

APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION

DATE 1/14/05 BY [Signature]

Central Office **Duke Power**

18-09 **Marshall Steam Station**
Catawba County, N.C.



**Flue Gas Desulfurization (FGD) Residue
Landfill Permit Application
Site Suitability Information**

Carmen Johnson
FGD/Permit/Co ID # 18-09 Date 1/25/12 Doc ID# DIN

October 29, 2004

**Volume 2
Addendum 1**

**Hydrogeologic Study
S&ME Project No. 1264-02-578**



Carmen Johnson
 Fac/Perm/Co In # 18-09 1/25/12
 Doc ID#
 DIN

October 29, 2004

Duke Energy
 Mail Code: EC11E
 P.O. Box 1006
 Charlotte, North Carolina 28201-1006

APPROVED
 DIVISION OF WASTE MANAGEMENT
 SOLID WASTE SECTION
 DATE 1/14/05 BY JRM
Central Office
 18-09



Attention: William Miller, P.E.

Reference: **Landfill Footprint Revisions and Updated Water Level Data**
Duke Power – Marshall Steam Station
 Terrell, Catawba County, North Carolina
 S&ME Project 1264-02-578

Dear Mr. Miller:

S&ME, Inc. (S&ME), has revised Figures 1 and 2 and Drawings 1, 2, 3 and 4 of 7 to reflect the new landfill footprint you provided to us for the Marshall Steam Station FGD Scrubber Landfill. We also updated Table 2, Groundwater Level Elevations, with the groundwater level data you provided us for the observations wells on site. New hydrographs for the observations wells were constructed comparing the water level data to their respective estimated seasonal high groundwater (ESHG) level. Based on the hydrographs, the water levels in the observation wells have not surpassed their respective ESHG levels or approached historical high levels. Seven copies of the aforementioned drawings, figures, tables and graphs are attached with this letter to be included with Volume 2 of the Site Suitability Information. If you have any questions or need additional information please feel free to contact us. Thank you for choosing S&ME.

Sincerely,

S&ME, Inc.

Julie R. Petersen

Julie R. Petersen
 Staff Professional

Al Quarles

Al Quarles, L.G.
 Senior Hydrogeologist

S&ME, Inc.
 9751 Southern Pine Blvd.
 Charlotte, North Carolina 28273

Mailing address:
 P.O. Box 7668
 Charlotte, North Carolina 28241-7668

(704) 523-4726
 (704) 525-3953 fax
 www.smeinc.com

(REVISED OCTOBER 25, 2004)

Table 2
Groundwater Level Elevations

Well ID:	B-1	B-2	B-3	B-4	B-5	B-6	B-7	MS-1	MS-2	MS-3	MS-4	MS-5	MS-6	MS-7	MS-8	MS-9	MS-10	MS-11	OW-1	OW-2	OW-3	
Installation Date:	1/15/03	12/16/02	12/11/02	12/3/02	1/7/03	12/9/02	1/10/03	12/3/02	1/6/03	12/3/02	1/8/03	12/18/02	12/17/02	1/3/02	1/14/03	1/16/03	7/8/03	7/9/03	2/12/03	2/12/03	2/12/03	2/11/03
TOC Elevation:	811.57	860.76	859.34	861.47	844.07	854.50	854.55	816.32	823.18	814.53	847.68	842.04	841.90	836.18	851.42	868.04	851.29	859.78	842.50	836.36	835.66	835.66
TIME OF BORING																						
DTW-TOC:	11.78	49.91	57.16	60.55	40.80	44.71	60.37	18.99	30.51	17.03	46.98	34.94	31.36	22.54	30.61	55.08	20.00	36.91	23.10	23.98	25.46	25.46
WL-ELEV.:	799.79	810.85	802.18	800.92	803.27	809.79	794.18	797.33	792.67	797.50	800.70	807.10	810.54	813.64	820.81	812.96	831.29	822.87	819.40	812.38	810.20	810.20
24 - HOUR																						
DTW-TOC:	10.38	48.55	52.16	55.05	39.10	45.53	49.37	16.99	23.51	15.88	42.28	34.55	29.60	22.54	30.31	47.18	15.00	35.91	23.11	20.54	20.85	20.85
WL-ELEV.:	801.19	812.21	807.18	806.42	804.97	808.97	805.18	799.33	799.67	798.65	805.40	807.49	812.30	813.64	821.11	820.86	836.29	823.87	819.39	815.82	814.81	814.81
FEBRUARY 6, 2003																						
DTW-TOC:	10.35	47.60	50.45	55.01	38.73	44.49	49.30	14.29	23.60	15.42	42.12	34.18	29.83	22.14	29.90	45.47						
WL-ELEV.:	801.22	813.16	808.89	806.46	805.34	810.01	805.25	802.03	799.58	799.11	805.56	807.86	812.07	814.04	821.52	822.57						
FEBRUARY 25, 2003																						
DTW-TOC:	10.05	47.38	50.24	54.68	38.50	44.29	49.29	12.85	23.29	15.03	41.94	34.04	28.94	21.94	29.70	45.30			20.93	20.43	22.88	22.88
WL-ELEV.:	801.52	813.38	809.10	806.79	805.57	810.21	805.26	803.47	799.89	799.50	805.74	808.00	812.96	814.24	821.72	822.74			821.57	815.93	812.78	812.78
MARCH 28, 2003																						
DTW-TOC:	9.79	46.77	49.53	53.97	37.80	43.62	48.87	11.55	22.43	14.51	41.42	33.41	27.60	20.50	29.00	44.73			20.16	19.26	21.09	21.09
WL-ELEV.:	801.78	813.99	809.81	807.50	806.27	810.88	805.68	804.77	800.75	800.02	806.26	808.63	814.30	815.68	822.42	823.31			822.34	817.10	814.57	814.57
APRIL 29, 2003																						
DTW-TOC:	9.46	45.77	48.30	52.63	35.92	42.61	47.94	9.93	21.73	14.03	40.54	32.32	26.39	18.77	27.98	43.39			19.11	17.58	19.21	19.21
WL-ELEV.:	802.11	814.99	811.04	808.84	808.15	811.89	806.61	806.39	801.45	800.50	807.14	809.72	815.51	817.41	823.44	824.65			823.39	818.78	816.45	816.45
MAY 28, 2003																						
DTW-TOC:	9.03	44.99	47.24	51.35	34.05	41.73	47.02	7.70	21.55	13.60	39.67	31.46	25.49	17.23	27.05	42.17			18.11	16.08	17.44	17.44
WL-ELEV.:	802.54	815.77	812.10	810.12	810.02	812.77	807.53	808.62	801.63	800.93	808.01	810.58	816.41	818.95	824.37	825.87			824.39	820.28	818.22	818.22
JUNE 30, 2003																						
DTW-TOC:	9.43	43.86	45.94	50.29	31.48	40.49	45.52	9.50	21.74	13.84	38.35	30.31	25.65	16.88	26.16	40.44			17.39	15.60	18.00	18.00
WL-ELEV.:	802.14	816.90	813.40	811.18	812.59	814.01	809.03	806.82	801.44	800.69	809.33	811.73	816.25	819.30	825.26	827.60			825.11	820.76	817.66	817.66
AUGUST 8, 2003																						
DTW-TOC:	9.51	43.07	45.17	49.45	30.33	39.46	43.95	9.88	22.01	13.85	37.09	29.99	26.61	16.65	25.57	39.36	15.22	29.95	16.78	15.19	18.77	18.77
WL-ELEV.:	802.06	817.69	814.17	812.02	813.74	815.04	810.60	806.44	801.17	800.68	810.59	812.05	815.29	819.53	825.85	828.68	836.07	829.83	825.72	821.17	816.89	816.89
NOVEMBER 20, 2003																						
DTW-TOC:	9.85	42.62	45.29	48.71	30.92	38.68	42.51	11.94	22.67	14.54	36.47	30.57	28.10	18.56	25.70	38.43	15.73	31.16	17.07	16.80	20.50	20.50
WL-ELEV.:	801.72	818.14	814.05	812.76	813.15	815.82	812.04	804.38	800.51	799.99	811.21	811.47	813.80	817.62	825.72	829.61	835.56	828.62	825.43	819.56	815.16	815.16
FEBRUARY 11, 2004																						
DTW-TOC:	9.75	42.94	45.98	48.55	31.63	39.23	42.93	11.20	22.33	14.22	37.12	31.34	28.11	18.54	25.70	38.39	15.19	31.04	17.00	16.80	20.52	20.52
WL-ELEV.:	801.82	817.82	813.36	812.92	812.44	815.27	811.62	805.12	800.85	800.31	810.56	810.70	813.79	817.64	825.72	829.65	836.10	828.74	825.50	819.56	815.14	815.14

**Marshall Steam Station - FGD Scrubber Landfill
S&ME Project No. 1264-02-578**

(REVISED OCTOBER 25, 2004)

**Table 2
Groundwater Level Elevations**

Well ID:	B-1	B-2	B-3	B-4	B-5	B-6	B-7	MS-1	MS-2	MS-3	MS-4	MS-5	MS-6	MS-7	MS-8	MS-9	MS-10	MS-11	OW-1	OW-2	OW-3
Installation Date:	1/15/03	12/16/02	12/11/02	12/3/02	1/7/03	12/9/02	1/10/03	12/3/02	1/6/03	12/3/02	1/8/03	12/18/02	12/17/02	1/3/02	1/14/03	1/16/03	7/8/03	7/9/03	2/12/03	2/12/03	2/11/03
TOC Elevation:	811.57	860.76	859.34	861.47	844.07	854.50	854.55	816.32	823.18	814.53	847.68	842.04	841.90	836.18	851.42	868.04	851.29	859.78	847.50	836.36	835.66
MAY 21, 2004																					
DTW-TOC:	9.94	42.99	46.02	48.79	31.75	39.38	43.68	11.98	23.42	14.47	37.90	31.66	27.49	18.39	25.61	38.28	15.46	31.06	17.03	16.61	20.35
WL-ELEV.:	801.63	817.77	813.32	812.68	812.32	815.12	810.87	804.34	799.76	800.06	809.78	810.38	814.41	817.79	825.81	829.76	835.83	828.72	825.47	819.75	815.31
AUGUST 24, 2004																					
DTW-TOC:	10.18	44.11	47.08	49.79	33.05	40.10	44.54	13.47	23.00	14.92	38.66	32.50	29.16	19.48	26.80	39.18	16.45	32.40	18.19	17.82	21.55
WL-ELEV.:	801.39	816.65	812.26	811.68	811.02	814.40	810.01	802.85	800.18	799.61	809.02	809.54	812.74	816.70	824.62	828.86	834.84	827.38	824.31	818.54	814.11
SEPTEMBER 24, 2004																					
DTW-TOC:	9.99	44.29	47.23	49.94	33.33	40.34	44.79	12.82	22.63	14.49	38.87	32.65	28.88	19.56	26.89	39.40	16.30	32.25	18.24	17.91	21.31
WL-ELEV.:	801.58	816.47	812.11	811.53	810.74	814.16	809.76	803.50	800.55	800.04	808.81	809.39	813.02	816.62	824.53	828.64	834.99	827.53	824.26	818.45	814.35
OCTOBER 16, 2004																					
DTW-TOC:	9.87	44.24	47.12	49.93	33.35	40.32	44.92	12.50	22.41	14.26	38.95	32.57	28.38	19.20	26.62	39.38	15.94	31.93	17.95	17.63	20.84
WL-ELEV.:	801.70	816.52	812.22	811.54	810.72	814.18	809.63	803.82	800.77	800.27	808.73	809.47	813.52	816.98	824.80	828.66	835.35	827.85	824.55	818.73	814.82

Notes:

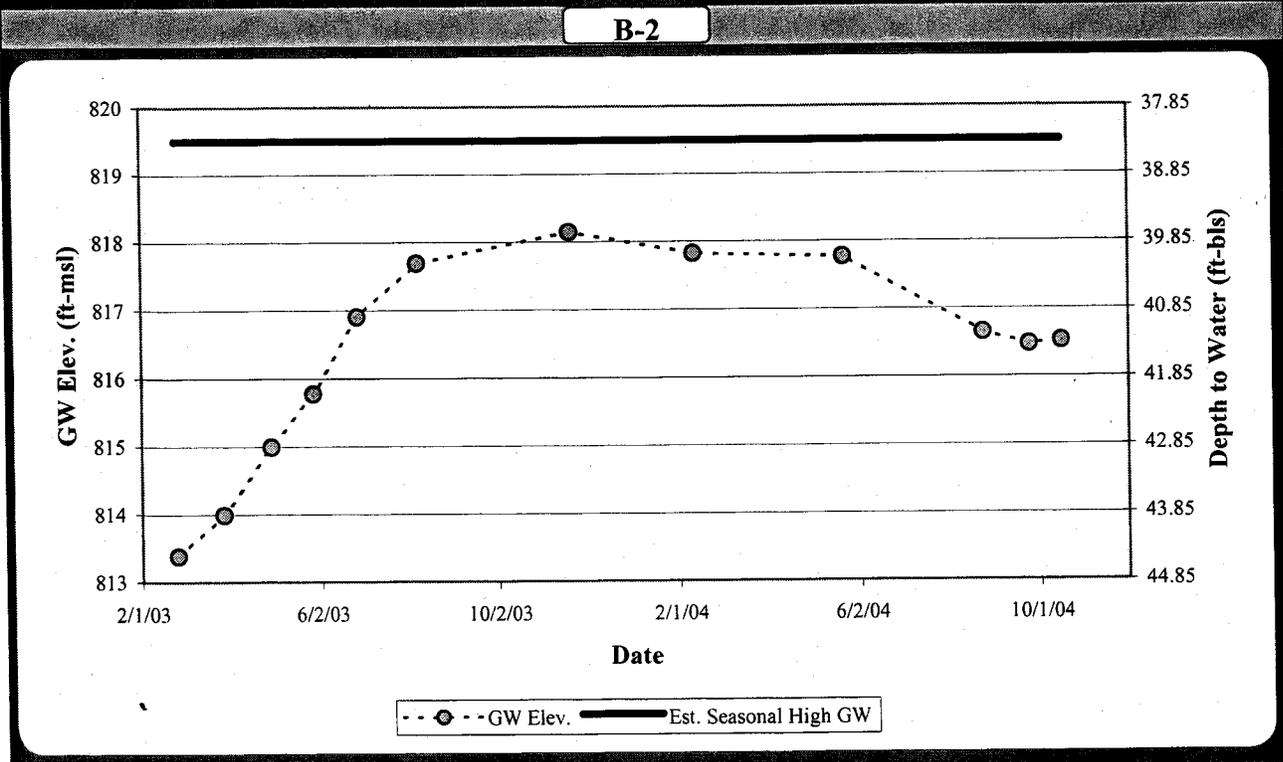
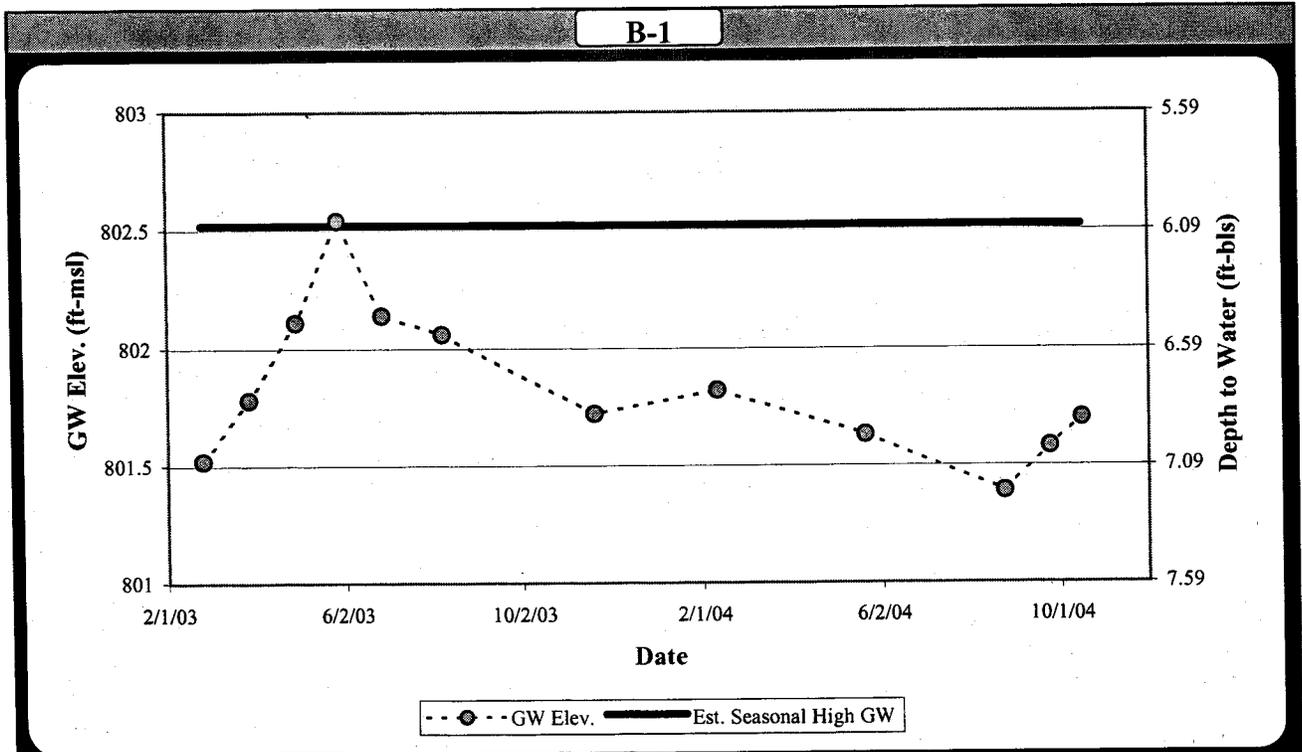
- TOC Top of casing
- DTW-TOC Depth to water below top of casing
- WL-Elev Water level elevation

