump up about 6" and use this position as the bottom limit of your down surge motion.

Optimizing Flow Rates For The Well Development Pump

The purpose of optimizing flow rates is to create maximum flow rates and pump efficiency at the pump's operating conditions. To accomplish this, both the refill and discharge times on the pump controller must be optimized.

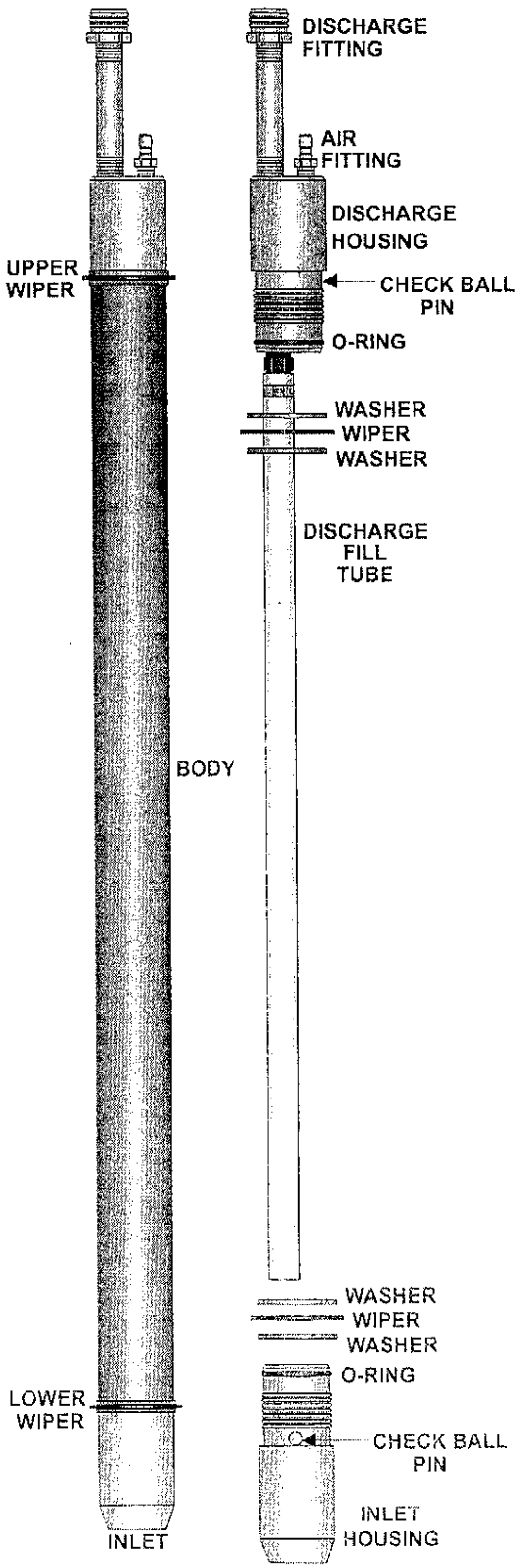
To optimize the refill and discharge times, the following steps should be followed:

1. Set the refill time on the controller at 15 seconds. Set the discharge time at 1 second if your well depth is under 50', set the discharge time at 3 seconds if your well depth is 51' to 100', for wells with a depth greater than 100' set the discharge timer at 5 seconds. With these settings, it should take 5-15 cycles to purge the air from the discharge line depending on the pump's depth. If liquid fails to discharge after 15 cycles, begin increasing the discharge time (as discussed in step #2 below). When liquid begins to flow from the discharge line, measure the amount of liquid being discharged per cycle. At this point the volume measured is probably less than the full internal volume of the well development pump which is 1.15 liters

2. Begin to increase the discharge time slightly in about 1/2 second increments allowing the pump to cycle 3-5 times between each adjustment. Repeat this operation until air can be detected coming up through the discharge line in the form of bubbles. The amount of liquid being discharged per cycle at this point should be close to the full internal volume of the pump (1.15 liters). If air and water begin to burst out of the discharge line, it means that the pump's discharge time is set too long. Decrease the discharge time and repeat the initial procedure with using smaller time increments (i.e. 1/4 sec. Vs. 1/2 sec.). The Discharge time of the pump should now be optimized.

