GAS MONITORING PROBES

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-1 SHEET 1 of 1

GA INSP. S. NEYSHEHIRLIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 43.4 WATER DEPTH N/A

WEATHER M. SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 45.9 DATE/TIME N/A

TEMP. 90° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 1340/07-19-95 (TIME / DATE) COMPLETED 1430/07-19-95 (TIME / DATE)

LOCATION / COORDINATES N 623065.9 E 456965.8

MATERIALS INVENTORY

WELL CASING 2 in. dia. 7.5 l.f. WELL SCREEN 2 in. dia. 35 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

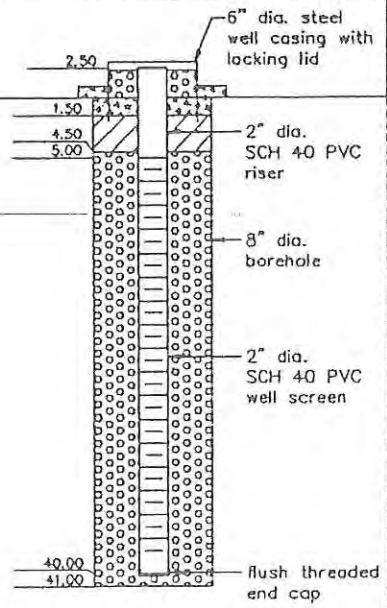
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 65 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-1.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

CEMENT PAD

BENTONITE CHIPS

PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL./DE
PROJECT LOCATION: NEW CASTLE, DE
PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-1

BORING DATE: 07-19-95
BORING LOCATION: N 623065.9 E 456965.8

SHEET: 1 OF 2
DATUM: NGVD

DEPTH BL. FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
0		0.0-0.3 ft. Organic TOPSOIL.			43.40 / 0.30							
		0.3-5.0 ft. Moderate yellowish-brown, fine SAND and SILT.										
5		5.0-6.0 ft. Light brown SILTY CLAY.			38.40 / 5.00	S-1	DO	3,5,5,6	10	18/24		
		6.0-12.0 ft. Dark yellowish-orange, fine to coarse SAND, little fine to medium gravel, trace silt.			37.40 / 6.00							
10						S-2	DO	3,5,6,9	11	14/24		
		12.0-20.0 ft. Dark yellowish-orange and medium grey CLAYEY SILT to SANDY SILT.			31.40 / 12.00							
15						S-3	DO	3,8,7,7	13	20/24		
20	4 1/4" ID H.S.A.	20.0-34.5 ft. Moderate reddish-brown, pinkish-grey, and dark yellowish-brown CLAYEY SILT, trace to some fine sand.			23.40 / 20.00	S-4	DO	5,10,16,18	26	17/24		
25						S-5	DO	3,5,11,16	16	19/24		
30						S-6	DO	6,12,16,13	28	24/24		
35		34.5-37.5 ft. Pale yellowish-brown SILTY SAND.			8.90 / 34.50	S-7	DO	8,14,16,17	30	24/24		
		37.5-41.0 ft. Medium dark grey SILTY CLAY.			5.90 / 37.50							
40					3.40 / 40.00	S-8	DO	7,12,17,22	29	24/24		

STATE OF DELAWARE
MICHAEL [illegible]
NO. [illegible]
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55
DRILLING CONTRACTOR: WALTON CORPORATION

LOGGED: S. NEVSHEHIRLIAN
CHECKED: SN
DATE: 10-02-95

Golder Associates

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-1

BORING DATE: 07-19-95

BORING LOCATION: N 623065.9 E 456965.8

SHEET: 2 OF 2

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					3.40							
40		37.5-41.0 ft. Medium dark grey SILTY CLAY.			40.00 / 2.40	8-8	DO	7,12,17,22	29	24/24		
					41.00							
45												
50												
55												
60												
65												
70												
75												
80												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

LOGGED: S. NEVSHEHIRLIAN

CHECKED: S.N

DATE: 10-02-95

Golder Associates

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-2 SHEET 1 of 1

CA INSP. S. NEYSHEHIRIJAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 51.8 WATER DEPTH N/A

WEATHER M. SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 54.4 DATE/TIME N/A

TEMP. 85° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 0915/07-19-95 (TIME / DATE) COMPLETED 1040/07-19-95 (TIME / DATE)

LOCATION / COORDINATES N 622628.5 E 457162.2

MATERIALS INVENTORY

WELL CASING 2 in. dia. 5.7 l.f. WELL SCREEN 2 in. dia. 40 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

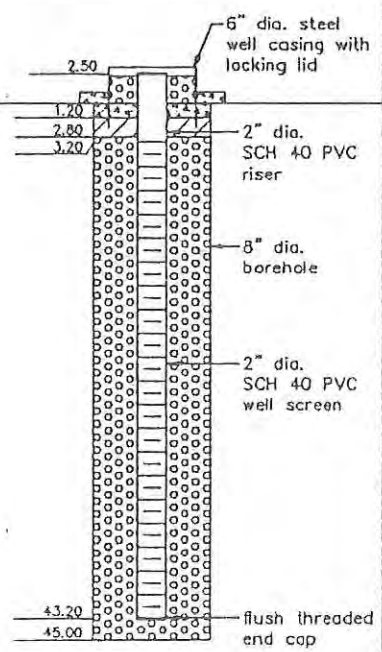
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 90 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-2.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

CEMENT PAD

BENTONITE CHIPS

PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-2

BORING DATE: 07-19-95

BORING LOCATION: N 622628.5 E 457162.2

SHEET: 1 OF 2

DATUM: NGVD

DEPTH BL. FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					51.80							
0	4 1/4" ID H.S.A.	0.0-2.0 ft. Dusky yellowish-brown SILTY CLAY, some fine sand.			0.00 / 49.80							
		2.0-9.0 ft. Dark yellowish-brown, fine SAND and SILT, little fine to medium gravel.			2.00 / 42.80							
5						S-1	DO	6,4,4,4	8	4/24		
		9.0-15.0 ft. Soft, dark grey CLAYEY SILT, some fine sand, trace fine gravel.			9.00 / 38.80							
10						S-2	DO	3,1,2,1	3	2/24		
						S-3	DO	4,3,4,6	7	11/24		
15		15.0-25.0 ft. Dark yellowish-orange, fine to coarse SAND, little to some fine to medium gravel, trace silt.			15.00 / 28.80							
20						S-4	DO	6,8,11,10	19	14/24		
						S-5	DO	5,7,15,13	22	17/24		
25		25.0-27.0 ft. Moderate reddish-brown and dark yellowish-orange, fine to medium SAND and SILT, trace fine gravel.			25.00 / 24.80							
		27.0-45.0 ft. Moderate reddish-brown, light grey, and greyish-pink CLAYEY SILT to SILTY CLAY.			27.00							
30						S-8	DO	3,8,12,15	20	16/24		
35						S-7	DO	5,7,14,18	21	20/24		
					11.80	S-8	DO	5,11,15,16	26	21/24		
40					40.00							

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

LOGGED: S. NEYSHEHIRLIAN

CHECKED: SN

DATE: 10-03-95

Golder Associates

PROJECT: SANIFILL/WELL INSTALL./DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-2

BORING DATE: 07-19-95

BORING LOCATION: N 622628.5 E 457162.2

SHEET: 2 OF 2

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					11.80							
40	4 1/4" ID H.S.A.	27.0-45.0 ft. Moderate reddish-brown, light grey, and greyish pink CLAYEY SILT to SILTY CLAY.			40.00	S-8	DO	5,11,15,18	26	21/24		
						S-9	DO	4,8,13,14	21	24/24		
					8.80							
45		BORING TERMINATED AT 45.0 FT. BELOW GROUND SURFACE.			45.00							
50												
55												
60												
65												
70												
75												
80												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

DRILLER: G. TRUVER

Golder Associates

LOGGED: S. NEVSHEHIRLIAN

CHECKED: SN

DATE: 10-03-95

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-3 SHEET 1 of 1

GA INSP. S. NEVSHEHIRLIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 50.5 WATER DEPTH N/A

WEATHER SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 52.5 DATE/TIME N/A

TEMP. 85° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 1015/07-20-95 (TIME / DATE) COMPLETED 1115/07-20-95 (TIME / DATE)

LOCATION / COORDINATES N 622148.3 E 457227.6

MATERIALS INVENTORY

WELL CASING 2 in. dia. 7.5 l.f. WELL SCREEN 2 in. dia. 35 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

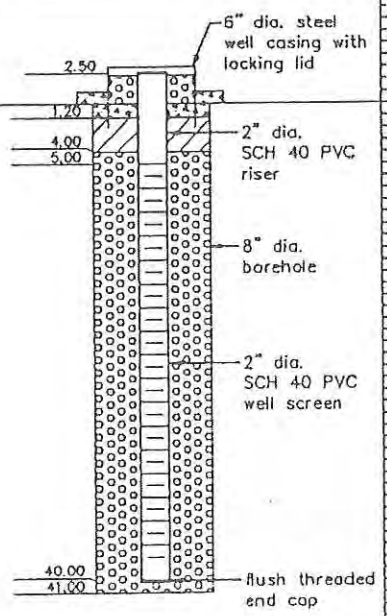
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 85 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-3.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

- CEMENT PAD
- BENTONITE CHIPS
- PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-3

BORING DATE: 07-20-95

BORING LOCATION: N 622148.3 E 457227.6

SHEET: 1 OF 2

DATUM: NGVD

DEPTH BELOW FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					50.50							
0		0.0-0.25 ft. Organic TOPSOIL.			0.25							
		0.25-19.0 ft. Dark yellowish-orange, fine to coarse SAND, some fine to coarse gravel, trace silt and clay.										
5						S-1	DO	11,17,21,23	38	18/24		
10						S-2	DO	13,18,27,40	45	24/24		
15						S-3	DO	17,30,30,18	60	4/24		
20	4 1/4" ID H.S.A.	19.0-22.5 ft. Dark yellowish-orange, fine to coarse SAND, SILT, and CLAY, little fine to medium gravel.				S-4	DO	3,7,11,8	18	12/24		
					28.00							
		22.5-37.5 ft. Moderate reddish-brown, light grey and dark yellowish-orange SILTY CLAY to SANDY SILT.			22.50							
25						S-5	DO	6,8,12,18	20	10/24		
30						S-6	DO	5,10,13,17	23	18/24		
35						S-7	DO	8,11,16,26	27	24/24		
					13.00							
		37.5-41.0 ft. Moderate reddish-brown and dark yellowish-orange fine SAND, some silt, trace mica.			37.50							
					10.50	S-8	DO	27,33,48,59	81	22/24		
40					40.00							

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

LOGGED: S. NEYSHEHRIAN

CHECKED: SN

DATE: 10-02-95

Golder Associates

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-3

BORING DATE: 07-20-95

BORING LOCATION: N 622148.3 E 457227.6

SHEET: 2 OF 2

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					10.50							
40		37.5-41.0 ft. Moderate reddish-brown and dark yellowish-orange fine SAND, some silt, trace mica.			40.00 / 9.50	S-9	DO	27,33,48,59	84	22/24		
		BORING TERMINATED AT 41.0 FT. BELOW GROUND SURFACE.			41.00							
45												
50												
55												
60												
65												
70												
75												
80												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

DRILLER: G. TRUVER

Golder Associates

LOGGED: S. NEYSHEHIPLIAN

CHECKED: SN

DATE: 10-02-95

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-4 SHEET 1 of 1

GA INSP. S. NEVSHEHIRLIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 38.1 WATER DEPTH N/A

WEATHER SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 40.4 DATE/TIME N/A

TEMP. 94° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 1300/07-17-95 (TIME / DATE) COMPLETED 1400/07-17-95 (TIME / DATE)

LOCATION / COORDINATES N 622093.5 E 456821.0

MATERIALS INVENTORY

WELL CASING 2 in. dia. 4.7 l.f. WELL SCREEN 2 in. dia. 25 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

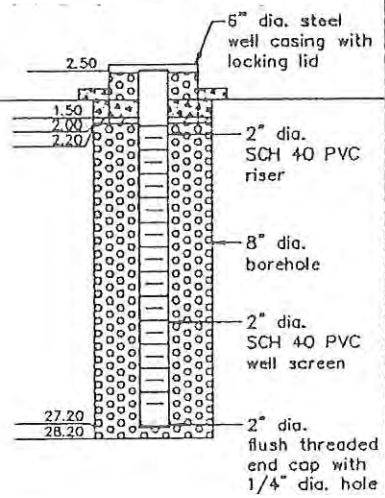
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 50 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-4.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