Observation Well Hydrographs

(Revised October 25, 2004)

Marshall Steam Station - FGD Scrubber Landfill

S&ME Project No. 1264-02-578

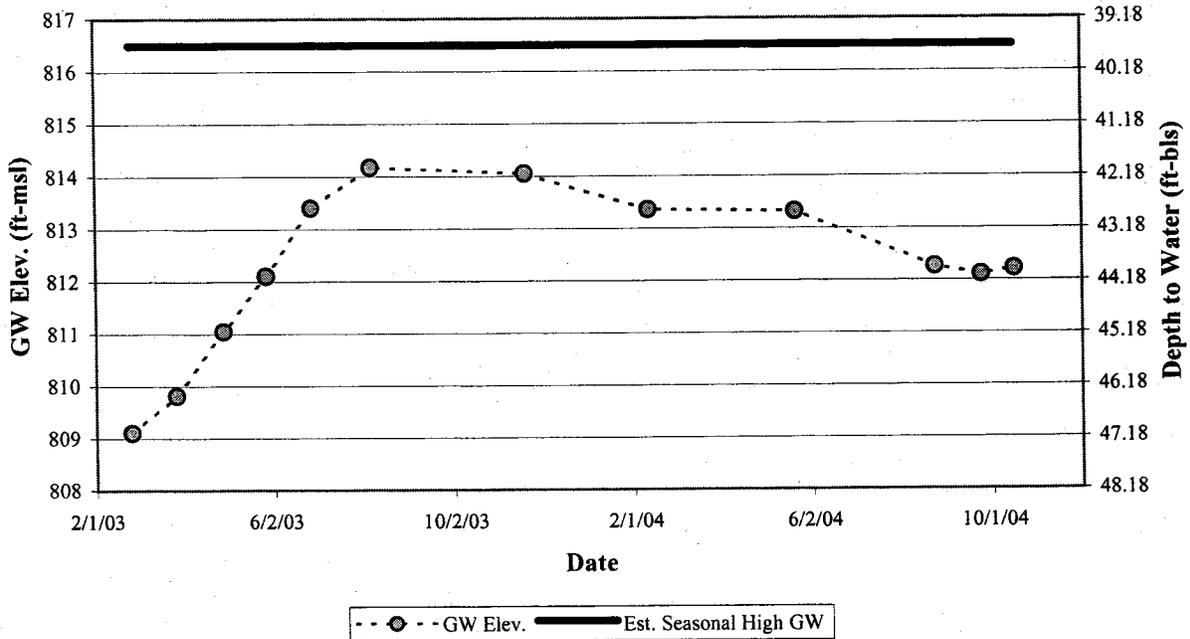


Observation Well Hydrographs

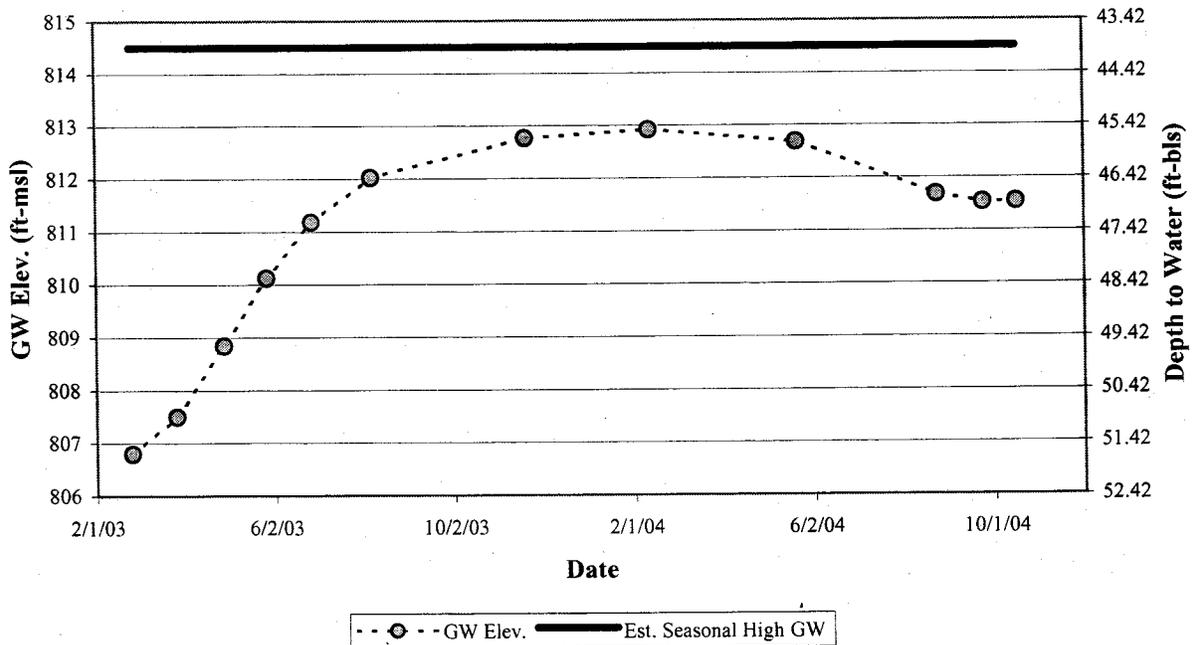
(Revised October 25, 2004)

Marshall Steam Station - FGD Scrubber Landfill
S&ME Project No. 1264-02-578

B-3



B-4

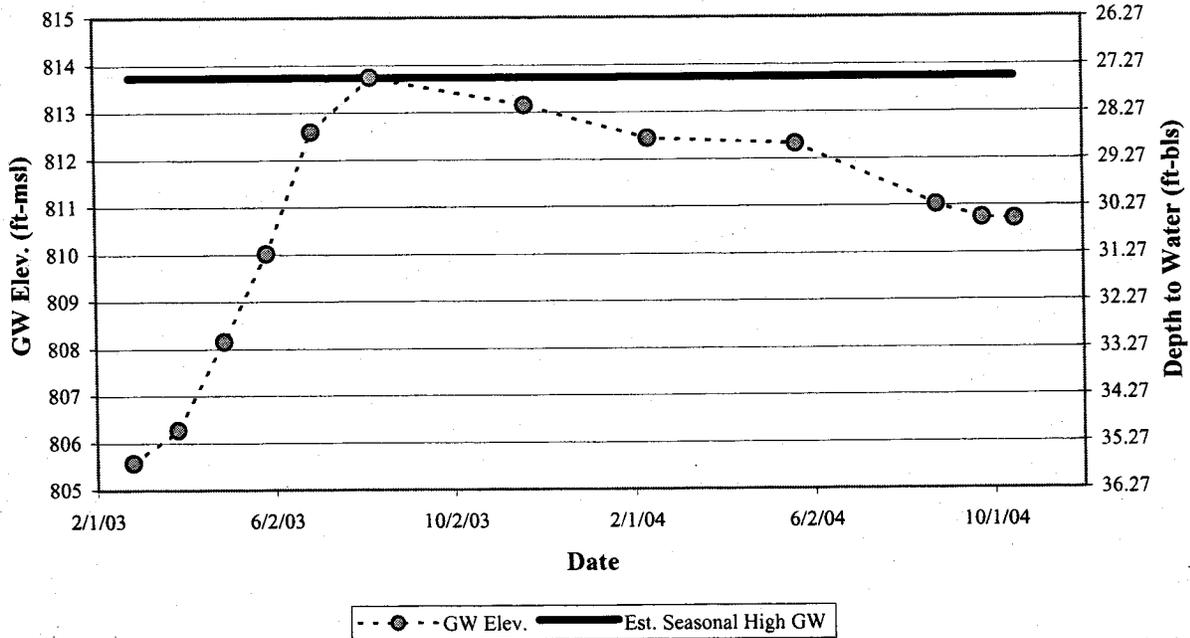


Observation Well Hydrographs

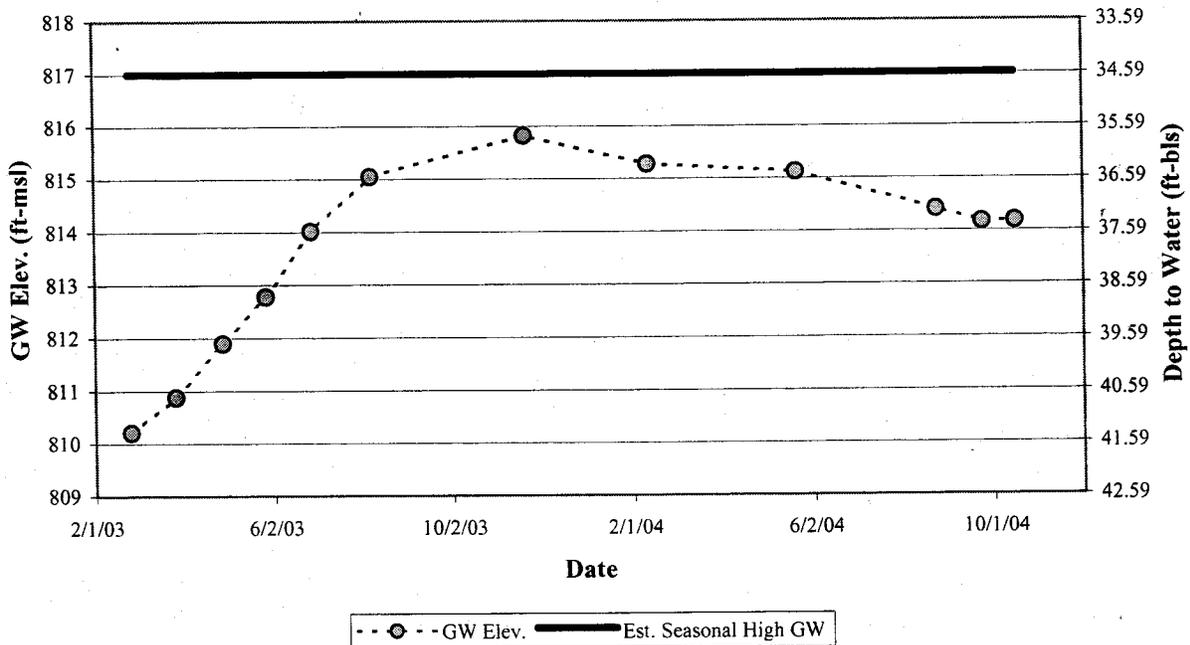
(Revised October 25, 2004)