3. Now begin to decrease the refill time slightly in about 1 second increments allowing the pump to cycle 3-5 times between each adjustment. Repeat this operation until air can be detected coming through the discharge line in the form of air bubbles. The amount of liquid being discharged per cycle at this point should still be close to the full internal volume of the pump (1.15 liters). If air and water begin to burst out of the discharge line hard it means that your refill time is too short. Increase the refill time and repeat the initial procedures this time with smaller time increments (i.e. 1/2 sec. Vs. 1 sec.). Both the discharge and refill times should now be optimized.

NOTE: The best of flow rates are obtained when the pump's submergence is 10' or more. Partial submergence of the well development pump will severely lower the pumps efficiency and flow rates.



Cleaning And Disassembly Of The Well Development Pump

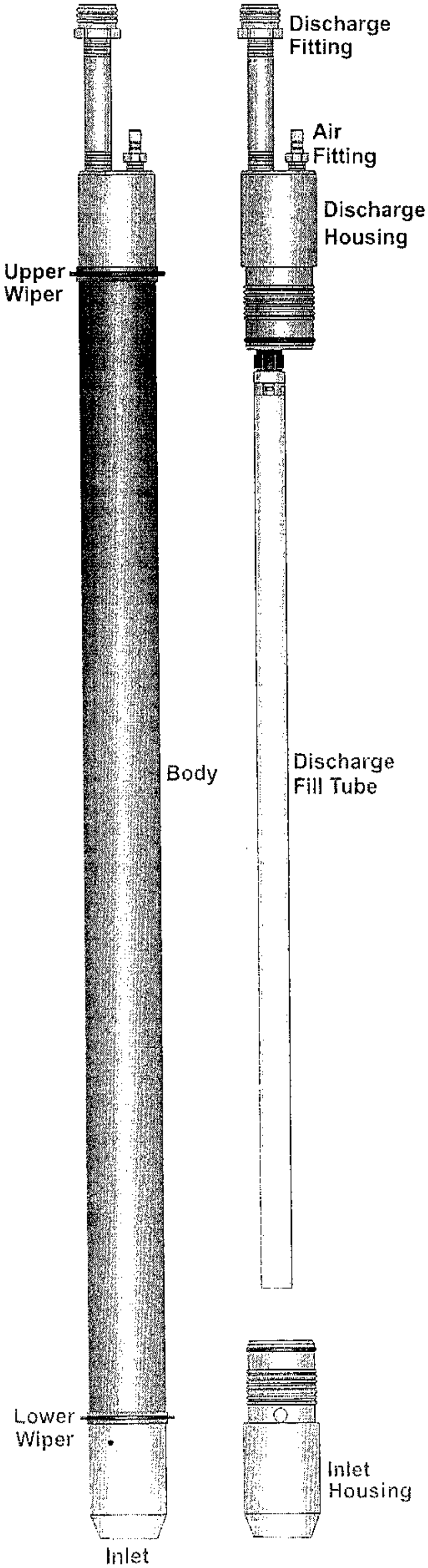
Please observe the following recommendations when disassembling or assembling your well development pump.

1. It is important to make sure that all sand or like substances are washed off of the pump. These particles can cause damage to the threads on the discharge and inlet housings.

2. The pump should be taken apart by hand. **DO NOT USE A WRENCH OR YOU MAY DAMAGE THE PUMP.** Both the inlet and the discharge housings simply unthread from the main body of the pump.

3. The pump's 2 wiper assemblies will slide off after removal of the inlet and the discharge housings. Both 2" and 4" wipers come with your pump and may need occasional replacement due to abrasion wear from the well casing and screen.

4. Both the Inlet and the discharge housings checkballs are held in place by pins which prevents loss during disassembly.



Pump Type: Gas Displacement

Dimensions:

Pump O.D.: 1.66" (42 mm)

Length: 65" (165 mm)

Weight: 6 lbs. (2.7 kg)

Materials: PVC, Stainless Steel, Viton (O-Rings) and Buna-N (Wipers)

Fittings: Brass

Discharge Size: 3/4" (19 mm) O.D.

Air Supply Size: 3/8" (9.5 mm) O.D.