CEMENT PAD

BENTONITE CHIPS

PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-4

BORING DATE: 07-17-95

BORING LOCATION: N 622093.5 E 456821.0

SHEET: 1 OF 1

DATUM: NGVD

DEPTH - FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					38.10							
0	4 1/4" ID H.S.A.	0.0-4.0 ft. Moderate yellowish-brown CLAYEY SILT and fine SAND.			0.00 / 34.10							
5		4.0-7.5 ft. Dark yellowish-orange, fine to coarse SAND, some fine to medium gravel, trace clay.			4.00 / 30.60	S-1	DO	7,11,14,11	25	13/24		
		7.5-12.5 ft. Wet, dark yellowish-brown CLAYEY SILT, some fine to coarse sand and fine to medium gravel.			7.50 / 25.60							
10						S-2	DO	6,8,8,6	16	5/24		
		12.5-17.5 ft. Saturated, moderate yellowish-brown, fine to coarse SAND, little fine gravel.			12.50 / 20.60							
15						S-3	DO	1,5,6,9	11	5/24		
		17.5-22.5 ft. Moderate reddish-brown SILTY CLAY.			17.50 / 15.60							
20						S-4	DO	2,4,6,6	10	11/24		
		22.5-25.5 ft. Light brownish-grey CLAYEY SILT with very thin black clay laminations, trace mica and fine sand.			22.50 / 12.60							
25						S-5	DO	7,12,17,24	29	19/24		
		25.5-28.2 ft. Pale yellowish-brown, heterogeneous fine SAND and SILTY CLAY, trace mica.			25.50 / 9.90							
						S-6	DO	25,25,26,35	51	24/24		
		BORING TERMINATED AT 28.2 FT. BELOW GROUND SURFACE.			28.20							
30												
35												
40												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

LOGGED: S. NEYSHEHIRLIAN

CHECKED: SN

DATE: 10-03-95

Golder Associates

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-5 SHEET 1 of 1

GA INSP. S. NEVSHEHIRLIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 33.0 WATER DEPTH N/A

WEATHER SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 35.3 DATE/TIME N/A

TEMP. 85° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 0800/07-17-95 (TIME / DATE) COMPLETED 1000/07-17-95 (TIME / DATE)

LOCATION / COORDINATES N 622102.5 E 456381.1

MATERIALS INVENTORY

WELL CASING 2 in. dia. 8.5 l.f. WELL SCREEN 2 in. dia. 25 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

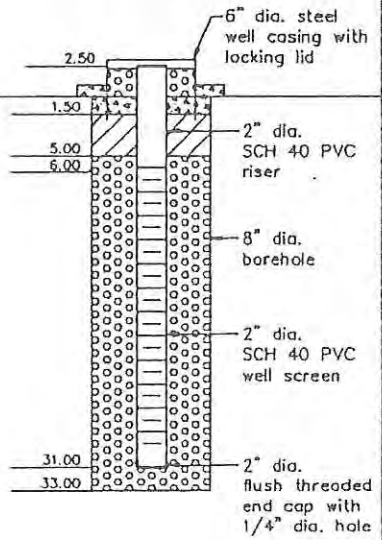
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 65 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-5.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

CEMENT PAD

BENTONITE CHIPS

PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-5

BORING DATE: 07-14-95

BORING LOCATION: N 622102.5 E 456381.1

SHEET: 1 OF 1

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					33.00							
0		0.0-0.4 ft. Light brown organic TOPSOIL with pieces of asphalt.			32.60 / 0.40							
		0.4-3.5 ft. Moderate yellowish-brown, fine to medium SAND, little silt, trace fine gravel.			29.50							
		3.5-8.0 ft. Damp, greyish-brown CLAYEY SILT, some fine sand, little fine to coarse gravel.			3.50	S-1	DO	2,3,3	6	7/18		
5					25.00							
		8.0-13.0 ft. Moderate reddish-brown SILTY CLAY, trace fine sand.			8.00	S-2	DO	2,1,3,5	4	11/24		
10					20.00							
		13.0-17.5 ft. Greyish-pink CLAY with light brown mottles.			13.00	S-3	DO	4,8,13,16	21	12/24		
15	4 1/4" ID H.S.A.				15.50							
		17.5-22.5 ft. Light brown, fine SAND and SILT.			17.50	S-4	DO	7,11,15,19	26	24/24		
20					10.50							
		22.5-25.0 ft. Greyish-pink CLAY.			22.50 / 8.00	S-5	DO	5,8,11,13	19	20/24		
25		25.0-28.0 ft. Moderate brown, fine SAND, little silt.			25.00 / 5.00							
		28.0-33.0 ft. Greyish-brown CLAY, trace fine sand.			28.00 / 0.00	S-6	DO	5,7,10,12	17	24/24		
30												
		BORING TERMINATED AT 33.0 FT. BELOW GROUND SURFACE.			33.00							
35												
40												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

DRILLER: G. TRUVER

Golder Associates

LOGGED: S. NEVSHEHIRLIAN

CHECKED: SN

DATE: 10-02-95

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-6 SHEET 1 of 1

GA INSP. S. NEVSHEHIRLIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 33.8 WATER DEPTH N/A

WEATHER SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 37.5 DATE/TIME N/A

TEMP. 88° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 0905/07-18-95 (TIME / DATE) COMPLETED 1000/07-18-95 (TIME / DATE)

LOCATION / COORDINATES N 622097.9 E 455830.0

MATERIALS INVENTORY

WELL CASING 2 in. dia. 4.5 l.f. WELL SCREEN 2 in. dia. 25 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

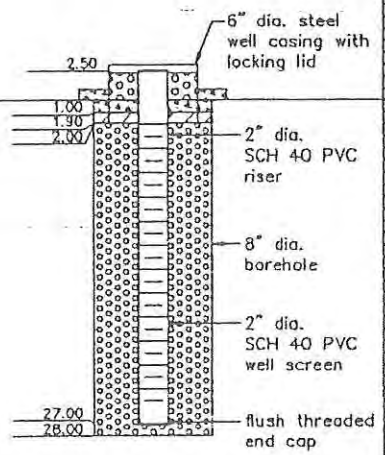
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 55 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-6.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

CEMENT PAD

BENTONITE CHIPS

PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-6

BORING DATE: 07-18-95

BORING LOCATION: N 622097.9 E 455830.0

SHEET: 1 OF 1

DATUM: NGVD

DEPTH FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					33.80							
0	4 1/4" ID H.S.A.	0.0-13.0 ft. Dark yellowish-brown, fine to coarse SAND and CLAYEY SILT, little fine to coarse gravel.			0.00							
5						S-1	DO	2,2,1,2	3	0/24		
10						S-2	DO	4,5,10,10	15	8/24		
					20.80							
		13.0-15.5 ft. Very pale orange, fine SAND, little silt.			13.00							
15					18.30	S-3	DO	8,13,11,13	24	18/24		
		15.5-19.5 ft. Dark yellowish-orange, fine SAND and SILT.			15.50							
					14.30							
20		19.5-27.0 ft. Medium grey SILT to CLAYEY SILT, little fine sand.			19.50	S-4	DO	12,11,12,14	23	14/24		
25						S-5	DO	8,11,17,19	28	19/24		
					8.80	S-6	DO	5,7,12,20	19	24/24		
		27.0-28.0 ft. Pinkish-grey, moderate reddish-brown, and light brown SILTY CLAY.			27.00							
					5.80							
		BORING TERMINATED AT 28.0 FT. BELOW GROUND SURFACE.			28.00							
30												
35												
40												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

DRILLER: G. TRUVER

Golder Associates

LOGGED: S. NEVSHEHIRLIAN

CHECKED: S-N

DATE: 10-02-95

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-7 SHEET 1 of 1

GA INSP. S. NEYSHEHIRIJAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 34.8 WATER DEPTH N/A

WEATHER SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 37.1 DATE/TIME N/A

TEMP. 90° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 1240/07-18-95 (TIME / DATE) COMPLETED 1340/07-18-95 (TIME / DATE)

LOCATION / COORDINATES N 622161.7 E 455319.4

MATERIALS INVENTORY

WELL CASING 2 in. dia. 4.9 l.f. WELL SCREEN 2 in. dia. 25 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

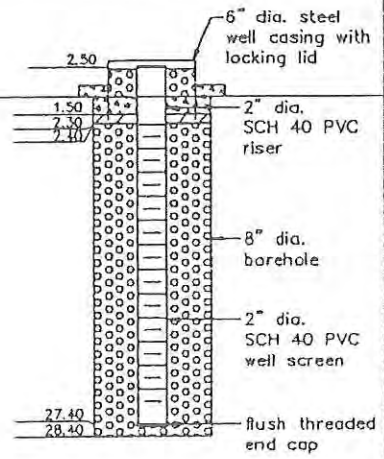
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 55 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-7.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

CEMENT PAD

BENTONITE CHIPS

PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-7

BORING DATE: 07-18-95

BORING LOCATION: N 622161.7 E 455319.4

SHEET: 1 OF 1

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					34.80							
0	4 1/4" ID H.S.A.	0.0-2.0 ft. Moderate brown, fine SAND and SILTY CLAY, trace fine gravel.			0.00 / 32.80							
		2.0-4.5 ft. Dark yellowish-brown, fine to medium SAND, little silt, trace fine gravel.			2.00 / 30.30	S-1	DO	4,4,3,5	7	15/24		
5		4.5-7.0 ft. Moderate yellowish-brown CLAYEY SILT, little fine sand and fine gravel.			4.50 / 27.80							
		7.0-13.0 ft. Dark yellowish-orange, fine to coarse SAND, some fine to coarse gravel, trace clay.			7.00 / 21.80	S-2	DO	6,12,11,13	23	19/24		
10												
		13.0-28.0 ft. Moderate reddish-brown, pinkish-grey, and light brown CLAY to CLAYEY SILT with occasional fine sand and silt lenses.			13.00 / 8.80	S-3	DO	5,8,15,21	23	18/24		
15												
20						S-4	DO	7,11,18,22	29	18/24		
25						S-5	DO	6,12,16,21	28	18/24		
						S-6	DO	6,8,13,18	21	24/24		
		BORING TERMINATED AT 28.0 FT. BELOW GROUND SURFACE.			28.00							
30												
35												
40												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

DRILLER: G. TRUVER

Golder Associates

LOGGED: B. NEYSHEHIRIJAN

CHECKED: S.J.

DATE: 10-02-95

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-8 SHEET 1 of 1

GA INSP. S. NEVSHEHIRLIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 30.4 WATER DEPTH N/A

WEATHER SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 32.7 DATE/TIME N/A

TEMP. 92° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 1430/07-24-95 (TIME / DATE) COMPLETED 1535/07-24-95 (TIME / DATE)

LOCATION / COORDINATES N 622701.6 E 455279.5

MATERIALS INVENTORY

WELL CASING 2 in. dia. 5.5 l.f. WELL SCREEN 2 in. dia. 25 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

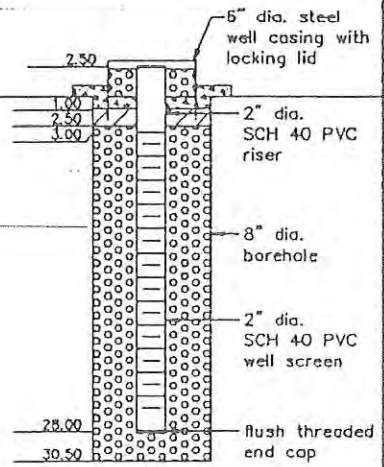
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 70 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-8.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

CEMENT PAD

BENTONITE CHIPS

PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-8

BORING DATE: 07-24-95

BORING LOCATION: N 622701.6 E 455279.5

SHEET: 1 OF 1

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					30.40							
0		0.0-0.25 ft. Light brown organic TOPSOIL.			0.25							
		0.25-7.0 ft. Soft, light brown CLAY, some fine to coarse sand, little fine to coarse gravel.										
						S-1	DO	1,2,2,3	4	13/24		
5												
					23.40							
		7.0-12.0 ft. Dark yellowish-orange, fine SANDY CLAY.			7.00							
						S-2	DO	10,7,7,7	14	17/24		
10												
					18.40							
		12.0-14.5 ft. Moderate reddish-brown SILTY CLAY, some fine to coarse gravel.			12.00							
					15.90	S-3	DO	7,6,9,11	15	8/24		
		14.5-17.0 ft. Dark yellowish-orange CLAYEY SILT, little fine sand.			14.50							
15	4 1/4" ID H.S.A.				13.40							
		17.0-30.5 ft. Medium grey to brownish-grey CLAY to fine SANDY CLAY.			17.00							
						S-4	DO	8,9,12,15	21	24/24		
20												
						S-5	DO	5,7,11,11	18	24/24		
25												
						S-6	DO	5,9,11,17	20	24/24		
30					-0.10							
		BORING TERMINATED AT 30.5 FT. BELOW GROUND SURFACE.			30.50							
35												
40												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