Marshall Steam Station - FGD Scrubber Landfill
 S&ME Project No. 1264-02-578

B-5



B-6

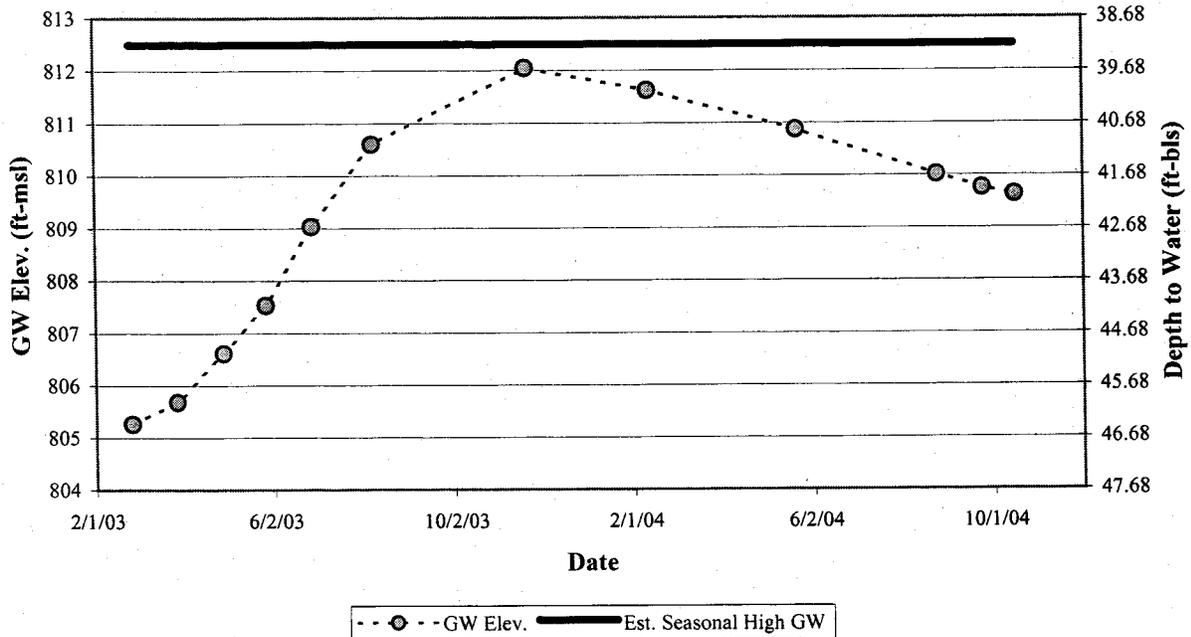


Observation Well Hydrographs

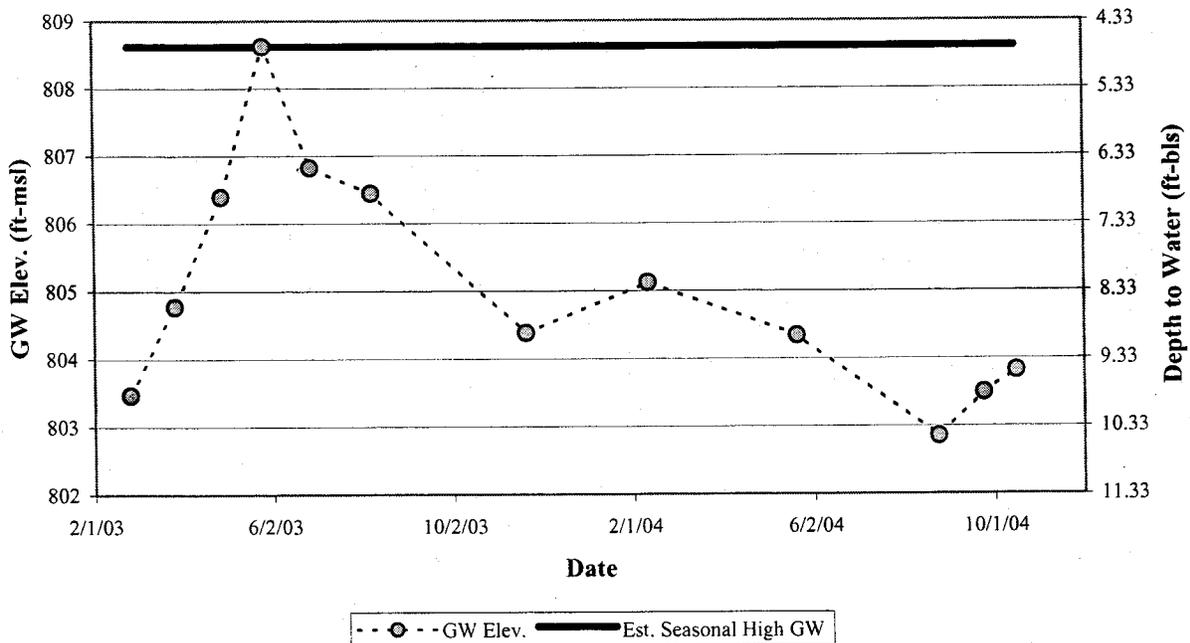
(Revised October 25, 2004)

Marshall Steam Station - FGD Scrubber Landfill
 S&ME Project No. 1264-02-578

B-7



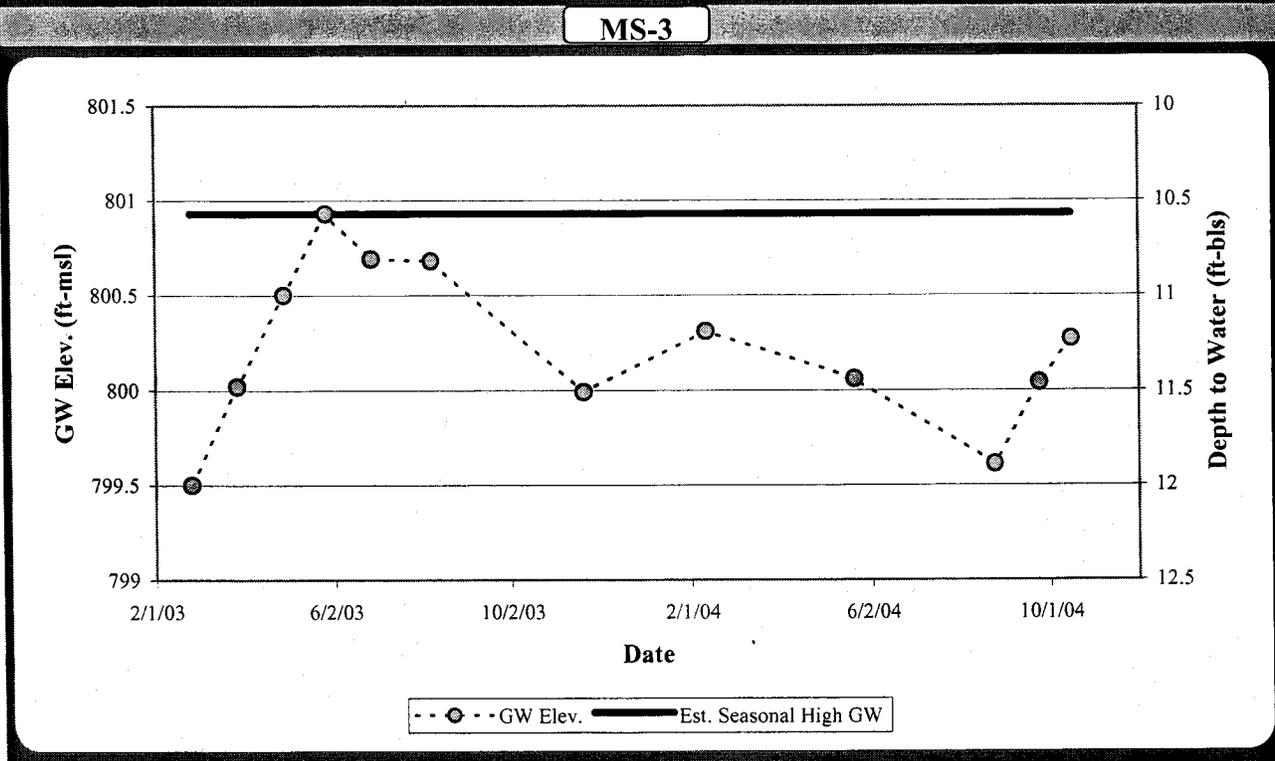
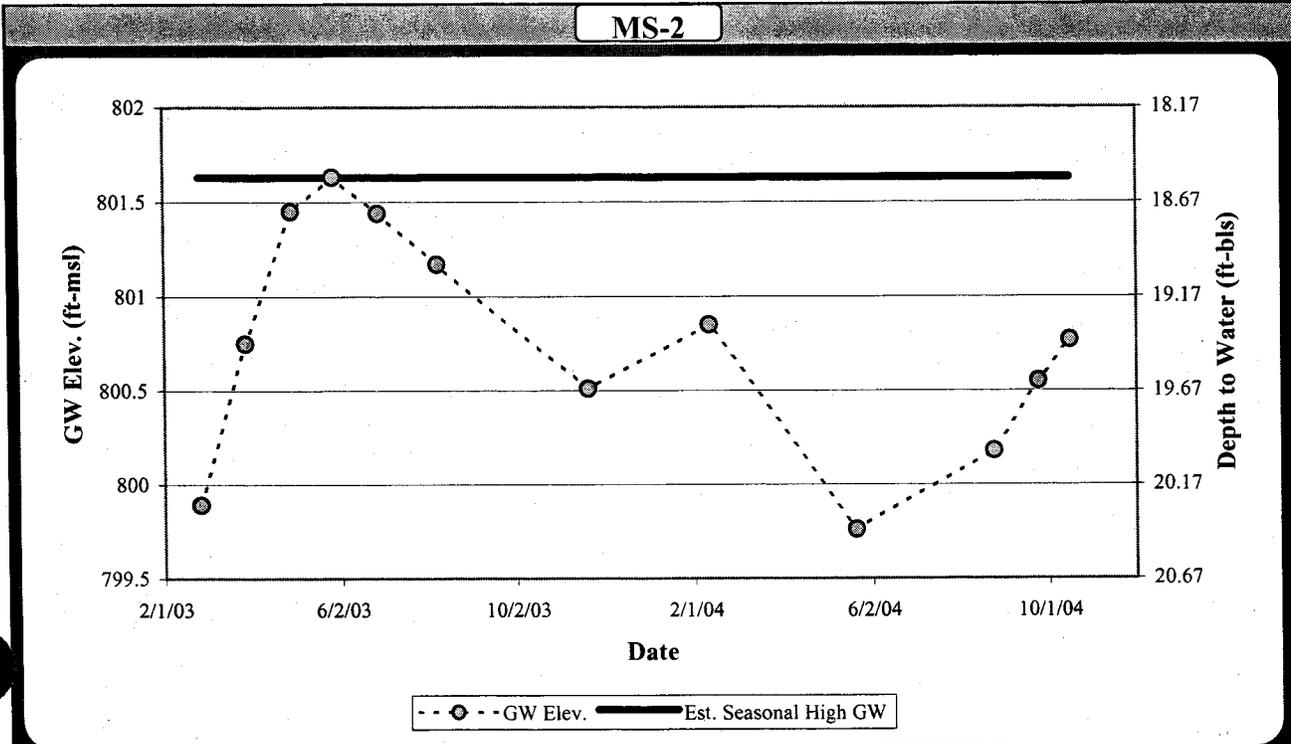
MS-1



Observation Well Hydrographs

(Revised October 25, 2004)

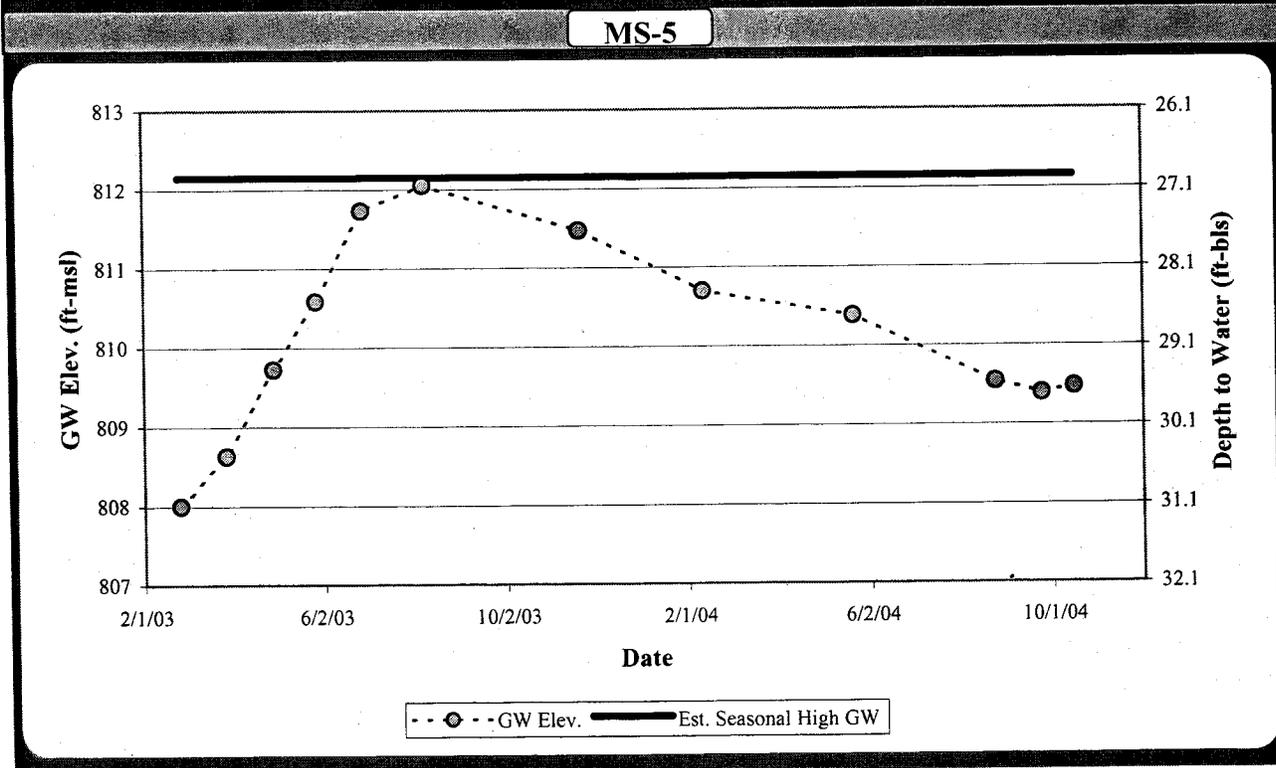
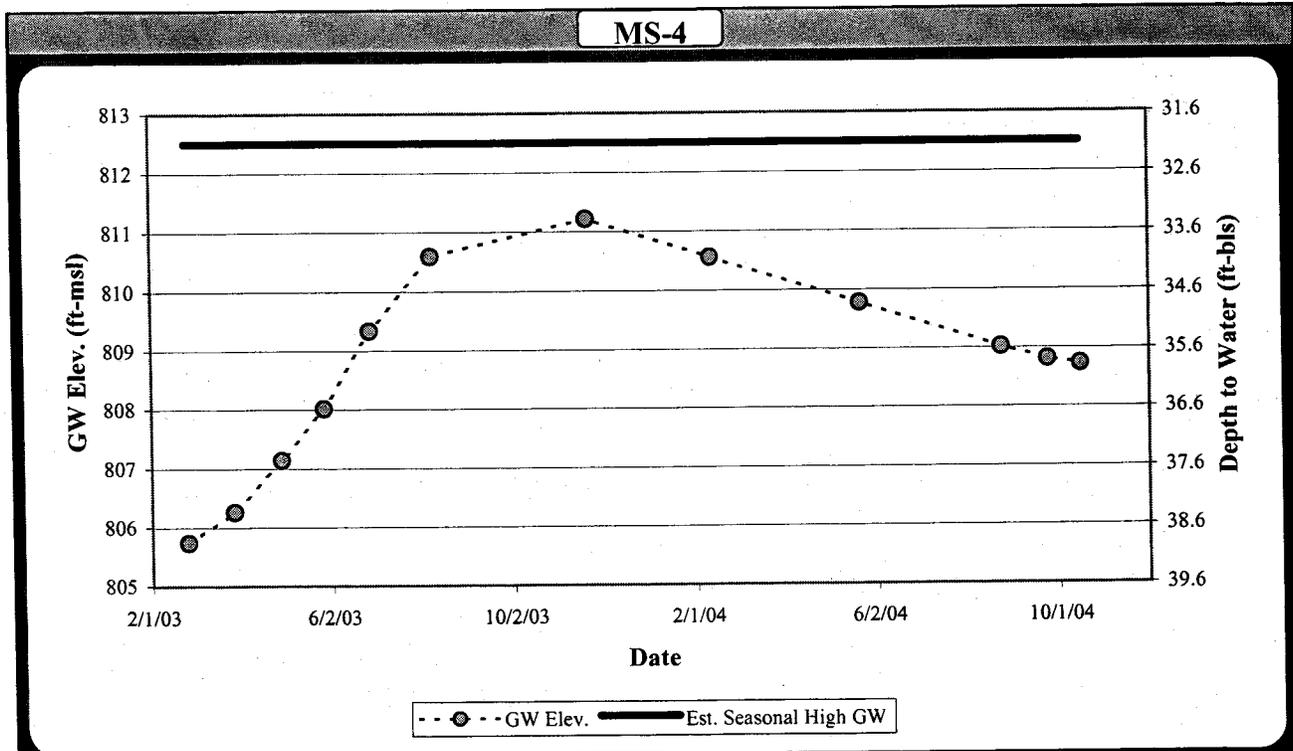
Marshall Steam Station - FGD Scrubber Landfill
 S&ME Project No. 1264-02-578