Casing Wipers: 2" (50 mm) Wipers For 2" Casings
4" (100 mm) Wipers For 4" Casings

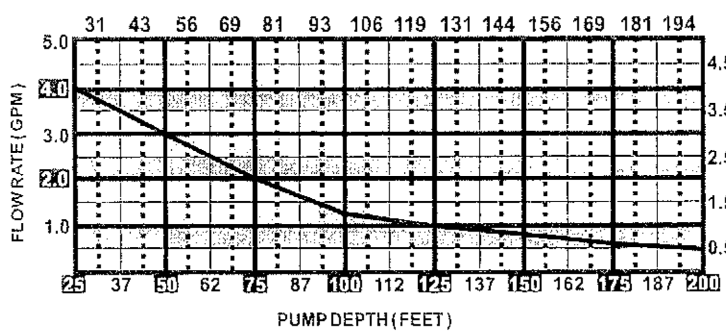
PUMP PERFORMANCE:

Maximum Lift: 200 Feet (60 m)

Pump Stroke Volume:

LITERS	MILLILITERS	GALLONS	OUNCES
1.15	**1150**	**.30**	**38.4**

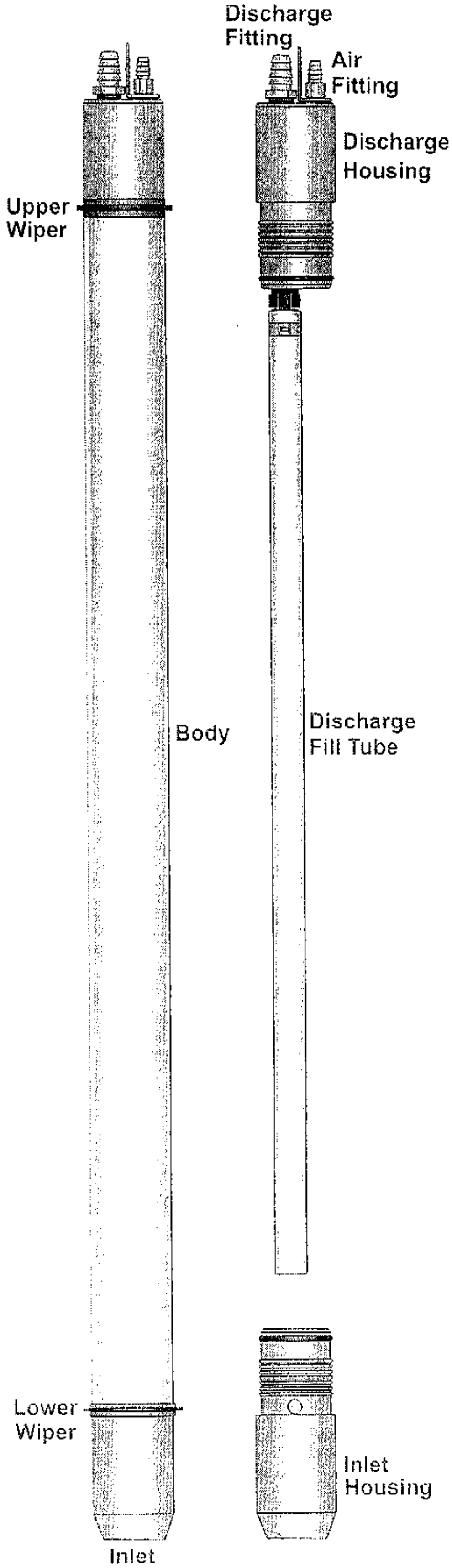
HR4105D FLOW RATES



NOTE: Flow rates are based on pump submergence of 25 feet (7.6 m) and operating gas pressure of 100 p.s.i. (9.6 bar)/ 4.5 s.c.f.m.

ACCESSORIES:

P/N	P5700	50' (15 m) Flexible Hose Bundle 3/4" x 3/8"
P/N	35347	2" (50 mm) PVC Washer
P/N	35348	2" (50 mm) Buna Washer
P/N	35382	4" (100 mm) PVC Washer
P/N	35383	4" (100 mm) Buna Washer



Pump Type: Gas Displacement

Dimensions:

Pump O.D.:	1.66" (42 mm)
Length:	65" (165 mm)
Weight:	15 lbs. (6.8 kg)
Materials:	Stainless Steel, Teflon, Viton (O-Rings) and Buna-N (Wipers)
Fittings:	Stainless Steel Barb
Discharge Size:	3/4" (19 mm) O.D.
Air Supply Size:	1/2" (12.7 mm) O.D.
Casing Wipers:	2" (50 mm) Wipers For 2" Casings 4" (100 mm) Wipers For 4" Casings