DRILLER: G. TRUVER

Golder Associates

LOGGED: B. NEVSHEHIRLIAN

CHECKED: SAJ

DATE: 10-02-95

URS Greiner Woodward Clyde

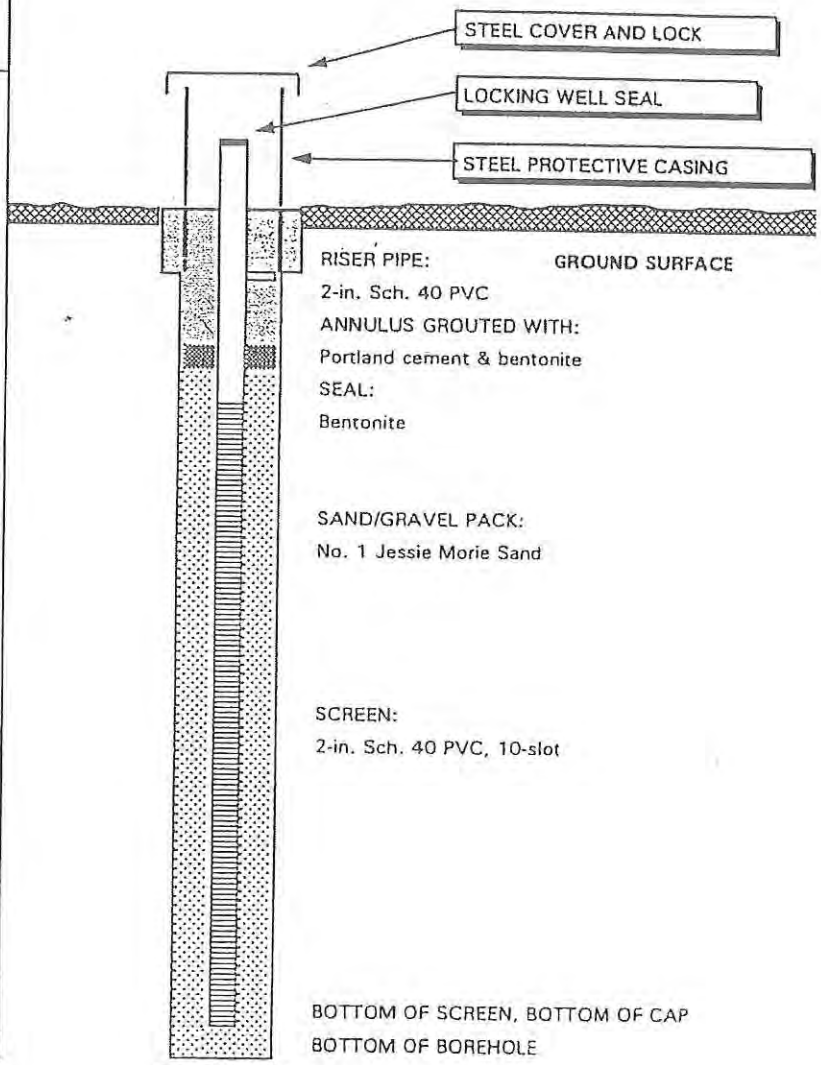
CONSTRUCTION OF WELL NO. GP-11

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062		*DNREC well permit No.* 162036	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.		*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 34.6 ft
Date and time of completion 12-9-98		*Northing* 624070.1	*Top of protective steel casing elevation* NA
Inspector G. Riehle		*Easting* 455159.3	*Top of riser pipe elevation* 36.94 ft

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP-11

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A		
B	36.94	
C	34.6	0
D	32.6	2.0
E	28.6	6.0
F	28.1	6.5
G	27.6	7.0
H	-2.4	37.0
I	-3.4	38.0



DIAMETER OF BOREHOLE: 8 in.

STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

REMARKS (Installation, development) :

4.25 inch ID Hollow Stem Auger

s:\GEOTECH\DRPI\8E02062\wellsch\susch

URS Greiner Woodward Clyde

LOG OF BORING GP-11

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 12/9/98	DATE COMPLETED: 12/9/98
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAneny	GROUND ELEVATION (FT. MSL): 34,6	WATER DEPTH (FT BGS): 28
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 38'	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS: DIST. Cont.	UNDIST NA
CASING HAMMER: WEIGHT NA	DROP NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-11	
SAMPLER HAMMER: WEIGHT 140#	DROP 30-in.	INSPECTOR: Gary Riehle	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in		REMARKS
		- 0 -					
Dense; dry-moist; brown-dark brown GRAVEL (fill) and silty fine-coarse SAND (GP)				16			
		- 1 -			46		
		- 2 -		4			
Very dense; dry; brown-dark brown fine-coarse GRAVEL and light brown silty fine-coarse SAND (SP-GP)							
		- 3 -			74		
		- 4 -					
Loose; dry; brown silty fine-coarse SAND with black ashen fill debris				8			
		- 5 -			8		
		- 6 -					
Loose; dry; black silty fine-coarse SAND with little fine gravel within ashen (burnt) fill debris - fill: wood, metal shards				4			
		- 7 -			2		
		- 8 -					
Loose; dry; gray-dark gray SILT with little-some fine-medium sand (ML-SM)				16			
		- 9 -			11		
		- 10 -					

STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

URS Greiner Woodward Clyde

LOG OF BORING GP-11

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in		REMARKS
Loose; dry; gray-dark gray with few areas of light brown silty fine-coarse SAND with trace fine-medium gravel - little fill debris - wood (SM) - fill		- -		8			
		- 11 -			8		
		- -					
		- 12 -					
Loose-soft; dry-moist; light brown silty SAND with little fine-coarse gravel and little fill debris (metal shards) (SM) - fill		- -		6			
		- 13 -			11		
		- -					
		- 14 -					
Loose; dry; light brown - light orange brown fine-coarse SAND with little silt and fine-medium gravel (SP)		- -		12			
		- 15 -			12		
		- -					
		- 16 -					
Loose; moist; light orange brown with red SILT with little fine-medium sand, trace fine gravel and clay (ML)		- -		14			
		- 17 -			11		
		- -					
		- 18 -					
Loose; moist-wet; interseamed light orange brown and reddish brown interseamed fine-coarse SAND, SILT with trace clay, and silty SAND with trace medium gravel (SM-SP-ML)		- -		14			
		- 19 -			12		
		- -					
		- 20 -					
20-21': Medium stiff; dry-moist; red CLAY; medium plasticity (CH)		- -		14			
		- 21 -			16		
21-22': Medium dense; moist; light and dark orange brown with gray seams clayey SILT with few thin seams of silty fine-medium SAND with trace clay (ML-SM)		- -					
		- 22 -					
Very stiff; dry; gray-dark gray CLAY with few thin lenses with trace silt; medium-high plasticity (CH)		- -		14			
		- 23 -			19		
		- -					
		- 24 -					

URS Greiner Woodward Clyde

LOG OF BORING GP-11

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Level	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in	Samples:	REMARKS
Stiff; dry-moist; dark gray CLAY; medium-high plasticity (CH) with few 2" lenses of light gray, wet, silty fine SAND (SM)				18			
		25			12		
		26					
Very stiff; moist-dry; dark gray CLAY (CH) with few very thin lenses of light gray silty fine SAND (SM)				14			
		27			21		
		28					
Becoming stiff with silty fine-coarse SAND lenses - sand seams wet				14			
		29			17		
		30					
Very stiff; moist-dry; gray-light gray CLAY; medium-high plasticity (CH) with interseamed 1-2" seams of light gray clayey fine-coarse SAND (SC) and fine-coarse SAND (SP) - sand seams wet				18			
		31			21		
		32					
Same as above.				18			
		33			33		
		34					
Very stiff; dry-moist; light gray CLAY; high plasticity (CH) with few very thin 0.25-0.5" thin seams of clayey fine-coarse sand and very few very thin seams of fine-coarse sand				18			
		35			18		
		36					
Very stiff; dry-moist; red with light gray seams CLAY; high plasticity (CH)				20			
		37			25		
End of Boring @ 38'		38					

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-12 SHEET 1 of 1

GA INSP. S. NEVSHEHIRLIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 23.0 WATER DEPTH N/A

WEATHER SUNNY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 25.1 DATE/TIME N/A

TEMP. 90° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 1020/07-25-95 (TIME / DATE) COMPLETED 1110/07-25-95 (TIME / DATE)

LOCATION / COORDINATES N 624542.3 E 455137.4

MATERIALS INVENTORY

WELL CASING 2 in. dia. 5.5 l.f. WELL SCREEN 2 in. dia. 20 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

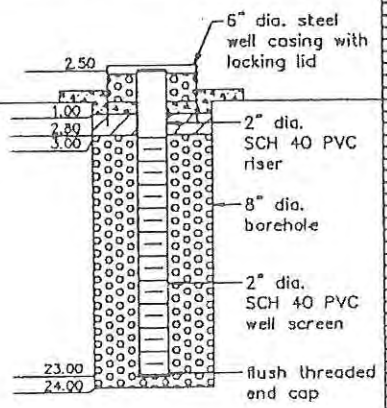
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 50 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-12.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

- CEMENT PAD
- BENTONITE CHIPS
- PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE
PROJECT LOCATION: NEW CASTLE, DE
PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-12

BORING DATE: 07-25-95
BORING LOCATION: N 624542.3 E 455137.4

SHEET: 1 OF 1
DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					23.00							
0	4 1/4" ID H.S.A.	0.0-0.3 ft. Organic TOPSOIL and roots.			0.30							
		0.3-7.5 ft. Moderate yellowish-orange, micaceous, fine to coarse SAND and SILTY CLAY, some fine to coarse gravel. (moist)										
5						S-1	DO	3,2,3,4	5	14/24		
					15.50							
		7.5-13.5 ft. Dark grey SILT to CLAYEY SILT, little fine to medium sand, trace wood. (roots?)			7.50							
10						S-2	DO	WOR,1,1,2	2	5/24		
					9.50							
		13.5-15.5 ft. Light bluish-grey and light olive-grey, fine SAND, SILT, and CLAY.			13.50							
15					7.50	S-3	DO	4,7,12,15	19	24/24		
		15.5-18.0 ft. Light brown, fine SAND and SILT.			18.50							
					5.00							
		18.0-22.5 ft. Medium grey, fine to medium SAND and SILT.			18.00							
20						S-4	DO	3,5,4,6	9	20/24		
					0.50							
		22.5-26.0 ft. Moderate red CLAY, trace coarse sand.			22.50							
25						S-5	DO	3,3,6,9	9	8/24		
					-3.00							
		BORING TERMINATED AT 26.0 FT. BELOW GROUND SURFACE.			26.00							
30												
35												
40												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55
DRILLING CONTRACTOR: WALTON CORPORATION

LOGGED: S. NEYSHEHIPLIAN
CHECKED: SN
DATE: 10-03-95

Golder Associates

URS Greiner Woodward Clyde

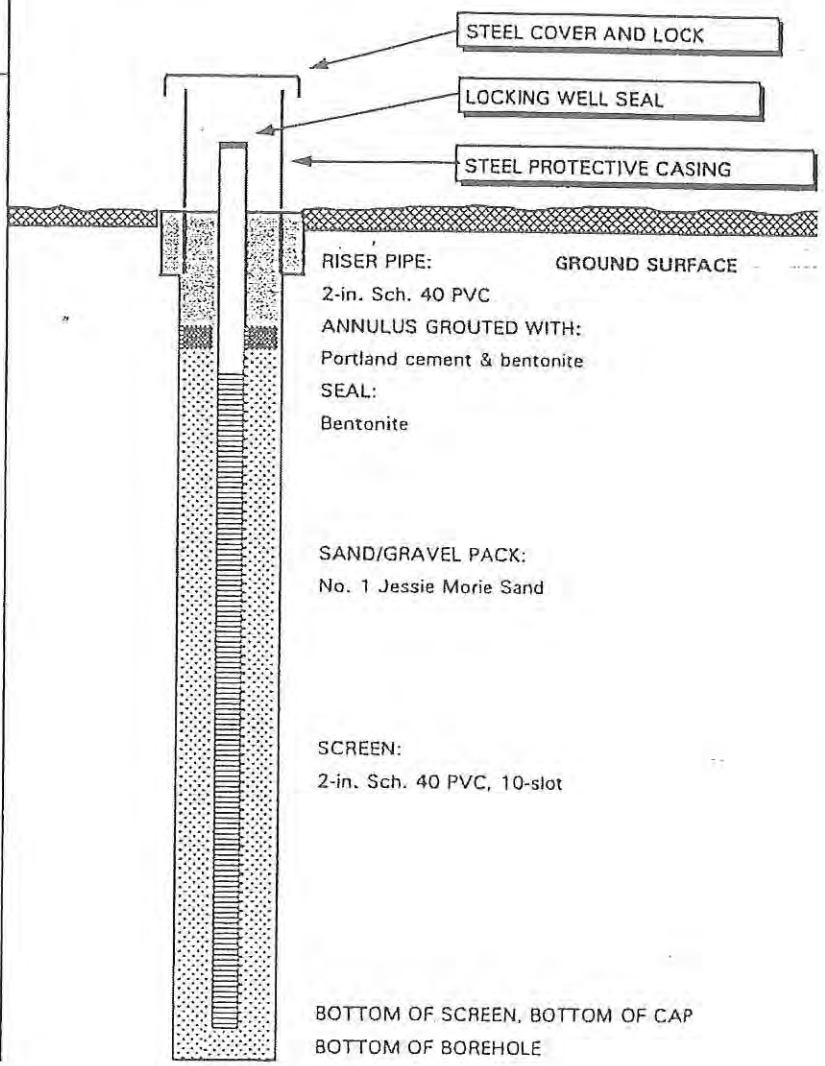
CONSTRUCTION OF WELL NO. GP-13

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062		*DNREC well permit No.* 162037	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.		*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 26.9 ft
Date and time of completion 12-8-98		*Northing* 624617.7	*Top of protective steel casing elevation* NA
Inspector G. Riehle		*Easting* 455607	*Top of riser pipe elevation* 30.08 ft

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP-13

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A		
B	30.08	
C	26.9	0
D	24.9	2.0
E	24.9	2.0
F	24.4	2.5
G	23.9	3.0
H	-1.1	28.0
I	-1.6	28.5



STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

REMARKS (Installation, development) :