Observation Well Hydrographs

(Revised October 25, 2004)

Marshall Steam Station - FGD Scrubber Landfill
 S&ME Project No. 1264-02-578

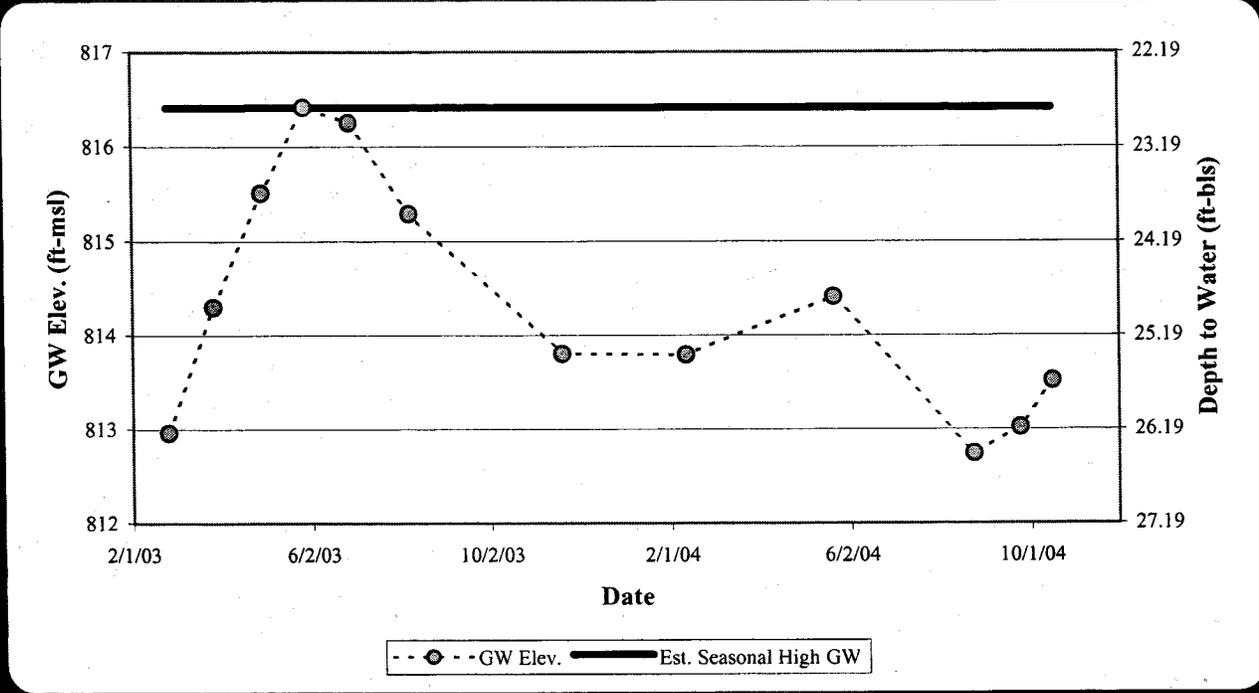


Observation Well Hydrographs

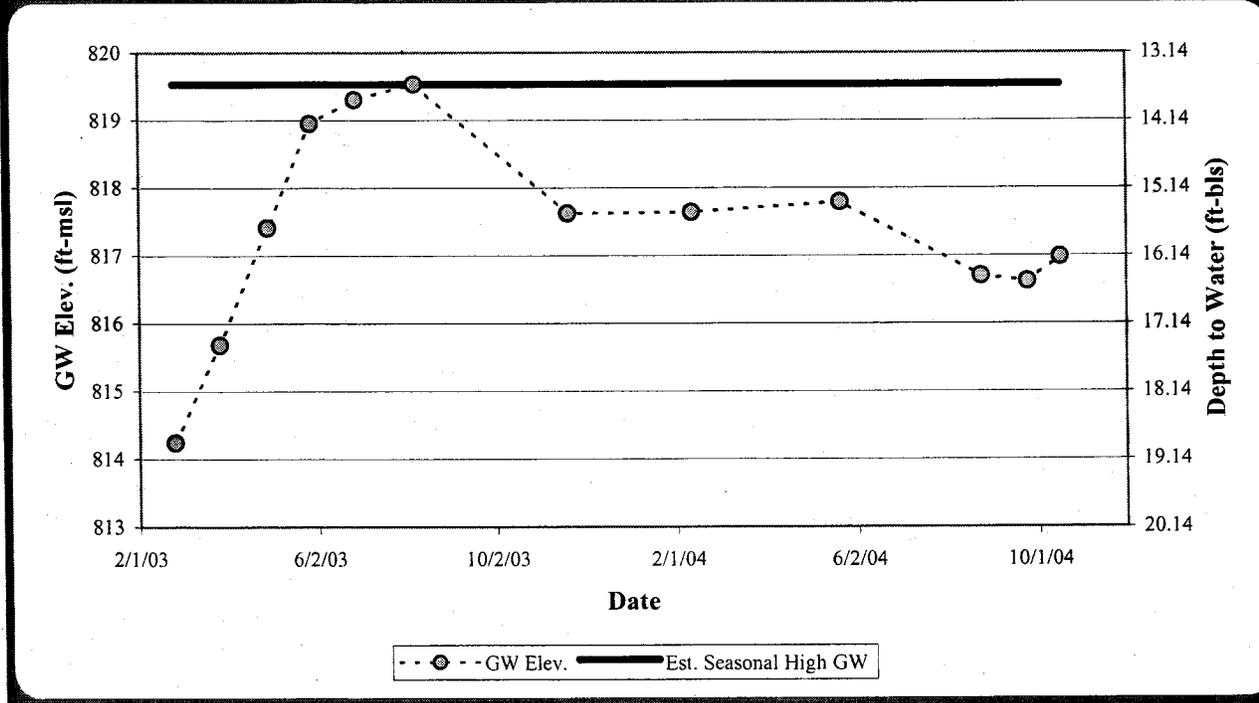
(Revised October 25, 2004)

Marshall Steam Station - FGD Scrubber Landfill
 S&ME Project No. 1264-02-578

MS-6



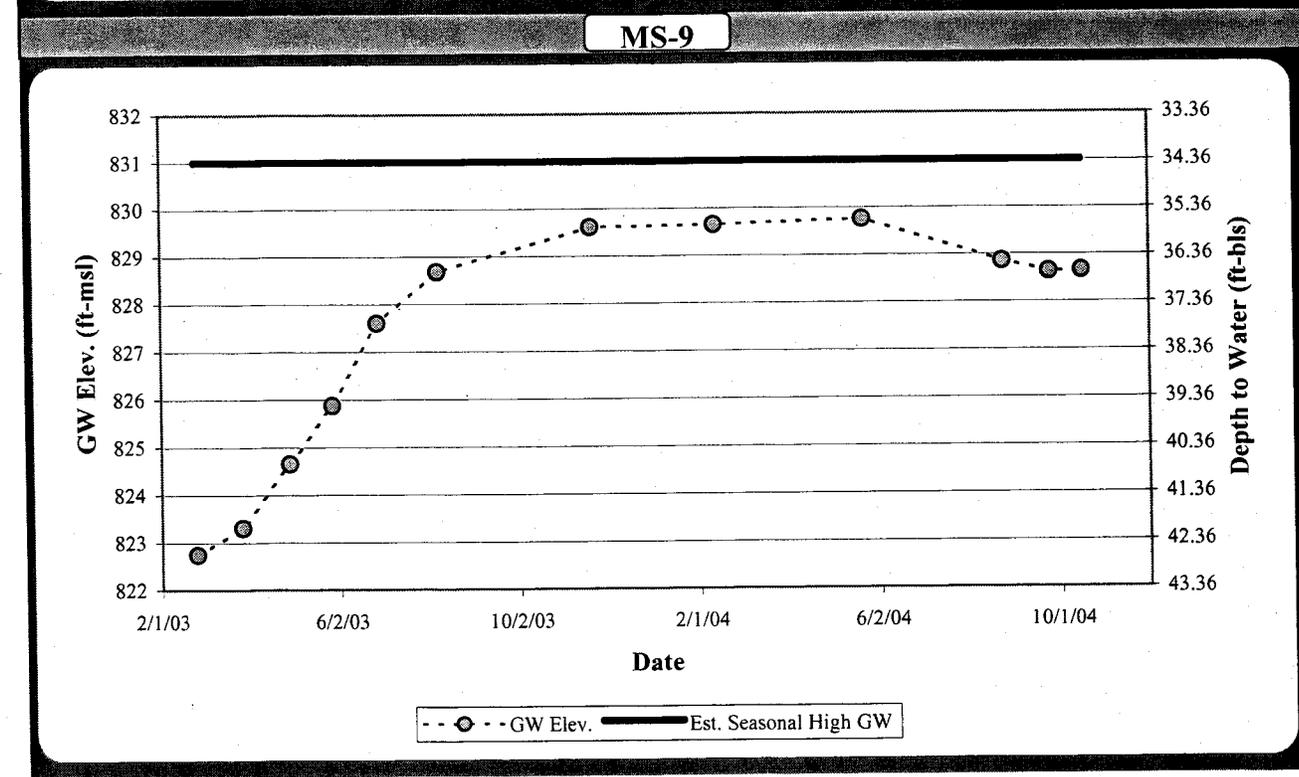
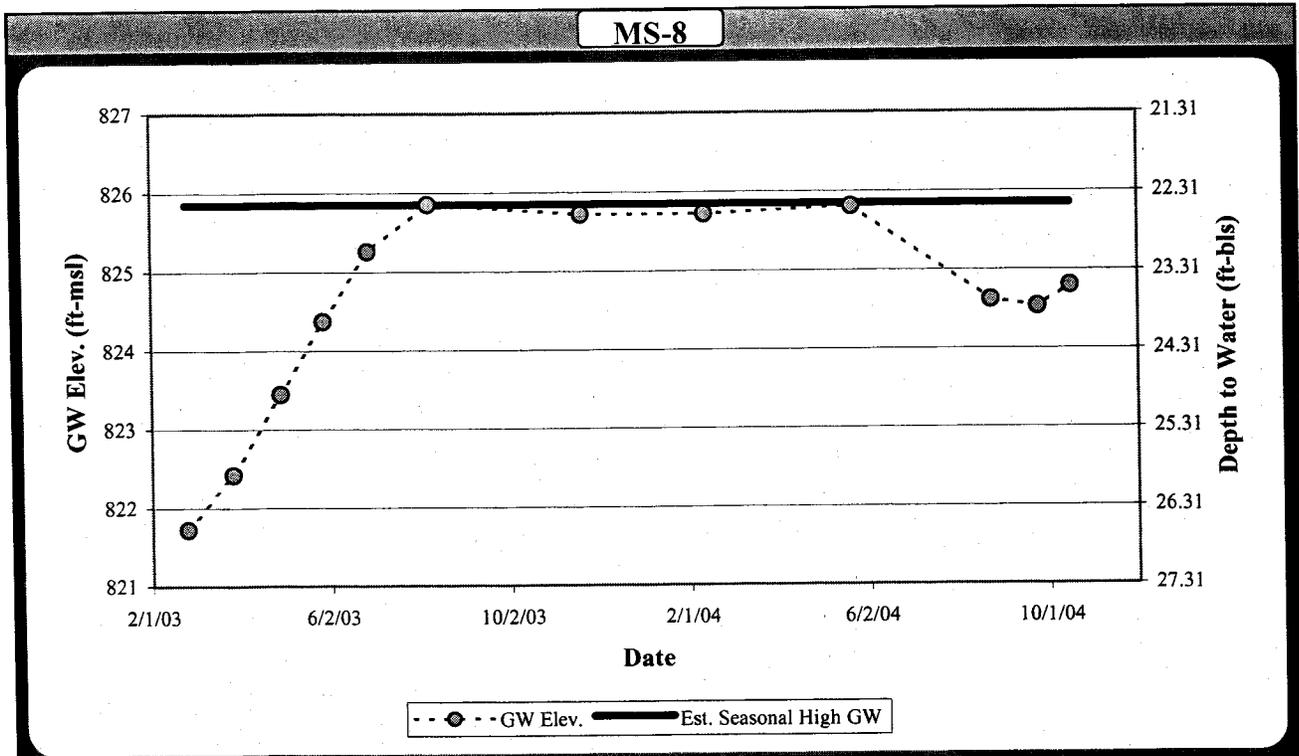
MS-7



Observation Well Hydrographs

(Revised October 25, 2004)