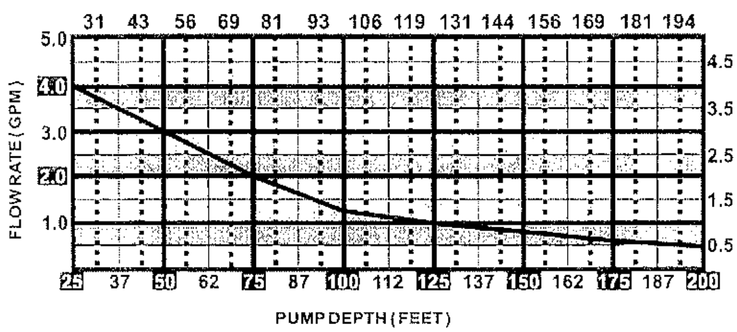
PUMP PERFORMANCE:

Maximum Lift: 200 Feet (60 m)

Pump Stroke Volume:

LITERS	MILLILITERS	GALLONS	OUNCES
1.15	**1150**	**.30**	**38.4**

HR4105D FLOW RATES



NOTE: Flow rates are based on pump submergence of 25 feet (7.6 m) and operating gas pressure of 100 p.s.i. (9.6 bar)/ 4.5 s.c.f.m.

ACCESSORIES:

P/N	P5610	Poly Tubing 3/4" (19 mm) + 1/2" (12.7 mm)
P/N	35998	2" (50 mm) Stainless Steel Washer
P/N	35999	2" (50 mm) Teflon Washer
P/N	36001	4" (100 mm) Stainless Steel Washer
P/N	36002	4" (100 mm) Teflon Washer
P/N	8330	3/32" (2.4 mm)Stainless Steel Teflon Coated Support Cable

QED Environmental Systems, Inc. (QED) warrants to the original purchaser of its products that, subject to the limitations and conditions provided below, the products, materials and/or workmanship shall reasonably conform to descriptions of the products and shall be free of defects in materials and workmanship. Any failure of the products to conform to this warranty will be remedied by QED in the manner provided herein

This warranty shall be limited to the duration and the conditions set forth below. All warranty durations are calculated from the original date of purchase.

1. Liquid contacting equipment (including pumps), tubing, liquid contacting supplies and flow totalization equipment are warranted for 1 year.

2. Control devices, control device mounting, and surface air supply hose are warranted for 1 year.

3. Separately sold parts and spare parts kits are warranted for ninety (90) days.

4. Repairs performed by QED are warranted for ninety (90) days from date of repair or for the full term of the original warranty, whichever is longer.

Buyer's exclusive remedy for breach of said warranty shall be as follows: if, and only if, QED is notified in writing within the applicable warranty period of the existence of any such defects in the said products, and QED upon examination of any such defects, shall find the same to be within the term of and covered by the warranty running from QED to buyer, QED will, at its option, as soon as reasonably possible, replace or repair any such product, without charge to the buyer. If QED for any reason, cannot repair a product covered hereby within four (4) weeks after receipt of the original Purchaser's/Buyer's notification of a warranty claim, then QED's sole responsibility shall be, at its option, either replace the defective product with a comparable new unit at no charge to the buyer, or to refund the full purchase price.

In no event shall such allegedly defective products be returned to QED without its consent, and QED's obligations of repair, replacement or refund are conditioned upon the Buyer's return of the defective product to QED.

IN NO EVENT SHALL QED ENVIRONMENTAL SYSTEMS, INC. BE LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF SAID WARRANTY.

The foregoing warranty does not apply to major subassemblies and other equipment, accessories, and other parts manufactured by others, and such other parts, accessories, and equipment are subject only to the warranties, if any, supplied by their respective manufacturers. QED makes no warranty concerning products or accessory, QED will give reasonable assistance to Buyer in obtaining from the respective manufacturer whatever adjustment is reasonable in light of the manufacturer's own warranty.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY (INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE), WHICH OTHER WARRANTIES ARE EXPRESSLY EXCLUDED HEREBY, and of any other obligations or liabilities on the part of QED, and QED neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with said products, materials and/or workmanship.