4.25 inch ID Hollow Stem Auger

s:\GEOTECH\DRPI\8E02062\wellsch\susch

URS Greiner Woodward Clyde

LOG OF BORING GP-13

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 12/7/98	DATE COMPLETED: 12/8/98
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAnany	GROUND ELEVATION (FT. MSL): 26.9	WATER DEPTH (FT BGS): 20
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 28.5'	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS: DIST. Cont.	UNDIST NA
CASING HAMMER: WEIGHT NA	DROP NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-13	
SAMPLER HAMMER: WEIGHT 140#	DROP 30-in.	INSPECTOR: Gary Riehle	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Rock Water	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in		REMARKS
		- 0 -					
0-1': Medium dense; dry; grayish brown silty fine-coarse SAND with little medium gravel - road bed				18			
		- 1 -			20		
1-2': Medium dense-medium stiff; dry; dark orange brown SILT with little fine sand with interseamed gray and white clay; (SM)							
		- 2 -					
Medium dense; dry; brown-light orange brown SILT with little fine-coarse sand and little medium-coarse gravel - thin 5" seam of grayish brown silt with few organics (SM)				20			
		- 3 -			17		
		- 4 -					
Very dense; dry; orange-brown silty fine-corase SAND with little fine-corase gravel (SP)				16			
		- 5 -			60		
		- 6 -					
6-7': becoming dense				18			
		- 7 -			17		
7-8': Very stiff; dry-moist; red CLAY; medium plasticity (CH)							
		- 8 -					
Stiff; dry; orange brown and red CLAY with little silt lenses; medium to high plasticity (CH)				14			
		- 9 -			27		
		- 10 -					

STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

URS Greiner Woodward Clyde

LOG OF BORING GP-13

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in	Samples:	REMARKS
Stiff; dry; red CLAY with few thin seams orange-brown silt; medium plasticity (CH)				14			
		11			15		
		12					
12-12.5': Same as above.				14			
12.5-14': Medium dense; dry; red with gray and orange-brown seams silty fine SAND (SM)		13			21		
		14					
Medium dense; dry; orange brown and red fine sandy SILT with trace clay (ML)				14			
		15			15		
		16					
Medium dense; dry to moist; red with light gray and orange brown seams SILT with little clay (ML-MH)				16			
		17			19		
		18					
Medium dense; dry; light orange-brown to light brown silty fine-medium SAND (SM)				18			
		19			17		
		20					
Medium dense; dry with wet seams; light orange brown with light brown and light gray seams interspersed SILT and silty fine-medium SAND (ML-SM)				18			
		21			15		
		22					
Same as above				16			
		23			16		
		24					

URS Greiner Woodward Clyde

LOG OF BORING GP-13

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples Recov. (in)	Samples Penetr. Resist. BL/12in		REMARKS
Loose; moist light brown to light orange-brown silty fine to medium SAND (SM)				16			
		- 25 -			12		
		- 26 -					
26-27': Same as aove, moist to wet				18			
		- 27 -			15		
27'-28': Medium dense; dry; light orange brown - light brown SILT with thin seams of silty fine SAND (ML-SM)							
		- 28 -					
End of Boring @ 28.5'							
		- 29 -					
		- 30 -					
		- 31 -					
		- 32 -					
		- 33 -					
		- 34 -					
		- 35 -					
		- 36 -					
		- 37 -					
		- 38 -					

URS Greiner Woodward Clyde

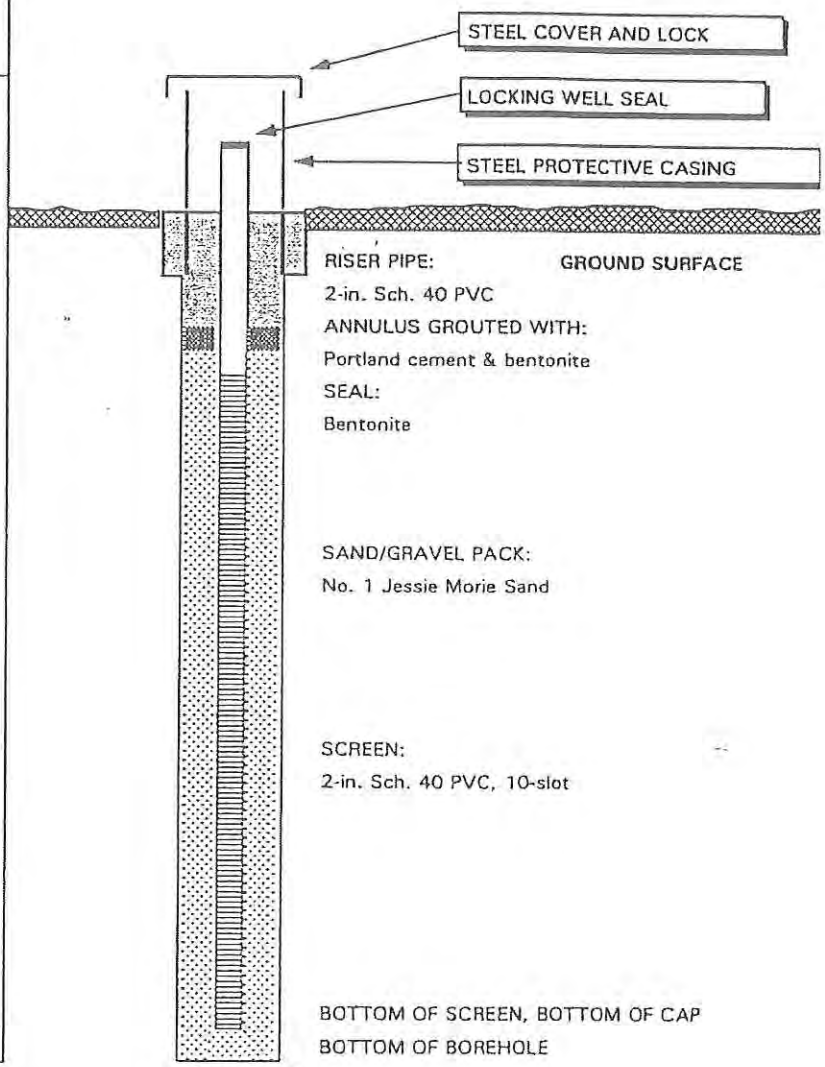
CONSTRUCTION OF WELL NO. GP-14

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062	*DNREC well permit No.* 162038	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.	*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 23.9 ft
Date and time of completion 12-8-98	*Northing* 624705.8	*Top of protective steel casing elevation* NA
Inspector G. Riehle	*Easting* 455987.7	*Top of riser pipe elevation* 26.88 ft

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP-14

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A		
B	26.88	
C	23.9	0
D	21.9	2.0
E	21.4	2.5
F	20.9	3.0
G	19.9	4.0
H	-0.1	24.0
I	-0.6	24.5



RISER PIPE:
2-in. Sch. 40 PVC

ANNULUS GROUTED WITH:
Portland cement & bentonite

SEAL:
Bentonite

SAND/GRAVEL PACK:
No. 1 Jessie Morie Sand

SCREEN:
2-in. Sch. 40 PVC, 10-slot

BOTTOM OF SCREEN, BOTTOM OF CAP
BOTTOM OF BOREHOLE

DIAMETER OF BOREHOLE: 8 in.

STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

REMARKS (Installation, development) :

4.25 inch ID Hollow Stem Auger

URS Greiner Woodward Clyde

LOG OF BORING GP-14

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 12/8/98	DATE COMPLETED: 12/8/98
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAneny	GROUND ELEVATION (FT. MSL): 23.9	WATER DEPTH (FT BGS):
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 24.5'	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS: DIST. Cont.	UNDIST NA
CASING HAMMER: WEIGHT NA	DROP NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-14	
SAMPLER HAMMER: WEIGHT 140#	DROP 30-in.	INSPECTOR: Gary Riehle	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in		REMARKS
Loose; dry; dark brown becoming light orange brown silty fine-coarse SAND grading to fine sandy SILT with trace-little fine-medium gravel (SM-SP)		0		14			
		1			10		
		2					
Gravel and brown silty fine-coarse SAND - fill				2			
		3			23		
		4					
Loose; dry-moist; red and dark orange brown SILT with little fine-medium sand and trace clay (ML)				14			
		5			11		
		6					
Stiff; dry; red with white seamed CLAY with seams of trace silt; medium plasticity (CL)				16			
		7			16		
		8					
Medium dense; dry; reddish and orange brown silty fine-medium SAND (SM)				14			
		9			20		
		10					

STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

URS Greiner Woodward Clyde

LOG OF BORING GP-14

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples Recov. (in)	Samples Penetr. Resist. BL/12in		REMARKS
Medium dense; dry; light orange brown, light brown, and light grayish brown interseamed silty fine-medium SAND and SILT with thin lenses with trace CLAY (SM-ML)				16			
		11			15		
		12					
Medium dense; dry; light gray and orange brown interseamed SILT and silty fine-medium SAND (ML-SM)				14			
		13			17		
		14					
Loose; moist-wet; light gray and light orange brown fine-coarse SAND with seams of silty fine-medium SAND (SP-SM)				18			
		15			10		
		16					
16-17': Medium dense; wet; light gray fine-coarse SAND with little silt (SP)				18			
		17			15		
17-18': becoming light gray and light orange brown SILT with trace-little fine sand and trace clay (ML)							
		18					
Medium dense; dry; gray interseamed SILT, silt with trace-little clay and fine sandy silt (ML-MH)				16			
		19			13		
		20					
Medium dense; dry; gray with few thin orange brown seams interseamed SILT and fine-medium SAND and few areas with silt with trace clay (ML-SP)				12			
		21			15		
		22					
Stiff; dry-moist; gray-dark gray CLAY with few thin lenses CLAY with little silt to fine sand; medium to high plasticicty (CH)				18			
		23			16		
		24					

URS Greiner Woodward Clyde

LOG OF BORING GP-14

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Level	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in		REMARKS
End of Boring @ 24.5'							
		- 25 -					
		- -					
		- 26 -					
		- -					
		- 27 -					
		- -					
		- 28 -					
		- -					
		- 29 -					
		- -					
		- 30 -					
		- -					
		- 31 -					
		- -					
		- 32 -					
		- -					
		- 33 -					
		- -					
		- 34 -					
		- -					
		- 35 -					
		- -					
		- 36 -					
		- -					
		- 37 -					
		- -					
		- 38 -					

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-15 SHEET 1 of 1

GA INSP. S. NEYSHEHIRUAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 27.7 WATER DEPTH N/A

WEATHER M. CLOUDY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 29.7 DATE/TIME N/A

TEMP. 88° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 0800/07-21-95 (TIME / DATE) COMPLETED 0850/07-21-95 (TIME / DATE)

LOCATION / COORDINATES N 624241.8 E 456296.3

MATERIALS INVENTORY

WELL CASING 2 in. dia. 5.5 l.f. WELL SCREEN 2 in. dia. 20 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

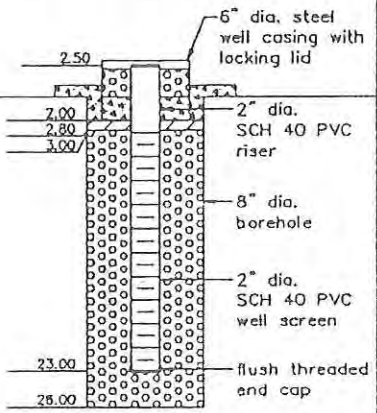
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 55 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-15.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

- CEMENT PAD
- BENTONITE CHIPS
- PEA GRAVEL

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-5277

RECORD OF BOREHOLE GP-15

BORING DATE: 07-20-95

BORING LOCATION: N 624241.8 E 458298.3

SHEET: 1 OF 1

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					27.70							
0	4 1/4" ID H.S.A.	0.0-8.0 ft. Moderate yellowish-brown to dark yellowish-brown, fine to medium SAND and SILT, little fine to medium gravel. (FILL?)			0.00							
5						S-1	DO	4,5,11,10	16	18/24		
					19.70							
		8.0-12.0 ft. Greyish-brown, fine to medium SAND and SILT with occasional wood fragments. (FILL?)			8.00							
10						S-2	DO	1,3,3,5	6	14/24		
					15.70							
		12.0-22.5 ft. Dark yellowish-orange, moderate reddish-brown, and light grey, fine SAND, SILT, and CLAY.			12.00							
15						S-3	DO	5,6,7,7	13	8/24		
20						S-4	DO	2,3,6,9	9	17/24		
					5.20							
		22.5-26.0 ft. Light brownish-grey, fine SAND and SILT, trace mica.			22.50							
25						S-5	DO	4,6,7,8	13	18/24		
					1.70							
		BORING TERMINATED AT 26.0 FT. BELOW GROUND SURFACE.			26.00							
30												
35												
40												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

DRILLER: G. TRUVER

Golder Associates

LOGGED: S. NEYSHEHRIAN

CHECKED: SN

DATE: 10-03-95

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-16 SHEET 1 of 1

GA INSP. S. NEYSHEHIRIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 37.8 WATER DEPTH N/A

WEATHER SUNNY, HUMID DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 40.1 DATE/TIME N/A

TEMP. 92° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 1030/07-24-95 (TIME / DATE) COMPLETED 1140/07-24-95 (TIME / DATE)

LOCATION / COORDINATES N 623913.6 E 456533.8

MATERIALS INVENTORY

WELL CASING 2 in. dia. 6.5 l.f. WELL SCREEN 2 in. dia. 40 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