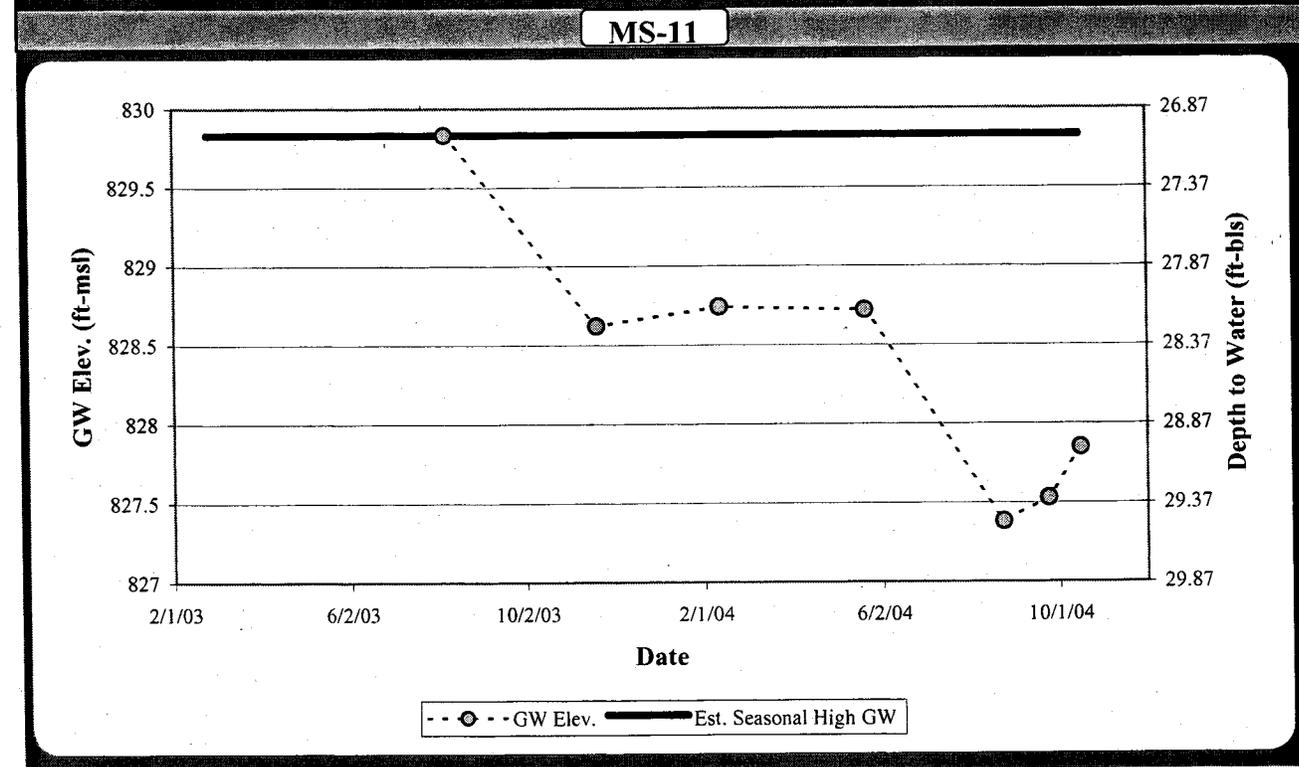
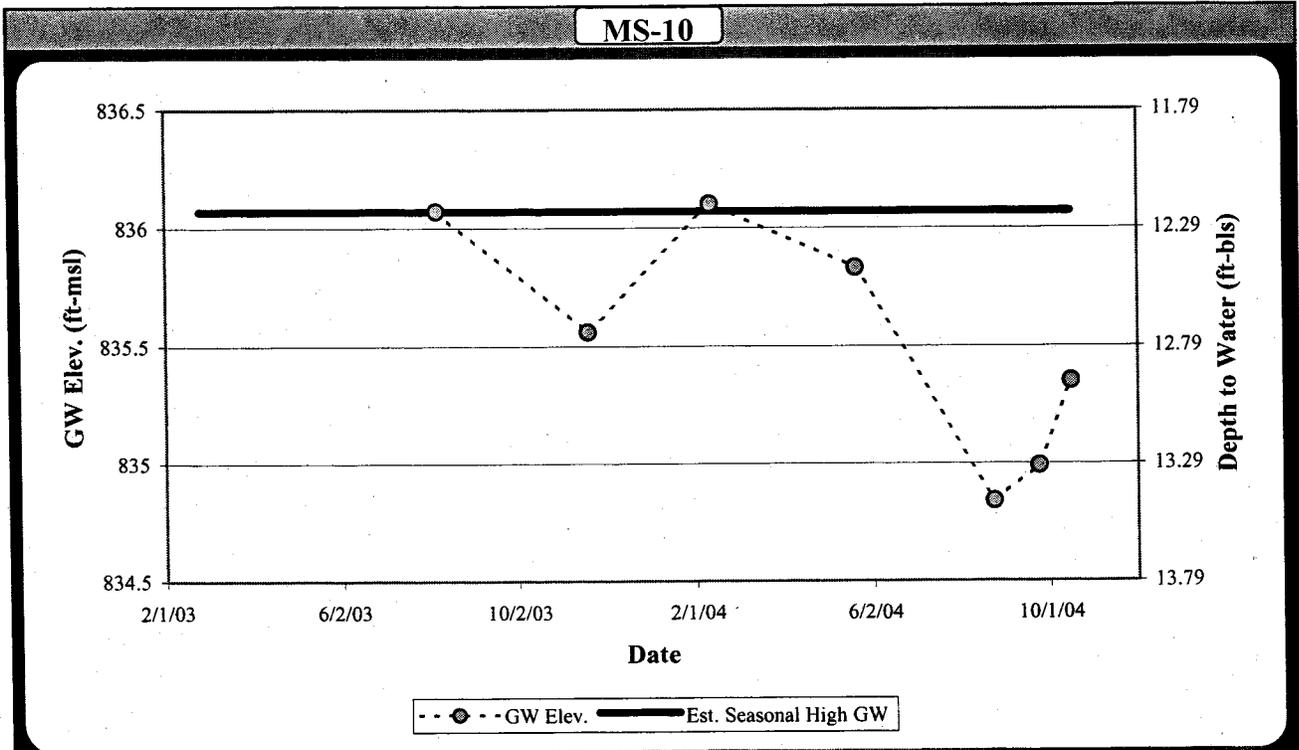
Marshall Steam Station - FGD Scrubber Landfill
S&ME Project No. 1264-02-578



Observation Well Hydrographs

(Revised October 25, 2004)

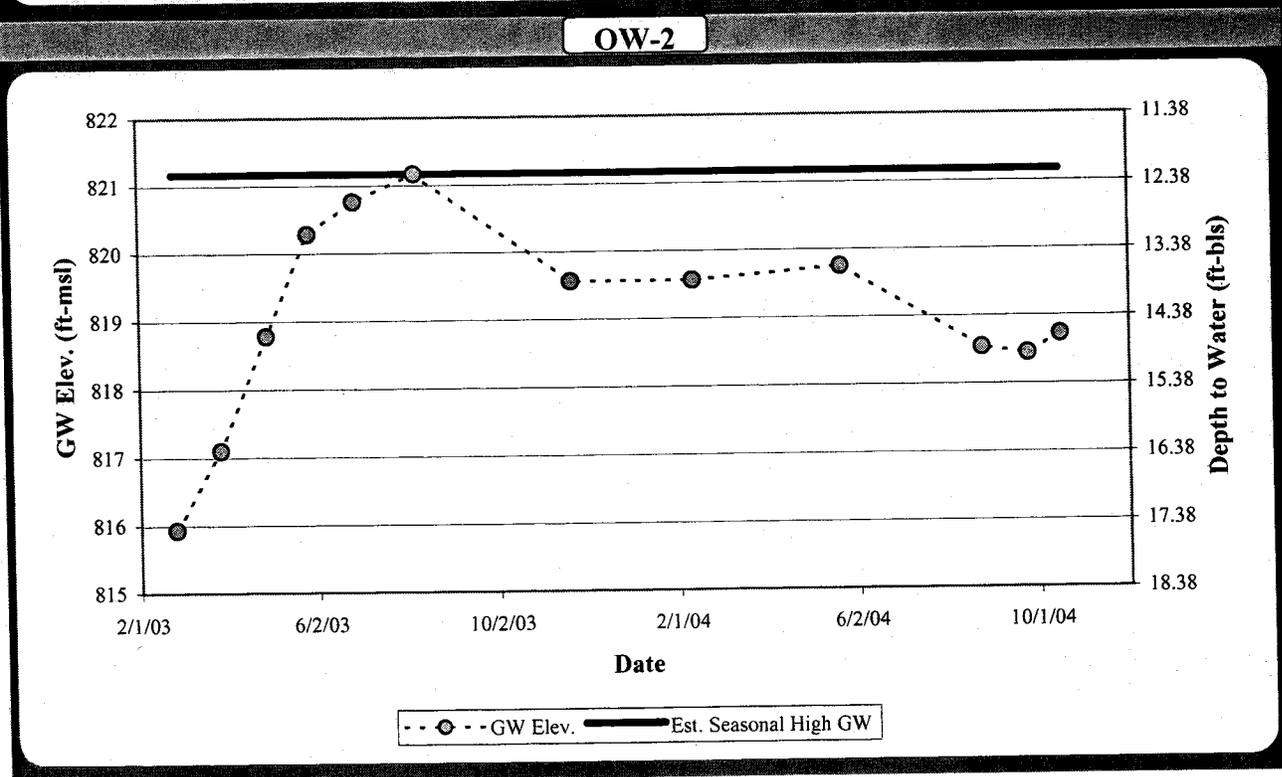
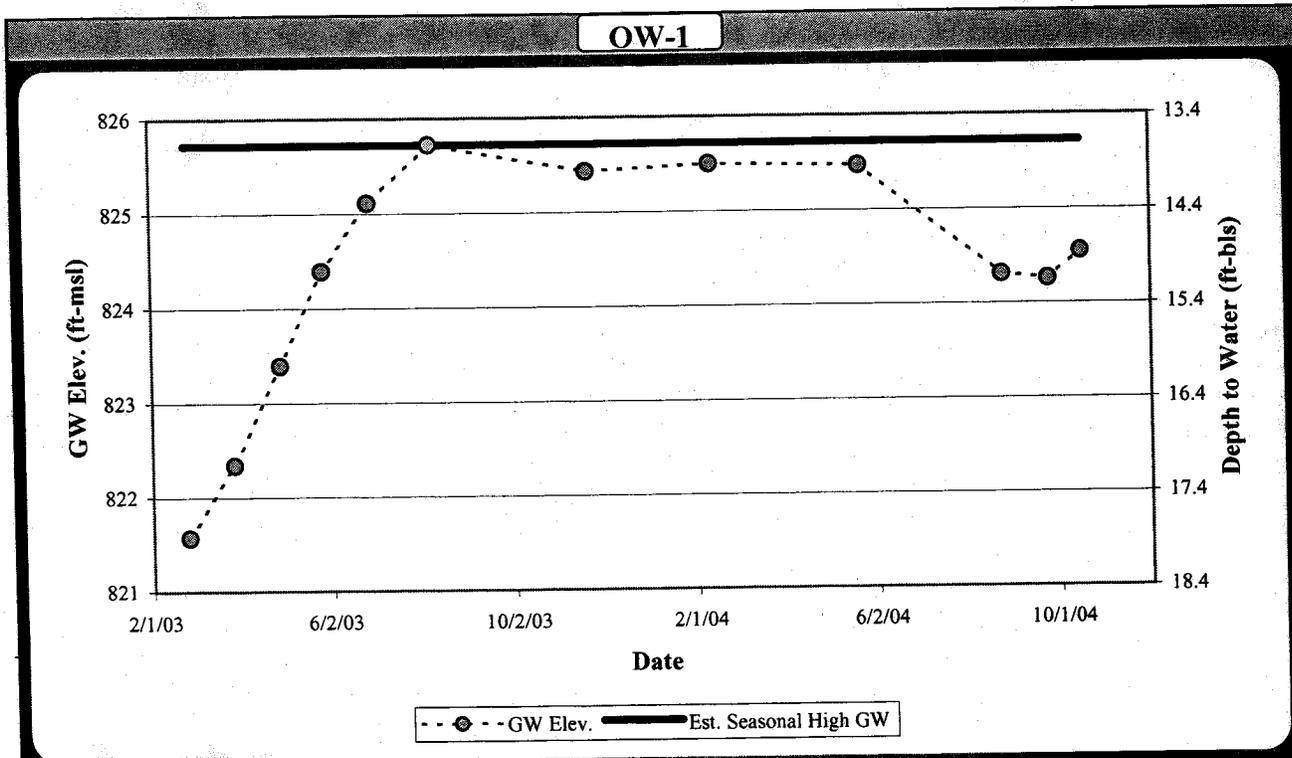
Marshall Steam Station - FGD Scrubber Landfill
S&ME Project No. 1264-02-578



Observation Well Hydrographs

(Revised October 25, 2004)

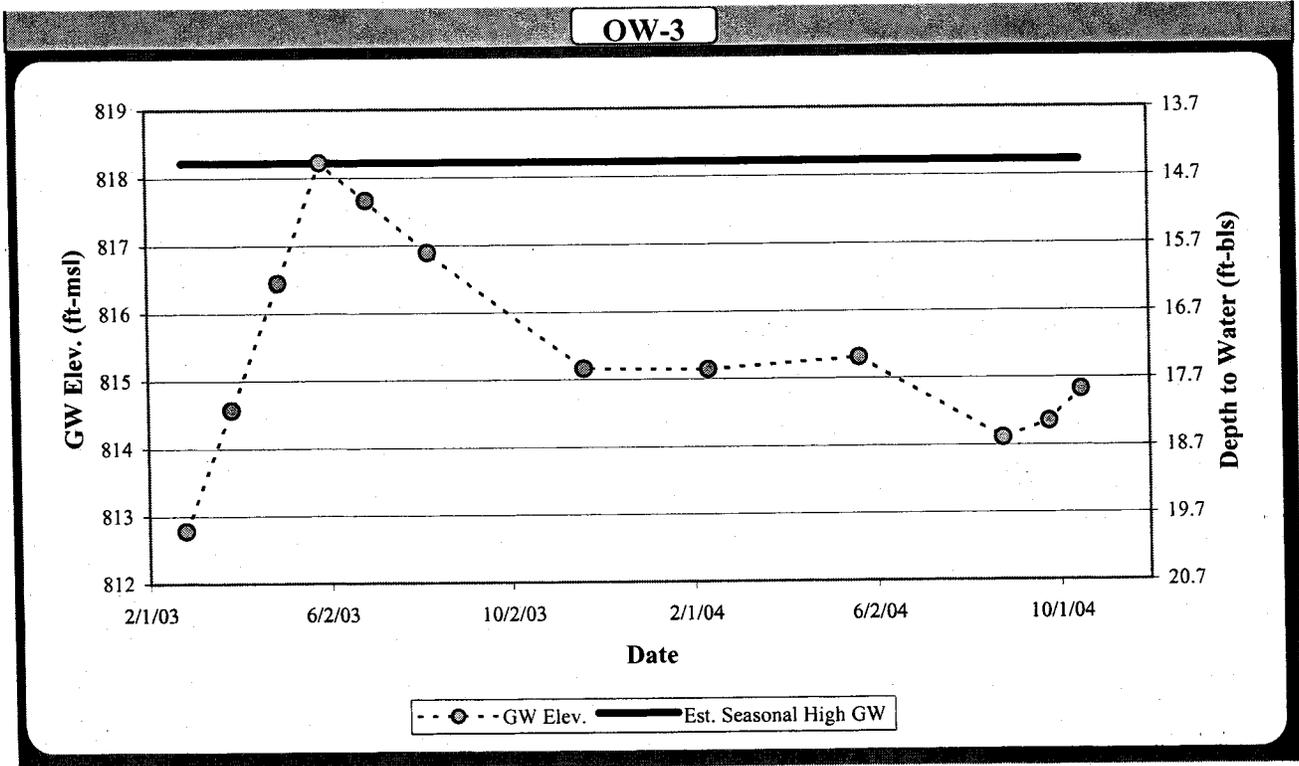
Marshall Steam Station - FGD Scrubber Landfill
 S&ME Project No. 1264-02-578



Observation Well Hydrographs

(Revised October 25, 2004)