It is understood and agreed that QED shall in no event be liable for incidental or consequential damages resulting from its breach of any of the terms of this agreement, nor for special damages, nor for improper selection of any product described or referred to for a particular application.

This warranty will be void in the event of unauthorized disassembly of component assemblies. Defects in any equipment that result from abuse, operation in any manner outside the recommended procedures, use and applications other than for intended use, or exposure to chemical or physical environment beyond the designated limits of materials and construction will also void this warranty.

Chemical attack to liquid contacting equipment and supplies shall not be covered by this warranty. A range of materials is available from QED and it is the Buyer's responsibility to select materials to fit the Buyer's application. QED will only warrant that the supplied liquid contacting materials will conform to published QED specifications and generally accepted standards for that particular material.

QED shall be released from all obligations under all warranties if any product covered hereby is repaired or modified by persons other than QED's service personnel unless such repair by others is made with the written consent of QED. If any product covered hereby is actually defective within the terms of this warranty, Purchaser must contact QED for determination of warranty coverage. If the return of a component is determined to be necessary, QED will authorize the return of the component, at owner's expense. If the product proves not to be defective within the terms of this warranty, then all costs and expenses in connection with the processing of the Purchaser's claim and all costs for repair, parts and labor as authorized by owner hereunder shall be borne by the Purchaser.

The original Purchaser's sole responsibility in the instance of a warranty claim shall be to notify QED of the defect, malfunction, or other manner in which the terms of this warranty are believed to be violated. You may secure performance of obligations hereunder by contacting the Customer Service Department of QED and:

1. Identifying the product involved (by model or serial number or other sufficient description that wil allow QED to determine which product is defective).

2. Specifying where, when, and from whom the product was purchased.

3. Describing the nature of the defect or malfunction covered by this warranty.

4. Sending the malfunctioning component, after authorization by QED to:

QED Environmental Systems Inc.
6155 Jackson Rd.
Ann Arbor, MI 48103

Telephone: 1-734-995-2547
1-800-624-2026
1-519-485-0290 (Canada)
1-734-995-1170 (Fax)

Weyerhaeuser Analytical and Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Service Request 06-1902
NC Cert # 374

Report

Plymouth Quarterly Ash - 2nd Quarter 2006

Client ID:	HFB-#11	HFB-#12	HFB-#13	HFB-#14	HFB-#15	HFB-#16		
Date Sampled:	06/21/06	06/21/06	06/21/06	06/21/06	06/21/06	06/21/06		Method
Lab ID:	001	002	003	004	005	006	QL	Number
	mg/kg, O.D. basis							
Ag	<1	<1	<1	<1	<1	<1	1	E-3050/E-6010
As	5.4	5.2	5.6	5.3	5.4	6.5	0.5	E-3050/E-200.8
Ba	570	634	626	600	600	662	0.5	E-3050/E-6010
Cd	<1	1	<1	1	<1	<1	1	E-3050/E-6010
Cr	27	25	24	26	26	26	1	E-3050/E-6010
Cu	46	56	49	50	45	53	2	E-3050/E-6010
Fe	8520	7690	8790	10200	8390	8320	5	E-3050/E-6010
Hg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	E-245
Mn	906	1040	1120	958	1010	1080	0.5	E-3050/E-6010
Mo	3	3	3	3	2	4	2	E-3050/E-6010
Ni	18	20	19	22	19	19	5	E-3050/E-6010
Pb	10	10	10	10	10	20	10	E-3050/E-6010
Se	1.3	1.7	1.9	1.8	1.7	2.1	0.5	E-3050/E-200.8
Zn	100	119	123	115	114	127	1	E-3050/E-6010
	% @105°C, as-received basis							
O.D. Solids	84.5	81.8	81.6	83.3	84.4	84.7	0.1	S-2540G

Conventional Analyses

Density g / cc as-rec'd basis	0.85	0.68	0.78	0.86	0.83	0.69	0.03	NCDA
CCE % $CaCO_3$ Equiv. O.D. Basis	19.4	19.5	21.3	19.4	23.3	22.6	0.5	AOAC 1.006

Approved: Dorothy Kerlin Date: 07/17/06 WT 08/11/06
Telephone: (253) 924-6188

Weyerhaeuser Analytical and Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Service Request 06-1902
NC Cert # 374