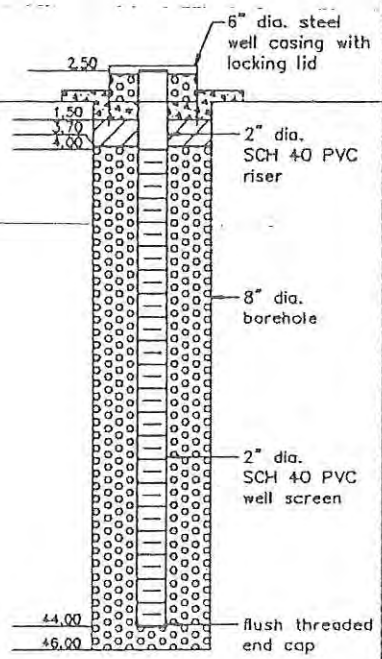
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 95 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-16.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

CEMENT PAD

BENTONITE CHIPS

PEA GRAVEL

PROJECT: BANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-16

BORING DATE: 07-24-95

BORING LOCATION: N 623913.6 E 456533.8

SHEET: 1 OF 2

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					37.80							
0		0.0-0.3 ft. CONCRETE fill			0.30							
		0.3-5.0 ft. Dark yellowish-brown, fine SAND and CLAYEY SILT, little gravel.			32.80	S-1	DO	10,7,10,10	17	18/24		
5		5.0-7.5 ft. Moderate yellowish-brown, fine to coarse SAND, some silt and clay, little fine to medium gravel.			5.00 / 30.30							
		7.5-12.5 ft. Dark yellowish-orange SILTY CLAY to CLAY.			7.50	S-2	DO	5,7,9,12	16	22/24		
10					25.30							
	4 1/4" ID H.S.A.	12.5-22.5 ft. Moderate reddish-brown, pale red, and light grey CLAY to CLAYEY SILT, trace fine sand.			12.50	S-3	DO	3,7,10,11	17	24/24		
15												
20						S-4	DO	4,9,15,18	24	24/24		
		22.5-25.0 ft. Moist, dark yellowish-brown SILT, some fine sand.			15.30 / 22.50							
25		25.0-32.5 ft. Medium grey CLAYEY SILT and fine SAND.			12.80 / 25.00	S-5	DO	3,3,5,8	8	24/24		
30						S-6	DO	3,6,8,11	14	24/24		
		32.5-46.0 ft. Light to moderate grey and moderate red SILTY CLAY, trace fine sand.			6.30 / 32.50							
35						S-7	DO	8,9,11,13	20	24/24		
					-2.20	S-8	DO	4,10,12,19	22	24/24		
40					40.00							

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

Golder Associates

LOGGED: S. NEVSHEHRLIAN

CHECKED: S.N

DATE: 10-03-95

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-16

BORING DATE: 07-24-95

BORING LOCATION: N 623913.6 E 456533.8

SHEET: 2 OF 2

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					-2.20							
40	4 1/4" ID H.S.A.	32.5-46.0 ft. Light to moderate grey and moderate red SILTY CLAY, trace fine sand.			40.00	S-8	DO	4,10,12,19	22	24/24		
45						S-9	DO	5,6,11,15	19	24/24		
		BORING TERMINATED AT 46.0 FT. BELOW GROUND SURFACE.			-8.20 / 48.00							
50												
55												
60												
65												
70												
75												
80												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

DRILLER: G. TRUVER

Golder Associates

LOGGED: S. NEYSHEHRIAN

CHECKED: SW

DATE: 10-03-95

MONITORING WELL INSTALLATION LOG

JOB NO. 953-6277 PROJECT SANIFILL/WELL INSTALLATION/DE WELL NO. GP-17 SHEET 1 of 1

GA INSP. S. NEVSHEHIRLIAN DRILLING METHOD 4 1/4" ID HOLLOW STEM AUGER GROUND ELEV. 39.2 WATER DEPTH N/A

WEATHER M. CLOUDY DRILLING COMPANY WALTON CORPORATION COLLAR ELEV. 41.3 DATE/TIME N/A

TEMP. 88° F DRILL RIG CME 55 DRILLER G. TRUVER STARTED 1230/07-21-95 (TIME / DATE) COMPLETED 1400/07-21-95 (TIME / DATE)

LOCATION / COORDINATES N 623554.5 E 456817.9

MATERIALS INVENTORY

WELL CASING 2 in. dia. 6.7 l.f. WELL SCREEN 2 in. dia. 35 l.f. BENTONITE SEAL BENTONITE CHIPS

CASING TYPE SCH 40 PVC SCREEN TYPE SCH 40 PVC INSTALLATION METHOD GRAVITY

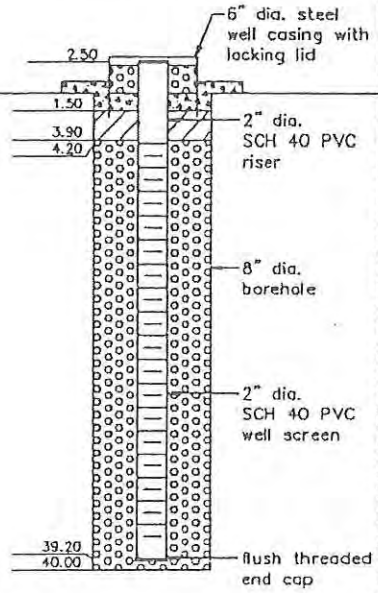
JOINT TYPE FLUSH THREADED SLOT SIZE 0.040" MACHINE SLOTTED FILTER PACK QTY. 85 GALLONS

GROUT QUANTITY N/A CENTRALIZERS NONE USED FILTER PACK TYPE PEA GRAVEL

GROUT TYPE N/A DRILLING MUD TYPE N/A INSTALLATION METHOD GRAVITY

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
	GROUND SURFACE
0.00	For lithologic description, see boring log GP-17.
10.00	
20.00	
30.00	
40.00	
50.00	
60.00	
70.00	
80.00	
90.00	
100.00	
110.00	

WELL SKETCH



STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

INSTALLATION NOTES

WELL DEVELOPMENT NOTES

Gas probe not developed.

REVISED 10-03-95

LEGEND

- CEMENT PAD
- BENTONITE CHIPS
- PEA GRAVEL

PROJECT: BANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-17

BORING DATE: 07-21-95

BORING LOCATION: N 623554.5 E 456817.9

SHEET: 1 OF 2

DATUM: NGVD

DEPTH SCALE FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
0	4 1/4" ID H.S.A.	0.0-0.3 ft. Organic TOPSOIL.			39.20							
		0.3-7.5 ft. Moderate yellowish-brown, fine to coarse SAND and SILTY CLAY, trace to little fine to medium gravel.			0.30							
5						S-1	DO	14,16,8,9	24	11/24		
					31.70							
		7.5-12.0 ft. Dark yellowish-brown, fine to coarse SAND, little fine to coarse gravel and silty clay.			7.50							
10						S-2	DO	4,8,6,6	14	8/24		
					27.20							
		12.0-29.1 ft. Moderate reddish-brown, dark yellowish-orange, and medium grey CLAY to SILTY CLAY.			12.00							
15						S-3	DO	5,7,11,13	18	16/24		
20						S-4	DO	6,12,14,16	26	22/24		
25						S-5	DO	4,6,10,11	16	24/24		
					10.10							
		29.1-35.5 ft. Medium light grey, fine SAND and SILTY CLAY.			29.10							
30						S-6	DO	8,12,15,16	27	24/24		
35					3.70	S-7	DO	9,13,15,21	28	24/24		
		35.5-41.0 ft. Multi-colored CLAY to SILTY CLAY, little fine sand.			35.50							
					-0.80	S-8	DO	10,15,24,29	39	24/24		
40					40.00							

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

LOGGED: S. NEVSHEHIRLIAN

CHECKED: SN

PROJECT: SANIFILL/WELL INSTALL/DE

PROJECT LOCATION: NEW CASTLE, DE

PROJECT NUMBER: 953-6277

RECORD OF BOREHOLE GP-17

BORING DATE: 07-21-95

BORING LOCATION: N 623554.5 E 456817.9

SHEET: 2 OF 2

DATUM: NGVD

DEPTH, FEET	BORING METHOD	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV / DEPTH	SAMPLES: NUMBER	TYPE	BLOWS / 6 in	N	REC/ATT	REMARKS	PIEZOMETER OR STANDPIPE INSTALLATION
					-0.80							
40		35.5-41.0 ft. Multi-colored CLAY to SILTY CLAY, little fine sand.			40.00 -1.80	S-8	DO	10,16,24,29	39	24/24		
		BORING TERMINATED AT 41.0 FT. BELOW GROUND SURFACE.			41.00							
45												
50												
55												
60												
65												
70												
75												
80												

STATE OF DELAWARE
MICHAEL McNEE MORRIS
NO. 510
REGISTERED PROFESSIONAL GEOLOGIST

DRILL RIG: CME 55

DRILLING CONTRACTOR: WALTON CORPORATION

LOGGED: S. NEYSHEHPUAN

CHECKED: S-J

DATE: 10-03-95

URS

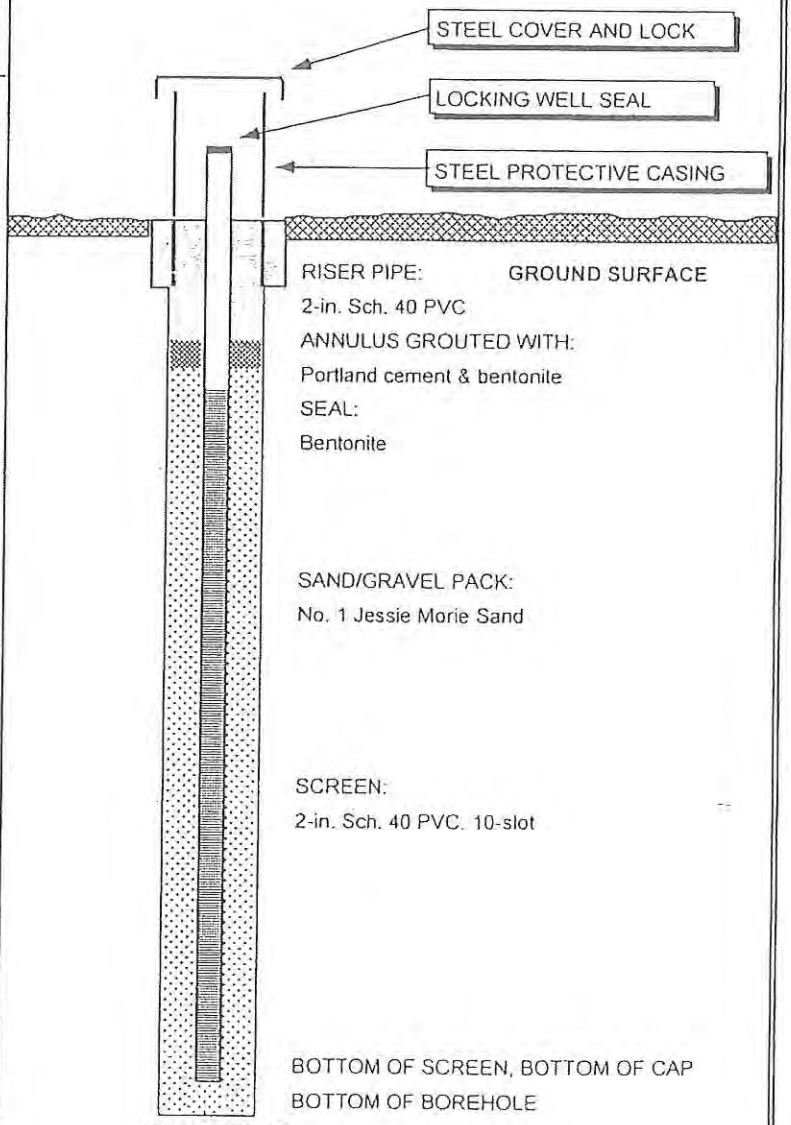
CONSTRUCTION OF WELL NO. GP-5-1

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062	*DNREC well permit No.* 171369-W	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.	*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 33.5 ft
Date and time of completion 4-18-00	*Northing* 622019	*Top of protective steel casing elevation* 36.55 ft
Inspector V. Troilo	*Easting* 454909.1	*Top of riser pipe elevation* 36.19 ft

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP-14

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A	36.55	
B	36.19	
C	33.5	0
D		
E	31.0	2.5
F	30.5	3.0
G	30.0	3.5
H	4.0	29.5
I	1.5	32.0



DIAMETER OF BOREHOLE: 8 in.