Marshall Steam Station - FGD Scrubber Landfill
S&ME Project No. 1264-02-578



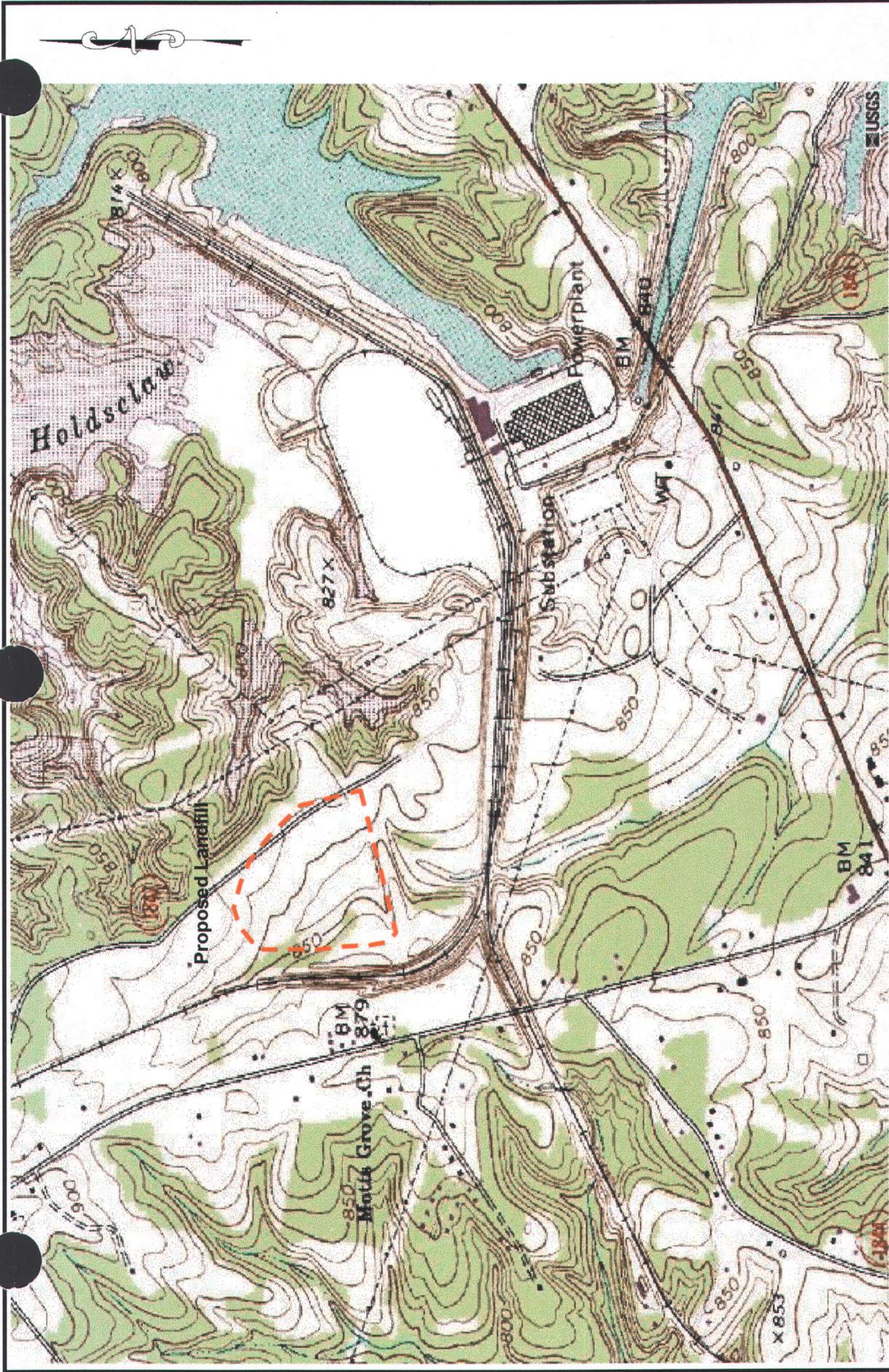


FIGURE NO.

SITE LOCATION MAP - USGS TOPO

Marshall Steam Station - FGD Scrubber Landfill
Terrell, Catawba County, North Carolina

1



SCALE: NTS
CHECKED BY:
DRAWN BY: JRP
DATE: 2/15/03

Source: Terraserver, 1996 USGS Topo
(REVISED 10-25-04)

JOB NO. 1264-02-578

Carmen Johnson
Fac/Permi/Co ID # 18-09
Date 1/25/12
DIN
Doc ID#

January 14, 2005

North Carolina Department of Environment
and Natural Resources
Division of Waste Management
Solid Waste Section
401 Oberlin Road, Suite 150
Raleigh, NC 27605-1350

ATTENTION: Ms. Ellen Lorscheider
Hydrogeologist
Solid Waste Permitting Branch

SUBJECT: Marshall Steam Station
FGD Industrial Landfill
Permit to Construct

APPROVED
DIVISION OF WASTE MANAGEMENT
SOLID WASTE SECTION
DATE 1-14-09 BY JFE
Central Office
18-09

I have attached the well abandonment records associated with the construction of the FGD Industrial Landfill at Marshall Steam Station as requested in the Permit to Construct dated January 14, 2005.

Please contact me at (704) 382-4309 if additional information is needed.

Sincerely,

Allen Stowe

Allen Stowe, Scientist
Environmental Support

Attachments





December 15, 2004

North Carolina Department of Environment and Natural Resources
Division of Water Quality – Groundwater Section
1639 Mail Service Center
Raleigh, North Carolina 27699-1636

Attention: Groundwater Section

Reference: **Well Abandonment Records**
Duke Power – Marshall Steam Station
Terrell, Catawba County, North Carolina
S&ME Project 1264-02-578

Ladies and Gentlemen,

S&ME, Inc. (S&ME), on behalf of Duke Power, submits these Well Abandonment Records for observation wells associated with a Hydrogeologic Study at the Marshall Steam Station Facility. Please find attached thirteen GW-30 forms for wells B-1, B-2, B-3, B-6, B-7, MS-1, MS-2, MS-4, MS-5, MS-7, MS-8, OW-1 and OW-2. The wells were abandoned in-place in accordance with the 15A NCAC 2C .0113 standards by injecting neat cement into the well, completely filling it from the bottom to the top of casing.

S&ME, Inc.
9751 Southern Pine Blvd.
Charlotte, North Carolina 28273

Mailing address:
P.O. Box 7668
Charlotte, North Carolina 28241-7668

(704) 523-4726
(704) 525-3953 fax
www.smeinc.com

If you have any questions or need additional information please feel free to contact us.

Sincerely,

S&ME, Inc.



Julie R. Petersen
Staff Professional



Christopher J.L. Stahl, P.E.
Senior Project Manager

Attachments: Thirteen (13) GW-30 Well Abandonment Records
(B-1, B-2, B-3, B-6, B-7, MS-1, MS-2, MS-4, MS-5, MS-7, MS-8, OW-1
and OW-2)

Figure 1, Well Abandonment Locations

c: William M. Miller, P.E. – Duke Power (5 copies)

WELL ABANDONMENT RECORD
(B-1)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)
Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No.

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 16 ft bls DIAMETER: 2-inch

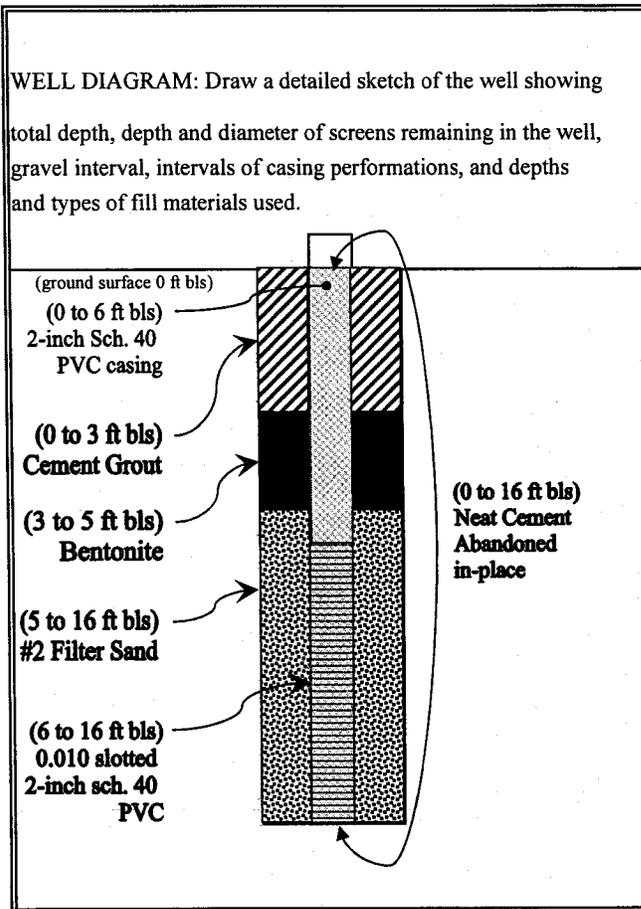
7. CASING REMOVED:
feet None diameter _____
_____ _____

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 2 bags of cement _____
gallons of water 12 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 8, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/12/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(B-2)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)

Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No.

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 54 ft bls DIAMETER: 2-inch

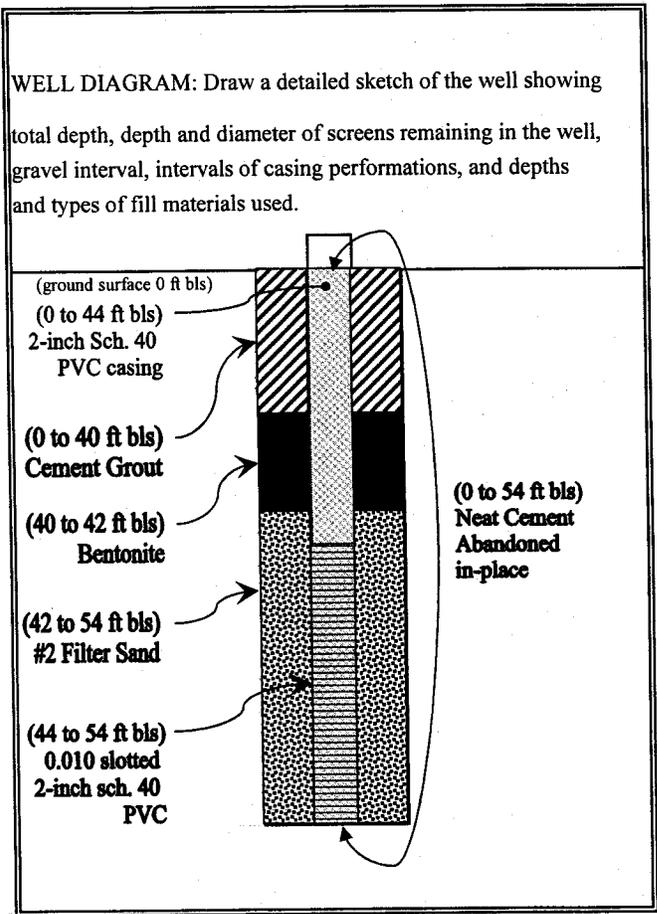
7. CASING REMOVED:
feet diameter
None

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 5 bags of cement
gallons of water 30 gallons of water
Other
Type material
Amount

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 13, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(B-3)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)

Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No. _____

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 56 ft bls DIAMETER: 2-inch

7. CASING REMOVED:
feet diameter
None _____

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 5 bags of cement _____
gallons of water 30 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

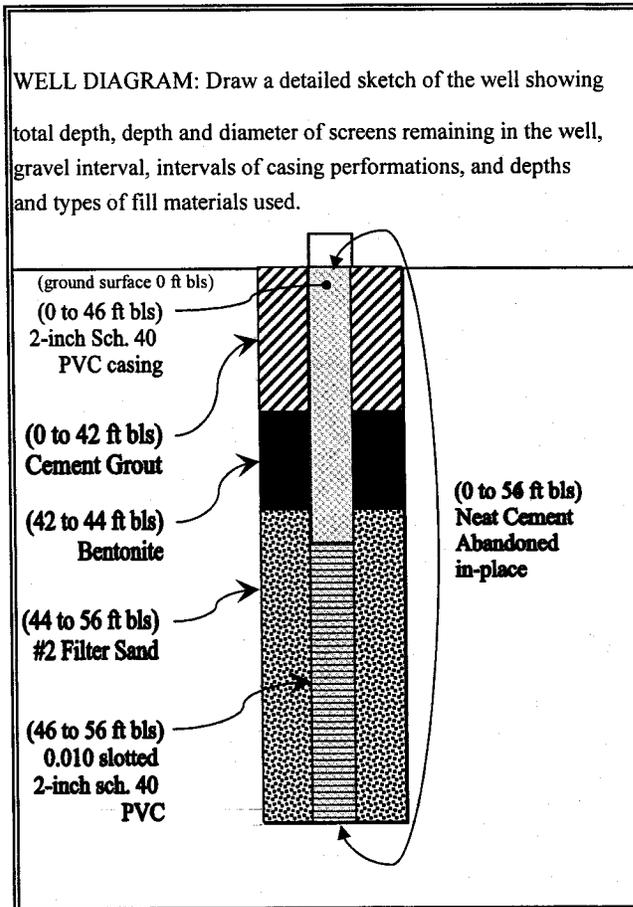
11. DATE WELL ABANDONED December 13, 2004

I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment



WELL ABANDONMENT RECORD
(B-6)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)
Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No.