Report

Plymouth Quarterly Ash - 2nd Quarter 2006

Client ID: Date Sampled: Lab ID:	HFB-#17 06/21/06 007	HFB-#18 06/21/06 008	HFB-#19 06/21/06 009	HFB-#21 06/21/06 010	HBF-#22 06/21/06 011	HFB-#23 06/21/06 012	QL	Method Number
	mg/kg, O.D. basis							
Ag	<1	<1	<1	<1	<1	<1	1	E-3050/E-6010
As	9.6	5.4	5.4	26.4	25.7	24.3	0.5	E-3050/E-200.8
Ba	565	539	581	826	780	811	0.5	E-3050/E-6010
Cd	<1	<1	1	<1	1	<1	1	E-3050/E-6010
Cr	23	22	22	23	23	24	1	E-3050/E-6010
Cu	44	43	42	52	53	55	2	E-3050/E-6010
Fe	8510	8440	7930	7840	7840	7940	5	E-3050/E-6010
Hg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	E-245
Mn	1020	960	1010	624	656	711	0.5	E-3050/E-6010
Mo	3	3	2	4	5	4	2	E-3050/E-6010
Ni	18	15	17	19	22	19	5	E-3050/E-6010
Pb	10	10	10	10	10	10	10	E-3050/E-6010
Se	1.8	1.3	1.5	3.2	3.2	3.0	0.5	E-3050/E-200.8
Zn	127	114	115	73	66	73	1	E-3050/E-6010
	% @105°C, as-received basis							
O.D. Solids	82.9	81.8	79.6	82.3	82.5	85.3	0.1	S-2540G

Conventional Analyses

Density g / cc as-rec'd basis	0.76	0.82	0.72	0.57	0.64	0.61	0.03	NCDA
CCE % $CaCO_3$ Equiv. O.D. Basis	19.6	18.7	19.4	13.1	15.3	15.1	0.5	AOAC 1.006

Approved: Dorothy Kerlin   Date: 07/17/06   WT 08/11/06
Telephone: (253) 924-6188

Weyerhaeuser Analytical and Testing Services
32901 Weyerhaeuser Way South
Federal Way, WA 98001

Service Request 06-1902
NC Cert # 374

Report

Plymouth Quarterly Ash -
2nd Quarter 2006

Client ID:	HFB-#24	HFB-#25	HFB-#26	HFB-#27	HFB-#28	HFB-#29		
Date Sampled:	06/21/06	06/21/06	06/21/06	06/21/06	06/21/06	06/21/06		Method
Lab ID:	013	014	015	016	017	018	QL	Number
	mg/kg, O.D. basis							
Ag	<1	<1	<1	<1	<1	<1	1	E-3050/E-6010
As	22.8	22.7	21.5	18.3	14.6	22.2	0.5	E-3050/E-200.8
Ba	823	762	742	765	732	745	0.5	E-3050/E-6010
Cd	<1	1	<1	<1	<1	<1	1	E-3050/E-6010
Cr	29	23	23	26	32	28	1	E-3050/E-6010
Cu	56	56	52	60	73	54	2	E-3050/E-6010
Fe	8020	7880	7790	8330	10400	8410	5	E-3050/E-6010
Hg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	E-245
Mn	721	691	680	804	812	633	0.5	E-3050/E-6010
Mo	5	5	5	5	4	5	2	E-3050/E-6010
Ni	27	22	21	20	26	23	5	E-3050/E-6010
Pb	10	10	10	10	50	10	10	E-3050/E-6010
Se	2.9	3.2	3.1	2.4	1.9	3.6	0.5	E-3050/E-200.8
Zn	75	71	64	70	86	101	1	E-3050/E-6010
	% @105°C, as-received basis							
O.D. Solids	82.9	86.8	85.2	85.4	84.6	80.4	0.1	S-2540G

Conventional Analyses

Density g / cc as-rec'd basis	0.64	0.59	0.71	0.77	0.94	0.73	0.03	NCDA
CCE % $CaCO_3$ Equiv. O.D. Basis	21.2	13.2	22.7	18.4	22.6	22.7	0.5	AOAC 1.006

Approved: Dorothy Kerlin Date: 07/17/06 WT 08/11/06
Telephone: (253) 924-6188