REMARKS (Installation, development)

4.25 inch ID Hollow Stem Auger

URS

LOG OF BORING GP-5-1

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 4/18/00	DATE COMPLETED: 4/18/00
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAneny	GROUND ELEVATION (FT. MSL): 33.5	WATER DEPTH (FT BGS): 3.55
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 32	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS. DIST. Cont. UNDIST	
CASING HAMMER: WEIGHT NA	DROP NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-5-1, 25 feet south of layout	
SAMPLER HAMMER: WEIGHT 140#	DROP 30-in.	INSPECTOR: Vince Troilo	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Level	Samples: Recov. (in)	Samples: Penetr. Resist. BL/ft		REMARKS
No Recovery		0		NR	50/0"		Refusal, Augered to 2'
		1					
Firm gray sandy clayey SILT		2		6			
		3			8		
Stiff gray and red-brown sandy lean CLAY		4		9			
		5			10		
Dense brown fine gravelly coarse to fine SAND and silt		6		7			
		7			17		
Loose brown silty fine gravelly coarse to fine SAND		8		9			
		9			12		
		10					

URS

LOG OF BORING GP-5-1

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist BL/ft	Samples:	REMARKS
Loose brown silty fine gravelly coarse to fine SAND				13			
		11			11		
		12					
Loose brown silty fine gravelly coarse to fine SAND				12			
		13			8		
		14					
Becoming coarse to fine SAND with fine gravel				7			
		15			10		
		16					
Brown coarse to fine Sand with fine gravel				12			
		17			17		
		18					
Stiff to very stiff tan and red brown sandy to silty lean CLAY							
		19			35		
		20					
No Recovery				NR			
		21			12		
		22					
No Recovery				NR			Noted red brown clay on exterior of spoon
		23			20		
		24					

URS

LOG OF BORING GP-5-1

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist. BL/ft		REMARKS
Soft to stiff red brown lean CLAY				3			
		25			11		
		26					
Stiff red brown lean CLAY				24			
		27			11		
		28					
Soft becoming stiff red brown lean CLAY, becoming gray clayey SILT with depth				15			
		29			12		
		30					
Stiff red brown sandy clayey SILT				13			
		31			20		
End of Boring at 32'		32					
		33					
		34					
		35					
		36					
		37					
		38					

URS

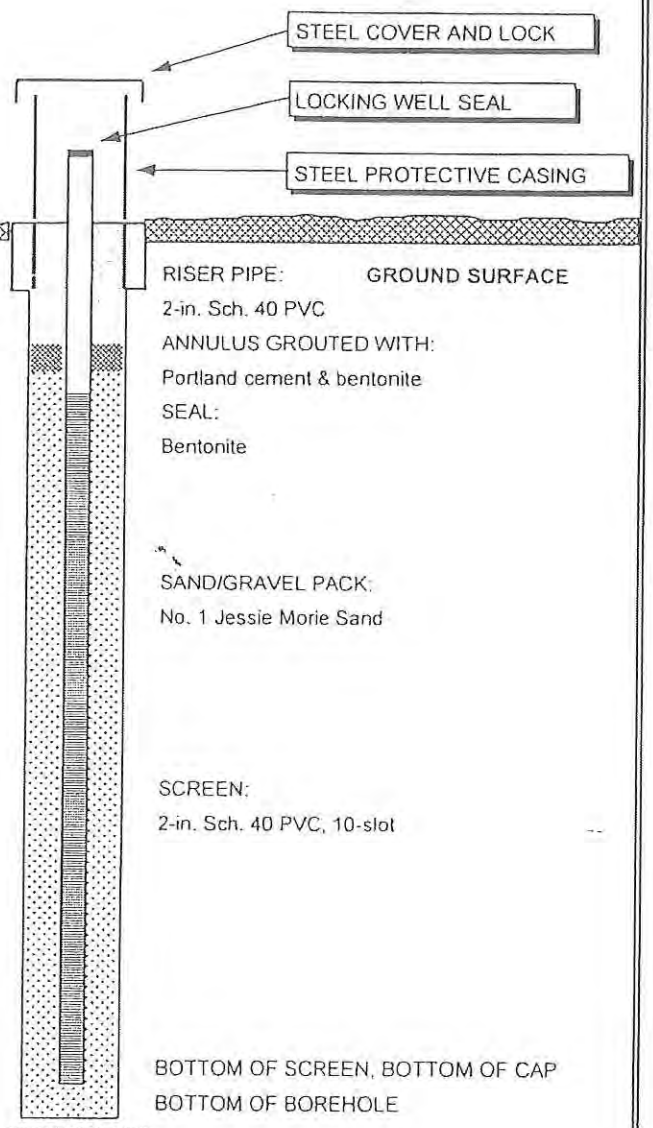
CONSTRUCTION OF WELL NO. GP-5-2

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062	*DNREC well permit No.* 171370-W	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.	*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 18.33 ft
Date and time of completion 4-19-00	*Northing* 621846	*Top of protective steel casing elevation* 22.04 ft
Inspector V. Trollo	*Easting* 4545999.8	*Top of riser pipe elevation* 21.32 ft

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP5-6

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A	22.04	
B	21.32	
C	18.33	0
D		
E	16.8	1.5
F	16.3	2.0
G	15.8	2.5
H	-4.2	22.5
I	-4.7	23.0



DIAMETER OF BOREHOLE: 8 in.

REMARKS (Installation, development):

4.25 inch ID Hollow Stem Auger

URS

LOG OF BORING GP-5-2

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 4/19/00	DATE COMPLETED: 4/19/00
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAneny	GROUND ELEVATION (FT MSL): 18.33	WATER DEPTH (FT BGS): 4.65
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 23	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS. DIST.: Cont.	UNDIST:
CASING HAMMER	WEIGHT: NA / DROP: NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-5-2, 65 feet east of layout	
SAMPLER HAMMER: WEIGHT: 140#	DROP: 30-in.	INSPECTOR: Vince Troilo	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist. BL/ft		REMARKS
Soft brown gravelly sandy CLAY		0		12			
		1			11		
Soft brown gravelly sandy clay with organics		2		6			
		3			14		
Soft brown clayey fine SAND with gravel		4		6			
		5			5		
Soft dark gray sandy LOAM with organics becoming light gray silty fine SAND		6		12			
		7			15		
Loose to medium dense silty fine SAND		8		9			
		9			14		
		10					

URS

LOG OF BORING GP-5-2

DESCRIPTION	Depth (FT BGS)	Samples Recov (in)	Samples Penetr Resist BL/ft	REMARKS
		11		
Medium dense silty, clayey, fine gravelly, coarse to fine SAND (wet)				
	11		17	
	12			
Medium dense gray-brown gravelly coarse to fine SAND (wet)		15		
	13		13	
	14			
Soft red-brown sandy lean CLAY		4		
	15		8	
	16			
No recovery		NR		Noted red brown lean clay on exterior of spoon
	17		10	
	18			
Soft red-brown lean CLAY		9		
	19		4	
	20			
Soft red-brown lean CLAY		4		
	21		4	
	22			
End of Boring at 23'	23			
	24			Augered to 23' and cleaned borehole

URS

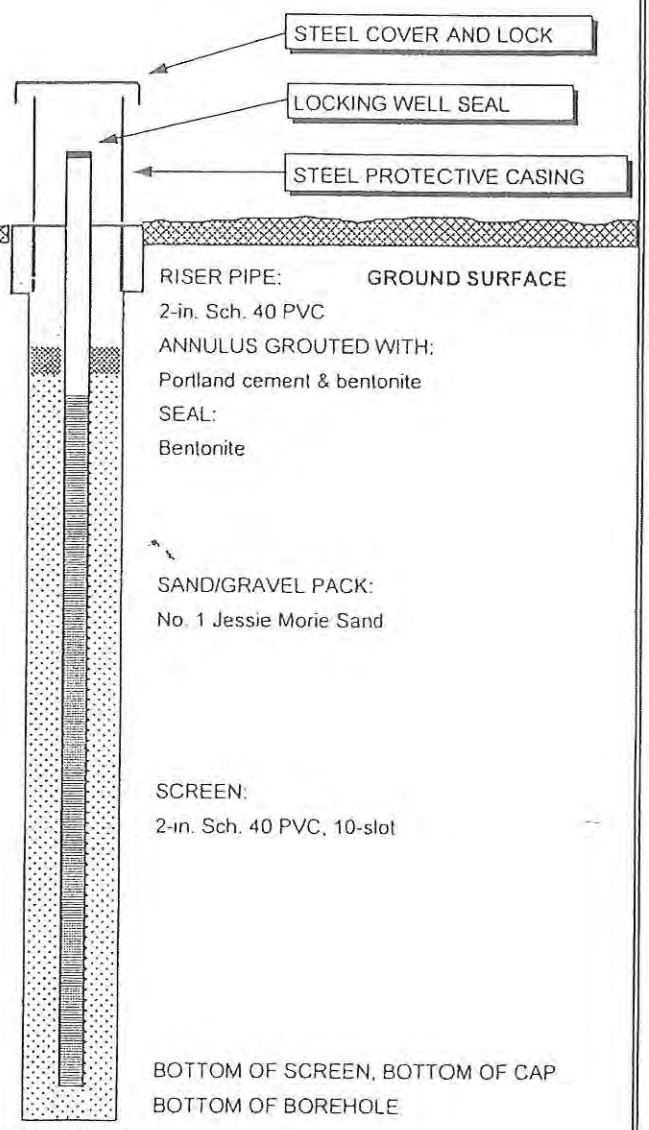
CONSTRUCTION OF WELL NO. GP-5-3

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062	*DNREC well permit No.* 171371-W	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.	*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 17.35 ft
Date and time of completion 4-19-00	*Northing* 622429.3	*Top of protective steel casing elevation* 20.66 ft
Inspector V. Troilo	*Easting* 454244.5	*Top of riser pipe elevation* 20.04 ft

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP5-6

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A	20.66	
B	20.04	
C	17.35	0
D		
E	15.9	1.5
F	15.4	2.0
G	14.9	2.5
H	-5.1	22.5
I	-5.6	23.0



RISER PIPE:
2-in. Sch. 40 PVC
ANNULUS GROUTED WITH:
Portland cement & bentonite
SEAL:
Bentonite

SAND/GRAVEL PACK:
No. 1 Jessie Morie Sand

SCREEN:
2-in. Sch. 40 PVC, 10-slot

BOTTOM OF SCREEN, BOTTOM OF CAP
BOTTOM OF BOREHOLE

DIAMETER OF BOREHOLE: 8 in.

REMARKS (Installation, development) :

4.25 inch ID Hollow Stem Auger

URS

LOG OF BORING GP-5-3

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 4/19/00	DATE COMPLETED: 4/19/00
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAneny	GROUND ELEVATION (FT. MSL): 17.35	WATER DEPTH (FT BGS): 10.3
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 23	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS: DIST: Cont. UNDIST:	
CASING HAMMER: WEIGHT: NA	DROP: NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-5-3	
SAMPLER HAMMER: WEIGHT: 140#	DROP: 30-in.	INSPECTOR: Vince Troilo	

DESCRIPTION	Sampling Interval	Depth (FT BGS)	Samples: Recov. (in)	Samples: Penetr. Resist. BL/ft	REMARKS
		0			
Red-brown sandy lean CLAY with gravel			12		
		1		8	
		2			
Red-brown sandy lean CLAY with gravel			6		
		3		9	
		4			
Red-brown sandy lean CLAY with gravel			18		
		5		11	
		6			
Stiff red-brown lean CLAY with fine gravel			7		
		7		13	
		8			
Red-brown sandy lean CLAY			6		
		9		14	
		10			

URS

LOG OF BORING GP-5-3

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples Recov. (in)	Samples Penetr. Resist. BL/ft		REMARKS
				6			
Stiff red-brown sandy lean CLAY with fine gravel		- -					
		- 11 -			16		
		- -					
		- 12 -					
Medium dense brown silty fine gravelly coarse to fine SAND (wet)				10			
		- -					
		- 13 -			26		
		- -					
		- 14 -					
Medium dense brown/orange-brown fine gravelly coarse to fine SAND (wet)				6			
		- -					
		- 15 -			24		
		- -					
		- 16 -					
Medium dense brown fine gravelly coarse to fine SAND (wet)				18			
		- -					
		- 17 -			25		
		- -					
		- 18 -					
Medium dense brown coarse to fine SAND becoming silty coarse to fine sandy CLAY / clayey SAND				22			
		- -					
		- 19 -			21		
		- -					
		- 20 -					
Brown silty, clayey, fine gravelly, coarse to fine SAND				6			
		- -					
		- 21 -			13		
		- -					
		- 22 -					
		- -					Augered to 23' for "sand pack" below screen.
End of Boring at 23'		- 23 -					
		- -					
		- 24 -					

URS

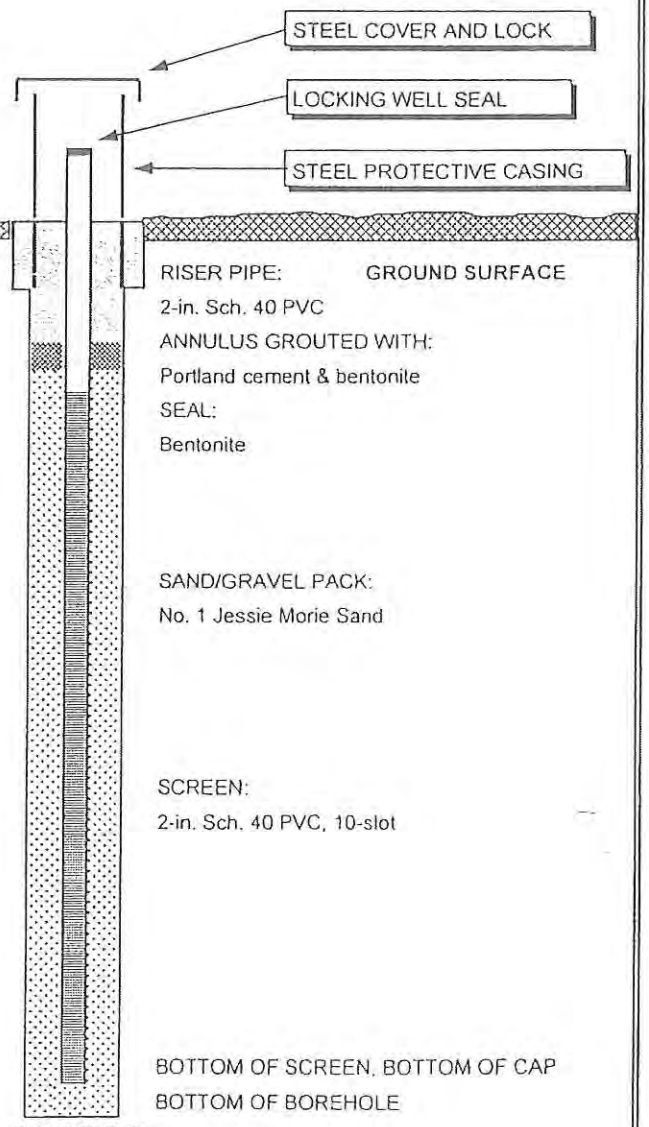
CONSTRUCTION OF WELL NO. GP-5-4

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062	*DNREC well permit No.* 171372-W	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.	*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 17.70 ft
Date and time of completion 4-19-00	*Northing* 622937	*Top of protective steel casing elevation* 21.42 ft
Inspector V. Troilo	*Easting* 454316.7	*Top of riser pipe elevation* 20.22 ft

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP5-6

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A	21.42	
B	20.22	
C	17.7	0
D		
E	16.2	1.5
F	15.7	2.0
G	15.2	2.5
H	-4.3	22.0
I	-4.3	22.0



DIAMETER OF BOREHOLE: 8 in.