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop valley, flat
(circle one)

6. TOTAL DEPTH: 47 ft bls DIAMETER: 2-inch

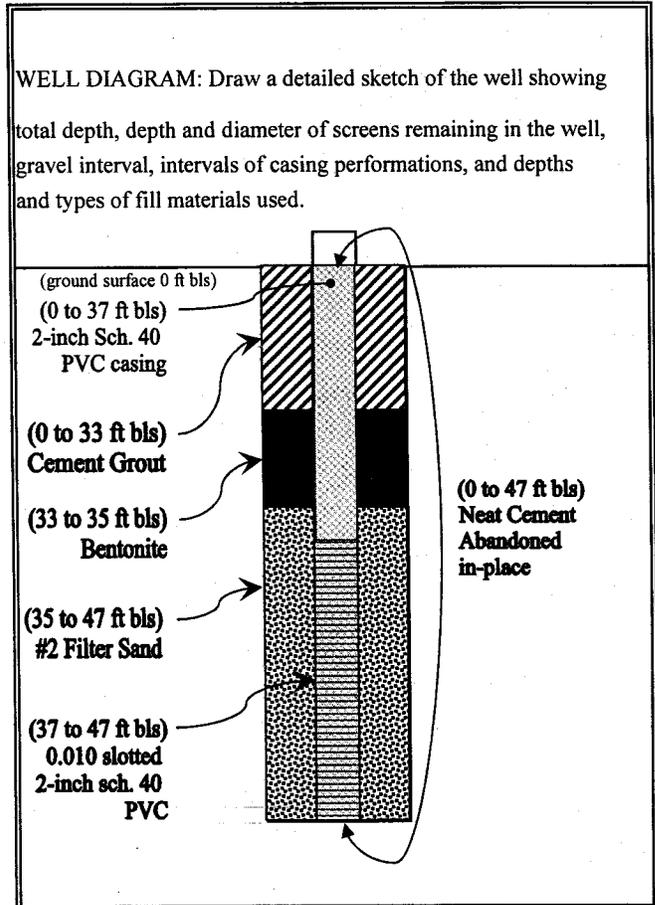
7. CASING REMOVED:
feet None diameter _____
_____ _____

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 4 bags of cement _____
gallons of water 24 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 3, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(B-7)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)
Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No. _____

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 60.5 ft bls DIAMETER: 2-inch

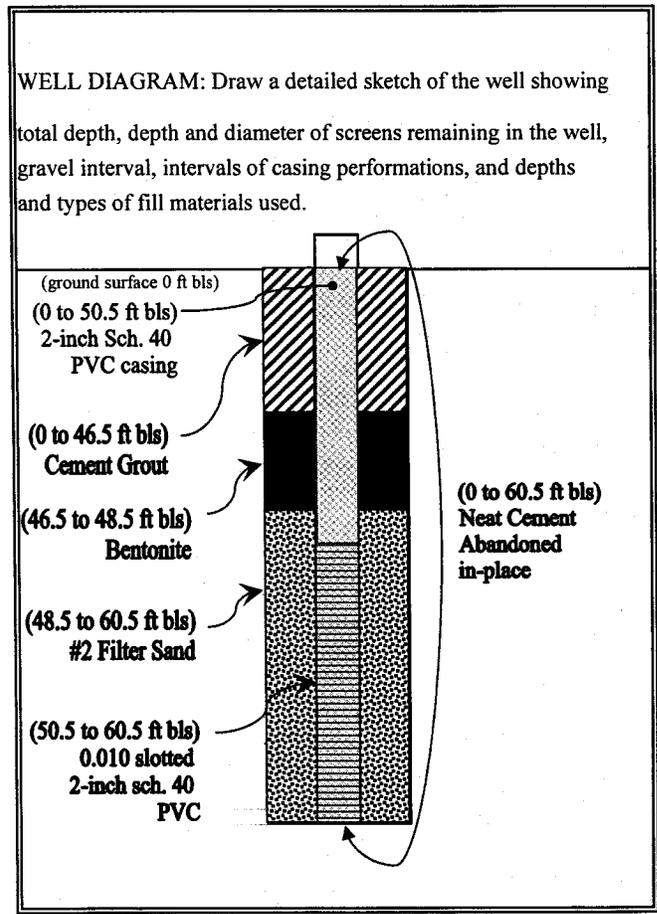
7. CASING REMOVED:
feet diameter
None _____

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 6 bags of cement _____
gallons of water 36 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 3, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(MS-1)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)
Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.)
Quadrangle No. _____

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley flat
(circle one)

6. TOTAL DEPTH: 24 ft bls DIAMETER: 2-inch

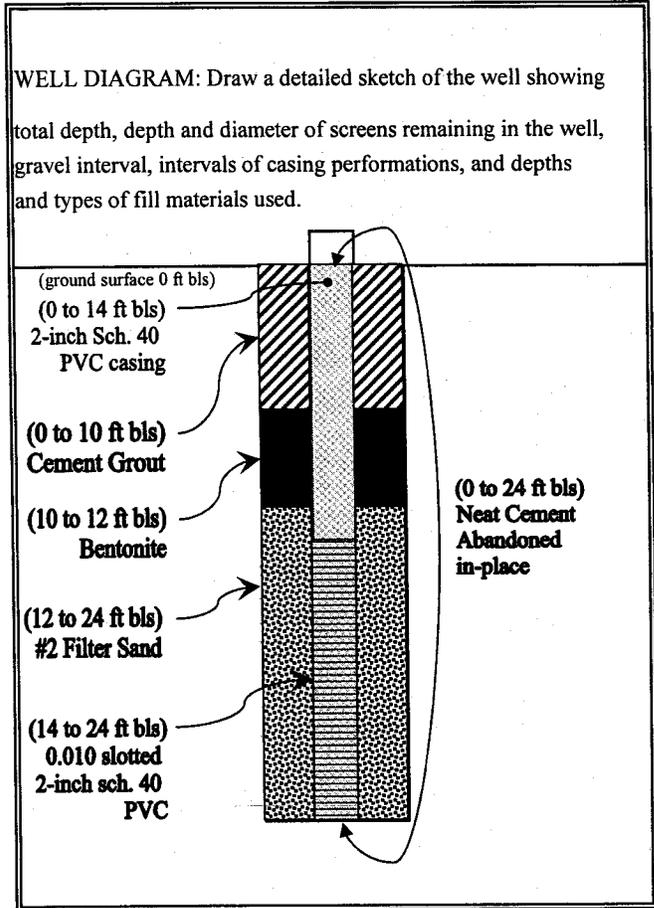
7. CASING REMOVED:
feet None diameter _____

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 2 bags of cement _____
gallons of water 12 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 13, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(MS-2)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)
Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No.

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 29.5 ft bls DIAMETER: 2-inch

7. CASING REMOVED:
feet None diameter _____

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 3 bags of cement _____
gallons of water 18 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

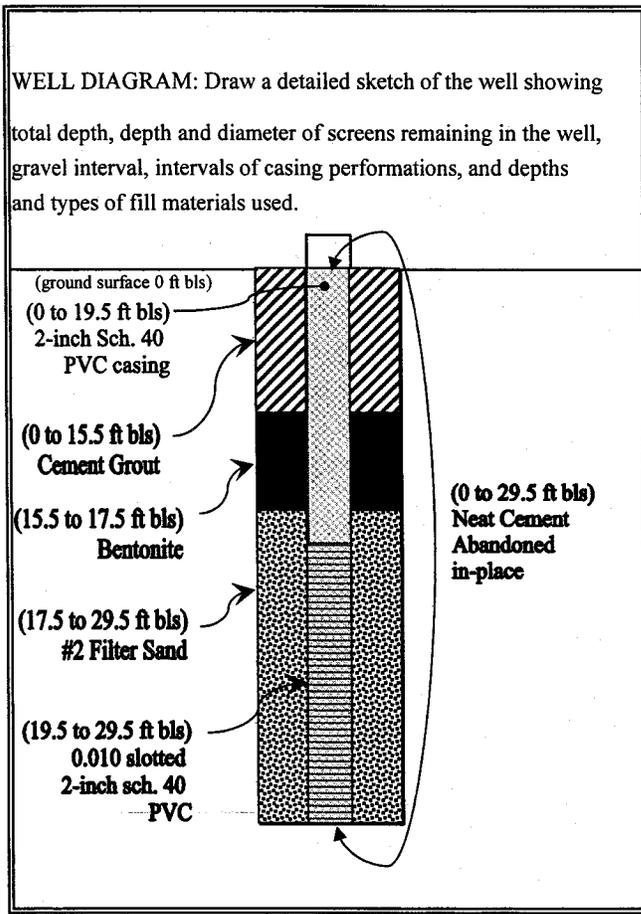
11. DATE WELL ABANDONED December 8, 2004

I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment



WELL ABANDONMENT RECORD
(MS-4)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)
Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No.

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 46 ft bls DIAMETER: 2-inch

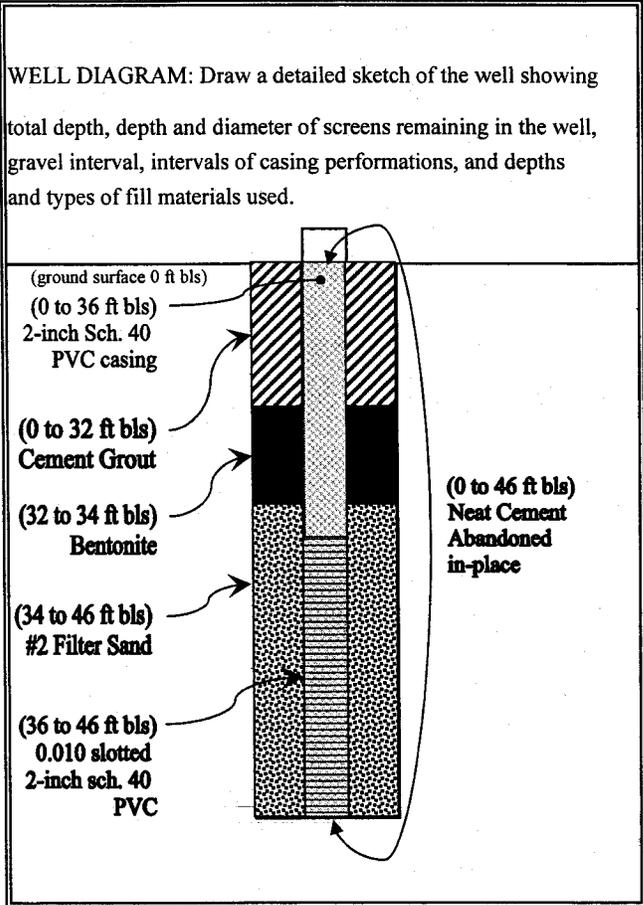
7. CASING REMOVED:
None None
feet diameter

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 4 bags of cement
gallons of water 24 gallons of water
Other
Type material
Amount

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 8, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(MS-5)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use _____ Observation Well _____

2. WELL LOCATION: (show a sketch of the location on back of form.)
Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No.

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley flat
(circle one)

6. TOTAL DEPTH: 38 ft bls DIAMETER: 2-inch

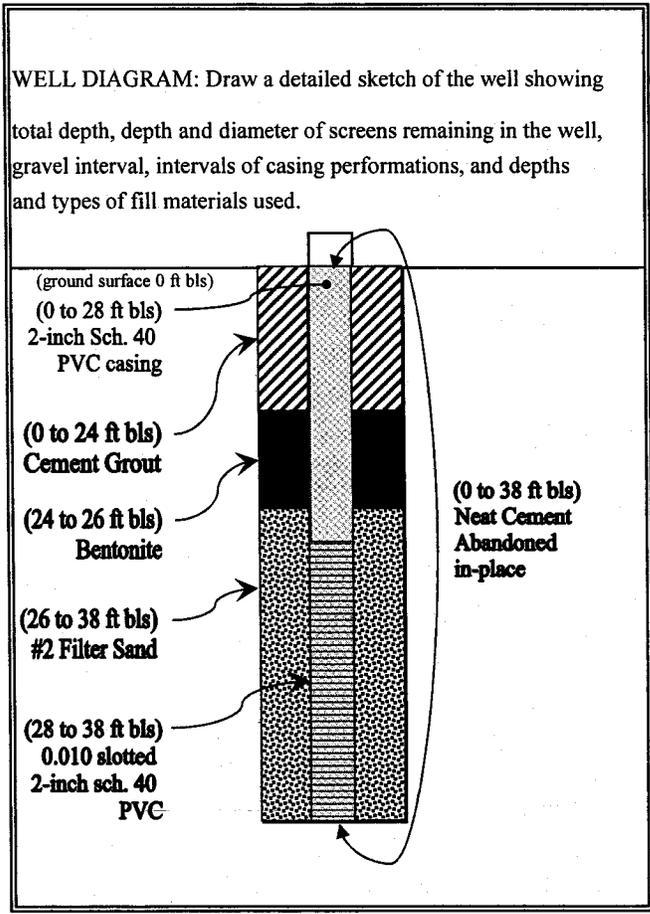
7. CASING REMOVED:
None None
feet diameter

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 4 bags of cement _____
gallons of water 24 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 8, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(MS-7)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)
Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No. _____

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 26 ft bls DIAMETER: 2-inch

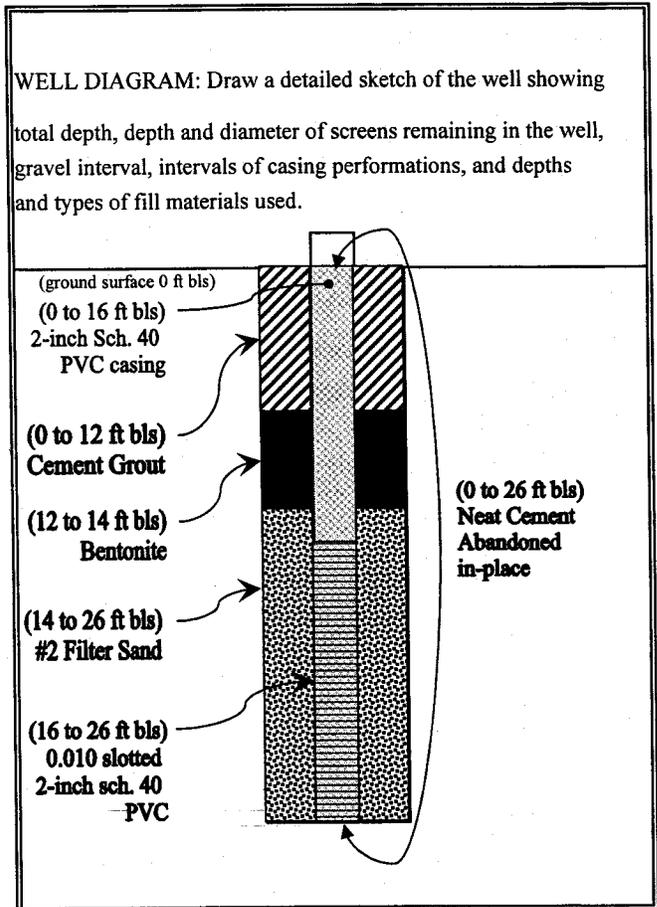
7. CASING REMOVED:
None None
feet diameter

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 2 bags of cement _____
gallons of water 12 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 3, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(MS-8)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)

Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No. _____

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 30 ft bls DIAMETER: 2-inch

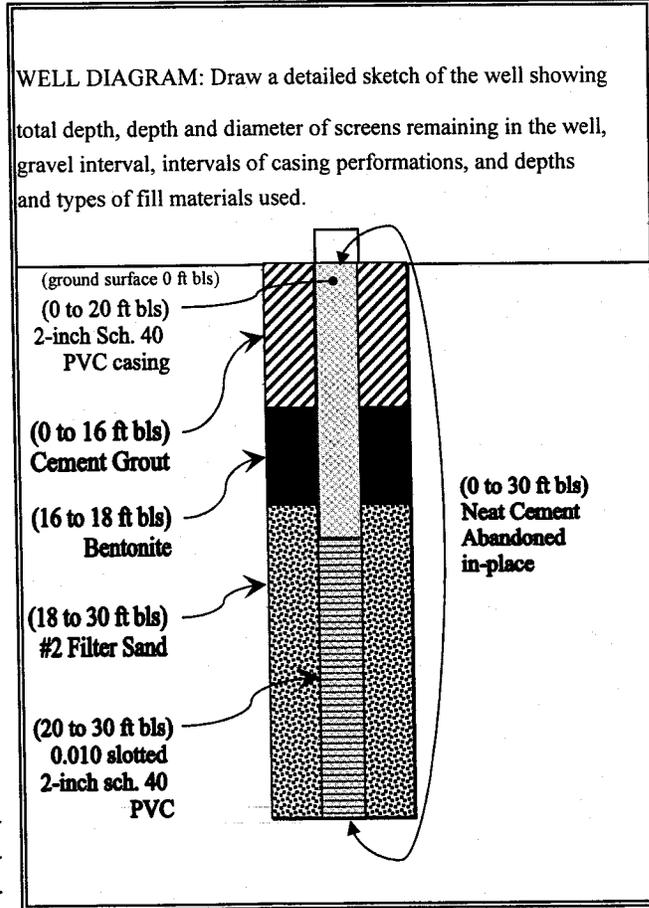
7. CASING REMOVED:
- | | |
|-----------------------------|-----------------------------|
| <u>feet</u> | <u>diameter</u> |
| <u>None</u> | <u> </u> |
| <u> </u> | <u> </u> |

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
- | | |
|----------------------------|--|
| <u>Neat Cement</u> | <u>Sand Cement</u> |
| bags of cement <u>3</u> | bags of cement <u> </u> |
| gallons of water <u>18</u> | gallons of water <u> </u> |
- Other
Type material
Amount

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 3, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(OW-1)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultral Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)

Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.)
Quadrangle No. _____

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 26 ft bls DIAMETER: 2-inch

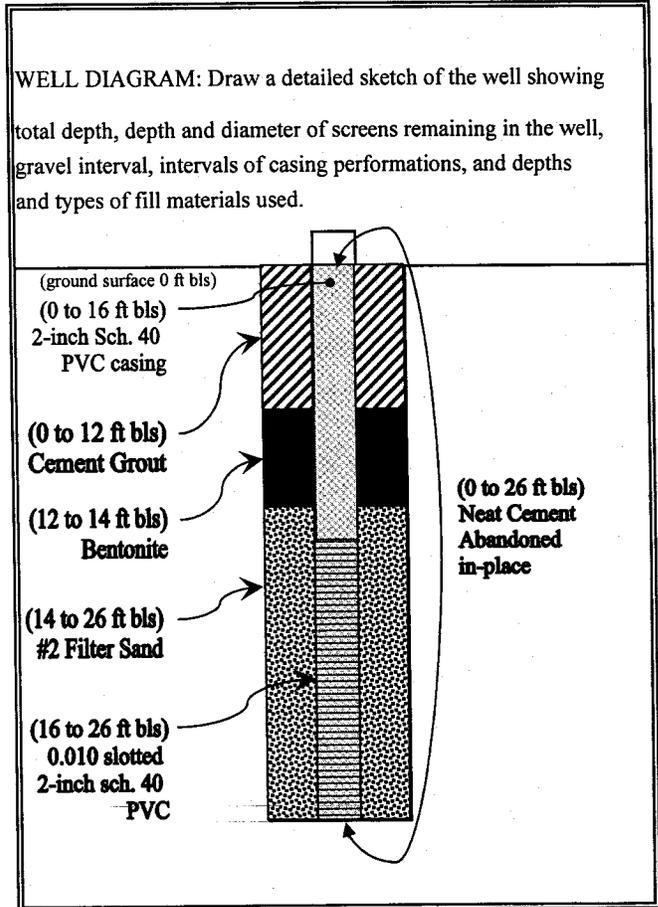
7. CASING REMOVED:
feet None diameter _____

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 2 bags of cement _____
gallons of water 12 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 3, 2004



I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment

WELL ABANDONMENT RECORD
(OW-2)

WELL CONTRACTOR S&ME, Inc.
WELL CONTRACTOR CERTIFICATION # Chad Odom, 3350

1. WELL USE (Check Applicable Box): Residential Municipal Industrial Agricultural Monitoring
Recovery Heat Pump Water Injection Other If Other, List Use Observation Well

2. WELL LOCATION: (show a sketch of the location on back of form.)

Nearest Town: Terrell County Catawba
Marshall Steam Station
(Road Name and Number, Community, Subdivision, Lot No.) Quadrangle No.

3. OWNER: Duke Power

4. ADDRESS: 526 South Church Street

5. TOPOGRAPHY: draw, slope, hilltop, valley, flat
(circle one)

6. TOTAL DEPTH: 26 ft bls DIAMETER: 2-inch

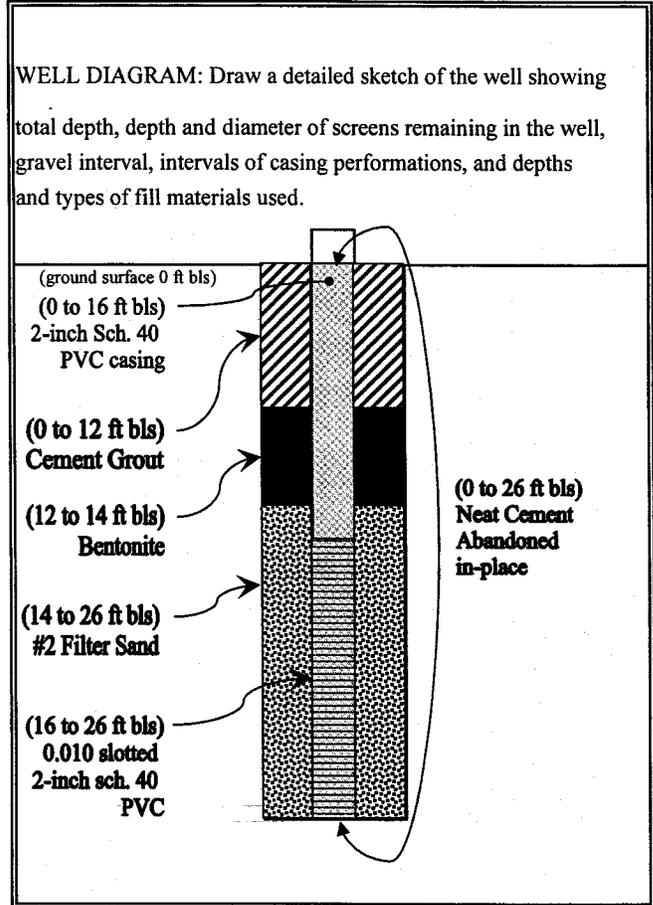
7. CASING REMOVED:
feet None diameter _____

8. DISINFECTION: n/a
(Amount of 70% hypochlorite used:)

9. SEALING MATERIAL:
Neat Cement Sand Cement
bags of cement 2 bags of cement _____
gallons of water 12 gallons of water _____
Other
Type material _____
Amount _____

10. EXPLAIN METHOD EMPLACEMENT OF MATERIAL
Grout Plant with Tremie Pipe

11. DATE WELL ABANDONED December 3, 2004

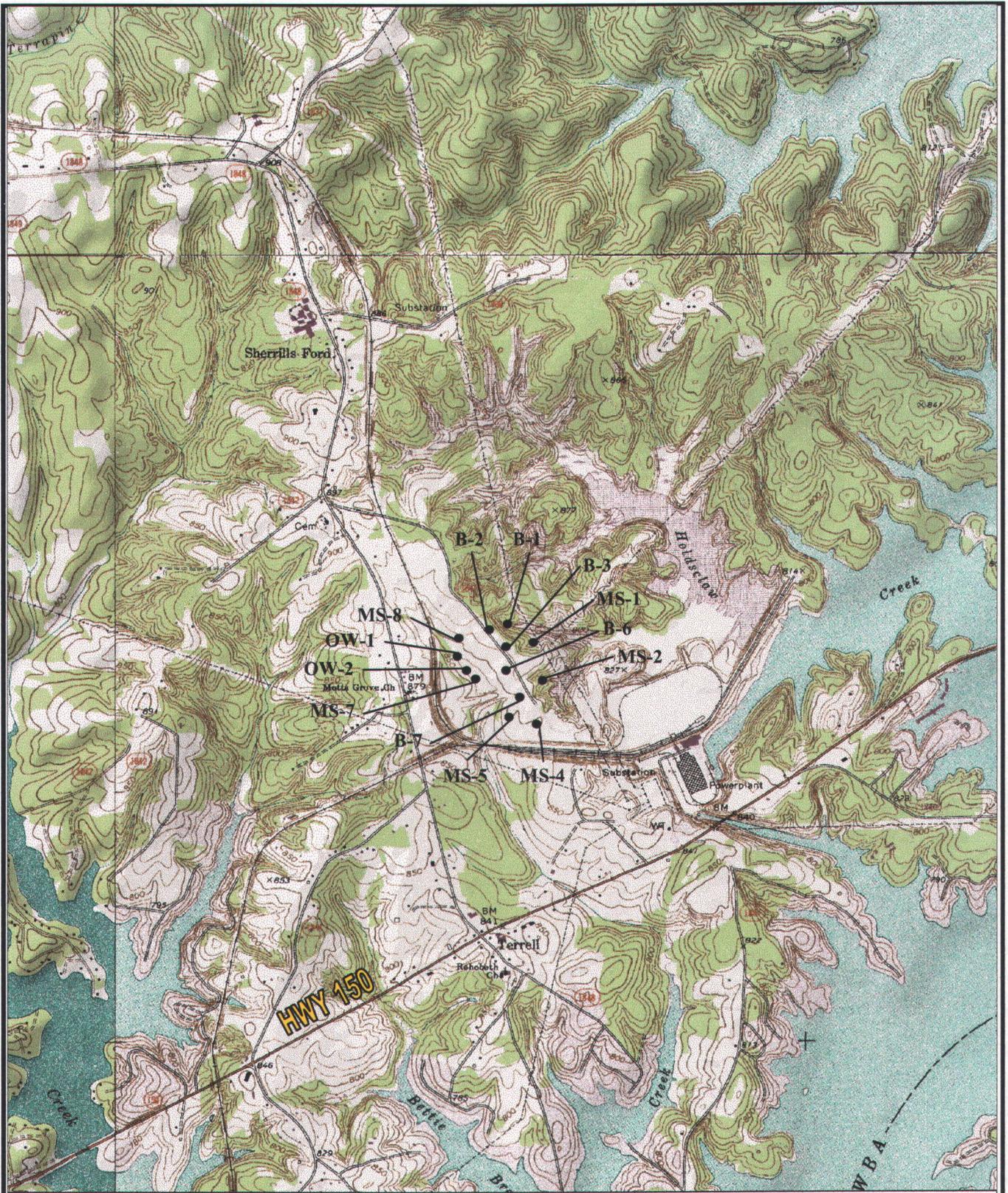


I do hereby certify that this well was abandoned in accordance with 15A NCAC 2C, well construction standards, and that a copy of the record has been provided to the well owner.

Signature of person abandoning the well CHAD ODOM Date 12/14/04

WELL LOCATION: Draw a location sketch on the reverse of this sheet, showing the direction and distance of the well to at least two (2) nearby reference points such as roads, intersections and streams. Identify roads with State Highway road identification numbers.
(Site Map Attached)

Submit original to the Division of Water Quality, Groundwater Section, one copy to the owner within 30 days from completion of abandonment



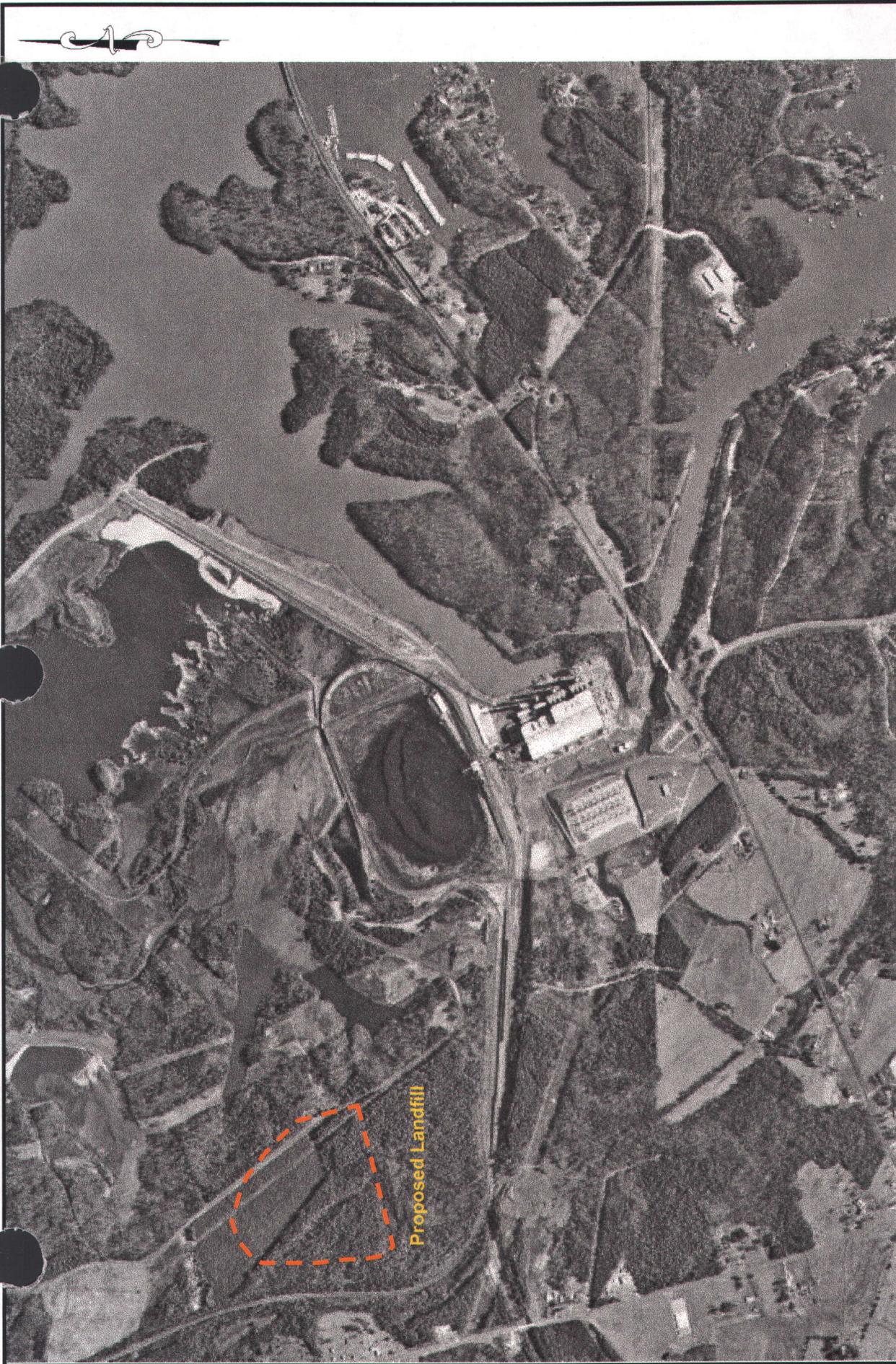
DELORME
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 www.delorme.com

Date: 12/15/04
 Scale: As Shown
 Drawn By: JRP



Well Abandonment Locations
 Marshall Steam Station
 S&ME Project No. 1264-02-578

Figure:
 1



Source: Terraserver, 1993 Aerial (REVISED 10-25-04)		S&ME ENVIRONMENTAL SERVICES • ENGINEERING • TESTING		SITE LOCATION AERIAL Marshall Steam Station - FGD Scrubber Landfill Terrell, Catawba County, North Carolina		FIGURE NO. 2
SCALE:	NTS			JOB NO.	1264-02-578	
CHECKED BY:						
DRAWN BY:	JRP					
DATE:	2/15/03					