REMARKS (Installation, development):

4.25 inch ID Hollow Stem Auger

URS

LOG OF BORING GP-5-4

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 4/19/00	DATE COMPLETED: 4/19/00
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAneny	GROUND ELEVATION (FT. MSL): 17.7	WATER DEPTH (FT BGS): 7.15
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 22	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS. DIST: Cont. UNDIST	
CASING HAMMER: WEIGHT: NA	DROP: NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-5-4	
SAMPLER HAMMER: WEIGHT: 140#	DROP: 30-in.	INSPECTOR: Vince Troilo	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist. BL/ft		REMARKS
		0					
Soft red-brown lean CLAY				6			
		1			3		
		2					
Medium stiff red-brown sandy silty CLAY with gravel				9			
		3			9		
		4					
Medium stiff red-brown sandy silty CLAY with gravel				18			
		5			12		
		6					
Stiff gray and red-brown sandy lean CLAY				6			
		7	▽		21		
		8					
Stiff red and brown sandy lean CLAY				9			
		9			17		
		10					

URS

LOG OF BORING GP-5-4

DESCRIPTION	Sample Interval	Depth (FT BGS)	Samples Recov (in)	Samples Penetr. Resist. BL/ft		REMARKS
			15			
Stiff red and brown sandy lean CLAY						
		11		15		
		12				
Very stiff red-brown silty CLAY with sand			12			
		13		24		
		14				
Stiff light gray/gray fine sandy SILT to silty SAND			9			
		15		16		
		16				
Stiff light gray/gray fine sandy SILT to silty SAND			12			
		17		18		
		18				
Soft gray and red-brown sandy, silty CLAY / clayey SILT with gravel			10			
		19		10		
		20				
Medium dense gray coarse to fine GRAVEL and coarse to fine SAND			9			
		21		12		
		22				
End of Boring at 22'						
		23				
		24				

URS Greiner Woodward Clyde

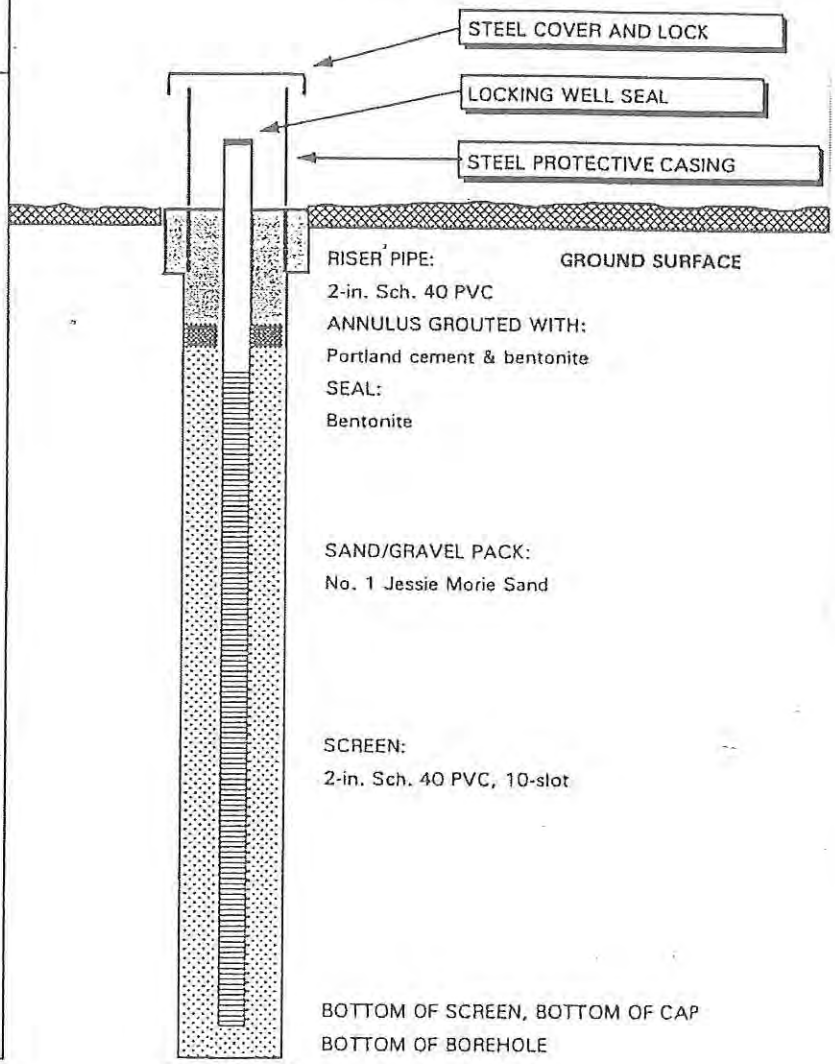
CONSTRUCTION OF WELL NO. GP5-5

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062	*DNREC well permit No.* 162033	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.	*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 18.0 ft
Date and time of completion 12-11-98	*Northing* 623495.3	*Top of protective steel casing elevation* NA
Inspector G. Riehle	*Easting* 454387.9	*Top of riser pipe elevation* 20.70 ft

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP5-5

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A		
B	20.7	
C	18.0	0
D	16.0	2.0
E	16.0	2.0
F	15.5	2.5
G	15.0	3.0
H	-5.0	23.0
I	-6.0	24.0



STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
PROFESSIONAL GEOLOGIST

REMARKS (Installation, development) :

4.25 inch ID Hollow Stem Auger

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URS Greiner Woodward Clyde

LOG OF BORING GP5-5

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 12/11/98	DATE COMPLETED: 12/11/98
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAneny	GROUND ELEVATION (FT. MSL): 18	WATER DEPTH (FT BGS): 20
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 24'	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS: DIST. Cont.	UNDIST NA
CASING HAMMER: WEIGHT NA	DROP NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-5-5	
SAMPLER HAMMER: WEIGHT 140#	DROP 30-in.	INSPECTOR: Gary Riehle	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in		REMARKS
		- 0 -					
Loose; moist-dry; brown silty fine-coarse SAND with little-some fine-coarse gravel - embankment fill				12			
		- 1 -			3		
2-2.5': Loose; moist-dry; brown silty fine-coarse SAND with little-some fine-coarse gravel - embankment fill 2.5-4': Red light gray and orange-brown and gray interseamed CLAY, silty clay and thin seamed silty fine-medium SAND (CH,ML,SP) - reworked embankment fill		- 2 -		16			
		- 3 -			11		
Stiff; moist-dry; gray and red CLAY medium plasticity (CL) with few thin seams of orange brown fine-coarse sand, trace fine rounded gravel throughout - embankment fill		- 4 -		16			
		- 5 -			11		
Stiff; dry; red with light gray seamed CLAY - medium plasticity - (CL) with very few .125" thin seamed orange silty fine-medium sand		- 6 -		16			
		- 7 -			13		
Stiff; dry; interseamed red, white, light gray CLAY with little silt, fine-coarse sand and fine rounded gravel - low plasticity (CL)		- 8 -		16			
		- 9 -			16		
		- 10 -					

STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

URS Greiner Woodward Clyde

LOG OF BORING GP5-5

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples Recov. (in)	Samples Penetr. Resist. BL/12in		REMARKS
10-11.5': Same as above				16			
		11			10		
11.5-12': Grading to tan grayish brown SILT with little-some fine sand and trace clay; dry becoming moist (SM)							
		12					
12-12.3': Same as above				18			
12.3-14': Medium dense; moist; gray to grayish brown SILT with trace clay grad to silty fine sand; @ 12.5', thin blackened decayed organic zone (1") (ML-SP)		13			11		
		14					
Loose; dry; orange-brown and light gray interseamed SILT, silt with trace clay, and silty fine-coarse SAND (ML-SM)				20			
		15			10		
		16					
Medium dense; moist-wet; grayish-brown with thin orange brown seams, micaceous SILT (ML)				18			
		17			17		
		18					
Same as above with trace fine sand.				20			
		19			22		
		20					
Loose; wet; gray micaceous SILT (ML)				22			
		21			10		
		22					
Loose; wet; gray micaceous interseamed silty fine SAND and fine to medium SAND with little c. sand (SM-SP)				22			
		23			11		
End of Boring @ 24'		24					

URS Greiner Woodward Clyde

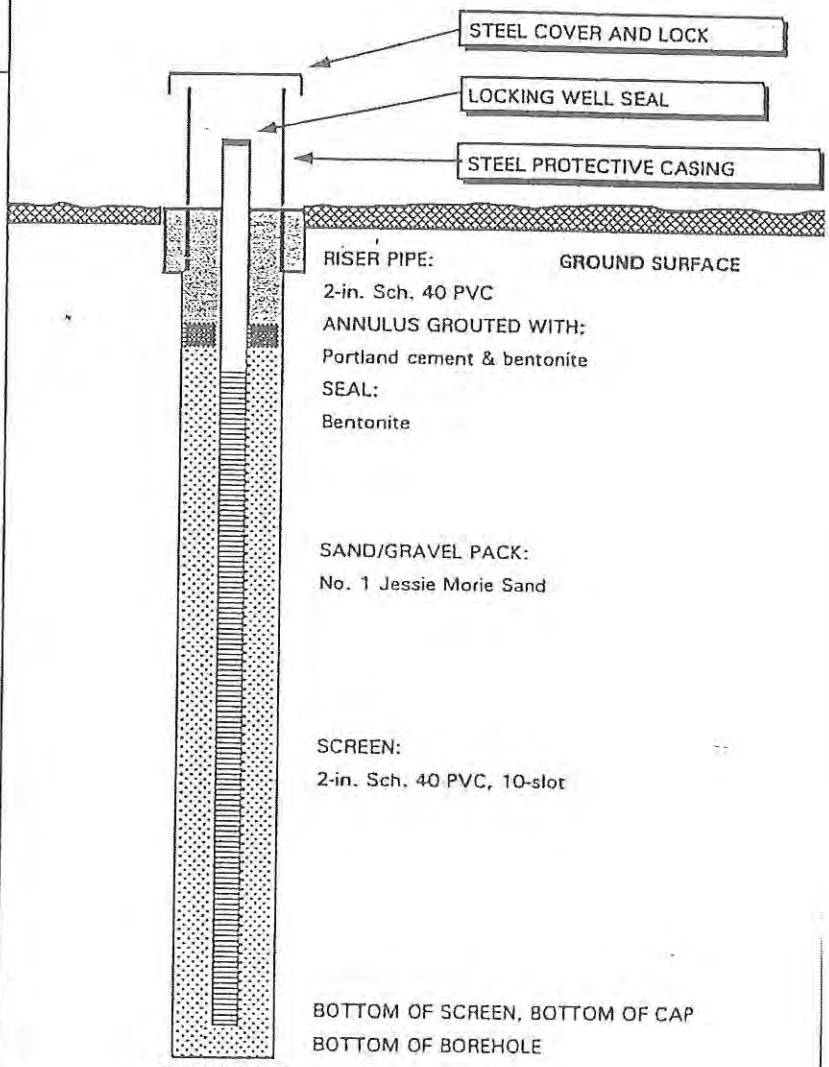
CONSTRUCTION OF WELL NO. GP5-6

Project name and number Delaware Recyclable Products, Inc.(DRPI) - 8E02062		*DNREC well permit No.* 162035	*Elevation datum* See Key
Drilling company Craig Test Boring Co., Inc.		*Surveyor* VanDemark & Lynch, Inc.	*Ground elevation* 17.7 ft
Date and time of completion 12-11-98		*Northing* 624015.1	*Top of protective steel casing elevation* NA
Inspector G. Riehle		*Easting* 454461.2	*Top of riser pipe elevation* 20.59 ft

KEY	ELEVATIONS (Based on National Geodetic Vertical Datum, 1929)	DEPTHS (ft below ground, not to scale)
A		
B	20.59	
C	17.7	0
D	15.7	2.0
E	15.7	2.0
F	15.2	2.5
G	14.7	3.0
H	-5.3	23.0
I	-6.3	24.0

A = Top of Casing
B = Top of Riser
C = Ground Surface
D = Bottom of Larger Diameter Borehole
E = Top of Bentonite Seal
F = Top of Sand Pack
G = Top of Screen
H = Bottom of Screen
I = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION
See Log of Boring GP5-6



RISER PIPE:
2-in. Sch. 40 PVC

ANNULUS GROUTED WITH:
Portland cement & bentonite

SEAL:
Bentonite

SAND/GRAVEL PACK:
No. 1 Jessie Morie Sand

SCREEN:
2-in. Sch. 40 PVC, 10-slot

BOTTOM OF SCREEN, BOTTOM OF CAP
BOTTOM OF BOREHOLE

DIAMETER OF BOREHOLE: 8 in.

STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

REMARKS (Installation, development) :

4.25 inch ID Hollow Stem Auger

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URS Greiner Woodward Clyde

LOG OF BORING GP5-6

PROJECT NAME/NUMBER: Delaware Recyclable Products, Inc (DRPI)-8E02062		DATE STARTED: 12/11/98	DATE COMPLETED: 12/11/98
DRILLING CONTRACTOR: Craig Test Boring Co., Inc.	FOREMAN: Gary McAneny	GROUND ELEVATION (FT. MSL): 17.7	WATER DEPTH (FT BGS): 20
DRILLING EQUIPMENT: Hollow Stem Auger		COMPLETION DEPTH (FT BGS): 24'	ROCK DEPTH (FT BGS): NA
TYPE BIT: NA	SIZE AND TYPE CORE BARREL: NA	COMPLETION METHOD: 4.25-inch ID HSA	
CASING: NA		SOIL SMPLS: DIST. Cont	UNDIST NA
CASING HAMMER: WEIGHT NA	DROP NA		
SAMPLER: 2-inch Standard Split-Spoon		BORING LOCATION: GP-5-6	
SAMPLER HAMMER: WEIGHT 140#	DROP 30-in.	INSPECTOR: Gary Riehle	

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Level	Samples: Recov. (in)	Samples: Penetr. Resist. BL/12in		REMARKS
		- 0 -					
Loose; dry; red clay and brown silty fine-coarse SAND with little fine-coarse gravel - embankment fill				8			
		- 1 -			5		
Stiff; red with white seamed CLAY, red and white fine sand and brown silty fine-coarse SAND with little fine gravel - reworked embankment fill		- 2 -		14			
		- 3 -			14		
Loose; dry; brown-reddish brown silty fine-medium SAND with trace clay throughout and trace fine gravel - reworked embankment fill		- 4 -		12			
		- 5 -			8		
6-7': Stiff; dry; red with light brown seams CLAY with trace-little silt; medium plasticity (CH)		- 6 -		14			
7-8': Brown-light brown SILT with some-little fine-coarse sand and trace fine gravel (ML) - fill		- 7 -			14		
8-9.5': Same as above.		- 8 -		12			
		- 9 -			16		
9.5-10': red with white seams CLAY; medium plasticity (CH)		- 10 -					

STATE OF DELAWARE
GARY M. RIEHLE
REG. NO. 910
REGISTERED PROFESSIONAL GEOLOGIST

URS Greiner Woodward Clyde

LOG OF BORING GP5-6

DESCRIPTION	Sample Interval	Depth (FT BGS)	Water Table	Samples Recov. (in)	Samples Penetr. Resist. BL/12in		REMARKS
Medium dense; dry; light brown SILT with little-trace fine-coarse sand, trace fine rounded gravel and trace clay (ML)				16			
		11			14		
		12					
Medium dense; dry; orange brown to dark orange brown SILT with little fine sand grading to SILT with little-some fine-coarse sand and trace fine gravel (ML-SM)				14			
		13			17		
		14					
Loose; dry-moist; orange-brown silty fine-coarse SAND with little fine gravel - areas with trace clay				10			
		15			6		
		16					
Loose; moist-wet; orange-brown SILT with thin seams silty fine-coarse sand and few thin seams of gray micaceous silt (ML-SM)				18			
		17			6		
		18					
Loose; moist; dark gray micaceous oranic rich SILT with trace-little clay (MH)				20			
		19			8		
		20					
Loose; wet; gray-light gray interseamed SILT and silty fine-coarse SAND (ML-SM)				18			
		21			8		
		22					
Medium dense; wet; gray light gray silty fine-coarse SAND with				20			
Medium dense; wet; gray light gray silty fine-coarse SAND with							
		23			18		
End of Boring @ 24'		24					

ATTACHMENT 2

CURRENT FIELD SAMPLING FORMS

WASTE MANAGEMENT

DRPI INDUSTRIAL WASTE LANDFILL

ENVIRONMENTAL MONITORING SAMPLING DATA SUMMARY

DATE:		WEATHER:	
SAMPLED BY:		SITE CONDITIONS:	
SAMPLER'S AFFILIATION:		REASON FOR SAMPLING:	

SAMPLE POINT	TIME	DEPTH TO WATER (ft)	REF. POINT	#of BORE VOL. PURGED	SAMPLING METHOD	pH	Temp (°C)	D.O. mg/l	Salinity (%)	ORP (mV)	TURB (ntu)	SPEC. COND. (µmhos/cm)	Comments

Taylor GeoServices, Inc.
38 Bishop Hollow Road, Newtown Square, PA 19073 • Phone: 610-325-5570 • Fax: 610-325-5590

WASTE MANAGEMENT

DRPI INDUSTRIAL WASTE LANDFILL

ENVIRONMENTAL MONITORING
MONITORING WELL PURGE DATA SHEET

Date:		**Purged by:**	
Well I.D.:		**Initial time:**	
Initial S.W.L. (ft):		**Weather:**	
Well Depth (ft):		**Site conditions:**	
Msmt. ref. pt.:		**Pump Setting (ft):**	

BORE VOLUME CALCULATIONS		
Height of water column:	*A) Total depth - static water level =*	ft.
Volume of water in 1 bore volume:	*(2-inch well = 0.1632) B) "A" x gal/linear ft =*	gal.
Volume of water in 3 bore volumes:	*C) "B" x 3 =*	gal.

TIME	DEPTH TO WATER (ft)	pH	TEMP (°C)	SPEC. COND. (µS/cm)	D.O. (mg/L)	SALINITY (%)	ORP (mV)	Q (gpm)	COMMENTS

Taylor GeoServices, Inc.
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WASTE MANAGEMENT

DRPI INDUSTRIAL WASTE LANDFILL

ENVIRONMENTAL MONITORING
MONITORING WELL CONDITION REPORT

Date:		**Well ID:**	
Weather Conditions			
Location Access Conditions			

Inspection Item	Reply	Notes
Is well identification sufficient?	yes no N/A	
Is there evidence that the well has recently been painted or upgraded?	yes no N/A	
Is locking mechanism in good condition and does the key work properly? (Is the well locked?)	yes no N/A	
Is the condition surrounding the well in acceptable condition? (vicinity of well clear of weeds and debris)	yes no N/A	
Is the protective outer casing in acceptable condition? (Is outer well cap and locking hasp is good condition?)	yes no N/A	
Is the condition of the concrete footing acceptable(i.e. cracked, raised, water in annular space, etc.)?	yes no N/A	
Is the well "guard-post" in acceptable condition?	yes no N/A	
Does the inner well cap fit properly?	yes no N/A	
Is there evidence of grease around the top of the well or on threaded type caps?	yes no N/A	
Are there any obstructions or kinks in the inner well casing?	yes no N/A	
Are the dedicated pump(s) in acceptable condition?	yes no N/A	
Is there any evidence of animal or insect contamination at well head?	yes no N/A	

Taylor GeoServices, Inc.
38 Bishop Hollow Road, Newtown Square, PA 19073 • Phone: 610-325-5570 • Fax: 610-325-5590

ATTACHMENT 3

STORM WATER MONITORING PROCEDURES

STORMWATER MONITORING PROCEDURES
(JUNE 2009)

Two stormwater outfalls exist at the Delaware Recyclable Products, Inc. Landfill (DRPI) located in New Castle Delaware. These Outfalls are identified as Numbers 001 and 002 as described below and indicated on Figure 1.

Outfall Numbers:	001 and 002
Outfall Type:	001: Outlet for the East Sediment Basin, Located in the northeast corner of the facility.
	002: Outlet for the West Sediment Basin, located in the northwest corner of the facility
Sampling Locations:	At the location where discharge flows form the downstream ends of the sediment basin culvert outlets.

Two types of monitoring are to be conducted at each outfall:

1) Quarterly visual examination of the stormwater discharge at each outfall.
2) Semi-annual analytical monitoring.

QUARTERLY VISUAL EXAMINATION

Stormwater discharge shall be visually monitored four times per year in accordance with the procedures outlined herein. Visual examinations provide a simple and inexpensive means of obtaining a rough assessment of stormwater quality. Visual examinations are required during each of the four calendar quarters; First Quarter (January through March), Second Quarter (April through June), Third Quarter (July through September) and Fourth Quarter (October through December).

Each visual examination is to be performed by a person designated by the facility operator, who must examine a sample collected in the first half hour of a discharge (or as soon thereafter as practical, but not to exceed on hour) and note color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen and any other indicators of possible water pollution. To the extent practical, the visual examination should be made by the same person each quarter.

The following procedures should be followed in collecting stormwater samples for quarterly visual examination:

Sampling Supplies

- Sample collection container (i.e., clean clear glass jar)
- Stormwater Monitoring Report Form – Visual Examination

During sample collection, the following information is collected and included in the *Sampling Information* section of the SMR:

- Sampling Location (Outfall Number)
- Date and time of sample collection
- Name and title of person collecting the sample
- Date and time of start of rainfall
- Storm magnitude (total amount of rain during the sampled storm event, in inches, measured with a rain gauge)
- Date of previous storm event (must be at least 72 hours previous)

Grab Sample

- Collect a jar full of the discharge stormwater to use to fill the sample containers.
- Fill, label and refrigerate the bottles.
- Visually estimate rate of flow rate

Shipping Samples to Laboratory

- Pack all sample bottles in cooler
- Fill cooler with cold packs or ice in plastic bag
- Close and seal cooler securely
- Ship sample cooler via overnight delivery to laboratory for next day delivery

Sample Analysis

Per the facility solid waste permit (Section IV.A.3), the semi-annual stormwater samples are to be analyzed in the field for the following chemical parameters:

Field Parameters: Temperature, pH, Specific Conductance and Turbidity

Additionally, the samples are also to be analyzed in the laboratory for the following chemical parameters:

Laboratory Parameters:

Ammonia	pH
Manganese	Copper
Biological Oxygen Demand	Iron
Chemical Oxygen Demand	Lead
Total Petroleum Hydro Carbons (TPH)	Selenium
Total Suspended Solids	Mercury
Arsenic	Zinc

REPORTING

The analytical laboratory test results from each stormwater sampling event will be submitted to the Solid and Hazardous Waste Management Branch (SHWMB) of DNREC as part of the respective April and October Semi-Annual Environmental Monitoring Reports.

- If a large amount of settled solids is observed, erosion and sediment controls should be examined; and
- If a cloudy sample that is very slow to settle out is observed, inspect the drainage are for fine particulate matter such as ash or powders.

When conducting the visual examination and indications of pollution are observed, evaluate whether or not additional Best Management Practices (BMPs) should be implemented or if those BMPs which have been implemented are functioning properly.

SEMI-ANNUAL ANALYTICAL MONITORING

Stormwater discharge shall be sampled two times per year for analytical testing in accordance with the procedures outlined herein. Allow for between 120 and 180 days between sample intervals.

The following procedures should be followed in collecting stormwater for semi-annual analytical monitoring.

Sampling Supplies

- Sample collection container (i.e., clean clear glass jar)
- Stormwater Monitoring Summary Report Form – Analytical Monitoring
- Supplies shipped to site from laboratory to include:
  - Sample bottles
  - Cooler
  - Labels
  - Chain of custody

Sample Collection

Samples must be collected at each location shown on the site plan.

- The outfalls will be sampled twice a year annually
- Grab samples at each location (Outfall 001 & 002) will be collected within the first thirty (30) minutes of a storm event.
- When feasible, the rainfall during the first thirty (30) minutes of a storm event should be at least 0.1 inches. The rainfall event must be proceeded by 72 hours without measurable rain (no rains greater than o.1 inches)
- Allow for 120 to 180 days form the last sample
- Sampling and analysis must be conducted according to test procedures approved under 40 C.F.R. part 136, or alternative method approved by the DNREC for this purpose.

The Storm Water Monitoring Report Form (SMR) included, will be used to record the necessary information for the storm event monitored.

DELAWARE RECYCLABLE PRODUCTS, INC.
NEW CASTLE, DELAWARE
STORMWATER MONITORING REPORT FORM
QUARTERLY VISUAL EXAMINATION

Outfall Number: _____

Date Samples Collected/Time: _____

Samples Collected By: _____

Date of Visual Examination: _____

Visual Examination Performed By: _____

Estimate of Rainfall Event Tested (inches): _____

Storm Duration (hours) Time Start/Stop: _____

Time since last storm of 0.1-in or greater (days or hours): _____

Estimate average flow rate (gal/min): _____

Sample Observations

Color _____ Odor _____

Clarity _____ Sheen _____

Foam _____

Solids (Floating/ Settled/ Suspended) _____

_____

Other Observations: _____

_____

Examination Follow-up

If there are observed signs of pollution, results of facility inspection:

_____

Recommendations for corrective actions/implementations of BMPs:

_____